

Sampson Duplin Regional Hazard Mitigation Plan

Sampson County, Duplin County

Prepared by:

Sampson Duplin Regional Hazard Mitigation Planning Committee

With Professional Planning Assistance from

AECOM

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SECTION 1: INTRODUCTION

Section 1 introduces the Sampson-Duplin 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 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. Government assistance only partially reflects the true cost of disasters because tax dollars are not used to reimburse additional expenses incurred by insurance companies and non-governmental organizations. Many natural disasters are predictable, and much of the damage they cause can be reduced or even eliminated.

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

This Plan was prepared in coordination with FEMA Region IV and the North Carolina Division of Emergency Management (NCEM) to ensure compliance with all applicable DMA 2000 planning requirements. A Local Mitigation Plan Review Tool, found in Appendix J, 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 by which hazards are identified, likely impacts are determined, mitigation goals are set, and appropriate mitigation strategies are identified, prioritized, and implemented.

The purpose of this plan is to identify, assess, and mitigate risk to better protect the people and property of the Sampson-Duplin 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, PDM, and FMA programs.

1.3 Scope

This document comprises a Hazard Mitigation Plan Update for Sampson and Duplin Counties in North Carolina. The jurisdictions participating in this plan are All the municipalities within these two counties are also participants in this plan, including Clinton, Autryville, Garland, Harrells, Newton Grove, Roseboro, Salemburg, Turkey, Beulaville, Calypso, Faison, Greenevers, Kenansville, Magnolia, Rose Hill, Teachey, Wallace, and Warsaw.

***Table 1-1**: Jurisdictions Participating in the Sampson-Duplin Regional Hazard Mitigation Plan (Update)*

Sampson County	Duplin County
Town of Autryville	Town of Beulaville
City of Clinton	Town of Calypso
Town of Garland	Town of Faison
Town of Harrells	Town of Greenevers
Town of Newton Grove	Town of Kenansville
Town of Roseboro	Town of Magnolia
Town of Salemburg	Town of Rose Hill
Town of Turkey	Town of Teachey
	Town of Wallace
	Town of Warsaw

1.4 Authority

Sampson and Duplin Counties will adopt this Hazard Mitigation Plan Update 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). The participating municipalities will adopt this Hazard Mitigation Plan 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 Code of Federal Regulations (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 Planning Handbook, March 2013. The Handbook was used together with the Local Mitigation Plan Review Guide, October 2011. 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 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 – Capability Assessment
- Section 7 – Mitigation Strategy
- Section 8 – Mitigation Action Plan
- Section 9 – Plan Maintenance

SECTION 2: PLANNING PROCESS

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

- **2.1 Overview of Hazard Mitigation Planning**
- **2.2 History of Hazard Mitigation Planning in the Sampson-Duplin Region**
- **2.3 Preparing the Plan**
- **2.4 Hazard Mitigation Planning 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 determining how best to minimize or manage them. This process culminates in a hazard mitigation plan that identifies specific mitigation actions, each designed to achieve both short-term planning objectives and a long-term community vision.

To ensure the functionality of a hazard mitigation plan, responsibility for each proposed mitigation action is assigned to a specific individual, department, or agency, along with a schedule or target completion date for its implementation (see Section 9: *Plan Maintenance*). Plan maintenance procedures are established to monitor implementation progress and to routinely evaluate and enhance the mitigation plan. These plan maintenance procedures ensure that the *Plan* remains a current, dynamic, and effective planning document over time and 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.

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

The benefits of mitigation planning go beyond solely reducing hazard vulnerability. Mitigation measures, such as the acquisition or regulation of land in known hazard areas, can help achieve multiple community goals, including preserving open space, maintaining environmental health, and enhancing recreational opportunities. Thus, it is vitally important that any local mitigation planning process be integrated with concurrent local planning efforts, and that any proposed mitigation strategies consider existing community goals or initiatives that may complement or hinder their future implementation.

2.2 History of Hazard Mitigation Planning in the Sampson-Duplin Region

Each of the twenty participating jurisdictions had a previously adopted hazard mitigation plan.

- Duplin County
  - Beulaville
  - Calypso
  - Faison
  - Greenevers
  - Kenansville
  - Magnolia
  - Rose Hill
  - Teachey
  - Wallace
  - Warsaw
- Sampson County
  - Autryville
  - Clinton
  - Garland
  - Harrells
  - Newton Grove
  - Roseboro
  - Salemburg
  - Turkey

The *Plan* was developed using the multi-jurisdictional planning process recommended by the Federal Emergency Management Agency (FEMA).

2.3 Preparing the Plan

Hazard mitigation plans must be updated every five years to remain eligible for federal mitigation funding. To simplify planning efforts, the jurisdictions in Sampson and Duplin

Counties joined to create the Regional Hazard Mitigation Plan. This allows resources to be shared among the participating jurisdictions and eases the administrative burden on all participants.

To prepare the *Plan*, a team led by the consulting firm AECOM was hired to provide professional mitigation planning services. The Region ensured that a professional and experienced planner facilitated the planning process. Kelly Keefe from AECOM served as the lead planner for this project.

Per the contractual scope of work, the consultant team followed the mitigation planning process recommended by FEMA (Publication Series 386[1] and Local Mitigation Plan Review Guide[2]) and recommendations provided by the North Carolina Division of Emergency Management (NCEM) mitigation planning staff. The Local Mitigation Plan Review Tool, found in Appendix J, provides a detailed summary of FEMA's current minimum standards of acceptability for compliance with the Disaster Mitigation Act of 2000 (DMA 2000) and notes the location where each requirement is met within this Plan. These standards are based on FEMA's Final Rule, as published in the Federal Register, in Part 201 of the Code of Federal Regulations (CFR).[3] The Planning Committee used FEMA's Local Mitigation Plan Review Guide (October 2011)[2] as a reference while completing the *Plan*.

Key elements from the previously approved plan are referenced throughout the document (e.g., existing actions) and require a discussion of changes made. For example, all the Risk Assessment, Section 5, elements needed to be updated to include the most recent information. It was also necessary to review the Region's goals. The Capability Assessment, Section 6, contains updated information for all participating jurisdictions, and the Mitigation Action Plan provides implementation status updates for all actions identified in the previous plans.

The process used to prepare this Plan included 12 major steps completed over about 12 months, beginning in July 2025. Each of these planning steps (illustrated in Figure 2-1) produced critical work products and outcomes that, together, make up the *Plan*. Specific plan sections are further described in Section 1: *Introduction*.

[1] Federal Emergency Management Agency (2002). State and Local Mitigation Planning How-To Series.
[2] Federal Emergency Management Agency (2011). *Local Mitigation Plan Review Guide*.
[3] Mitigation Planning. Code of Federal Regulations. Title 44. Part 201.

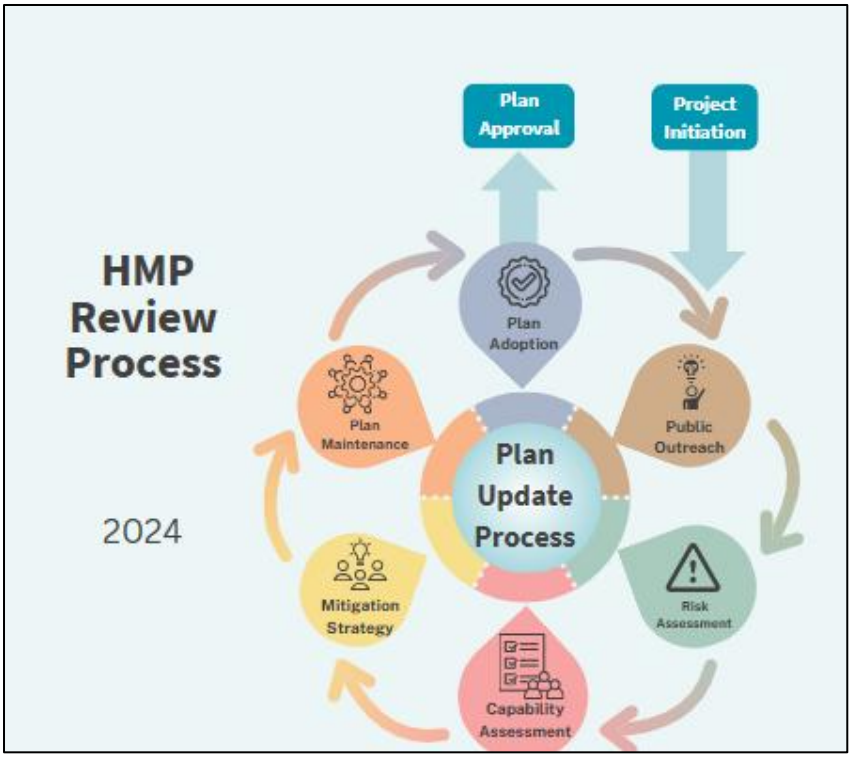


***Figure 2-1**: Mitigation Planning Process*

Over the past five years, each participating jurisdiction has been actively working to implement the existing *Plan*. This is documented in the *Mitigation Action Plan* through implementation status updates for each Mitigation Action. The *Capability Assessment* also documents changes and improvements in each participating jurisdiction's capabilities to implement the *Mitigation Strategy*.

Further detailed below, the planning process was conducted through Hazard Mitigation Planning Committee (HMPC) meetings, comprising local government staff from each participating jurisdiction and advisory stakeholders.

Throughout the planning process, all jurisdictions were invited to participate through email invitations to designated representatives and HMPC members listed in Table 2-2 to virtual, in-person, and hybrid HMPC meetings described below. All jurisdictions in Table 2-2 and Table 2-1 and in the planning area, were invited by email and contributed to the plan update process by attending scheduled meetings, and were involved in the planning process by engaging and actively participating in the development of the plan. For individuals who preferred one-on-one communication, the representative of the participating jurisdictions provided input and edits to the plan content. One-on-one communications via email and virtual meetings between Committee members and AECOM planners were arranged, referred to as Alternate Participation throughout this plan. Alternate Participation was the preferred method of participation in the planning process for the jurisdictions indicated in Table 2-1 and where otherwise indicated throughout the plan.

Table 2-1: Sampson-Duplin Hazard Mitigation Planning Participation Details

Jurisdiction	Meeting Attendance	Capabilities Assessment Update	Mitigation Actions Update	Alternate Participation
Duplin County	**Yes**	**Yes**	**Yes**	**-**
Beulaville	Yes	Yes	Yes	-
Calypso	Yes	Yes	Unchanged	-
Faison	Yes	Yes	Yes	-
Greenevers	Yes	Yes	Unchanged	-
Kenansville	Yes	Unchanged	Unchanged	-
Magnolia	Yes	Unchanged	Unchanged	-
Rose Hill	Yes	Yes	Yes	-
Teachey	No	Yes	Unchanged	Participation through capabilities assessment updates and by providing NFIP Compliance Information
Wallace	Yes	Yes	Yes	-
Warsaw	Yes	Yes	Yes	-
Sampson County	**Yes**	**Yes**	**Yes**	**-**
Autryville	Yes	Yes	Yes	-
Clinton	Yes	Yes	Yes	-
Garland	Yes	Yes	Yes	-
Harrells	Yes	Yes	Yes	-
Newton Grove	Yes	Yes	Yes	-
Roseboro	Yes	Yes	Yes	-
Salemburg	Yes	Yes	Yes	-
Turkey	Yes	Yes	Yes	-

2.4 Hazard Mitigation Planning Committee

To guide the development of this *Plan*, Sampson and Duplin Counties, along with their jurisdictions, created the Hazard Mitigation Planning Committee (HMPC). The HMPC represents a community-based planning group composed of representatives from various County and municipal departments, as well as other key stakeholders identified as critical partners in the planning process.

Beginning in July 2025, HMPC members engaged in regular discussions, local meetings, and planning workshops to discuss and complete tasks related to preparing the Plan. This working group coordinated all aspects of plan preparation and provided valuable input to the process. In

addition to regular meetings, team members routinely communicated and were kept informed through an e-mail distribution list.

Specifically, the tasks assigned to the HMPC members included:

- Participating in HMPC meetings and workshops
- Provide the 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* and provide copies of any mitigation or hazard-related documents for review and incorporation into the *Plan*
- Support the development of the *Mitigation Strategy*, including the design and adoption of Countywide goal statements
- Help design and propose appropriate mitigation actions for their department/agency for incorporation into the *Mitigation Action Plan*
- Review and provide timely comments on all study findings and draft plan deliverables
- Support the adoption of the *Plan*.

The table below lists the members of the Planning Committee who were responsible for participating in the development of the *Plan*.

Table 2-2: *Members of the Mitigation Planning Committee with County Leads indicated in Bold*

Sampson-Duplin Regional Hazard Mitigation Planning Committee		
Name	**Title**	**Jurisdiction/Agency**
Rick Sauer	**Director of Emergency Services**	**Sampson County**
Dawson McLamb	Emergency Management Coordinator	Sampson County
Jean Ko	PIO	Sampson County
Mark Turlington	Public Works Director	Sampson County
Grayson Spell	Mayor	Autryville
Lisa Jones	Town Clerk	Autryville
Lew Starling	Mayor	Clinton
JP Duncan	City Manager	Clinton
Robert Lyle Moore Jr.	Senior Planner	Clinton
Andrew Mitchell	Boykin Lakes Homeowners Association President	Clinton
Austin Brown	Mayor	Garland
Kim Johnson	Mayor	Harrells
Cindy Ezzell	Town Clerk	Harrells
Craig Warren	Mayor	Newton Grove
Amanda Bradshaw	Town Clerk	Newton Grove
Alice Butler	Mayor	Roseboro
Janet Dunn	Town Clerk	Roseboro
Joseph Warren	Mayor	Salemburg
Teresa Smith	Town Clerk	Salemburg
Annette Ricketson	Town Clerk/Finance Officer	Salemburg

Sampson-Duplin Regional Hazard Mitigation Planning Committee		
Name	**Title**	**Jurisdiction/Agency**
Rudy Blackburn	Mayor	Turkey
Teresa Frack	Town Clerk	Turkey
Matthew Barwick	**Director of Emergency Management**	**Duplin County**
Brian Matthis	Emergency Management Planner	Duplin County
Lori Williams	Town Manager	Beulaville
Lisa Tyndall	Commissioner	Calypso
Joanne Wilson	Mayor	Calypso
Jimmy Tyndall	Executive Administrator	Faison
Emma Brinson	Town Administrator/Clerk	Greenevers
Anna West	Town Manager	Kenansville
Vickie Deaver	Finance	Kenansville
Charles Banks	Town Administrator	Magnolia
Angela Smith	Town Administrator	Rose Hill
Morgan Jacobs	Town Clerk	Teachey
Robert Taylor	Town Manager	Wallace
Lea Turner	Town Manager	Warsaw

Table 2-2 lists points of contact for municipalities that elected to designate their respective County officials to represent their jurisdiction on the Planning Committee, generally because they did not have the time or staff to be able to attend on their own. Moreover, County officials noted early in the planning process that it would be much more effective to engage the smaller municipalities throughout the Region through municipal-level meetings. Although these representatives were not present at all meetings, each was involved throughout the planning process and contributed suggestions and comments on the plan via municipal-level review meetings, email, and phone conversations.

2.4.1 Multi-Jurisdictional Participation

The *Plan* includes Sampson and Duplin Counties and their 18 incorporated municipalities. To satisfy multi-jurisdictional participation requirements, the Counties and their participating jurisdictions were required to perform the following tasks:

- Participating in mitigation planning workshops
- Identify completed mitigation projects, if applicable
- Develop and adopt (or update) their local *Mitigation Action Plan*

Each jurisdiction participated in the planning process and has developed a local *Mitigation Action Plan* unique to its jurisdiction. Each jurisdiction will adopt the Plan, including the individual Mitigation Action Plan, which provides a means for jurisdictions to monitor and update the Plan regularly.

2.5 Community Meetings and Workshops

The preparation of this Plan required a series of meetings and workshops to facilitate discussion, build consensus, and initiate data collection efforts with local government staff, community officials, neighboring communities, and other identified stakeholders. More importantly, the meetings and workshops prompted continuous input and feedback from relevant participants throughout the Plan's drafting stages. The following is a summary of the key meetings and community workshops held during the development of the plan update. In many cases, local staff held routine discussions and additional meetings to accomplish planning tasks specific to their department or agency, such as approving mitigation actions for their department or agency to undertake and include in the Mitigation Action Plan. A timeline of the Planning Committee meetings and plan update process for the Sampson-Duplin planning area can be reviewed in Figure 2-4. Please see Appendix B for sign-in sheets and flyers for meetings and workshops throughout the planning process.

2.5.1 Pre-Kickoff Meeting (June 12th, 2025)

This meeting was held to introduce the AECOM planning committee and the Hazard Mitigation Plan update process. This included representatives from each county and the AECOM planning team. The project overview explained the purpose of the planning process. It also covered the project's geographic scope, the proposed schedule, and a detailed breakdown of the key project tasks. The roles and responsibilities for AECOM and for all participating jurisdictions were also covered. These roles and responsibilities were presented as follows:

- AECOM
    - Oversee, manage, and document the completion of all key project tasks
- County Coordinators
    - Serving as the lead coordinating agency
    - Assistance with the collection of documents, data, and other information
    - Coordination for project meetings
    - Responding to frequent questions or inquiries from the public or stakeholders
    - Coordinating with participating jurisdictions
    - All Participating Jurisdictions
    - Designate local jurisdiction lead
    - Attend Hazard Mitigation Planning Committee (HMPC) meetings
    - Coordination between counties, municipalities, and local stakeholders
    - Data collection and information sharing
    - Mitigation strategy development (Mitigation Action Plans)
    - Assist with public outreach
    - Review and comment on draft plan materials
- All Participating Jurisdictions
    - Designate local jurisdiction lead
    - Attend Hazard Mitigation Planning Committee (HMPC) meetings
    - Coordination between counties, municipalities, and local stakeholders
    - Data collection and information sharing

- Mitigation strategy development (Mitigation Action Plans)
- Assist with public outreach
- Review and comment on draft plan materials

2.5.2 HMPC Kickoff Meeting (July 10th, 2025)

Ms. Kelly Keefe, Ms. McKenzie Houston, Ms. Peyton Campbell, and Ms. Ashley Ervin from AECOM led the Planning Committee meeting and began by having attendees introduce themselves. The attendees included representatives from various departments and local jurisdictions across the counties participating in the plan update. Ms. Keefe then provided an overview of the items to be discussed at the meeting before presenting a PowerPoint. During the presentation, Ms. Keefe led the group in a virtual exercise to assess the most important hazards to the community and at-risk populations. The results of the survey were as follows:

- What recent hazard event had the biggest impact on your county/jurisdiction?
  - Flood – 75%
  - Tornado – 13%
  - Strong Winds – 13%

- Which populations or areas in your county/jurisdiction are most at risk during disasters?
  - “Low-income and high-income locations”
  - “Southern portion of the county
  - “Areas along the NE Cape Fear River”
  - “Mobile homes”
  - “Elderly and young”
  - “Seniors”
  - “Homes under minimum standards”
  - “Homeless”

- Have you worked with any nearby counties or cities on mitigation projects before?
  - Yes – 25%
  - No – 75%

- How will you engage vulnerable populations in your planning process?
  - “Direct mailer internet call”
  - “Solicit for feedback on social media”
  - Community meetings. Still working on implementing a Vulnerable Population Registry
  - “Survey, social media”
  - “Call and invite”
  - “Send out communication to gather their concerns”
  - “Newsletters, publications, one-calls, meetings”

- Have you had success in applying for FEMA or state mitigation grants?
  - Yes – 50%

- No – 50%

- What will help you stay engaged and active in this regional effort?
  - "Regular meetings"
  - "Learning. I have no experience with FEMA grants"
  - "Regularly scheduled meetings, guidance and direction from contractor"
  - "Reminders"
  - "Continue to reach out for input"



Figure 2-2: *Sampson-Duplin Regional Hazard Mitigation Plan Kick-off Meeting survey and QR code.*

The expiration dates for the previous plan were discussed, and Ms. Keefe presented a list of all participating jurisdictions. A list of jurisdictions participating in the meeting attendees was confirmed, and then the mitigation planning process was explained. This included specific tasks for this project, the planning process, risk assessment, capability assessment, mitigation strategy, mitigation action plan, and plan maintenance procedures. For the risk assessment portion of the process, Ms. Keefe asked each county to designate a point person to coordinate the gathering of Geographic Information System (GIS) data required for the analysis. The project schedule was presented, and Ms. Keefe noted that the timeline is important for developing a quality plan that meets state and federal deadlines.

The project staffing chart was presented to show the number of experienced individuals who will work on this project. Ms. Keefe reviewed the roles and responsibilities of AECOM, the County leads, the participating jurisdictions, and other stakeholders. The presentation concluded with a discussion of the next steps in project development. She encouraged meeting participants to

distribute the Public Participation Survey. A digital version of the public survey was also made available via SurveyMonkey, and each jurisdiction was encouraged to share the link on its local website.

Ms. Keefe stated that the next Regional Hazard Mitigation Planning Committee meeting would be scheduled in August 2025 to discuss the findings of the risk and capability assessments and begin proposing mitigation actions. Ms. Keefe asked each jurisdiction to review their existing mitigation actions in preparation for the next meeting.

2.5.3 HMPC Capabilities Assessment Meeting (August 14th, 2025)

The risk assessment meeting on August 14th, 2025, was held online for the HMPC and reviewed the opportunities to develop the mitigation impact strategy. All attendees were asked to sign in and provide their name and the jurisdiction that they represent. While attendees waited for the meeting to begin, they were given the opportunity to participate in the Community Awareness Survey, which was distributed via a link and QR code. An introduction to the AECOM planning team was then provided, followed by a brief overview of the HMPC Risk Assessment Meeting's purpose.

Next, a table of capabilities assessments received and those still pending was presented to attendees to show which jurisdictions still need to submit a capability assessment and which were due before the meeting. This was initially distributed by email during the previous kickoff meeting. Next, the public survey was introduced to the HMPC via a link and QR code, distributed during the meeting and by email, along with draft language for their use. This public survey provides an opportunity for the public to participate in the Hazard Mitigation Plan update process, with results summarized in this section and Appendix C.

The HMPC was encouraged to distribute the public survey and to advertise it to residents of their jurisdiction and the planning area, so that the HMPC could gain a clearer understanding of residents' preferences, experiences, and general feedback throughout the planning process. The additional stakeholders to be invited to participate in the planning process were discussed, and the HMPC was asked to provide input on any stakeholder organizations in the planning area that should be invited to public Hazard Mitigation Plan meetings. This includes local and regional agencies involved in hazard mitigation activities, agencies that regulate development, neighboring communities, businesses, academia, private interests, and non-profits. Before this meeting, the AECOM team had already researched and added a significant number of potential stakeholder groups to the contact list for invitation to public meetings. Examples of stakeholder groups included in the stakeholder list were provided to help the HMPC understand the types of groups we are looking to invite to the public meetings and to participate in the planning process.

The Community Awareness Survey was presented to the HMPC again to allow attendees to respond if they had not yet done so. Next, the process for updating the mitigation action was outlined. This includes how to access the mitigation actions, what the mitigation action worksheets look like, how to complete them, and how to contact the AECOM team if the HMPC has difficulty accessing them.

After the AECOM team demonstrated how to access, complete, and submit the mitigation action updates for their jurisdiction, the critical facilities counts were provided, including those in the 0.2% Annual Chance Floodplain, the AE Zone, and X Zones. The HMPC was asked to provide input when the draft plan is distributed, to ensure that all critical facilities in the planning area are included on the list.

The AECOM team explained the purpose of having the HMPC verify the community's assets and capabilities, including strengthening mitigation actions and vulnerability statements for hazard-related impacts. This included the example vulnerability statement below:

- 34% in Sampson County and 31.5% in Duplin County of housing units are classified as mobile homes.[4]
    - According to the National Oceanic and Atmospheric Administration (NOAA) and FEMA, 54% of tornado fatalities are in mobile homes, and you are 15 to 20 times more likely to be killed in a mobile home than a traditionally constructed home during a tornado.[5]
    - These housing units are more likely to be significantly damaged by a tornado or tornado debris than traditionally constructed homes due to the lack of anchoring (or limited anchoring) to a foundation, making them more susceptible to being lifted or rolled by strong winds associated with tornados.
    - These housing units are generally built with lighter materials for mobility, which means that they are less capable of withstanding high winds and generally do not meet the same building codes as traditionally constructed homes.
    - **Recommendation:** The planning area should evaluate the natural hazard education programs to ensure that individuals who live in mobile homes are advised to have a plan to safely reach a storm shelter in the event of a tornado warning.

Example maps for historic places or districts, Flood Hazard Designations, historic properties, critical facilities, and Flood Hazard Areas, along with an overview of the flood maps for each county in the planning area, were shared.

The AECOM team showed the HMPC the dam in the Sampson-Duplin planning area that had pending NCEM grant applications for High Hazard Program Dams. HMPC members were encouraged to consider whether any high-hazard dams in their jurisdiction may be eligible and interested in obtaining High Hazard Potential Dam (HHPD) funding to improve dam safety and rehabilitate high-hazard dams. The AECOM team explained that the HMPC should determine

[4] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Housing Characteristics. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP04

[5] National Oceanic and Atmospheric Association [NOAA] & National Weather Service [NWS]. (n.d.). Severe weather warnings for tornadoes: Storm based lead time (minutes) (By U.S. Department of Commerce). Retrieved July 28, 2025, from https://performance.commerce.gov/KPI-NOAA/NOAA-Severe-weather-warnings-for-tornadoes-Storm-b/ysdv-8h2r

which high-hazard dams are interested in securing funding and bring potential projects to the AECOM team as soon as possible.

At the end of the meeting, attendees were given the opportunity to ask questions or provide feedback, and the Hazard Mitigation Plan responsibilities were outlined. The next meeting time was given to attendees: September 18th, 2025, for the mitigation action strategy meeting. The HMPC draft meeting and public meeting dates were also provided as a reminder, tentatively set for October 9th, 2025. The deadline for mitigation action updates was set for September 4th, 2025.

2.5.4 HMPC Mitigation Actions Strategy Meeting (September 18th, 2025)

The risk assessment meeting on September 18th, 2025, was held online for the HMPC to evaluate the mitigation actions submitted as a group and to provide an opportunity to answer any questions about the planning process. All attendees were asked to sign in and provide their name and the jurisdiction that they represent. While attendees waited for the meeting to begin, they were given the opportunity to participate in the Community Awareness Survey, which was distributed via a link and QR code.



Figure 2-3: *Sampson-Duplin Community Awareness Survey and QR Code*

Participation status, capabilities assessments received, and mitigation actions received were presented, as the due date for the mitigation actions was set for September 4th, 2025. However, due to the number of missing mitigation actions, the AECOM team asked that anyone with outstanding mitigation action updates complete them as soon as possible.

The public survey was presented again during this meeting to ensure that HMPC members who had not attended the previous meetings could distribute it with the QR code, link, and draft

language. Stakeholder invitation requirements were reviewed again to allow HMPC members who had not attended previous meetings to suggest stakeholder groups from their planning area to invite. The HMPC was encouraged to turn in mitigation actions as soon as possible to allow the AECOM team enough time to develop the draft plan.

Finally, the requirements for public comment opportunities were explained to the attendees. Ideas for public comment opportunities were also discussed and include public meetings, Facebook Live events, Teams meetings, uploading the plan and feedback link to a website, social media posts, printed flyers, mail, newspaper ads, and others. The meeting concluded with reminders to turn in capability assessments and mitigation action updates as soon as possible, and a reminder about the tentative date for the draft plan meeting on October 9th, 2025.

2.5.5 HMPC Draft Review Meeting and Public Draft Review Meeting (October 30th, 2025)

This meeting was held virtually to show attendees how to provide input and access the draft Sampson-Duplin Hazard Mitigation Plan. All attendees were asked to sign in and provide their name and the jurisdiction that they represent. Next, the participation status of each jurisdiction in the planning area was reviewed, including the capabilities assessment and mitigation action statuses. The status of the National Flood Insurance Program (NFIP) surveys received was discussed, along with the rationale for requesting NFIP participation information. The attendees were informed that the NFIP survey was sent to floodplain managers or administrators identified in the capabilities assessments.

The goals of the Sampson-Duplin Hazard Mitigation Plan were reviewed along with the hazards address in preparation for distributing the draft. Next, a few map examples were shown to highlight the layout of maps within the plan. The attendees were notified that the link for the Sampson-Duplin Hazard Mitigation Plan draft, the link to the draft feedback form, the narrative for public distribution to seek input from residents of the planning area, and a flyer for public distribution to seek feedback from the planning area would be sent out in an email after the meeting concluded.

Attendees were asked to distribute the draft plan and draft feedback form to stakeholders, restating the FEMA stakeholder requirements and opportunities for feedback. The attendees were asked to provide feedback on the key areas of critical facilities, vulnerability and impact statements, and NFIP participation information. The attendees were also given a list of suggestions on how the planning area could provide stakeholders with the opportunity to participate in the Hazard Mitigation Plan update process. Attendees were asked to provide comments by November 14th at the latest so that the AECOM team has enough time to incorporate those into the plan. The participants were also given the next steps, including submitting the plan to NCEM, NCEM submitting the plan to FEMA, and a timeline for Hazard Mitigation Plan adoption resolutions, which are required for each jurisdiction to be eligible for FEMA funding.

Calendar			Pre-Kickoff Meeting	HMPC Regional Kickoff Meeting	Community Awareness Survey	Capability Assessment	Risk Assessment Meeting	Mitigation Action Update Form	Mitigation Action Strategy Meeting	Draft Review & Public Meetings	NFIP Information Survey	HMPC Reviews Draft & Provides Feedback	Draft Delivered to NCEM	NCEM Delivers Draft to FEMA	FEMA Approves the Plan	Local Adoption by Each Jurisdiction	Plan Expires
2025	June	Week 1															
		Week 2	6/12/2025														
		Week 3															
		Week 4															
	July	Week 1															
		Week 2		7/10/2025	7/10/2025	7/10/2025											
		Week 3															
		Week 4															
	August	Week 1															
		Week 2					8/14/2025	8/14/2025									
		Week 3															
		Week 4															
	September	Week 1															
		Week 2															
		Week 3							9/19/2025								
		Week 4															
	October	Week 1															
		Week 2															
		Week 3															
		Week 4			10/29/2025	10/29/2025		10/29/2025		10/30/2025	10/30/2025	10/30/2025					
	November	Week 1															
		Week 2									11/14/2025	11/14/2025					
		Week 3															
		Week 4															
	December	Week 1											12/5/2025	12/5/2025			
		Week 2															
		Week 3															
		Week 4												1/5/2026			
2026	January	Week 1													1/5/2026	1/5/2026	
		Week 2															
		Week 3															
		Week 4															
	February	Week 1															
		Week 2															
		Week 3															
		Week 4															
	March	Week 1															
		Week 2															
		Week 3															
		Week 4															
	April	Week 1															
		Week 2															
		Week 3															
		Week 4													4/22/2026	4/22/2026	4/22/2026

***Figure 2-4**: Timeline of the Sampson-Duplin Regional Hazard Mitigation Plan Update Process*

2.6 Involving the Public

A vital component of the mitigation planning process involved public participation. Individual citizen and community-based input provide the entire Planning Committee with a greater understanding of local concerns and increase the likelihood of successfully implementing mitigation actions by mobilizing community investment from those directly affected by public officials' decisions. As citizens become more involved in decisions that affect their safety, they are more likely to gain a greater appreciation of the hazards present in their community and take the steps necessary to reduce their impact. Public awareness is a key component of any community's overall mitigation strategy aimed at making a home, neighborhood, school, business, or entire city safer from the potential effects of hazards.

The public was given the opportunity to participate in the planning process through social media invitations to public meetings, public feedback surveys, and the review of the draft plan.

Each participating jurisdiction will hold public meetings before its local governing body adopts the final plan. These meetings will occur at various times after the State and/or FEMA have granted conditional approval of the *Plan*. Adoption resolutions will be included in Appendix F.

2.6.1 Public Survey

The Public Participation Survey was distributed to the Regional HMPC for residents to complete online via an electronic link on county and municipal websites. The survey was open from the July 10th HMPC meeting until October 29th, 2025. There were 110 responses in the area, and numerous counties and jurisdictions assisted in distributing the survey throughout the planning area.

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

   - **93.58%** of respondents reported experiencing a natural disaster.

2. **If yes, which of these natural hazards have you experienced or been impacted by?**

   - **Dam/Levee Failure:** 0.95%
   - **Drought:** 11.43%
   - **Earthquake:** 1.9%
   - **Flood:** 59.05%
   - **Hurricane:** 97.14%
   - **Severe Weather (Thunderstorm/ Lightning/ Hail):** 67.62%
   - **Tornado:** 22.86%
   - **Wildfire:** 3.81%
   - **Winter Storm:** 43.81%

3. **How concerned are you about the possibility of your community being impacted by each of these natural hazards?:**

Table 2-3: Percentage of respondents who reported each level of concern about being impacted by the hazard.

Hazard	Not Concerned	Somewhat Concerned	Very Concerned
Dam/Levee Failure	69.52%	21.90%	8.57%
Drought	42.45%	49.06%	8.49%
Earthquake	79.05%	18.10%	2.86%
Flood	3.7%	20.37%	75.93%
Hurricane/ Tropical	0%	11.01%	88.99%
Severe Weather (Thunderstorm/ Lightning/ Hail)	5.5%	31.19%	63.3%
Tornado	6.6%	46.23%	47.17%
Wildfire	41.75%	48.54%	9.71%
Winter Storm	26.17%	47.66%	26.17%

4. **How important is each of the following specific community assets to you?:** Majority of respondents reported this level of concern for the community assets

   - **Airports**: Not Important (27.1%)
   - **Colleges and Universities:** Somewhat Important (33.02%)
   - **Day Care and Elder Care Facilities:** Very Important (56.07%%)
   - **Emergency Operations Centers:** Very Important (84.11%)
   - **Emergency Shelters:** Very Important (67.29%)
   - **Fire, Police, and EMS Stations:** Very Important (84.11%)
   - **Historic Buildings:** Neutral (38.1%)
   - **Hospitals and Medical Facilities:** Very Important (93.52%)
   - **Local Businesses:** Very Important (40.19%)
   - **Major Roads and Bridges:** Very Important (80.19%)
   - **Parks and Recreation:** Neutral (29.63%)
   - **Schools (K-12):** Very Important (69.16%)
   - **Town Hall/Courthouse:** Somewhat Important (35.51%)

5. **Please tell us how important each statement is to you by checking the appropriate circle:** Majority of respondents reported this level of concern for the statements

   - **Protecting Private Property:** Very Important (65.74%)
   - **Protecting Critical Facilities:** Very Important (96.3%)
   - **Preventing Development in Hazard Areas:** Very Important (62.96%)
   - **Enhancing the Function of Natural Features (for example, streams, wetlands, etc.):** Very Important (50.93%)
   - **Protecting Historical and Cultural Landmarks:** Somewhat Important (32.71%)
   - **Protecting and Reducing Damage to Utilities:** Very Important (71.3%)
   - **Strengthening Emergency Services:** Very Important (85.19%)

- **Promoting Cooperation Among Public Agencies, Citizens, Non-profit Organizations, and Businesses:** Very Important (61.11%)

6. **What actions can you and your local government take to minimize the risk of future natural hazard damage and enhance resilience in your neighborhood?**

   - **Assist Vulnerable Populations:** 63.55%
   - **Education and Awareness Activities:** 77.57%
   - **Elevate your Home or Business:** 33.64%
   - **Floodproof Your Home or Business**: 47.66%
   - **Keep Storm Drains Clean:** 87.85%
   - **Protect Power Lines:** 82.24%
   - **Reduce Stormwater Runoff:** 58.88%
   - **Restrict Development in Floodplain Areas:** 75.7%
   - **Other:** 2.8%

7. **What are the most effective ways for you to receive information about how to make your home and neighborhood more resistant to natural hazards?**

   - Local Government Channel: **29.63%**
   - Internet (Social Media): **74.07%**
   - Internet (Web Pages): **51.85%**
   - Mail: **29.63%**
   - Mobile Messages or Alerts: **82.41%**
   - Public Meetings: **37.04%**
   - Radio: **44.44%**
   - Television: **52.78%**
   - Other: **0.93%**

8. **Is your home located in a floodplain?**

   - Yes: **8.26%**
   - No: **77.98%**
   - I Don't Know: **13.76%**

9. **Do you have flood insurance?**

   - Yes: **16.51%**
   - No: **73.39%**
   - I Don't Know: **10.09%**

10. **If you don't have flood insurance, why not?**

    - The house is not located in a floodplain **– 63.33%**
    - Flood insurance is too expensive **– 13.33%**
    - I don't think it's necessary because it never floods **– 2.22%**

- I don't think it's necessary because I'm elevated or otherwise protected **– 6.67%**
- I don't think it's necessary because I have homeowners' insurance **– 2.22%**
- I've never really considered it **– 6.67%**
- Other **– 5.56%**

11. In which community do you live?

- **Sampson County (Unincorporated area):** 36.0%
  - **Autryville**: 8%
  - **Clinton:** 12%
  - **Faison:** 4%
  - **Harrells:** 20.0%
  - **Newton:** 4.0%
  - **Roseboro:** 4.0%
  - **Salemburg:** 4.0%
  - **Turkey:** 8.0%
- **Duplin County (Unincorporated Area):** 11.54%
  - **Beulaville:** 26.92%
  - **Calypso:** 2.56%
  - **Faison:** 3.85%
  - **Greenevers:** 1.28%
  - **Kenansville:** 10.26%
  - **Magnolia:** 3.85%
  - **Mount Olive:** 8.97%
  - **Rose Hill:** 8.97%
  - **Teachey:** 2.56%
  - **Wallace:** 5.13%
  - **Warsaw:** 14.1%

12. How long have you lived in the Sampson Duplin region?

- Less than a Year – **1.94%**
- 1-5 Years – **8.74%**
- 6-9 Years – **3.88%**
- 10-19 Years – **9.71%**
- 20 Years or More **– 75.73%**

13. What type of building do you live in?

- Single Family Home **– 66.67%**
- Duplex **– 0.93%**
- Apartments (3-4 Units in Structure) **– 1.85%**
- Apartments (5 or More Units in Structure) **– 0.0%**
- Condominium **– 0%**
- Manufactured Home **– 30.56%**
- Other – **0%**

2.7 Involving the Stakeholders

At the beginning of the planning process for the Sampson-Duplin planning area, the project consultant worked with the HMPC to initiate outreach to stakeholders. The Planning Committee encouraged greater, more widespread participation in the mitigation planning process by designing and distributing the *Public Participation Survey*. These opportunities were provided to

local officials, residents, businesses, academia, and other private interests in the Region to participate and provide input throughout the local mitigation planning process.

The Planning Committee prioritized incorporating organizations designated as "Community Lifelines" as active stakeholders in the hazard mitigation planning process. The Committee considers "Community Lifelines" the most fundamental service in the community, enabling all other aspects of society to function when stabilized. The integrated network of assets, services, and capabilities that provide community lifeline services is used day to day to support recurring needs. Lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security, as described in the National Response Framework, 4th Edition.[6] Stakeholders designated as "Community Lifelines" are listed in the table below under the Stakeholder Type column.

The Planning Committee sought input from stakeholders outside the planning area, including surrounding counties. Surrounding counties were contacted after a draft of the *Plan* was developed and asked to review it and provide suggestions/comments to the consultant's project manager. The Planning Committee vetted these suggestions and comments before implementation to ensure they met the needs of the communities for whom the *Plan* was developed. Surrounding stakeholders and neighboring communities contacted included Bladen County, Cumberland County, Harnett County, Johnston County, Jones County, Lenoir County, Onslow County, Pender County, and Wayne County.

New stakeholder requirements have been implemented in the 2025 Hazard Mitigation Plan review process and require the planning process to include the following stakeholder groups located within the planning area:

1. Local and regional agencies involved in hazard mitigation activities
2. Agencies that have the authority to regulate development
3. Neighboring communities
4. Representatives of businesses, academia, and other private organizations
5. Representatives of nonprofit organizations, including community-based organizations

***Table 2-4**: Example list of **stakeholders** invited to participate in the Hazard Mitigation Planning Process. When the email addresses of specific individuals were not available, general information emails were used, and these are indicated below where no name is provided.*

Name	Stakeholder Group	Organization	Title	County, Jurisdiction, or Affiliation
Samuel B. Croom	Neighboring Communities	Bladen County	County Manager	Bladen County
Garry Crumpler	Neighboring Communities	Cumberland County	Emergency Management	Cumberland County

[6] Federal Emergency Management Agency. (2019). National Response Framework, Fourth Edition. U.S. Department of Homeland Security. https://www.fema.gov/sites/default/files/documents/NRF_FINALApproved_2011028.pdf

Name	Stakeholder Group	Organization	Title	County, Jurisdiction, or Affiliation
		Emergency Management	Coordinator/ Interim Director	
Chini Gault	Neighboring Communities	Cumberland County Emergency Management	--	Cumberland County
Zach Shean	Neighboring Communities	Harnett County Emergency Management	Emergency Management Coordinator	Harnett County
Sandy Wood	Neighboring Communities	Johnston County Emergency Management	Emergency Division Chief (EM Coordinator)	Johnston County
Ryan Mills	Neighboring Communities	Jones County Emergency Management	Emergency Services Director	Jones County
Murry Stroud	Neighboring Communities	Lenoir County Emergency Services	Emergency Services Director	Lenoir County
Bradley Kinlaw	Neighboring Communities	Onslow County Emergency Services	Emergency Services Director	Onslow County
Tommy Batson	Neighboring Communities	Pender County Emergency Management	Emergency Management Director	Pender County
Chris Barnes	Neighboring Communities	Office of Emergency Services	911 Database Manager	Wayne County
Lisa Turlington	Charities	Sampson Community College (SCC) Foundation	Dean of Advancement & Executive Director of the Foundation	Sampson
Sampson County Inspections Department	Code Enforcement	Sampson County Inspections Department	--	Sampson
Linda Jewell Carr	Charities	United Way of Sampson County	Executive Director	Sampson
Avery LeClear	Economic Development Agency	Clinton-Sampson Chamber of Commerce	Director	Sampson

Name	Stakeholder Group	Organization	Title	County, Jurisdiction, or Affiliation
Sampson County Economic Development	Economic Development Agency	Sampson County Economic Development	--	Sampson
Ray Jordan	Economic Development Agency	Sampson County Economic Development	Economic Development Director	Sampson
Melanie Harris	Floodplain Administration	Sampson Soil and Water Conservation District	Director	Sampson
Patty Santos	Community Lifeline (Health and Human Services)	Sampson County Department of Social Services	Director	Sampson
Wanda Robinson	Community Lifeline (Health and Human Services)	Sampson County Public Health	Public Health Director	Sampson
Miles Kory Hair	Community Lifeline (Health and Human Services)	Sampson County Environmental Health	Supervisor	Sampson
Sampson Regional Medical Center Public Relations	Community Lifeline (Health and Human Services)	Sampson Regional Medical Center	--	Sampson
Dana Hall	Community Lifeline (Health and Human Services)	Sampson County Department of Aging	Director	Sampson
Patty Santos	Community Lifeline (Health and Human Services)	Sampson County Department of Social Services	Social Services Director	Sampson
Dana Hall	Parks and Recreation	Sampson County Parks and Recreation	Director	Sampson

Name	Stakeholder Group	Organization	Title	County, Jurisdiction, or Affiliation
Brandon Price	Housing	Fayetteville Area Habitat for Humanity	Chief Executive Officer	Sampson
Grace Strong	Housing	Fayetteville Area Habitat for Humanity	Chief Programs Officer	Sampson
Michelle Lance	Planning or Community Development	Sampson County Planning and Zoning Department	Senior Planner	Sampson
Mark Turlington	Public Works	Sampson County Public Works	Director of Public Works	Sampson
Lakevia Robinson	Schools	Sampson County Schools	"Program Coordinator	Sampson
Tim Stroud	Academia	Sampson Community College	Director of Campus Security & Safety	Sampson
Rosemarie Oates-Mobley	Transportation	Sampson County Public Transportation	Department Head Duplin County Transportation	Sampson
UCare	Charities	Ucare	--	City of Clinton
Sampson Arts Council	Cultural Institutions (Museums, libraries, and theatres)	Sampson Arts Council	--	City of Clinton
Mary Rose	Land Use and Planning	City of Clinton	Planning and Development Director	City of Clinton
Garrett Bryant	Parks and Recreation	City of Clinton	Recreation and Parks Director	City of Clinton
Lyle Moore	Planning or Community Development	Clinton Planning and Development	Planning Director	City of Clinton
Tammy Faircloth	Planning or Community Development	Town of Roseboro	Planning and Zoning Officer	Town of Roseboro

Name	Stakeholder Group	Organization	Title	County, Jurisdiction, or Affiliation
Dennis Sutton	Academia	James Sprunt Community College	Director of Facilities	Duplin
Denise Marshall	Charities	Duplin County Community Foundation	VP of People and Culture	Duplin
Shawan Gabriel	Charities	Duplin County Community Foundation	Director of Community Investment	Duplin
Josh Littlejohn	Charities	Duplin County Community Foundation	Community Leadership Officer	Duplin
Amanda Hatcher	Community Lifeline (Communications)	Duplin County Cooperative Extension	Department Head	Duplin
Duplin County Economic Development Commission	Economic Development Agency	Duplin County Economic Development Commission	--	Duplin
Scotty Summerlin	Economic Development Agency	Duplin County Economic Development Commission	Department Head	Duplin
Cindy Zuniga	Community Lifeline (Health and Human Services)	Duplin County Health Department	Public Health Educator & Preparedness Coordinator	Duplin
Annie Murrell	Community Lifeline (Health and Human Services)	Duplin County Social Services	Head of Social Services	Duplin
Melisa S. Brown	Community Lifeline (Health and Human Services)	Duplin County Senior Services	Department Head Duplin County Senior Services	Duplin
Mary Cashwell	Community Lifeline (Health and Human Services)	Duplin County Environmental Health	Environmental Health Supervisor	Duplin
Angel Venecia	Community Lifeline	Duplin County Health and	Health and Human Service Director	Duplin

Name	Stakeholder Group	Organization	Title	County, Jurisdiction, or Affiliation
	(Health and Human Services)	Human Services Director		
Christopher Hatcher	Land Use and Planning	Duplin County Planning Department	County Planner	Duplin
Dawn Strickland	Community Lifeline (Transportation)	Duplin County Transportation Department	Upward Bound"	Duplin
Billy Mello	Community Lifeline (Utilities)	Town of Faison	--	Town of Faison
Duplin County Partnership for Children	Charities	Duplin County Partnership for Children	--	Town of Kenansville
Laura Jones	Cultural Institutions (Museums, libraries, and theatres)	Duplin County Public Library	--	Town of Kenansville
Cowan Museum of History and Science	Cultural Institutions (Museums, libraries, and theatres)	Cowan Museum of History and Science	--	Town of Kenansville
Courtney Brown	Parks and Recreation	Town of Kenansville Parks and Recreation Department	--	Town of Kenansville
Kenansville Parks and Recreation	Parks and Recreation	Kenansville Parks and Recreation	--	Town of Kenansville
Sudie Matthis	Public Works	Town of Magnolia Public Works	Public Works Director	Town of Magnolia
David Bizzell	Parks and Recreation	Town of Wallace Parks and Recreation	Director	Town of Wallace
Rod Fritz	Planning or Community Development	Town of Wallace	Planning Director	Town of Wallace

Name	Stakeholder Group	Organization	Title	County, Jurisdiction, or Affiliation
Betty Smith	Parks and Recreation	Town of Warsaw Parks and Recreation	Recreation Director	Town of Warsaw
Richard Dugger	Parks and Recreation	Town of Warsaw Parks and Recreation	Town Planner and Code Enforcement	Town of Warsaw
Alyssa Garcia	Planning or Community Development	Mid-Carolina Regional Council	Senior Planner / RPO Coordinator	Sampson and Duplin
Carlton Gideon	Planning or Community Development	Eastern Carolina Council	Senior Community Planner	Sampson and Duplin
David Rosado	Planning or Community Development	Eastern Carolina Council	Interim Executive Director	Sampson and Duplin
Samantha Wullenwaber	Planning or Community Development	Mid-Carolina Regional Council	Executive Director	Sampson and Duplin
South River Electric Membership Corporation	Community Lifeline (Utilities)	South River Electric Membership Corporation	Transportation Director	Sampson and Duplin
Lonnie Ballad	Community Lifeline (Health and Human Services)	Action Pathways	Chief Executive Officer	Sampson and Duplin

2.8 Documentation of Plan Progress

Progress in hazard mitigation planning for the participating jurisdictions is documented in this plan update. Since hazard mitigation planning efforts officially began in most participating communities with the development of the initial Hazard Mitigation Plans in 2003, many mitigation actions have been completed and implemented across the participating jurisdictions. These actions will help reduce the overall risk posed by natural hazards to people and property in the Region. The completed actions are documented in Section 8 - *Mitigation Action Plan*.

In addition, community capabilities continue to improve through the implementation of new plans, policies, and programs that promote hazard mitigation at the local level. The current state of local capabilities for the participating jurisdictions is captured in Section 6. The participating jurisdictions continue to demonstrate their commitment to hazard mitigation and planning, as evidenced by establishing the Planning Committee to update the Plan and by continuing to involve the public in the hazard mitigation planning process.

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

The Disaster Mitigation Act (DMA) planning regulations and guidance stress that each local government seeking FEMA approval of its mitigation plan must participate in the planning effort in the following ways:

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



For the Regional HPMC, "participation" meant the following:

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

The HMPC met all the above participation requirements. Stakeholders such as local emergency management agencies, participating municipalities, state agencies, neighboring jurisdictions (Bladen, Cumberland, Harnett, Johnston, Jones, Lenoir, Onslow, Pender, and Wayne counties), businesses, academia, and nonprofits were given the opportunity to be involved in the planning process through email invitations, follow up phone calls and announcements at related government meetings. The Committee's representatives included County, City, and Town Departments, as well as other stakeholders. The participants comprised the Sampson-Duplin County Mitigation Planning Committee, as lead agents, and included the following:

- **Sampson County**: Rick Saur, Director of Emergency Services
- **Duplin County**: Matthew Barwick, Director of Emergency Management

During the planning process, HMPC members communicated via face-to-face meetings, virtual meetings, email, and telephone. Although not all HMPC members could be physically present at every meeting, coordination continued throughout the planning process. In particular, the Town of Teachey participated in the planning process through providing NFIP compliance information and the Capabilities Assessment, as well as through direct contact with Sampson and Duplin Counties, which acted as proxies. Also, these jurisdictions were provided with planning process materials during the planning process.

SECTION 3: COMMUNITY PROFILE

General information topics such as location, topography/geology, climate, and history are presented in this section. Following the introductory information are summaries of the counties and their municipalities, including pertinent demographic information such as population, housing, and economic characteristics. It consists of the following subsections:

- **3.1 Geography and Environment**
- **3.2 Climate**
- **3.3 History**
- **3.4 Population and Demographics**
- **3.5 Housing, Infrastructure, and Land Use**
- **3.6 Employment and Industry**

3.1 Geography and Environment

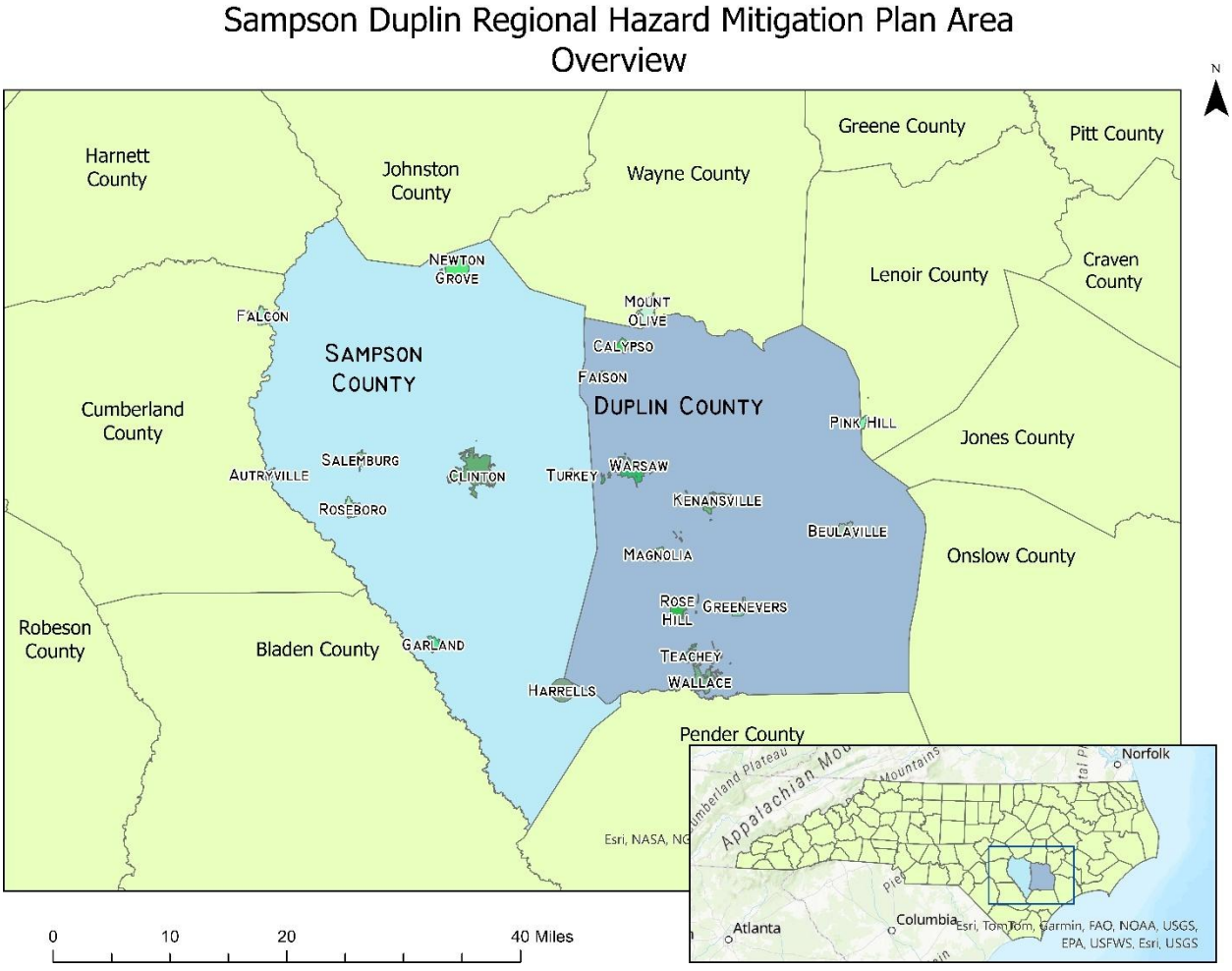


***Figure 3-1**: Regional location*

As previously noted, the Sampson-Duplin Region is located within the Coastal Plain of North Carolina. Elevations throughout the two counties range from approximately 20 feet to roughly 210 feet above sea level in the region's northern portions. The land surfaces throughout the region are nearly level to gently sloping; however, some steep slopes exist along stream banks and river courses. Drainage throughout the two counties flows southward to the Black River, except for the Goshen Swamp, which drains eastward into the Neuse River Basin. Within the northern and southern extents of the region, there are several large bays and pocosins. Flooding is fairly limited throughout the region; this issue is covered in greater detail in Section 5 (Hazard Profiles) of this plan.

3.2 Climate

The Sampson-Duplin Region gets an average of 49 inches of rainfall per year. The United States (US) average is 37 inches per year. The average snowfall in the region is 2 inches. The average US city gets 25 inches of snow per year. The number of days with any measurable precipitation is 107. On average, there are 216 sunny days per year in the Region. The July high temperature is around 90 degrees Fahrenheit. The low temperature in January is 32 degrees Fahrenheit. The comfort index, based on humidity during the hot months, is 31 out of 100, with higher values indicating greater comfort. The US average on the comfort index is 44. Table 3-1 provides basic statistics on annual climatic conditions across the Sampson-Duplin Region.

Table 3-1: *Sampson-Duplin region's climate conditions*

Climate Condition	Sampson-Duplin Region
Rainfall (inches)	48.9
Snowfall (inches)	2.4
Precipitation Days	107
Sunny Days	216
Average July High	89.5
Average January Low	31.8
Ultraviolet (UV) Index	4.5
Elevation Above Sea Level (in feet)	124

Source: National Oceanic and Atmospheric Association

3.3 History

3.3.1 Sampson County

Sampson County was established in April of 1784 by the North Carolina General Assembly from an area taken from neighboring Duplin County. Additional land was later annexed from Wayne and New Hanover Counties. Early settlers were Scotch-Irish immigrants who arrived under the protection of Henry McCulloch. In 1745, McCulloch, a London merchant who was awarded a large land grant from the British king, allowed numerous settlers from Northern Ireland to inhabit and develop the early colony. Descendants of the Swiss colony ultimately joined the Scotch-Irish immigrants in New Bern and pioneers from the northern states of New Jersey, Connecticut, and Massachusetts. One of the many Scotch-Irish drawn to the area was John Sampson. Sampson was Duplin County's first Register of Deeds and served as Lt. Colonel and then Lt. General in the county's militia. Richard Clinton, Sampson's stepson, also established himself in governmental and military service, serving as Duplin County's Register of Deeds for ten years, and then in the Provincial Congress held in Hillsborough. In 1776, Clinton organized a company of militia minutemen and led them as captain in the defense of Wilmington against the British. Richard Clinton served as one of the first members of the House of Commons representing Duplin County and remained its representative until the creation of Sampson County in 1784. Clinton secured the passage of the act creating the new county and proposed the name "Sampson" in honor of his stepfather, John Sampson. The county seat was established in 1852 and named Clinton in honor of another founding father of Sampson County.

3.3.2 Duplin County

Duplin County was established by the General Assembly on April 7, 1750, from what was the northern part of New Hanover County. At the time, Duplin County's boundaries included what would eventually become Sampson County. Duplin County was named after Sir Thomas Hays, Lord Dupplin, who served on the Board of Trade and Plantations for the Crown in the 1740s. Duplin County's earliest immigrants were the Welsh (arriving in the 1700s) and followed by German Palatines and the Swiss in the 1730s and 1740s. The Scotch-Irish arrived in the area with Henry McCulloch, a wealthy London merchant, to settle a 71,160-acre land granted to him by the British Crown. Early settlers to the area also included French Huguenots and English who migrated from Virginia, as well as Scottish Highlanders who came from the upper Cape Fear Region.

The early settlements were primarily along the river and larger creeks, which afforded the best means of transportation. One such settlement, Sarecta, was located on the east bank of the Northeast Cape Fear and became the County's first incorporated town. Another settlement, later known as Golden Grove, became the Town of Kenansville. In 1751, the first County Court was held in the home of William McRee. Shortly thereafter, the first courthouse was built near the present-day Duplin/Sampson County line. When Sampson was created in 1784 from the western half of Duplin County, the courthouse was relocated to a more central location. In 1840, the Wilmington and Weldon Railroad was completed, running through the western portion of the

County, sparking growth and investment. Along the rail line, the towns of Wallace, Teachey, Rose Hill, Magnolia, Warsaw, Faison, and Calypso were incorporated.

3.4 Population and Demographics

The planning area experienced an overall decline in population between 2010 and 2023, with Sampson County and Duplin County decreasing by 7.07% and 19.27%, respectively, according to the 2023 American Community Survey (ACS) population estimates.[1] The estimated population of the planning area in 2023 was approximately 108,300, a decrease of around 11.18% from an estimated 2010 population of 122,000.[2] The jurisdictions with the most significant population growth from 2010 to 2023 were Turkey, Garland, Teachey, Kenansville, and Magnolia, with increases of 34.53%, 31.62%, 28.79%, 26.10%, and 15.33%, respectively. The jurisdictions with the smallest population growth, or negative population growth, were Calypso, Roseboro, Faison, Autryville, and Wallace, with percentage population change of -22.0%, -18.27%, -16.34%, -13.95%, and -12.86%, respectively. The largest jurisdiction in Sampson County is Clinton (8,336), and the largest jurisdiction in Duplin County is Wallace (3,438).

***Table 3-2**: Population in the planning area*

Jurisdiction	2010 Census Population[3]	2020 Census Population[4]	2023 ACS Population Estimate[5]	% Change 2010-2023
Sampson	**63,431**	**59,036**	**59,245**	**-7.07%**
Autryville	196	167	172	-13.95%
Clinton	8,639	8,383	8,336	-3.63%
Garland	625	595	914	31.62%
Harrells	202	160	220	8.18%
Newton Grove	569	585	574	0.87%
Roseboro	1,191	1,163	1,007	-18.27%
Salemburg	435	457	486	10.49%
Turkey	292	213	446	34.53%

[1] U.S. Census Bureau. "TOTAL POPULATION." Decennial Census, DEC Demographic and Housing Characteristics, Table P1, https://data.census.gov/table/DECENNIALDHC2020.P1?t=Populations+and+People&g=040XX00US37_050XX00US37037,37085,37101,37105,37125. Accessed on 16 Jun 2025.

[2] U.S. Census Bureau. (n.d.). TOTAL POPULATION. *Decennial Census, DEC Summary File 1, Table P1*. Retrieved June 16, 2025, from https://data.census.gov/table/DECENNIALSF12010.P1

[3] U.S. Census Bureau. (n.d.). TOTAL POPULATION. *Decennial Census, DEC Summary File 1, Table P1*. Retrieved June 16, 2025, from https://data.census.gov/table/DECENNIALSF12010.P1

[4] U.S. Census Bureau. "TOTAL POPULATION." *Decennial Census, DEC Demographic and Housing Characteristics, Table P1*, https://data.census.gov/table/DECENNIALDHC2020.P1?t=Populations+and+People&g=040XX00US37_050XX00US37037,37085,37101,37105,37125. Accessed on 16 Jun 2025.

[5] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). ACS Demographic and Housing Estimates. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP05. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP05

Jurisdiction	2010 Census Population[3]	2020 Census Population[4]	2023 ACS Population Estimate[5]	% Change 2010-2023
Duplin	**58,505**	**48,715**	**49,053**	**-19.27%**
Beulaville	1,296	1,116	1,438	9.87%
Calypso	538	327	441	-22.00%
Faison	961	784	826	-16.34%
Greenevers	634	567	657	3.50%
Kenansville	855	770	1,157	26.10%
Magnolia	939	831	1,109	15.33%
Rose Hill	1,626	1,371	1,501	-8.33%
Teachey	376	448	528	28.79%
Wallace	3,880	3,413	3,438	-12.86%
Warsaw	3,054	2,733	2,728	-11.95%

Understanding the distribution of age, disabilities, independent living difficulties, household income, unemployment rates, and whether households with limited English proficiency are essential for developing hazard mitigation strategies that meet the needs of each specific community. The median age reflects the midpoint of the population, and the percentage of the population aged 65 years or older can help demonstrate the age distribution of the planning area, highlighting areas with a greater need for emergency services in the event of a natural hazard. Older adults (65 years and older) are more vulnerable during natural hazard events, and planning should include accessible shelters, medical support, and transportation considerations. The distribution of residents in the planning area with a disability or an independent living difficulty can help indicate where residents may need extra resources to prepare for, respond to, and recover from natural hazard events. Other economic characteristics can help predict areas of economic vulnerability, which affect the planning area's capacity to respond to and recover from natural hazards. Jurisdictions in the planning area should consider residents' characteristics that may indicate increased vulnerability and plan to address those vulnerabilities accordingly.

***Table 3-3**: Age, disability, economic, and other characteristics of the planning area*

Jurisdiction	Age and Sex Estimates [6]		Disability Characteristics[7]		Limited English–speaking household[8]	Economic Characteristics [9]		
	Median age	65 years or older	People with a disability	People with an independent living difficulty		Median household income	Unemployment rate[10]	Mean travel time to work (minutes)
Sampson	**40.7**	**19.7%**	**14.6%**	**7.1%**	**3.6%**	**$53,159**	**5.2%**	**29.9**
Autryville	43.8	17.4%	13.4%	0%	0%	$42,708	7.9%	29.0
Clinton	39.9	22.7%	15.6%	12.0%	4.2%	$42,344	5.6%	22.0
Garland	22.3	10.6%	6.7%	2.9%	8.2%	$58,938	0%	29.3
Harrells	38.5	25.9%	9.1%	1.3%	4.9%	$68,393	5.2%	16.5
Newton Grove	56.2	34.5%	16.8%	4.2%	0%	$68,750	1.4%	30.4
Roseboro	38.6	18.4%	13.8%	9.5%	0%	$39,345	2.4%	29.1
Salemburg	45.2	22.0%	10.4%	7.1%	3.9%	$74,375	0%	29.0
Turkey	26.1	16.1%	3.1%	3.1%	0%	--	4.8%	33.1
Duplin	**40.7**	**19.7%**	**17.3%**	**8.4%**	**5.3%**	**$51,880**	**4.7%**	**29.9**
Beulaville	40.6	16.8%	24.1%	10.2%	0.4%	$40,900	2.7%	30.9
Calypso	28.7	20.4%	13.4%	1.4%	5.6%	$43,906	6.5%	22.8
Faison	30.9	20.1%	14.3%	4.3%	6.2%	$38,173	14.1%	26.9
Greenevers	46.8	33.0%	37.0%	36.1%	1.0%	$14,394	7.9%	19.2
Kenansville	43.0	21.8%	17.9%	11.2%	0%	$62,917	2.6%	19.9
Magnolia	34.6	8.7%	17.9%	8.0%	10.0%	$40,156	4.1%	26.6
Rose Hill	34.5	12.5%	18.9%	7.0%	2.4%	$44,722	7.3%	19.6
Teachey	39.7	15.7%	15.7%	5.6%	3.1%	$49,828	13.1%	23.5
Wallace	44.3	19.7%	16.5%	5.6%	6.5%	$49,358	6.2%	20.2
Warsaw	35.3	17.2%	10.1%	3.5%	25.9%	$46,944	2.3%	21.0

[7] U.S. Census Bureau, U.S. Department of Commerce. "Disability Characteristics." American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1810, https://data.census.gov/table/ACSST5Y2023.S1810

[9] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Economic Characteristics. *American Community Survey, ACS 1-Year Estimates Data Profiles, Table DP03*. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP1Y2023.DP03

***Table 3-4**: Planning area demographics*

Jurisdiction	Decennial Census Profile of General Population and Housing Characteristics (2020)[11]							
	Black or African American	White	American Indian and Alaska Native	Asian	Native Hawaiian or Other Pacific Islander	Some Other Race	Two or More Races	Hispanic or Latino (of any race)
Sampson	**23.9%**	**52.9%**	**2.2%**	**0.4%**	**0%**	**14.4%**	**6.1%**	**20.7%**
Autryville	3.0%	92.2%	0%	0%	0%	0.6%	4.2%	3.6%
Clinton	40.3%	42.8%	1.5%	1.2%	0.1%	8.5%	5.7%	14.3%
Garland	27.7%	40.0%	1.7%	0.3%	0%	24.0%	6.2%	30.3%
Harrells	30.0%	51.9%	3.1%	0%	0.6%	10.6%	3.8%	10.6%
Newton Grove	13.7%	72.0%	0.9%	0.7%	0%	7.7%	5.1%	13.3%
Roseboro	48.0%	39.6%	0.7%	0.9%	0.1%	3.9%	6.9%	8.1%
Salemburg	12.5%	77.9%	3.1%	0%	0.7%	1.1%	4.8%	5.9%
Turkey	23.0%	54.5%	1.9%	0.5%	0%	15.0%	5.2%	21.6%
Duplin	**23.8%**	**53.5%**	**1.0%**	**0.4%**	**0%**	**14.8%**	**6.4%**	**22.2%**
Beulaville	25.1%	62.6%	0.8%	0.7%	0%	2.8%	8.0%	8.2%
Calypso	18.0%	58.7%	3.1%	0%	0%	14.7%	5.5%	25.7%
Faison	15.2%	39.7%	1.3%	0%	0%	31.5%	12.4%	44.0%
Greenevers	72.5%	6.5%	0.4%	0%	0%	15.0%	5.6%	20.6%
Kenansville	32.5%	57.7%	0.3%	0.4%	0%	2.6%	6.6%	3.5%
Magnolia	33.5%	25.8%	4.1%	0.1%	0%	27.4%	9.1%	44.9%
Rose Hill	27.3%	44.0%	0.9%	0.4%	0%	18.5%	8.9%	29.7%
Teachey	40.6%	35.9%	0.9%	3.8%	0%	7.4%	11.4%	22.3%
Wallace	25.0%	43.7%	0.9%	0.4%	0%	24.4%	5.6%	30.5%
Warsaw	55.3%	25.7%	0.9%	0.7%	0.1%	12.7%	4.5%	18.3%

[8] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Limited English Speaking Households. *American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1602*. Retrieved June 16, 2025, from https://data.census.gov/table/ACSST5Y2023.S1602

[9] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Economic Characteristics. *American Community Survey, ACS 1-Year Estimates Data Profiles, Table DP03*. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP1Y2023.DP03

[10] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Employment Status. American Community Survey, ACS 5-Year Estimates Subject Tables, Table S2301. Retrieved June 16, 2025, from https://data.census.gov/table/ACSST5Y2023.S2301

[11] U.S. Census Bureau. (n.d.). TOTAL POPULATION. *Decennial Census, DEC Demographic and Housing Characteristics, Table P1*. Retrieved June 23, 2025, from https://data.census.gov/table/DECENNIALDHC2020.P1

3.4.1 Sampson County

The population of Sampson County increased by 27.2% from 1990 to 2000 and by 5.4% from 2000 to 2010. Sampson County experienced a 7.07% decline in population from 2010 to 2023. The largest jurisdiction in Sampson County is Clinton, with an estimated 8,336 residents in 2023, followed by Roseboro and Garland, with 1,007 and 914 residents, respectively, according to 2023 ACS estimates. Sampson County has a median age of 40.7 years, with 19.7% of the residents aged 65 years or older. 14.6% of the population in Sampson County is reported to have a disability, and 7.1% have an independent living difficulty. Approximately 3.6% of the county's households are reported to have limited English-speaking capabilities, suggesting that the planning area develop multi-lingual communications for outreach and emergency alerts. In 2023, according to ACS estimates, the median household income in Sampson County was $53,159, and the unemployment rate was 5.2%.

3.4.2 Duplin County

The population of Duplin County increased by 22.7% from 1990 to 2000, and by 19.2% from 2000 to 2010. Table 3-2 has an overview of estimated populations by jurisdiction for 2010, 2020, and 2023. Duplin County experienced an overall 47.9% increase in population from 1990 to 2013. Duplin County's population has decreased by 19.27% between 2010 and 2023. The County has an estimated 19.7% of residents aged 65 or older, with a median age of 40.7 in 2023. Greenevers has the highest percentage of residents aged 65 or older at 33.0%, followed by Kenansville, Calypso, Faison, and Wallace, which have estimated percentages of 21.8%, 20.4%, 20.1%, and 19.7%, respectively. Greenevers also has the highest estimated portion of residents with a disability and independent living difficulty at approximately 37.0% and 36.1%.

The jurisdictions with the highest population growth between 2010 and 2023 were Turkey, Garland, Teachey, Kenansville, and Magnolia, which experienced 34.53%, 31.62%, 28.79%, 26.1%, and 15.33% population growth, respectively. Newton Grove has the highest number of residents aged 65 or older, with an estimated 34.5% of residents aged 65 years or older, followed by Greenevers, Roseboro, Harrells, and Kenansville, which had an estimated population of 65 years or older of 33.0%, 18.4%, 25.9%, and 21.8% respectively, in 2023. The jurisdictions with the highest proportions of residents with an independent living difficulty in 2023 were Clinton, Kenansville, Beulaville, Roseboro, and Magnolia, with 12.0%, 11.2%, 10.2%, 9.5%, and 8.0%, respectively.

3.5 Housing, Infrastructure, and Land Use

Several housing characteristics can indicate residents' capabilities in the planning area to prepare for, respond to, and recover from natural hazard impacts. This includes vehicle access, plumbing and kitchen facilities within the housing unit, telephone service, housing unit type, construction guidelines applicable at the time the unit was built, access to computers, and access to the internet in the housing unit.

***Table 3-5**: Planning area housing characteristics*

Jurisdiction	Housing Units (2013)[12]	ACS 2023 Selected Housing Characteristics 5-Year Estimates[13]						
		Housing Units (2023)	Change in Housing Units (2013-2023)	Renter Occupied	Owner Occupied	Occupied Housing Units	Vacant Housing Units	Median Home Value *(owner-occupied)* (2023)
Sampson	**27,083**	**25,739**	**-5.22%**	**27.2%**	**72.8%**	**21,321**	**4,418**	**$128,400**
Autryville	222	100	-122.00%	46.3%	53.7%	82	18	$115,400
Clinton	3,908	3,417	-14.37%	53.6%	46.4%	2,910	507	$185,600
Garland	259	362	28.45%	41.6%	58.4%	293	69	$113,400
Harrells	91	115	20.87%	25.9%	74.1%	81	34	$202,000
Newton Grove	292	349	16.33%	27.5%	72.5%	309	40	$155,000
Roseboro	736	523	-40.73%	43.5%	56.5%	405	118	$110,500
Salemburg	267	241	-10.79%	17.7%	82.3%	181	60	$166,500
Turkey	162	143	-13.29%	30.2%	69.8%	126	17	$49,200
Duplin	**25,495**	**23,823**	**-7.02%**	**30.0%**	**70.0%**	**20,096**	**3,727**	**$123,200**
Beulaville	791	771	-2.59%	43.8%	56.2%	**678**	93	$123,400
Calypso	226	206	-9.71%	52.0%	48.0%	198	8	$99,400
Faison	516	311	-65.92%	31.6%	68.4%	275	36	$93,300
Greenevers	404	365	-10.68%	21.0%	79.0%	305	60	$77,200
Kenansville	492	450	-9.33%	34.7%	65.3%	418	32	$144,800
Magnolia	426	510	16.47%	34.8%	65.2%	440	70	$76,900
Rose Hill	688	655	-5.04%	47.3%	52.7%	546	109	$116,200
Teachey	140	254	44.88%	32.9%	67.1%	228	26	$182,500
Wallace	2,018	1,859	-8.55%	49.6%	50.4%	1,640	219	$192,800
Warsaw	1,658	1,471	-12.71%	66.3%	33.7%	1,050	421	--

[12] U.S. Census Bureau. (n.d.). SELECTED HOUSING CHARACTERISTICS. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04. Retrieved June 19, 2025, from https://data.census.gov/table/ACSDP5Y2013.DP04

[13] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Housing Characteristics. *American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04*. Retrieved June 23, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP04

Vehicles Available

Not having vehicles available before, during, and after a natural disaster can limit residents' evacuation capabilities, leaving them stranded or dependent on public transportation. Vehicle Availability is crucial during time-sensitive, rapidly evolving natural hazard events, when evacuation and access to emergency services may be required. This includes hazards such as dam failure, floods, hurricanes, or wildfires, where residents may be stranded or unable to move themselves out of the projected area of impact. The county with the highest estimated percentage of residents without vehicles available in their housing unit is Duplin County, 5.8%, followed by Sampson County at 5.0%. The jurisdictions with the highest percentages of households without vehicle access are estimated to be Roseboro (16.3%), Garland (15.7%), Beulaville (14.3%), and Warsaw (13.9%).

Plumbing and Kitchen Facilities

Housing units without plumbing facilities can indicate vulnerability in the planning area, as units with limited sanitation and plumbing capabilities can have a worse public health impact during and after disasters. A housing unit without complete kitchen facilities can indicate a limited ability to store and prepare food for natural hazards, where power outages and supply disruptions may limit the ability to serve and prepare food. The estimated percentage of housing units without plumbing and complete kitchen facilities in the counties in the planning area is relatively low, but jurisdictions with elevated percentages should evaluate how to address these vulnerabilities.

Telephone Service, Computing Devices, and Internet Subscriptions

Residents in the planning area without telephone service, computing devices, or internet subscriptions may have limited ability to receive emergency alerts, access resources to prepare for natural hazards, and receive real-time alerts. Residents without telephone service in their housing unit may not receive emergency alerts and evacuation orders, have a reduced ability to call for help during medical emergencies and disasters, and be especially dangerous for individuals who rely on others to complete daily living activities. Lacking computing devices or internet subscriptions means residents may not be able to research available emergency services, such as shelters or evacuation routes, to prepare for natural hazards. This also limits residents' ability to apply for disaster relief assistance online, access real-time weather updates, receive community alerts, check in with friends or family, and research resources available before, during, and after natural hazard events in their community.

Sampson County is estimated to have the highest percentage of housing units without telephone service (0.9%), followed by Duplin County (0.6%). The three jurisdictions with the highest percentage of housing units without telephone service are Autryville (13.4%), Magnolia (5.2%), and Salemburg (3.9%), all of which exceed the North Carolina (NC) average of 0.9% for housing units with telephone service available. It is estimated that an average of 5.9% of households in NC lack access to a computing device, and 11.4% of households in NC do not have an internet subscription. Compared to the state average of 11.4% of households without an internet subscription, Duplin County and Sampson County have significantly higher proportions of residents without internet subscriptions, at 20.9% and 16.9%, respectively. Other

jurisdictions with notably higher percentages of households without access to a computing device and internet subscriptions include Greenevers (54.8%), Calypso (37.9%), and Autryville (25.6%). Jurisdictions with significant percentages of households with limited access to communications resources should consider mitigation actions to address limited internet, telephone, and/or computer access.

Mobile Homes, Boats, Recreational Vehicles (RVs), and Vans as a Primary Housing Unit

Residents of the planning area who have a Boat, Recreational Vehicle (RV), Mobile Home, Van, or similar as their primary housing unit may be at an elevated risk of experiencing damage from natural hazards such as floods, high winds, hurricanes, and tornados. Jurisdictions in the planning area with large portions of primary residences in these housing types should consider mitigation actions to address disproportionate vulnerabilities during natural disasters. The NC state average for mobile homes was 13.2% in 2023, and for Boats, RVs, Vans, and other non-traditional home structures, it was less than 1%. Sampson and Duplin Counties have higher percentages of mobile homes than the state average, with 34% in Sampson County and 31.5% in Duplin County.

***Table 3-6**: Alternative housing characteristics of the planning area*

Jurisdiction	ACS Selected Housing Characteristics Estimates[14]							ACS Types of Computers and Internet Estimates[15]	
	No Vehicles Available	Lacking Plumbing Facilities	Lacking Complete Kitchen Facilities	No Telephone Service	Mobile Home	Boat, RV, Van, Etc.	Housing Units Built 2020 or Later	No Computing Devices	No Internet Subscription
Sampson	**5.0%**	**0.3%**	**0.2%**	**0.9%**	**34.0%**	**0.2%**	**0.8%**	**11.7%**	**16.9%**
Autryville	0%	0%	0%	13.4%	33.0%	0%	0%	25.6%	25.6%
Clinton	12.3%	0.3%	0.1%	1.3%	0.8%	0.1%	0.3%	13.7%	21.8%
Garland	15.7%	0%	0%	1.7%	31.5%	0%	0%	7.8%	10.6%
Harrells	2.5%	0%	0%	0%	13.9%	0%	0%	**24.7%**	**22.2%**
Newton Grove	0.3%	0%	0%	0%	8.6%	0%	0%	18.8%	13.9%
Roseboro	16.3%	0%	0%	0%	13.2%	0%	0%	17.5%	22.7%
Salemburg	3.9%	3.9%	0%	3.9%	0%	0%	0.8%	13.3%	16.0%
Turkey	4.8%	10.3%	0%	0%	14.0%	0%	0%	17.5%	21.4%
Duplin	**5.8%**	**0.2%**	**0.3%**	**0.6%**	**31.5%**	**0%**	**0.9%**	**11.9%**	**20.9%**
Beulaville	14.3%	1.9%	1.9%	3.1%	23.0%	0%	2.1%	9.6%	19.9%

[14] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Housing Characteristics. *American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04*. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP04

[15] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Types of Computers and Internet Subscriptions. American Community Survey, ACS 5-Year Estimates Subject Tables, Table S2801. Retrieved June 16, 2025, from https://data.census.gov/table/ACSST5Y2023.S2801

Jurisdiction	ACS Selected Housing Characteristics Estimates[14]							ACS Types of Computers and Internet Estimates[15]	
	No Vehicles Available	Lacking Plumbing Facilities	Lacking Complete Kitchen Facilities	No Telephone Service	Mobile Home	Boat, RV, Van, Etc.	Housing Units Built 2020 or Later	No Computing Devices	No Internet Subscription
Calypso	3.0%	0%	0%	0%	23.3%	0%	0%	12.6%	37.9%
Faison	6.2%	0%	0%	1.5%	20.9%	0%	1.3%	12.0%	19.6%
Greenevers	5.9%	0%	0%	1.6%	18.1%	0%	1.1%	49.5%	54.8%
Kenansville	11.0%	0%	1.4%	0%	7.6%	0%	0%	10.8%	17.9%
Magnolia	11.8%	0%	0%	5.2%	29.2%	0.4%	0%	10.0%	15.0%
Rose Hill	9.3%	0%	0%	0.5%	13.0%	0%	0%	15.6%	21.8%
Teachey	4.8%	0.4%	0.4%	0.4%	5.9%	0%	0%	4.4%	9.6%
Wallace	5.8%	0%	0%	0%	4.8%	0%	2.8%	15.4%	18.7%
Warsaw	13.9%	0%	0%	0%	14.3%	0%	0%	16.3%	21.0%

3.5.1 Sampson County

The number of occupied housing units in the County, as reported in the 2010 American Community Survey, was 23,336, or 86.2% of the total housing units. As of 2023, the ACS reported approximately 25,739 housing units in Sampson County, of which 72.8% were owner-occupied and 27.2% were rented. Sampson County experienced a 5.22% decrease in housing units, from 27,083 in 2013 to approximately 25,739 in 2023. The median home value of owner-occupied housing in Sampson County was $128,000 in 2023. There were approximately 4,418 vacant housing units in the County in 2023. As of 2023, Harrells had the highest vacancy rate at 29.57%, followed by Salemburg (24.90%) and Roseboro (22.57%). At least 50% of all occupied housing units in Sampson County are owner-occupied, meaning these residents are more likely to engage in mitigation planning activities specific to their homes, such as applying for homeowner mitigation grant funding, elevating structures, or purchasing flood insurance.

3.5.2 Duplin County

The number of occupied housing units in the County, as reported in the 2010 American Community Survey, was 22,052, or 86.5% of the total housing units. As of 2023, according to the ACS, there were an estimated 23,823 total housing units in Duplin County, with 20,096 occupied and 3,727 vacant units, for an 84.3% occupancy rate. Between 2013 and 2023, the number of housing units declined from 25,495 to 23,823, possibly due to reclassifications and demolitions. Teachey and Magnolia experienced increases of 81.43% and 19.72%, respectively, but the other jurisdictions are estimated to have declined in the number of housing units. Of these housing units, the median home value for owner-occupied units was reported as $123,200, with 70% owner-occupied and 30% renter-occupied. The jurisdictions in Duplin County with the highest vacancies in 2023 are estimated to be Warsaw (28.62%), Greenevers (16.44%), and Wallace (11.78%). Due to the high proportion of owner-occupied housing units,

the residents in the planning area may be more likely to participate in home mitigation projects such as home elevation, mitigation grant programs, and purchasing flood insurance.

3.5.3 Transportation

Sampson and Duplin Counties are centrally located within the Southeastern Coastal Plain of North Carolina. There are approximately 3,633 miles of roads in the planning area, 2,006 miles in Sampson County, and 1,627 miles in Duplin County (**Table 3-8**). Key transportation routes through the Region include US 421, which runs north-south through Sampson County, and Interstate 40, which runs north-south from Wilmington to Raleigh. The primary east-west route through the two counties is NC Highway 24. CSX Transportation provides service running north-south through both Wallace and Warsaw. A spur line also extends west to serve the City of Clinton. The closest regional airport serving the Sampson-Duplin Region is in the City of Goldsboro. Most residents, however, rely on either Wilmington International Airport (ILM) or Raleigh-Durham International Airport (RDU) for air transportation. The following provides the general location of these facilities, as well as the two-county region. The table below provides a regional location map of Sampson and Duplin Counties.

Table 3-7: *Mapped Flood Insurance Zones within the Region*

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.
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, e. 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 0.2-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.

***Table 3-8**: Miles of road in flood hazard areas in the planning area*[16]

County	Jurisdiction	Miles of Road in Flood Hazard Areas					
		0.2% Annual Chance Flood Hazard	A	AE	AO	X	Total
Duplin	Beulaville	-	-	-	-	20.23	20.23
	Calypso	-	-	5.33	-	14.71	20.04
	Faison	-	-	0.58	-	11.26	11.84
	Greenevers	-	-	-	-	12.06	12.06
	Harrells	-	-	-	-	1.47	1.47
	Kenansville	-	-	0.27	-	16.00	16.26
	Magnolia	-	-	-	-	16.10	16.10
	Mount Olive	-	-	-	-	0.66	0.66
	Pink Hill	-	-	-	-	0.43	0.43
	Rose Hill	-	-	-	-	23.83	23.83
	Teachey	-	-	-	-	10.78	10.78
	Wallace	1.56	-	0.32	-	42.33	44.21
	Warsaw	-	-	-	-	35.71	35.71
	Unincorporated Area	15.69	0.70	152.75	0.21	1244.05	1413.41
Duplin Total		**17.25**	**0.70**	**159.25**	**0.21**	**1449.61**	**1627.02**
Sampson	Autryville	-	-	0.44	-	8.43	8.87
	Clinton	2.28	-	4.13	-	94.51	100.92
	Garland	-	-	-	-	19.70	19.70
	Harrells	-	-	-	-	11.59	11.59
	Newton Grove	0.06	-	1.50	-	15.13	16.69
	Roseboro	-	-		-	23.49	23.49
	Salemburg	-	-	0.93	-	12.97	13.90
	Turkey	-	-	0.43	-	6.13	6.57
	Unincorporated Area	6.28	2.78	118.48	0.80	1676.31	1804.65
Sampson Total		**8.62**	**2.78**	**125.92**	**0.80**	**1868.26**	**2006.38**
Planning Area Total		**25.87**	**3.48**	**285.17**	**1.01**	**3317.89**	**3633.42**

[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

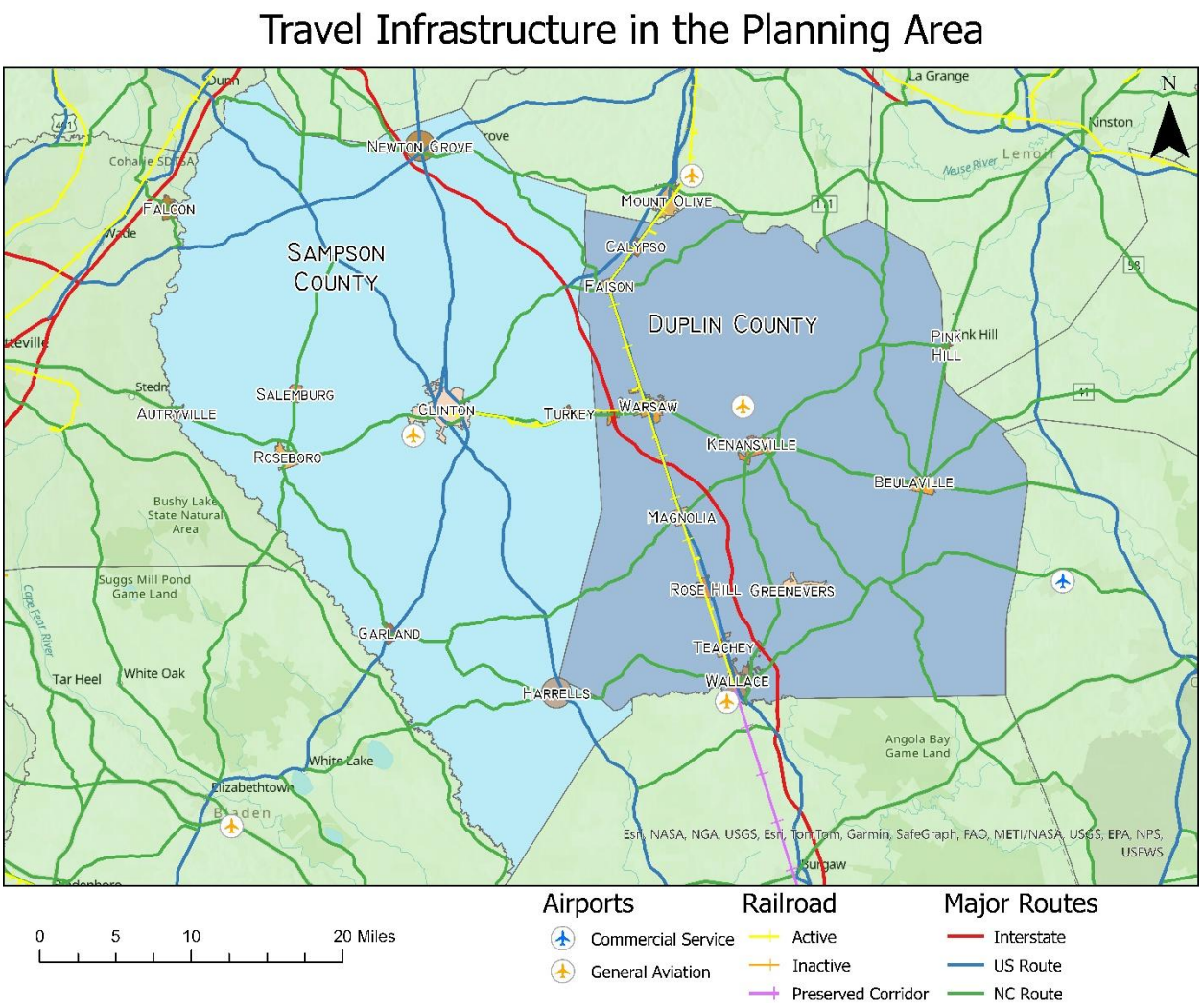


***Figure 3-2**: Transportation infrastructure in the planning area*

3.5.4 Utilities

In Sampson County, the water utilities are managed by Sampson County Public Works, which purchases water from Clinton, Garland, Roseboro, and Turkey for resale to the water district customers.[17] Clinton, Garland, Roseboro, and Turkey obtain their water from groundwater supplies. Sampson County is producing groundwater supplies from recently installed wells and plans for future expansions. In the City of Clinton, the Clinton Public Works and Utilities Department is responsible for water and sewer services. But areas outside the City of Clinton generally rely on on-site septic systems regulated by the Sampson County Division of Environmental Health, which oversees permitting, inspections, and maintenance. The primary electricity providers are Duke Energy Progress, the South River Electric Membership Corporation (EMC), and Four County Electric. Natural gas is provided to Sampson County by

[17] Water operation. (n.d.). Sampson County Government. https://www.sampsoncountync.gov/Government/Departments-A-Z/Public-Works/Water-Operation

Piedmont Natural Gas, formerly Dominion Energy, which was acquired by Enbridge in 2024 and is regulated by the NC Utilities Commission (NCUC).

The Duplin County Water Department serves the entire county, with approximately 7,200 customers.[18] The Duplin County water system has 13 elevated storage tanks, 14 groundwater wells, and six booster pump stations. The Duplin County Water Department delivers an average of 1,600,000 gallons of water every day. While Duplin County does not have a countywide public sewer system, some municipalities may operate their own municipal sewer systems within jurisdictional or town limits; Kenansville, Warsaw, Wallace, Beulaville, and Mount Olive (primarily located in Wayne County) manage their own municipal sewer infrastructure. Duplin County regulates and permits septic systems within the County if residents are not located in an area served by a municipal sewer system. The primary energy providers in Duplin County include Jones-Onslow Electric Membership Corporation, Four County Electric Membership Corporation, Tri-County Electric Membership Corporation, and Duke Energy Progress. Piedmont Natural Gas or Enbridge Gas can provide the primary natural gas service.

3.5.5 Critical Facilities

According to NC OneMap data, there are three critical facilities in an AE Zone, which have a 1% annual chance of flooding, also known as the 100-year floodplain. There are four critical facilities within the 0.2% annual chance flood hazard zone. For more information about the critical facilities in a flood zone, see Appendix D.

***Table 3-9**: Critical facilities in the planning area*

County	EMS[19]	EOC[20]	Fire Station	Law Enforcement	Medical Facility	Nursing Home	School	Total
DUPLIN	14	-	20	1	45	9	24	113
SAMPSON	19	1	17	1	43	6	31	118
Total	**33**	**1**	**37**	**2**	**88**	**15**	**55**	**231**

***Table 3-10**: Critical facilities in the planning area and their flood hazard area[21]*

County	Jurisdiction	Critical Facility Type	Flood Hazard Area		
			0.2% Annual Chance Flood Hazard	AE	X
Duplin	Beulaville	Ambulance And Fire Service Combined	-	-	1

[18] Duplin County North Carolina. (n.d.). Water Utility. Duplin County, NC. Retrieved June 26, 2025, from https://www.duplinnc.gov/220/Water-Utility

[19] Emergency Medical Services

[20] Emergency Operations Center

[21] State of North Carolina & NC OneMap. (2023). Medical Facilities [Dataset]. In NC One Map. NC One Map. https://www.nconemap.gov/datasets/nconemap::medical-facilities/about ;
Emergency medical services (By State of North Carolina). (2023, March 22). NC OneMap. https://www.nconemap.gov/datasets/e43a159e4f584a3b8d5ffb797abc48a9_0/explore;
NC fire stations. (2024, September 10). NC OneMap. https://www.nconemap.gov/datasets/6f4fe0c55b0d4cbb92877e461d698c29_0/explore?location=34.621175%2C-80.017373%2C6.48;

County	Jurisdiction	Critical Facility Type	Flood Hazard Area		
			0.2% Annual Chance Flood Hazard	AE	X
		Ambulance Services, Air or Ground	-	-	1
		Fire Department	-	-	1
		Homes For the Elderly Without Nursing Care	-	-	1
		Mental Health Home	-	-	1
		School	-	-	2
	Calypso	Fire Department	-	-	1
	Faison	Ambulance Services, Air or Ground	-	-	1
		Fire And Rescue Service	-	-	1
		Fire Department	-	-	1
		Mental Health Home	-	-	6
	Greenevers	Fire Department	-	-	1
	Kenansville	Ambulance And Fire Service Combined	-	-	1
		Ambulance Services, Air or Ground	-	-	1
		Fire Department	-	-	1
		Home Care	-	-	4
		Home For the Aged	-	-	1
		Homes For the Elderly Without Nursing Care	-	-	1
		Hospital	-	-	1
		Law Enforcement	-	-	2
		Mental Health Home	-	-	2
		Nursing Home	-	-	2
		School	-	-	3
	Magnolia	Fire Department	-	-	1
		Mental Health Home	-	-	1
	Rose Hill	Ambulance Services, Air or Ground	-	-	1
		Fire Department	-	-	1
		Home For the Aged	-	-	1
		Homes For the Elderly Without Nursing Care	-	-	1
	Teachey	Fire Department	-	-	1
	Wallace	Ambulance Services, Air or Ground	-	-	1
		Fire Department	-	-	1
		Home For the Aged	-	-	2

State of North Carolina. (2023b). Law Enforcement Locations [Dataset]. In NC OneMap. https://www.nconemap.gov/search?groupIds=2b0fd568b5234936a139f67a7ccdb014;
NC One Map & State of North Carolina. (2023b). Public Schools [Dataset]. In NC One Map. NC One Map. https://www.nconemap.gov/datasets/dea6ff0e8b4743a0ba361e13a85a4c70_3/explore;
North Carolina Department of Administration, & Brown, J. (2024). NC Non-Public Schools (Latest Version) [Dataset]. In NC One Map. NC One Map. https://www.nconemap.gov/datasets/91c068363523484fa2221d0e27998f7c_0/explore

County	Jurisdiction	Critical Facility Type	Flood Hazard Area		
			0.2% Annual Chance Flood Hazard	AE	X
		Homes For the Elderly Without Nursing Care	-	-	2
		Mental Health Home	-	-	2
		Nursing Home	-	-	1
		School	-	-	4
	Warsaw	Ambulance And Fire Service Combined	-	-	1
		Ambulance Services, Air or Ground	-	-	1
		Fire Department	-	-	2
		Home Care	-	-	2
		Mental Health Home	-	-	4
		Nursing Home	-	-	1
		School	-	-	2
	Other	Ambulance And Fire Service Combined	-	-	1
		Ambulance Services, Air or Ground	-	-	2
		Fire And Rescue Service	-	-	1
		Fire Department	1	1	8
		Home For the Aged	-	-	2
		Homes For the Elderly Without Nursing Care	1	-	-
		Medical Facility	-	-	5
		Mental Health Home	-	1	7
		Nursing Home	-	-	2
		School	-	-	13
Duplin Total			**2**	**2**	**111**
Sampson	Autryville	Ambulance Services (Rescue & EMS)	-	-	1
		Fire Department	-	-	1
	Clinton	Ambulance Services, Air or Ground	-	-	1
		Fire And Rescue Service	-	-	1
		Fire Department	-	1	1
		Home Care	1	-	5
		Home For the Aged	-	-	1
		Homes For the Elderly Without Nursing Care	-	-	2
		Hospital	-	-	1
		Law Enforcement	1	-	1
		Mental Health Home	-	-	7
		Nursing Home	-	-	1
		Rescue Services, Medical	-	-	1
		School	-	-	10
	Garland	Ambulance And Fire Service Combined	-	-	1
		Home For the Aged	-	-	1

County	Jurisdiction	Critical Facility Type	Flood Hazard Area		
			0.2% Annual Chance Flood Hazard	AE	X
		Mental Health Home	-	-	1
		Rescue Services, Medical	-	-	1
	Harrells	Fire Department	-	-	1
		Rescue Services, Medical	-	-	1
		School	-	-	1
	Newton Grove	Fire Department	-	-	1
		Home For the Aged	-	-	1
		Homes For the Elderly Without Nursing Care	-	-	1
		Rescue Services, Medical	-	-	1
	Roseboro	Fire Department	-	-	1
		Home Care	-	-	5
		Rescue Services, Medical	-	-	1
		School	-	-	2
	Salemburg	Ambulance And Fire Service Combined	-	-	1
		Fire Department	-	-	1
		School	-	-	2
	Turkey	Ambulance And Fire Service Combined	-	-	1
		Fire Department	-	-	1
	Other	Ambulance And Fire Service Combined	-	-	4
		Ambulance Services, Air or Ground	-	-	1
		Fire And Rescue Service	-	-	2
		Fire Department	-	-	10
		Home Care	-	-	1
		Home For the Aged	-	-	3
		Homes For the Elderly Without Nursing Care	-	-	1
		Medical Facility	-	-	4
		Mental Health Home	-	-	10
		Nursing Home	-	-	2
		Rescue Services, Medical	-	-	2
		School	-	-	16
Sampson Total			**2**	**1**	**116**
Planning Area Total			**4**	**3**	**227**

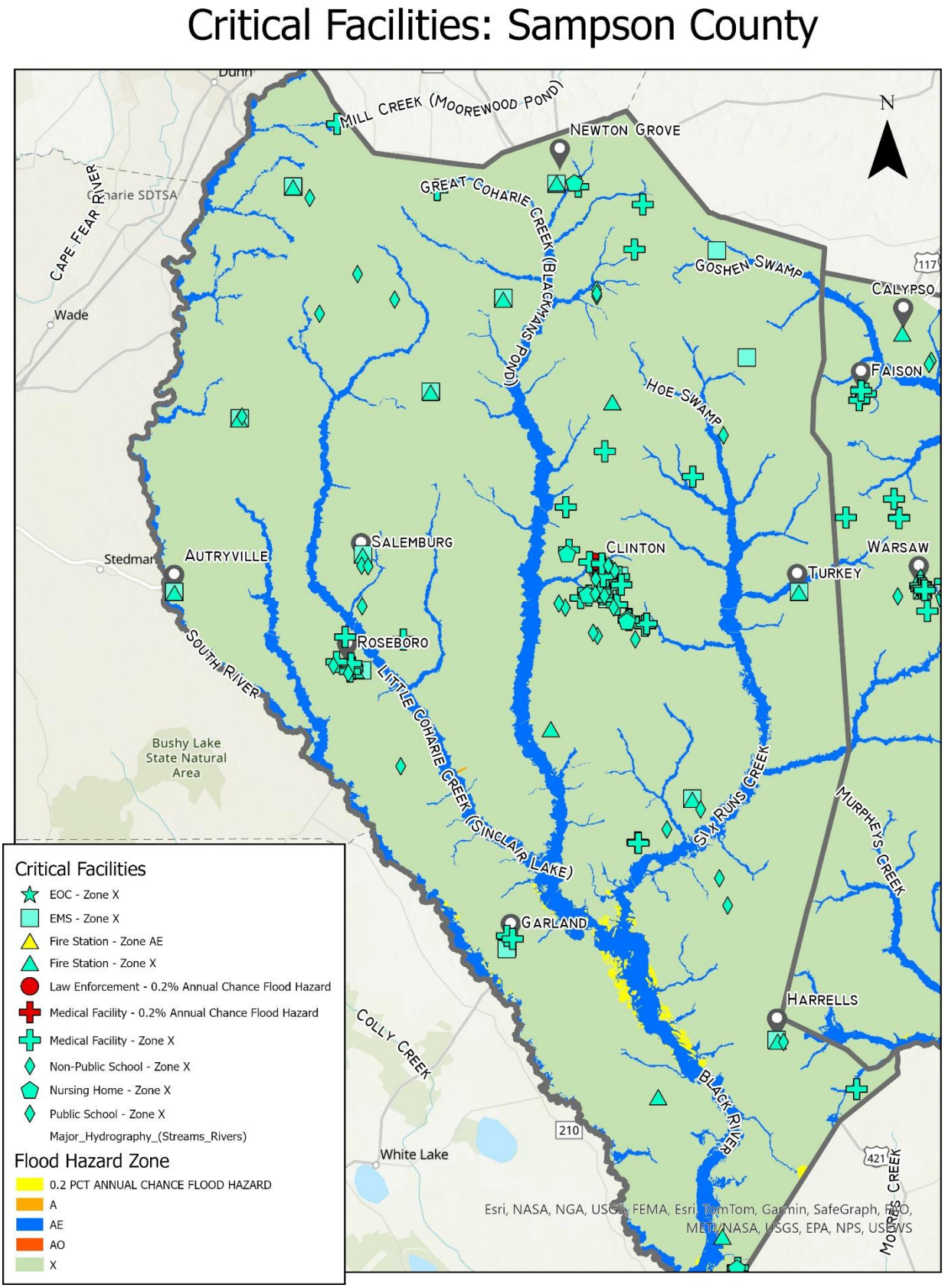


***Figure 3-3**: Critical Facilities in Sampson County*

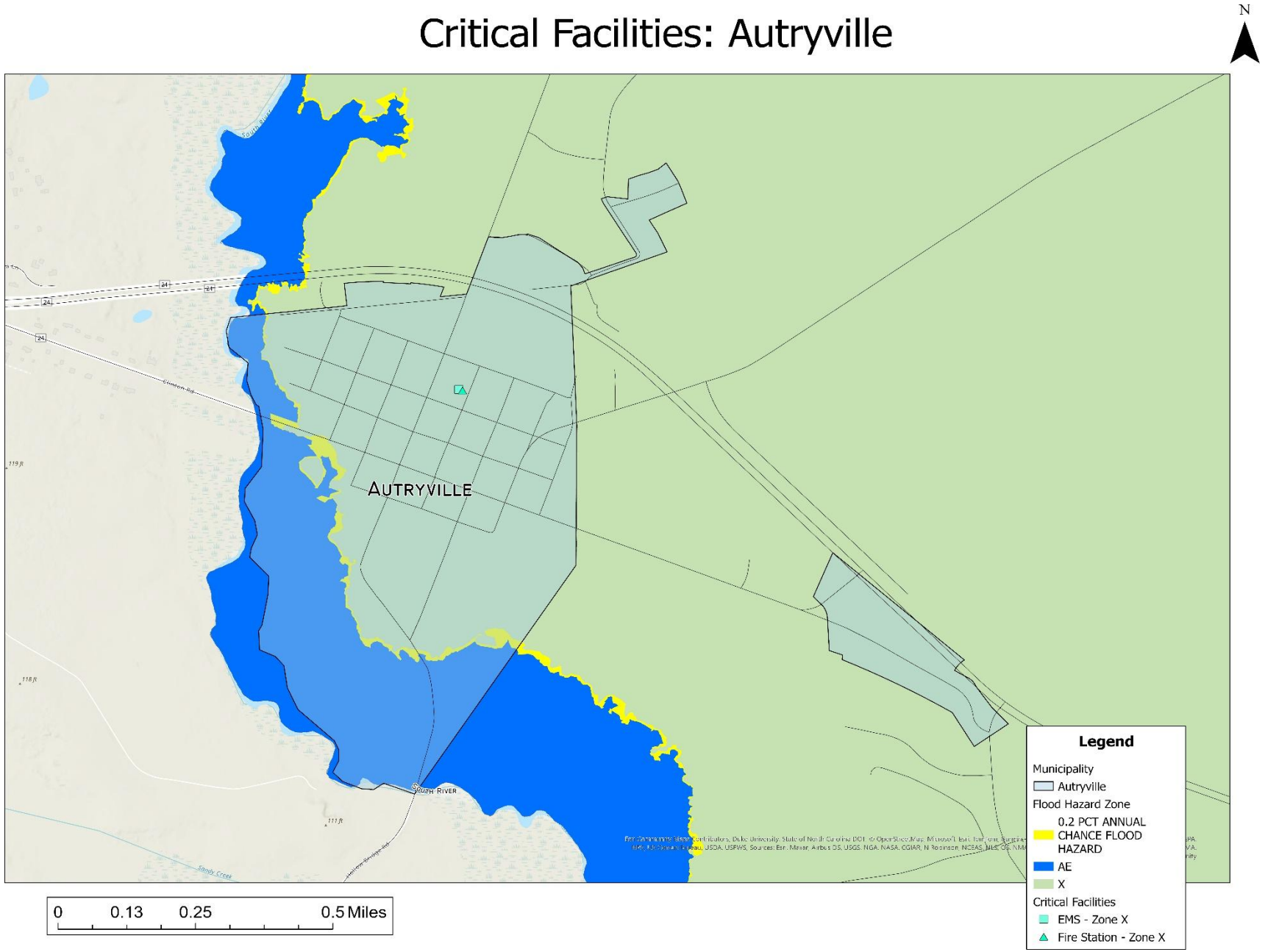


***Figure 3-4**: Critical Facilities in Autryville*

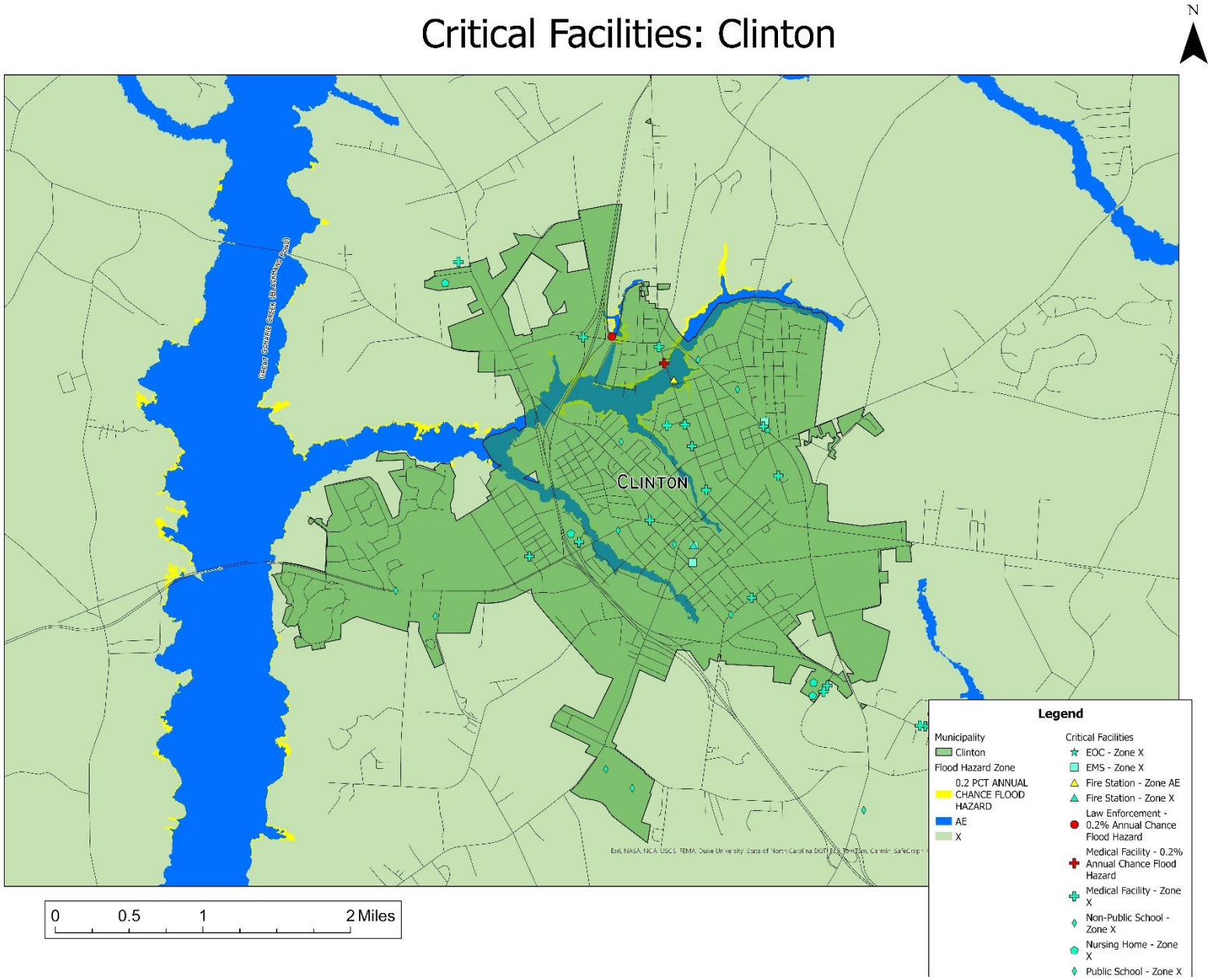


***Figure 3-5**: Critical Facilities in Clinton*

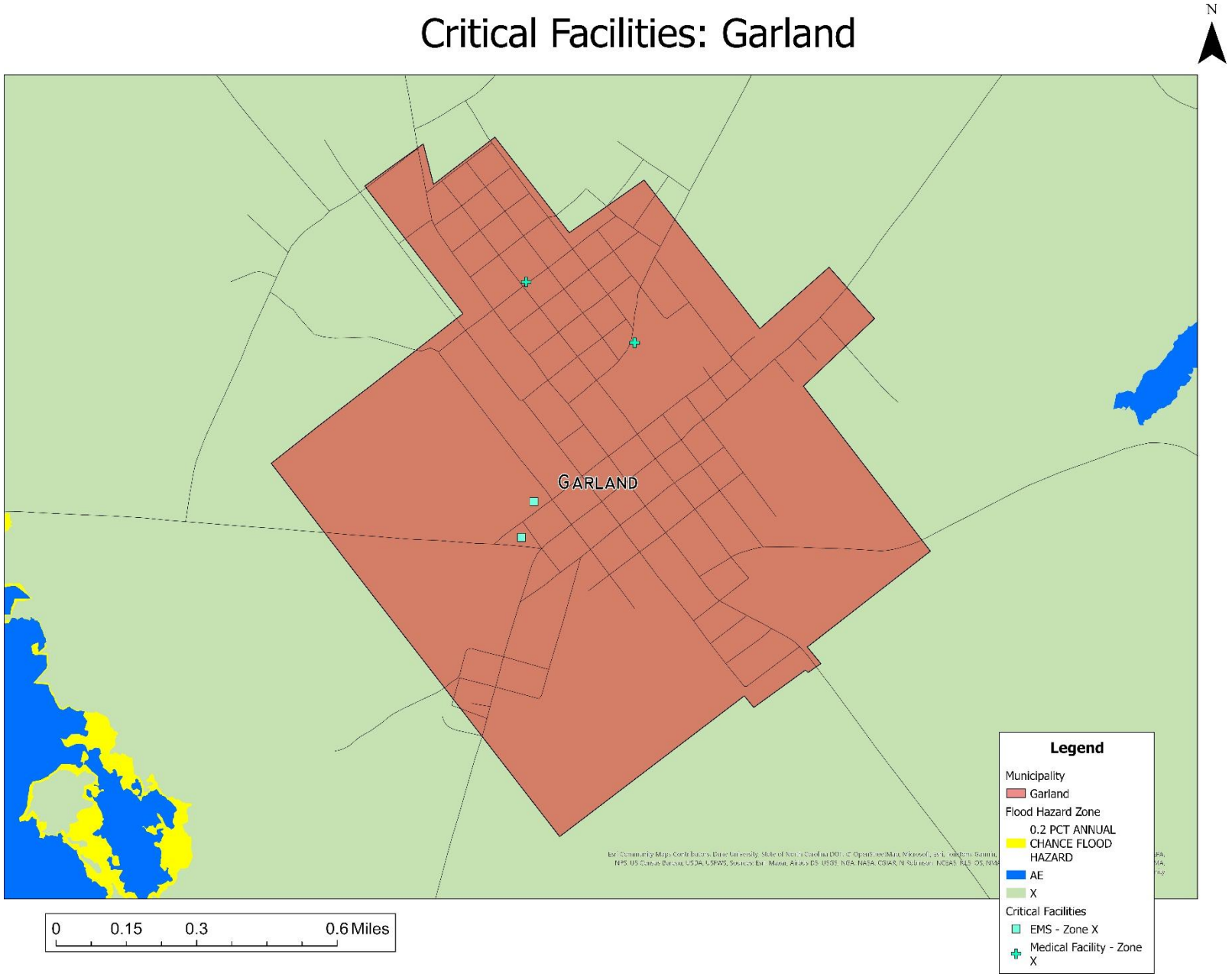


***Figure 3-6**: Critical Facilities in Garland*

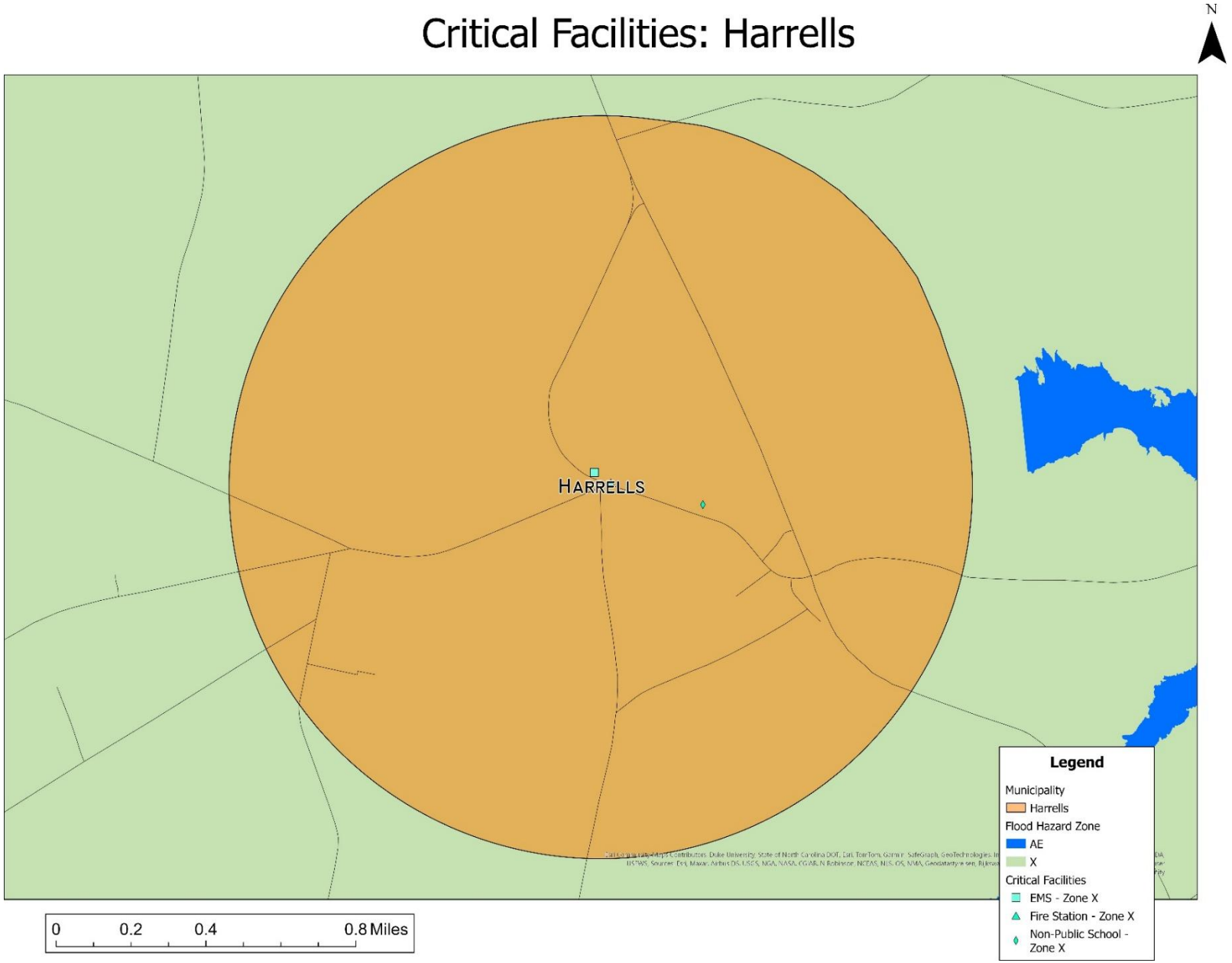


***Figure 3-7**: Critical Facilities in Harrells*

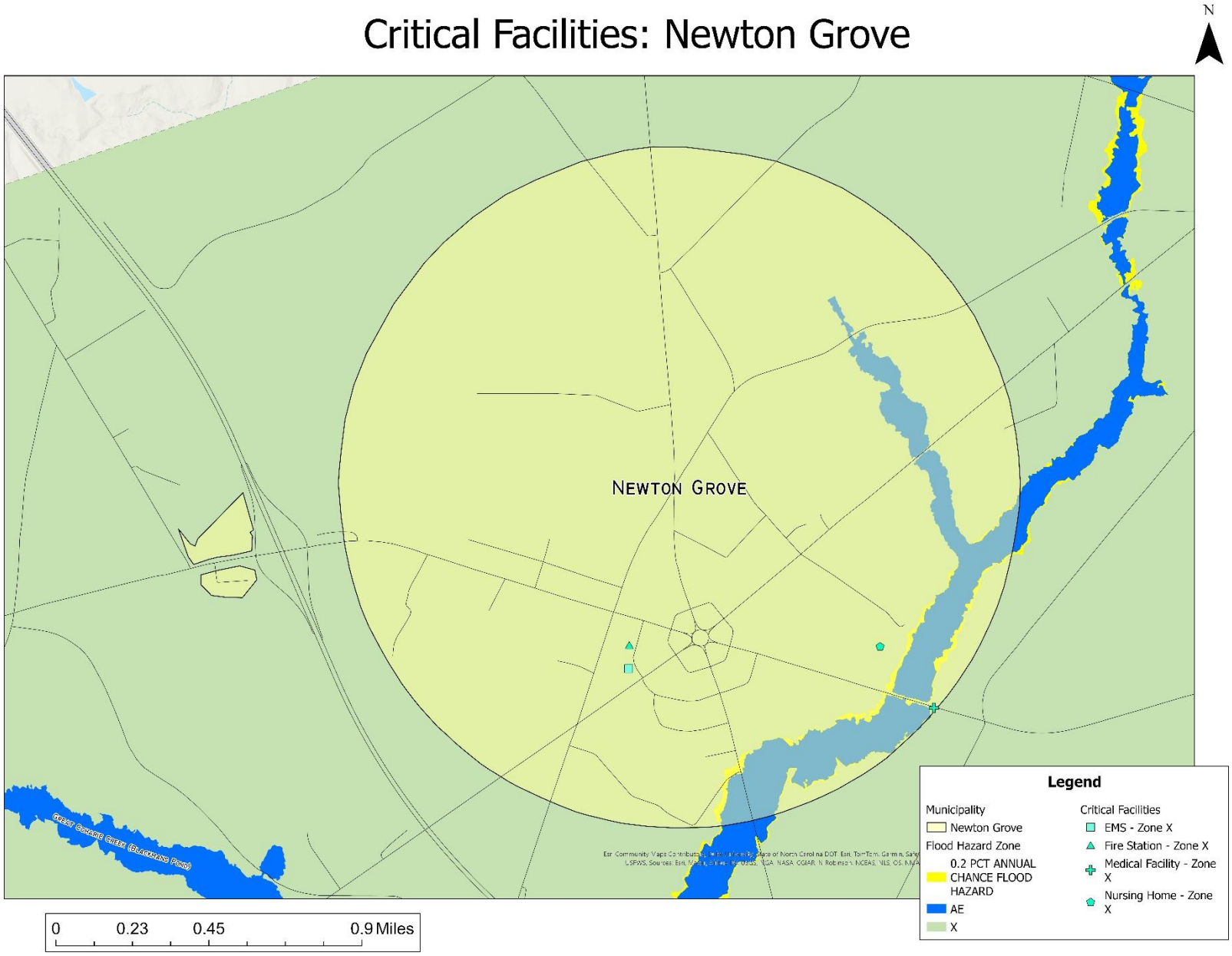


***Figure 3-8**: Critical Facilities in Newton Grove*

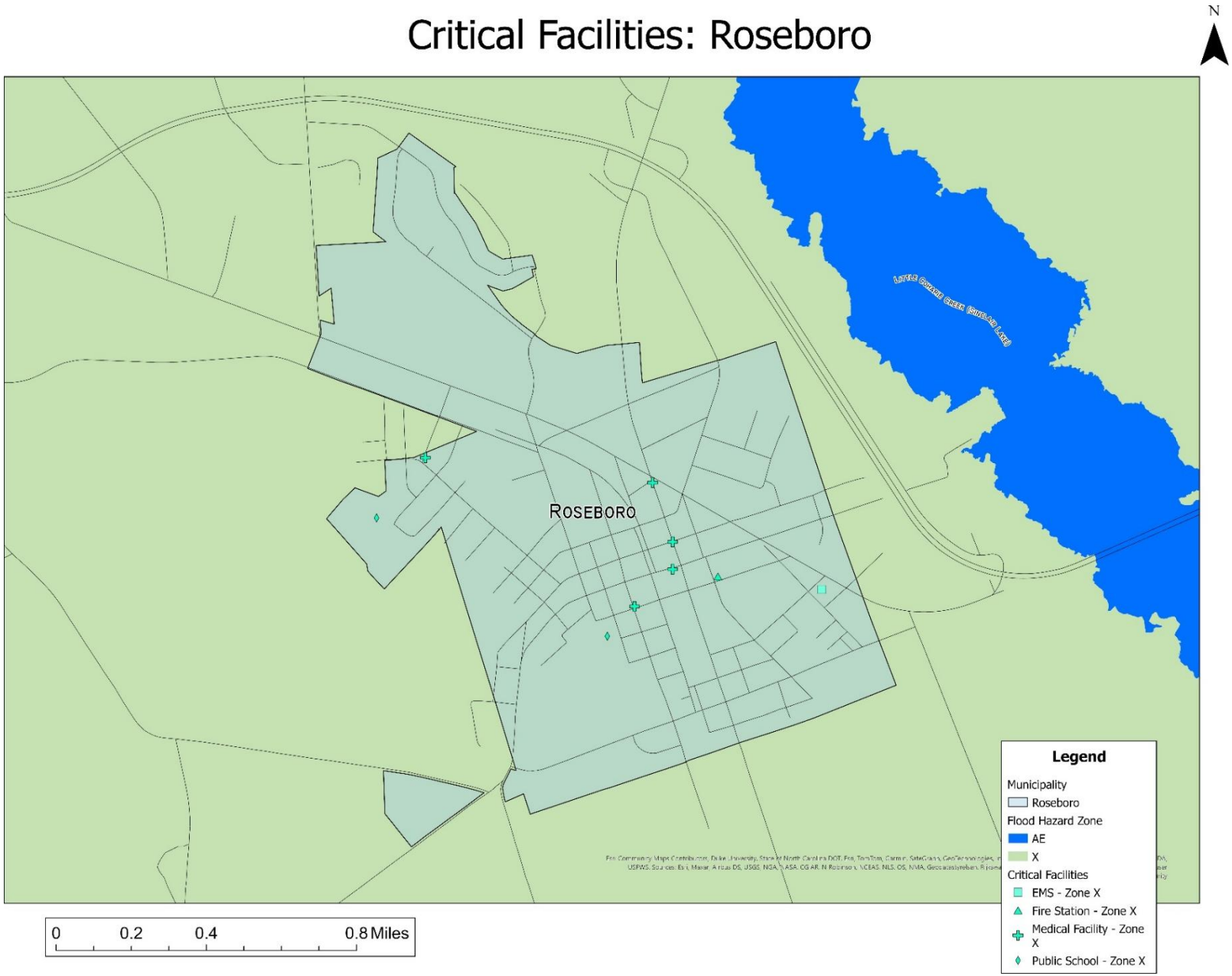


***Figure 3-9**: Critical Facilities in Roseboro*

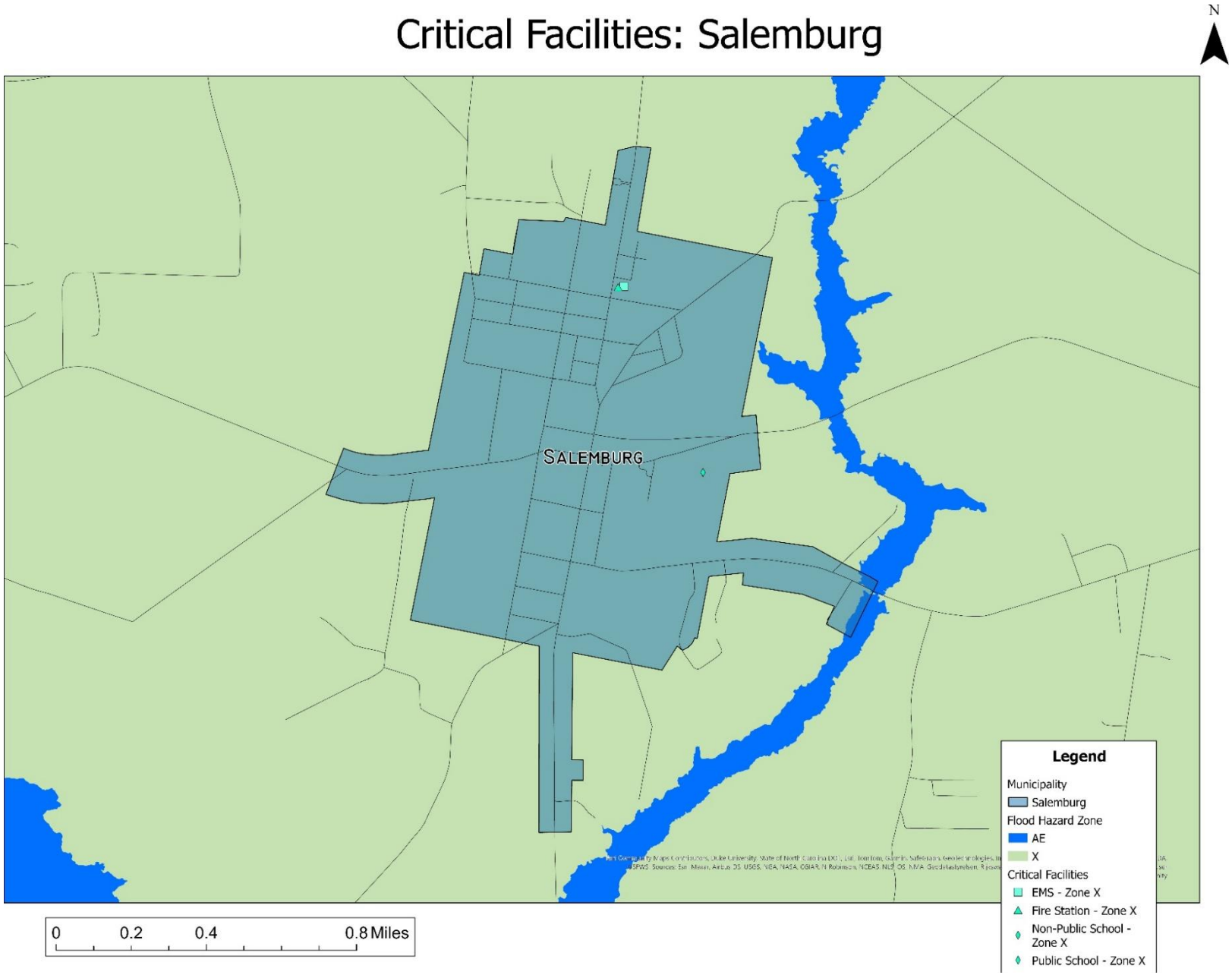


***Figure 3-10**: Critical Facilities in Salemburg*

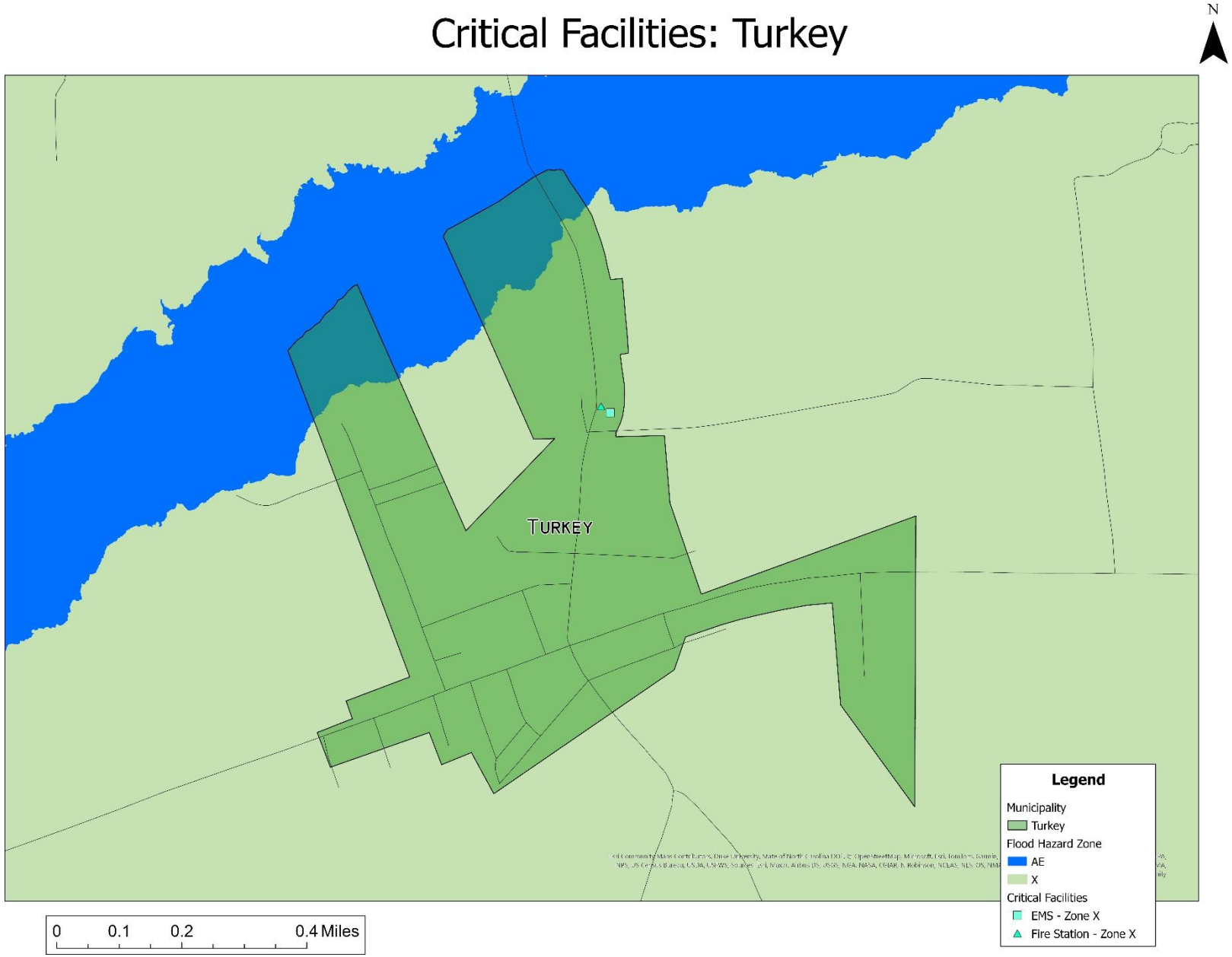


***Figure 3-11**: Critical Facilities in Turkey*

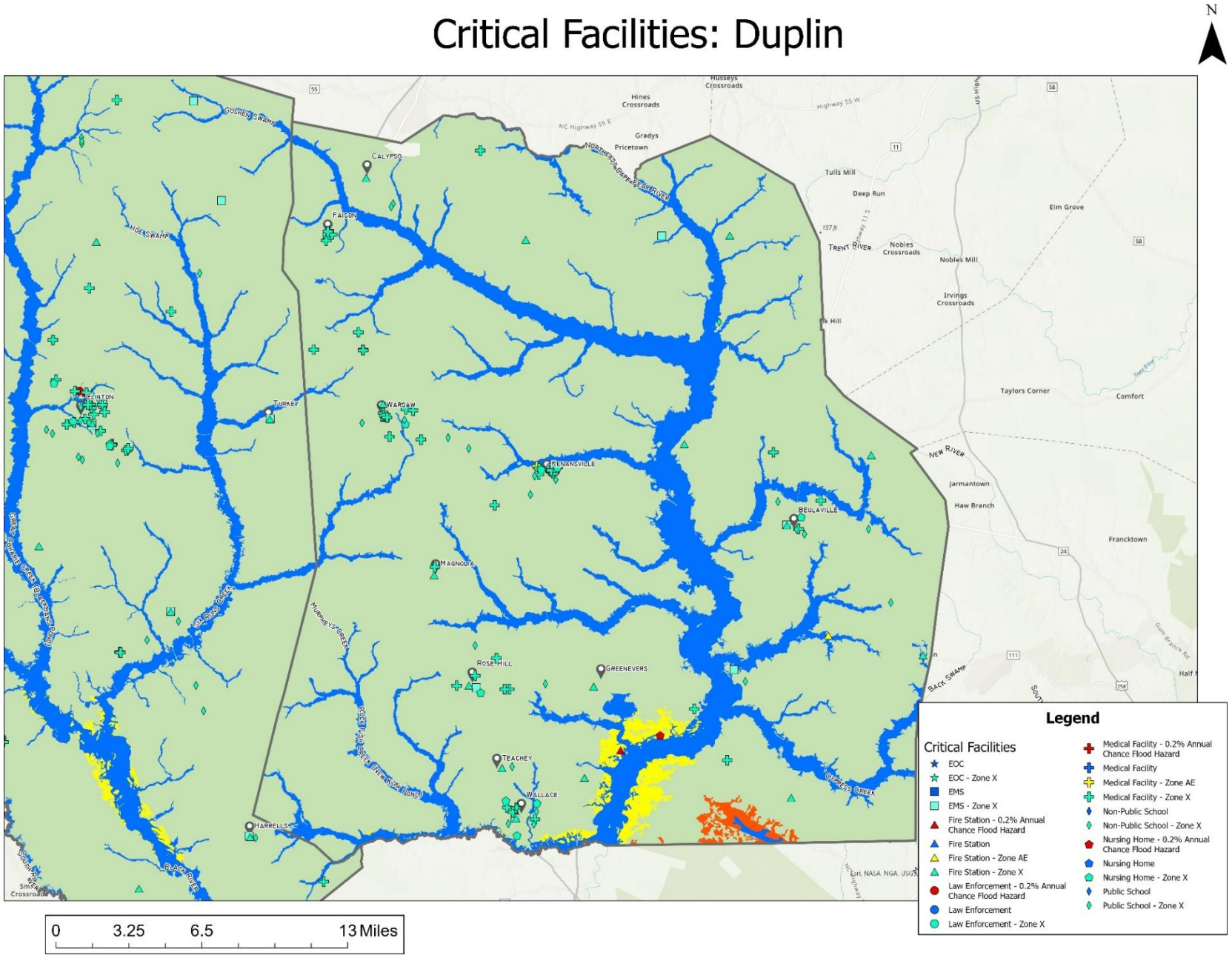


***Figure 3-12**: Critical Facilities in Duplin County*

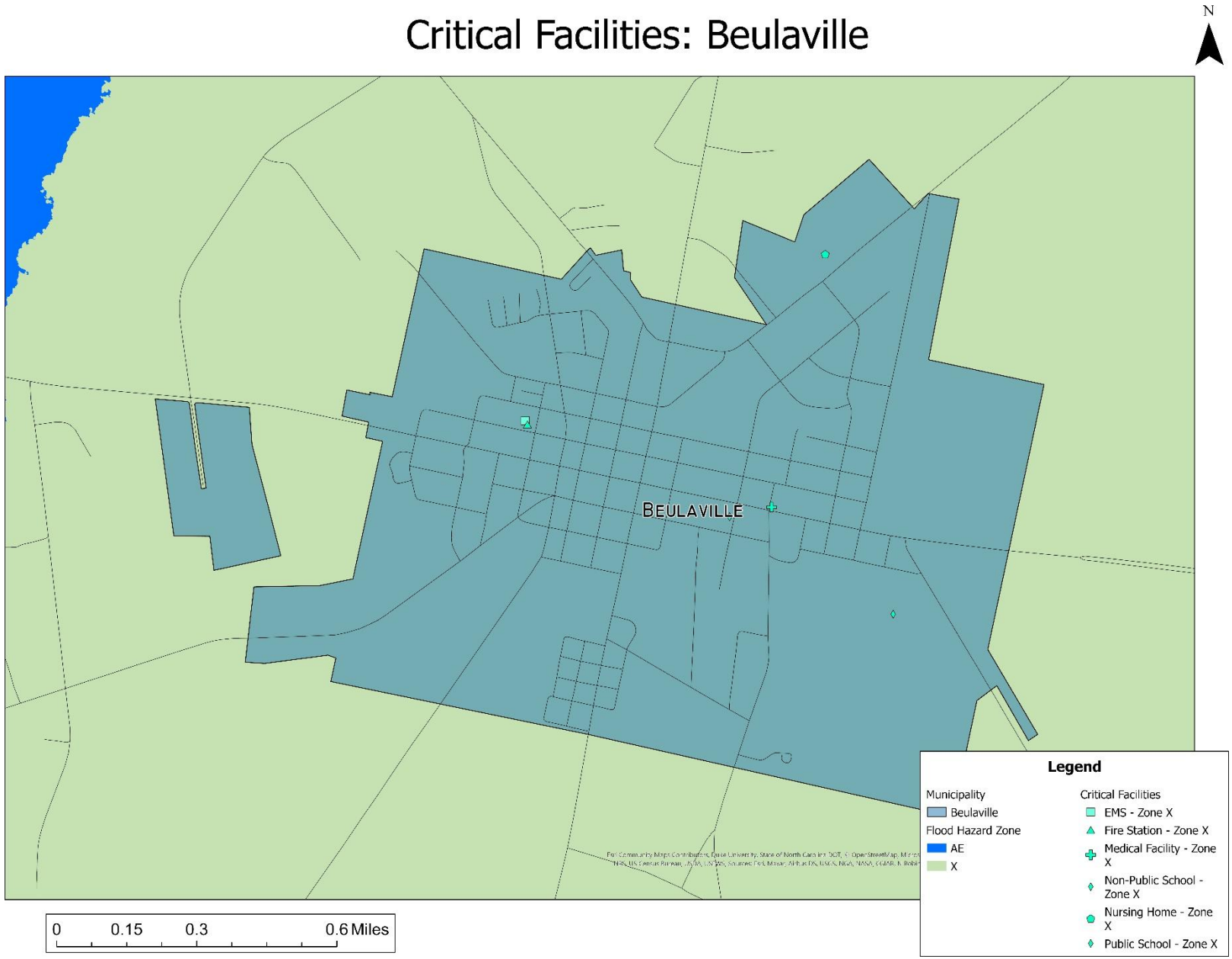


***Figure 3-13**: Critical Facilities in Beulaville*

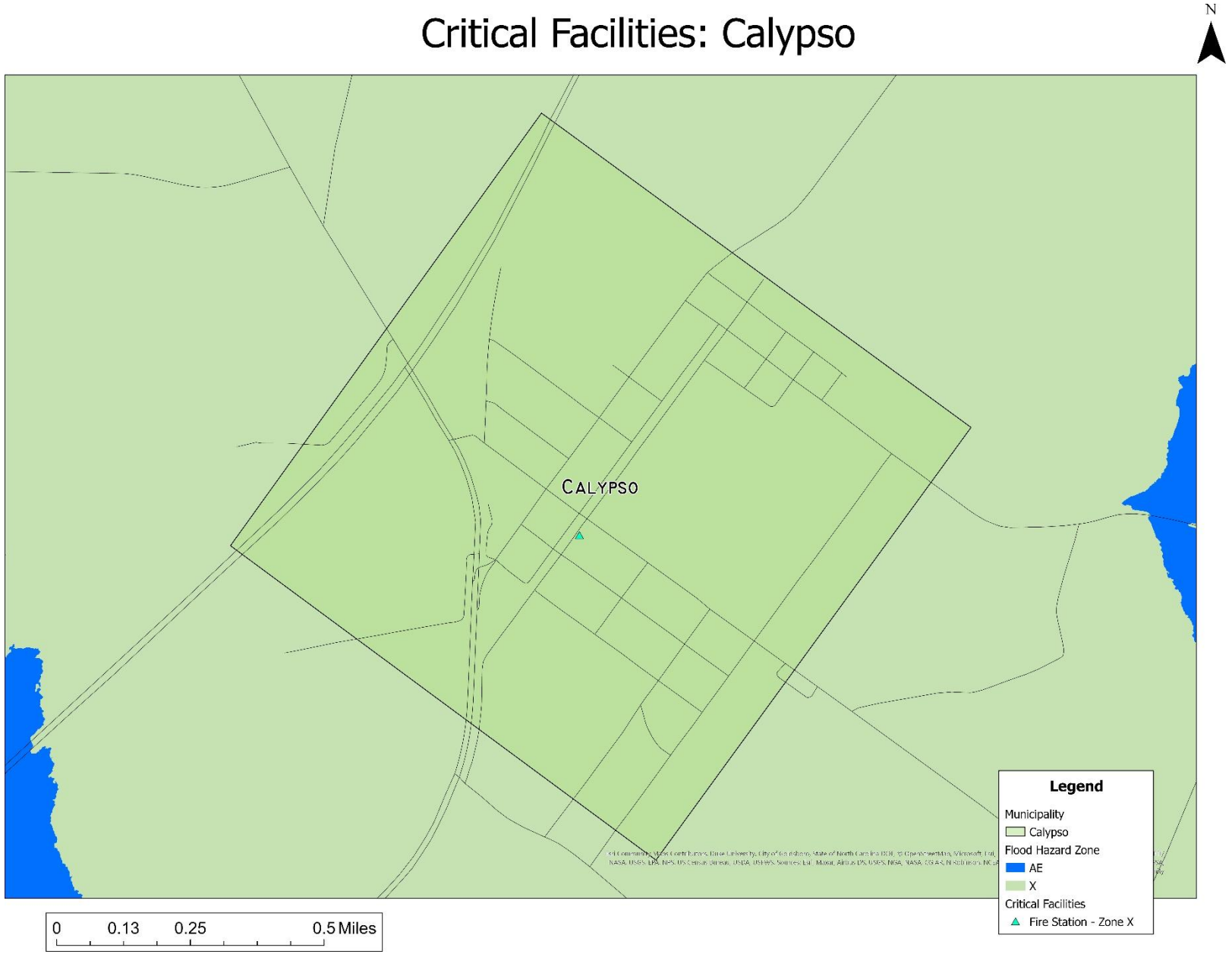


***Figure 3-14**: Critical Facilities in Calypso*

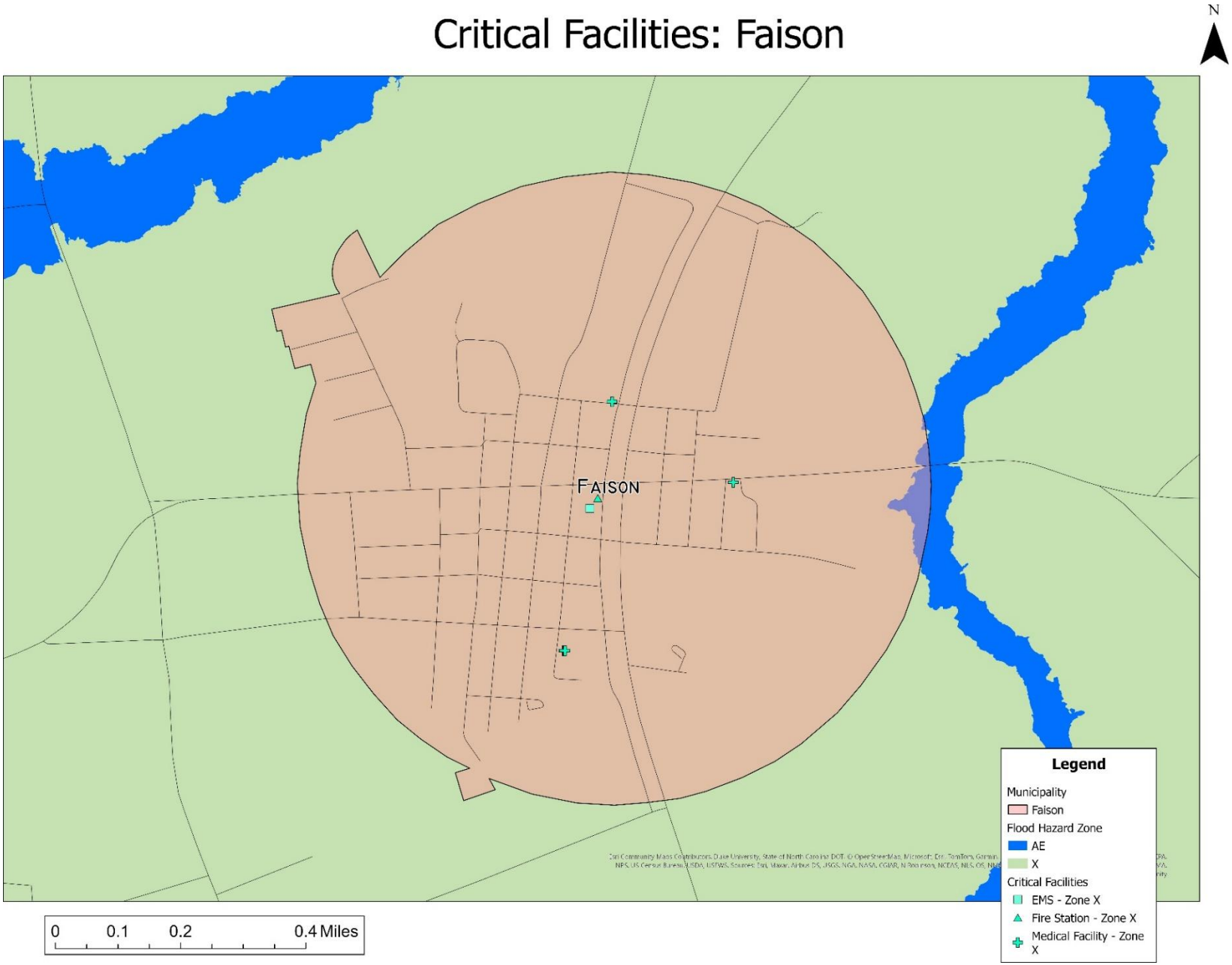


***Figure 3-15**: Critical Facilities in Faison*

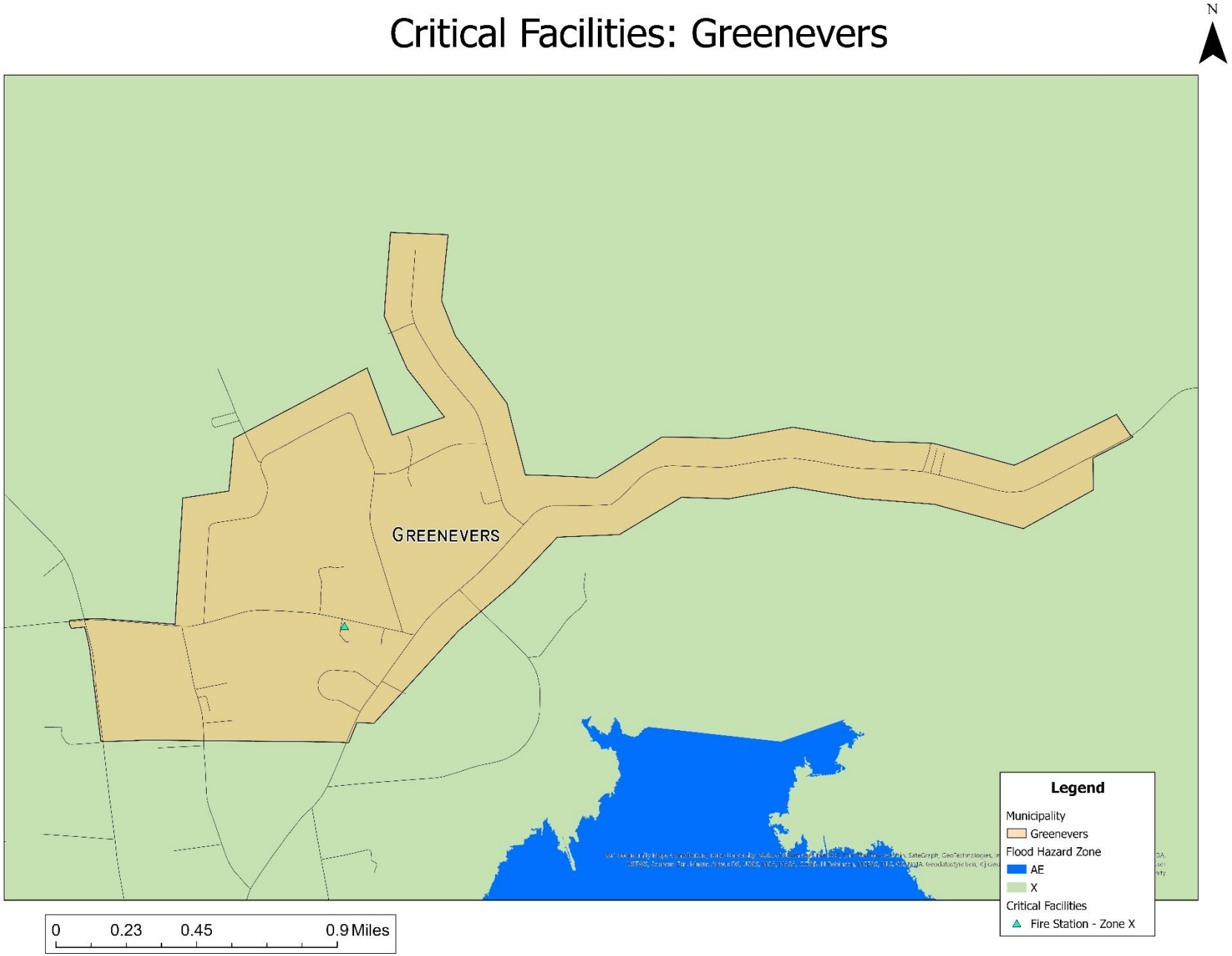


***Figure 3-16**: Critical Facilities in Greenevers*

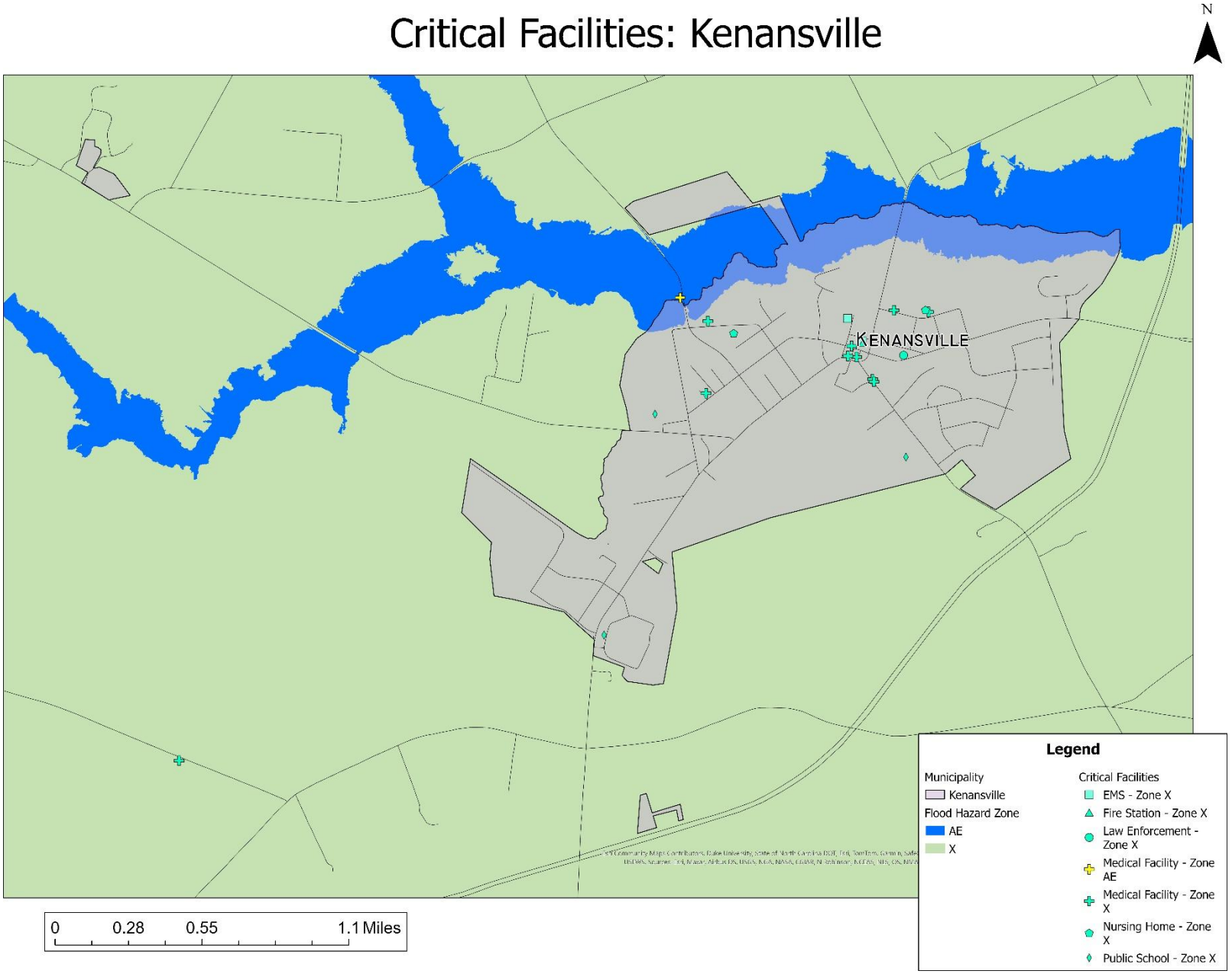


***Figure 3-17**: Critical Facilities in Kenansville*

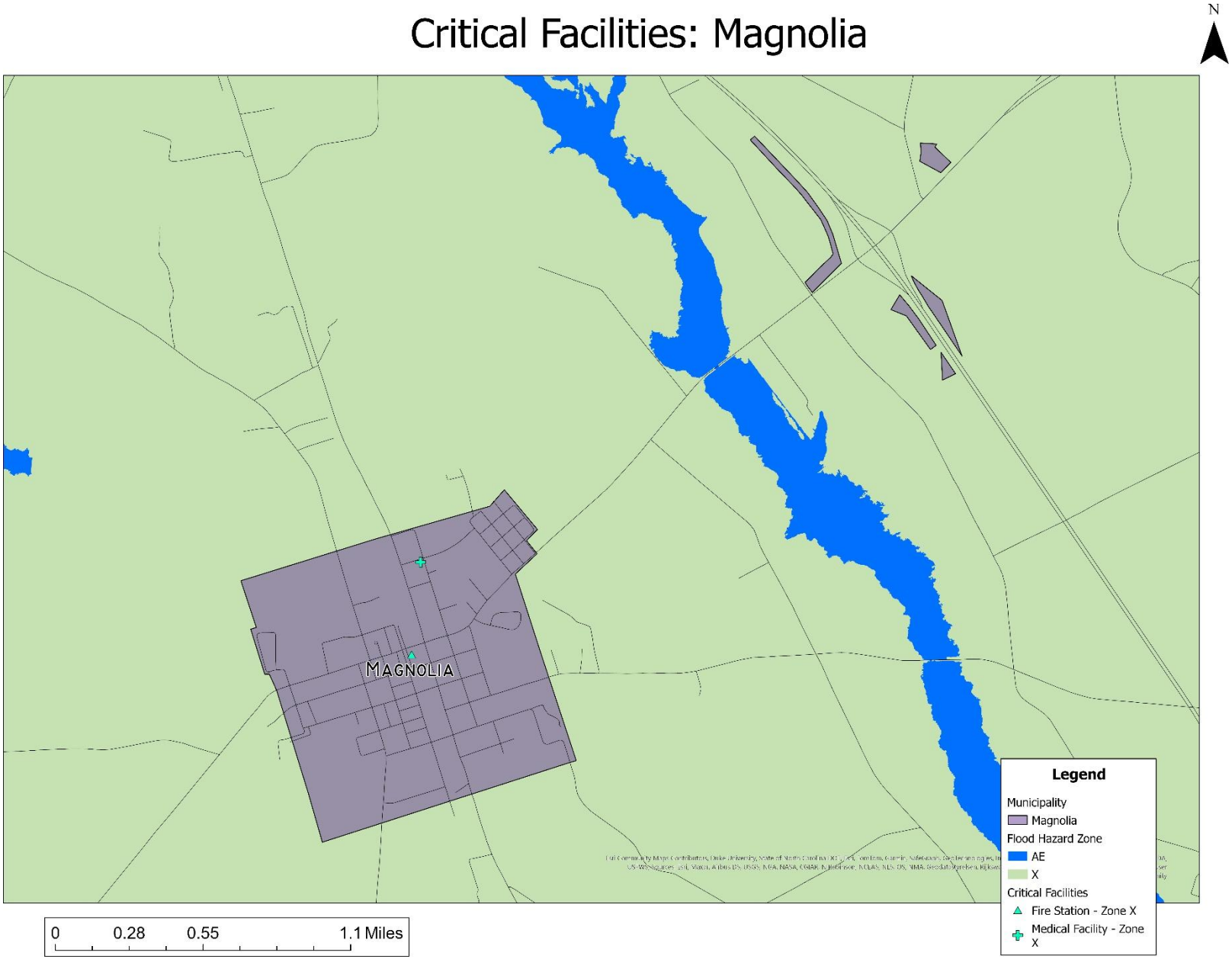


***Figure 3-18**: Critical Facilities in Magnolia*

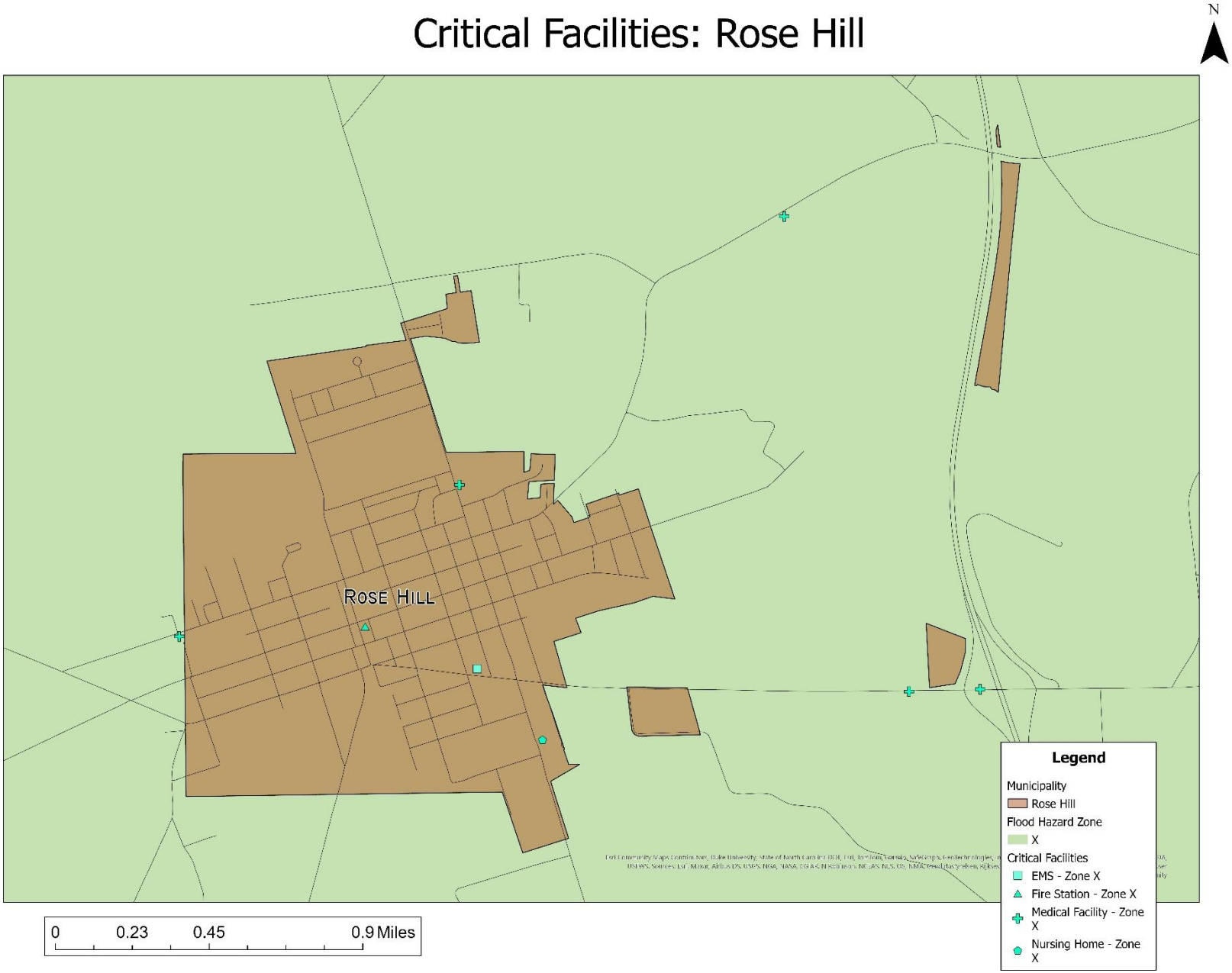


***Figure 3-19**: Critical Facilities in Rose Hill*

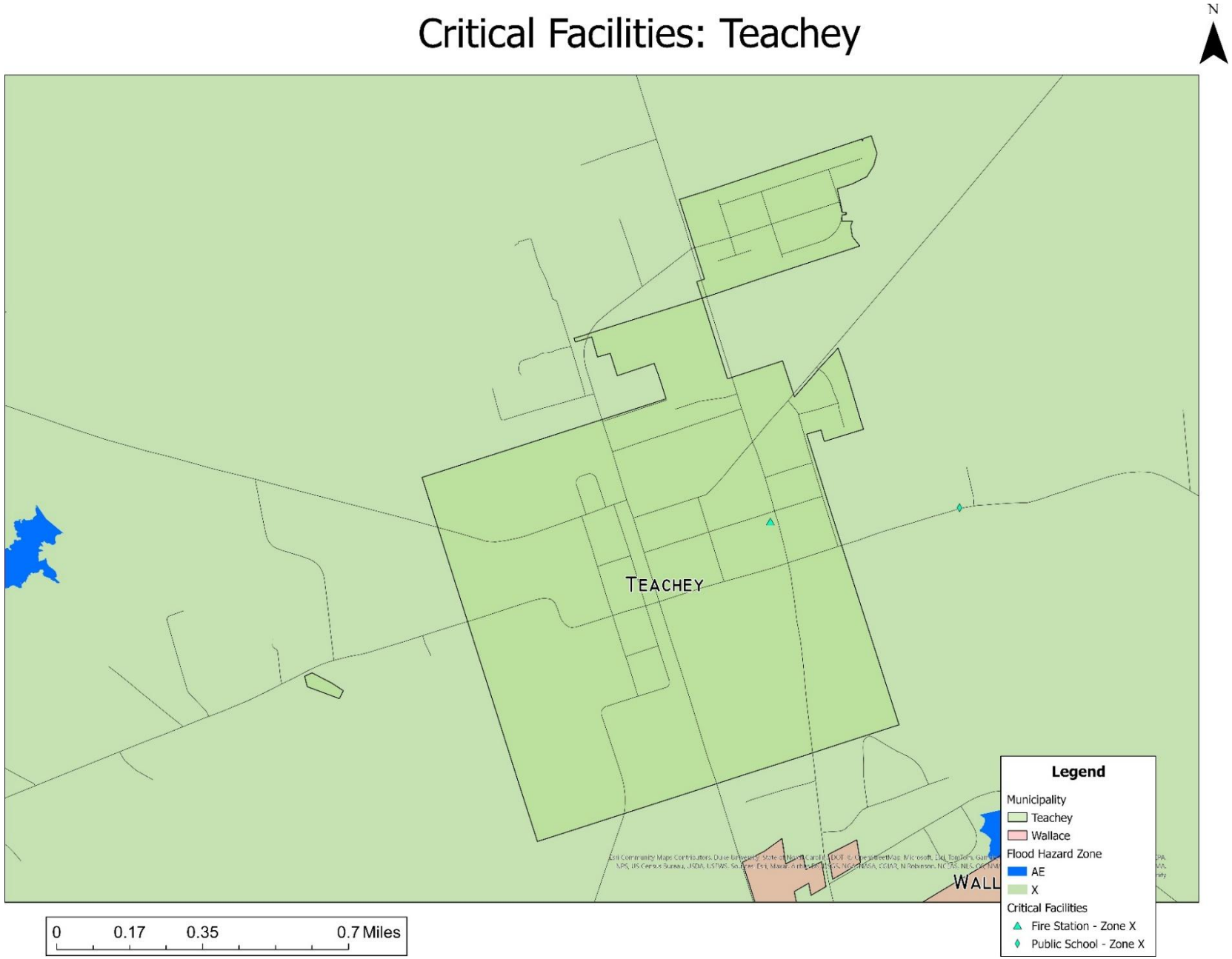


***Figure 3-20**: Critical Facilities in Teachey*

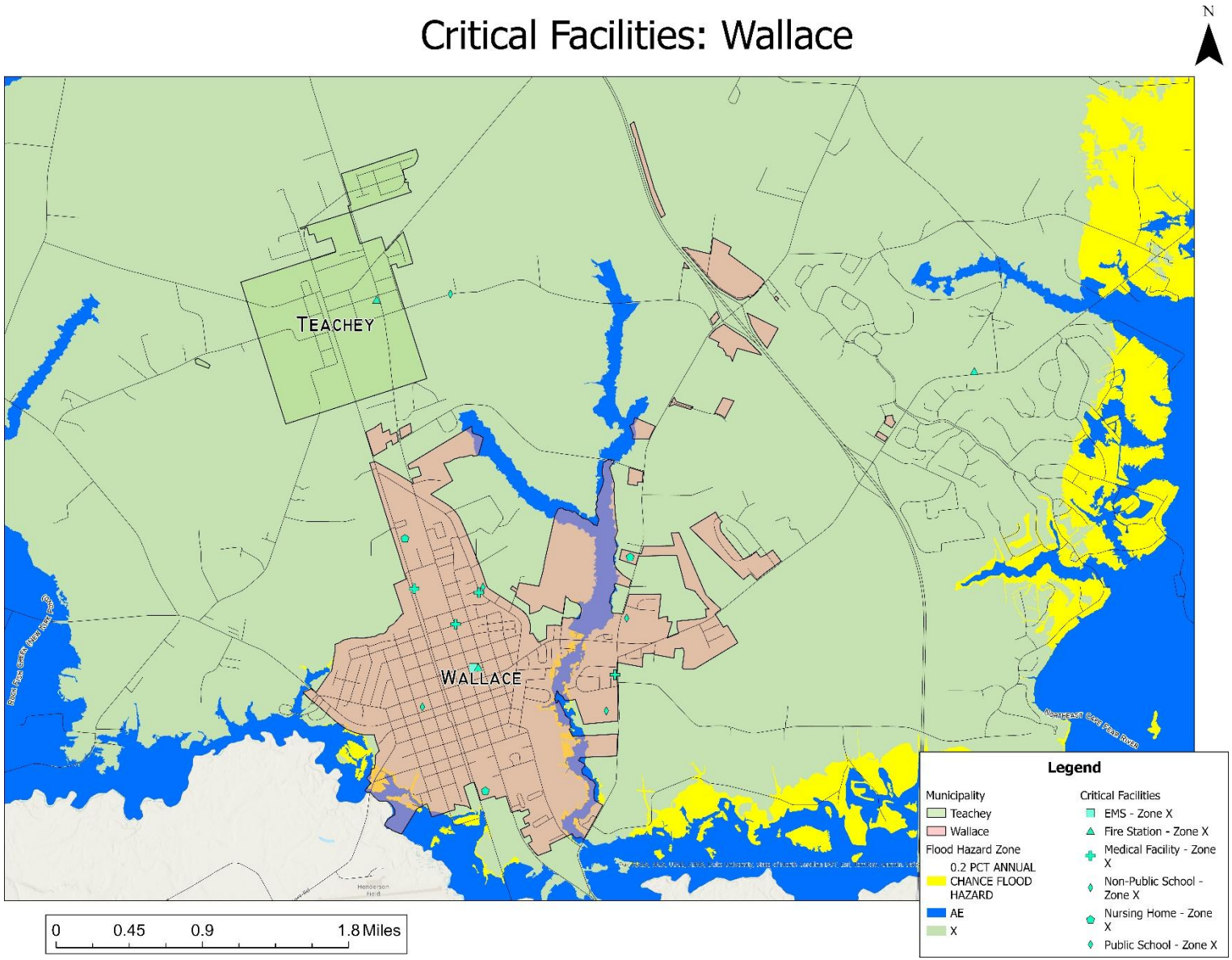


Figure 3-21: *Critical Facilities in Wallace*

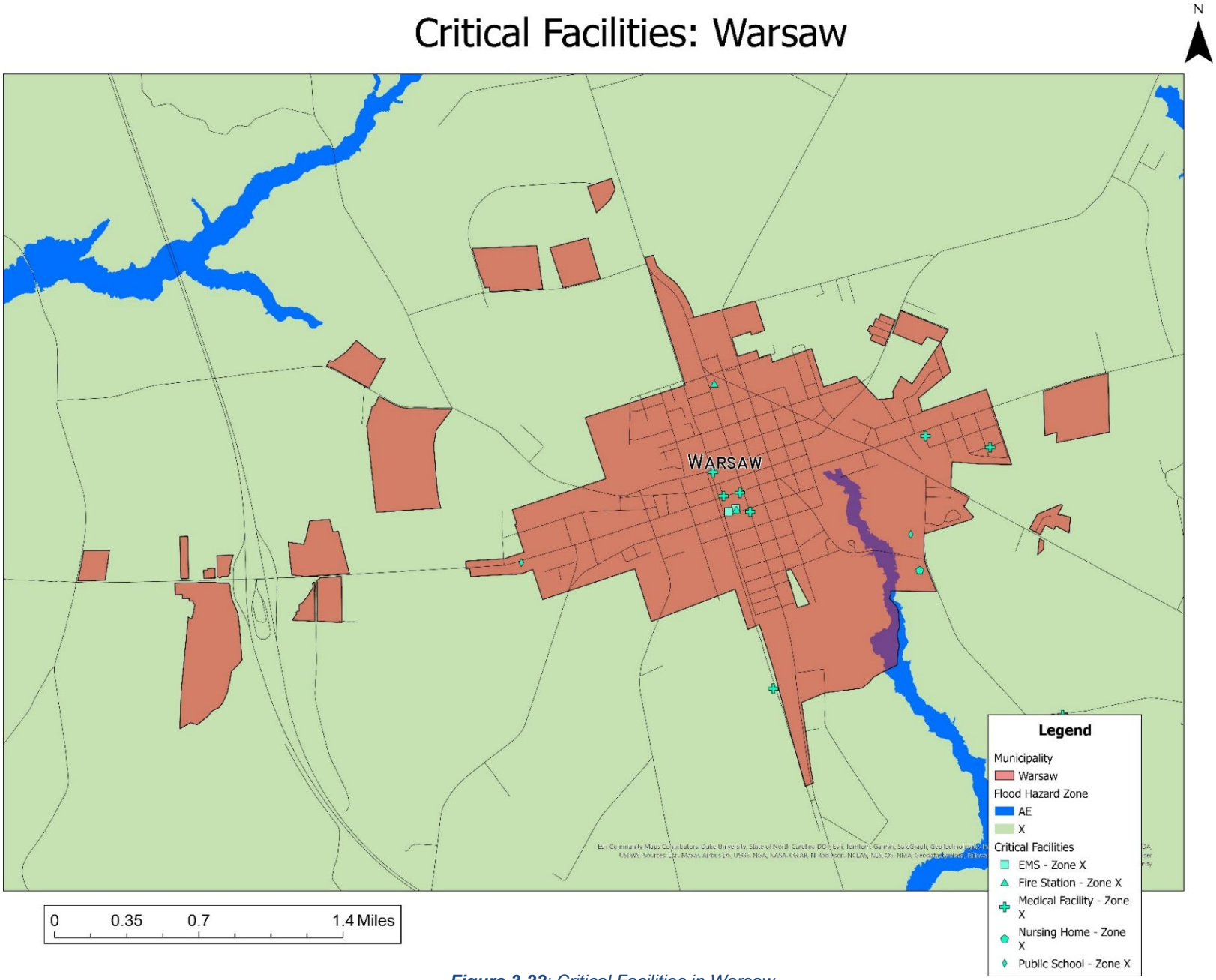


***Figure 3-22**: Critical Facilities in Warsaw*

3.5.6 Land Use

According to the Sampson County Land Use Plan,[22] the majority of Sampson County is characterized as rural agricultural. The Land Use Plan identifies farming as the predominant land use type, with three dominant categories: swine, poultry, and crops. The plan describes many residential buildings as spread throughout rural areas of Sampson County, primarily single-family detached dwellings and manufactured homes, on both individual lots and in manufactured home parks. The Land Use Plan identifies significant residential subdivision growth in the northwest part of the County, mainly in the Plainview and Midway areas. While most of the County is characterized by rural agriculture with residential buildings spread throughout, there are minor non-residential land uses, including convenience stores, service stations, and churches.

The Sampson County Land Use Plan[23] also identifies a significant portion of Sampson County's rivers as Outstanding Resource Waters (ORW), which are surface waters with excellent water quality and are protected under NC Department of Environmental Quality (NCDEQ) regulations. There are a total of 30 miles of river fronts and 58,830 acres of area that are considered ORWs in the county, comprising 9.7% of the county's total acreage.

[22] Sampson County Board of Commissioners & Sampson County. (2022). Sampson County Land Use Plan 2022. Sampson County. https://www.sampsoncountync.gov/Government/Departments-A-Z/Planning-Zoning/Planning-Forms-and-Ordinances

[23] Sampson County Board of Commissioners & Sampson County. (2022). Sampson County Land Use Plan 2022. Sampson County. https://www.sampsoncountync.gov/Government/Departments-A-Z/Planning-Zoning/Planning-Forms-and-Ordinances

FUTURE LAND USE MAP

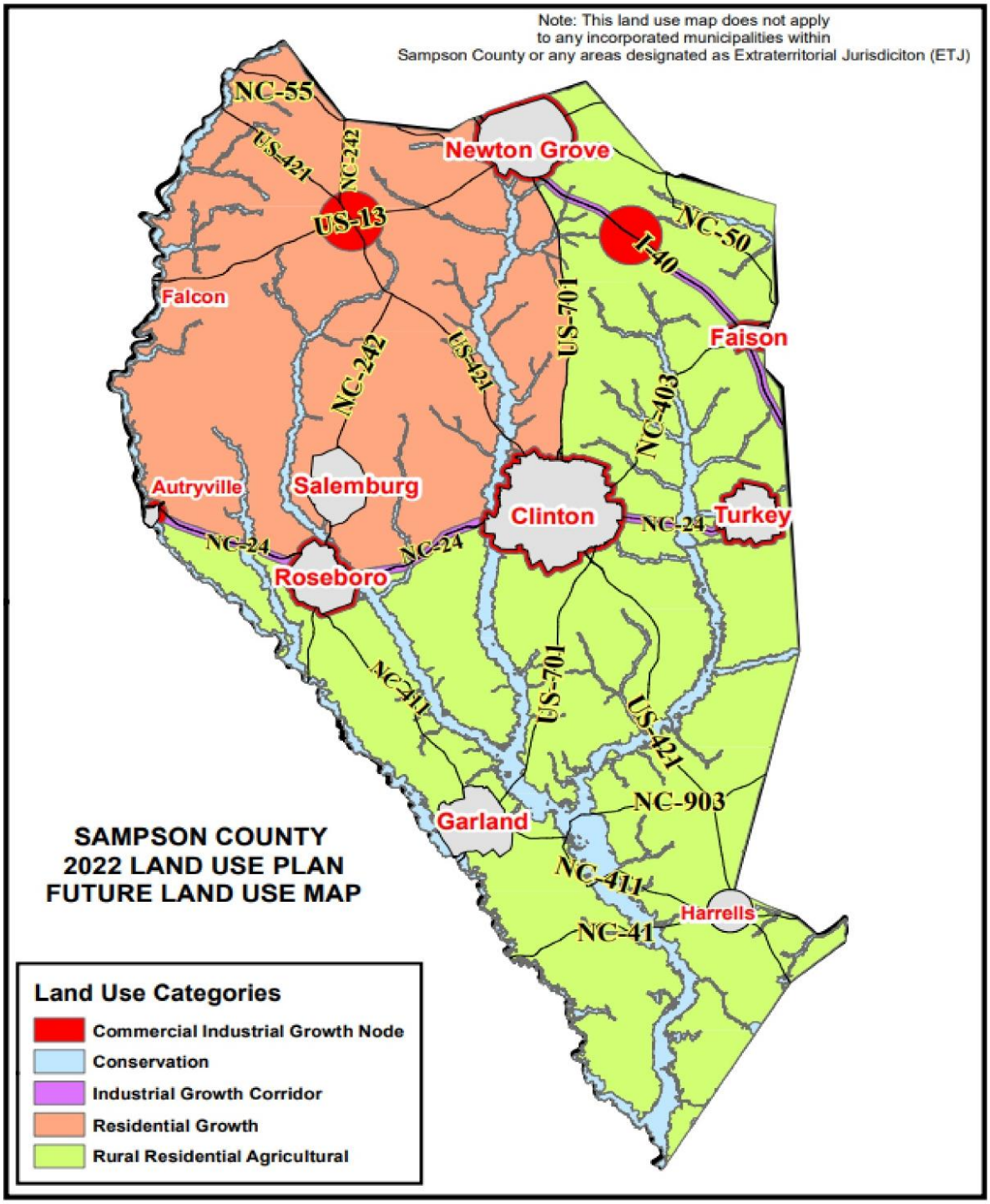


***Figure 3-23**: Sampson County Future Land Use Map from the 2022 Sampson County Land Use Plan*

According to the Duplin County Land Use Plan[24], the predominant land uses are Agricultural (47.68%) and Woodland (47.53%), which together account for about 95% of the County's total land use cover. Other land use types, such as Urban, State Lands, Residential, Institutional, Industrial, and Commercial, account for 1.66%, 1.28%, 1.47%, 0.01%, 0.029%, and 0.07%, respectively, totaling 4.79% of Duplin Land Use. Future land use for Duplin County refers to development over the next 15 to 20 years. This includes the primary categories of Agriculture, Residential, Community Mixed Use, Industrial, and Conservation, which are defined as:

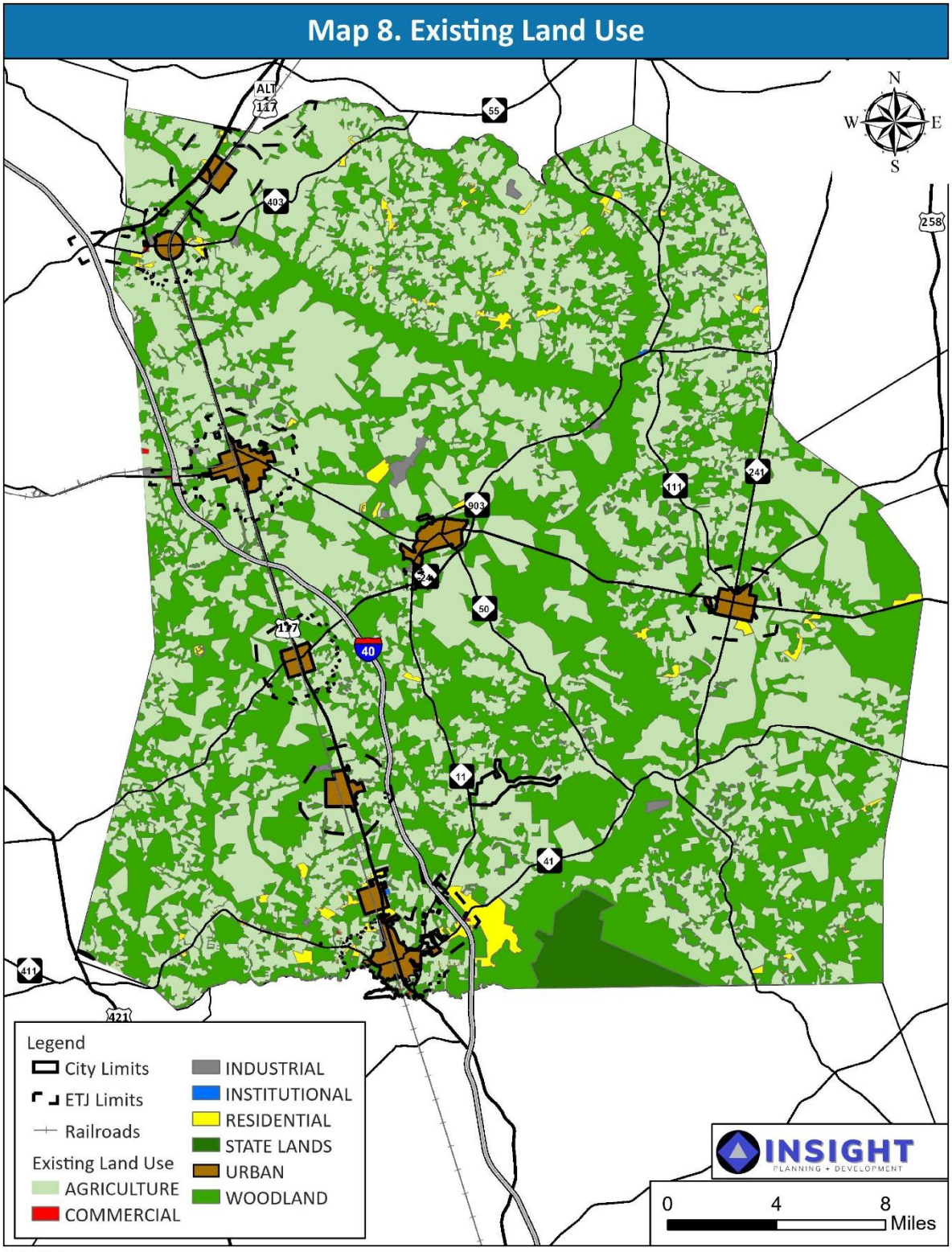
- **Agricultural**: Areas where current water, sewer, or municipal services may not be available, but are anticipated in the next 5-10 years. Agricultural land use type allows 1-2 dwellings per acre and should have access from local streets.
- **Residential**: Lower-density housing and associated civic and commercial services. Single-family homes or duplexes, with setbacks on all sides. Commercial uses are limited to office and retail spaces, and recreational and school facilities are encouraged throughout.
- **Industrial**: Areas with arterial or major collector access roads, and with public water and sewer either already available or planned in that area. Employment and production hubs with office and light industrial uses, which can be multi-story offices, while light industrial uses can be one story with large setbacks. These areas can also accommodate residential, civic, and recreational uses, but should be clearly delineated from other rural or conservation areas.
- **Conservation:** Natural, open space that is intended to protect the natural environment, water quality, and wildlife habitats. These serve the public with low-impact recreational opportunities, and protections may also extend to important cultural or archaeological resources or areas with known hazard occurrences.

[24] Duplin County & Insight Planning and Development. (2022). Duplin County Land Use Plan. https://www.duplinnc.gov/206/Planning

***Table 3-11**: Land Use Type Summary from the Duplin County Land Use Plan (2022)*[25]

Land Use Type	Current % Total Area	Future Land Use % Total Area
Agriculture	47.68%	44.03%
Commercial	0.07%	--
Industrial	0.29%	9.14%
Institutional	0.01%	--
Residential	1.47%	9.89%
State lands	1.28%	--
Urban	1.66%	--
Woodland	47.53%	--
Community Mixed Used	--	27.27%
Conservation	--	9.67%

[25] Duplin County & Insight Planning and Development. (2022). Duplin County Land Use Plan. https://www.duplinnc.gov/206/Planning



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***Figure 3-24**: Duplin County Existing Land Use Map from the 2022 Duplin County Land Use Plan*

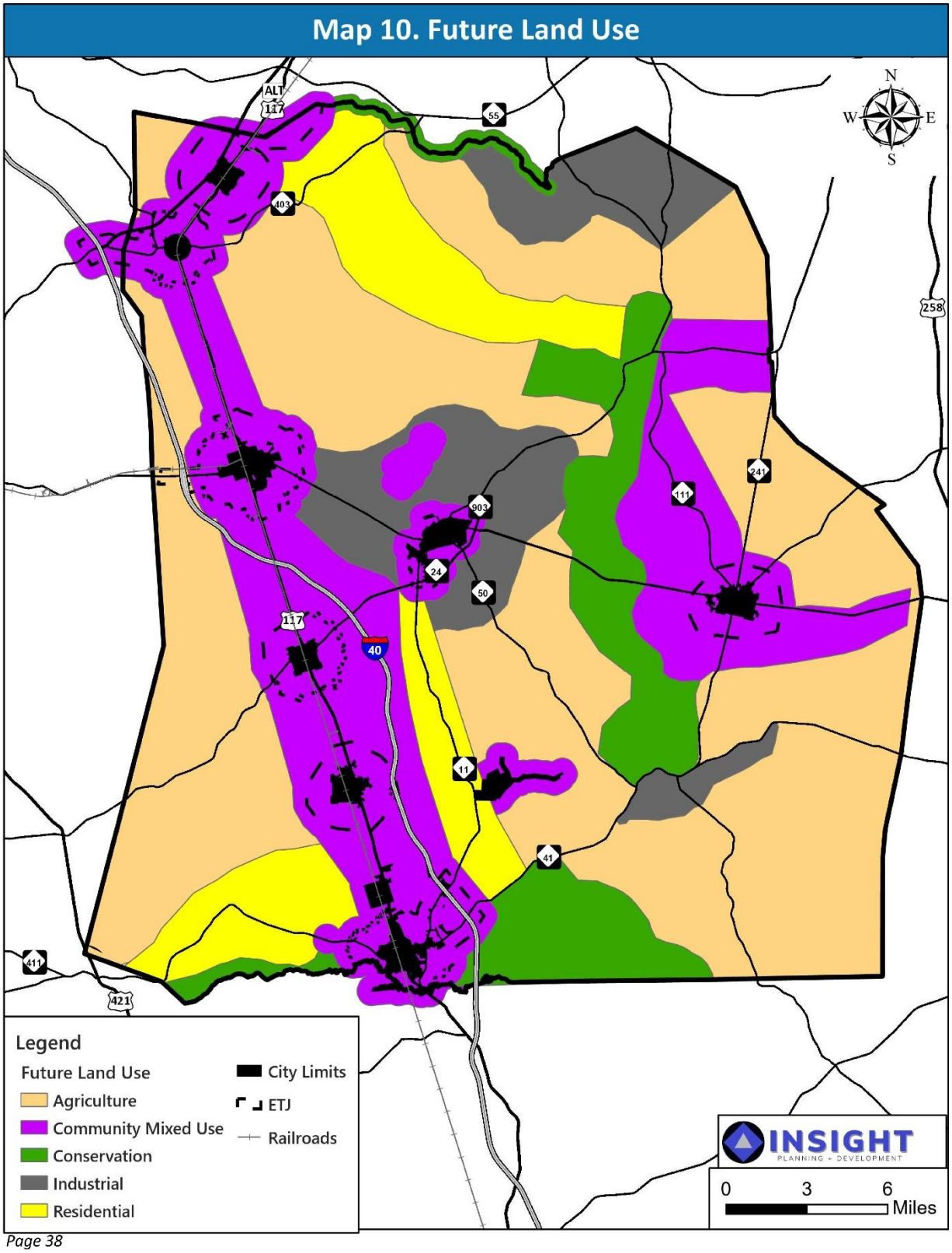


***Figure 3-25**: Duplin County Future Land Use Map from the 2022 Duplin County Future Land Use Plan*

3.6 Employment and Industry

3.6.1 Sampson County

According to the 2023 ACS Employment Estimates, Sampson County had an unemployment rate of 5.2% and approximately 24,900 employed residents. The jurisdictions with the lowest unemployment rates are estimated to be Garland (0%) and Salemburg (0%), followed by Newton Grove (1.4%) and Roseboro (2.4%). The jurisdictions with the most significant number of employed residents are Clinton (3,100), Roseboro (400), and Garland (350). The overall median household income of Sampson County was reported as $53,159, and the per capita income was $26,978 as of 2023. The highest median household income was in Salemburg at $74,375, and the highest per capita income was reported in Newton Grove at $43,530.

According to the NC 2024 Quarterly Census of Employment and Wages Demand Driven Data Delivery, the largest industry in the County was Manufacturing, accounting for 17.69% of employment, followed by retail trade (14.15%) and Agriculture, Forestry, Fishing and Hunting (12.30%). The largest employers in Sampson County were reportedly Smithfield Foods Inc., Sampson County Schools, and Prestage Farms Inc., each with over 1,000 employees.

3.6.2 Duplin County

According to the 2023 ACS Employment Estimates, Duplin County had an unemployment rate of 4.7% with approximately 22,000 employed residents. The jurisdictions with the lowest unemployment were Warsaw (2.3%), Kenansville (2.6%), and Beulaville (2.7%). The jurisdictions with the most significant number of employed residents are Wallace, Warsaw, and Rose Hill. The median household income for Duplin County was $51,880, and the per capita income was $27,599. The highest median household income was in Kenansville, at $62,917, and the highest per capita income was reported in Beulaville, at $31,019.

According to the NC 2024 Quarterly Census of Employment and Wages Demand Driven Data Delivery, the largest industry in the County was Manufacturing, accounting for 34.18% of employees, followed by retail trade (9.58%) and Agriculture, Forestry, Fishing and Hunting (8.75%). The largest employers in Duplin County were Butterball Limited Liability Company (LLC), House of Raeford Farms Inc., and the Duplin County Board of Education, each with over 1,000 employees.

***Table 3-12**: Rounded employment data*

Jurisdiction	ACS 2023 Employment Estimates[26]			
	Unemployment Rate	Employed	Median Household Income	Per Capita Income
Sampson	**5.2%**	**24,900**	**$53,159**	**$26,978**
Autryville	7.9%	100	$42,708	$24,592
Clinton	5.6%	3,100	$42,344	$26,370

[26] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Retrieved June 25, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP03

Jurisdiction	ACS 2023 Employment Estimates[26]			
	Unemployment Rate	Employed	Median Household Income	Per Capita Income
Garland	0%	350	$58,938	$19,241
Harrells	5.2%	100	$68,393	$33,965
Newton Grove	1.4%	300	$68,750	$43,530
Roseboro	2.4%	400	$39,345	$21,002
Salemburg	0%	250	$74,375	$30,839
Turkey	4.8%	150	-	$17,130
Duplin	**4.7%**	**22,000**	**$51,880**	**$27,599**
Beulaville	2.7%	600	$40,900	$31,019
Calypso	6.5%	250	$43,906	$25,434
Faison	14.1%	300	$38,173	$17,719
Greenevers	7.9%	200	$14,394	$13,247
Kenansville	2.6%	400	$62,917	$27,967
Magnolia	4.1%	550	$40,156	$21,391
Rose Hill	7.3%	700	$44,722	$26,367
Teachey	13.1%	200	$49,828	$25,613
Wallace	6.2%	1,450	$49,358	$27,531
Warsaw	2.3%	1,250	$46,944	$22,241

***Table 3-13**: Percent of employment in different employment sectors in the planning area for 2023*[27]

Employment Sectors	Duplin County	Sampson County
Accommodation and Food Services	5.62%	7.69%
Administrative and Support and Waste Management and Remediation Services	4.72%	4.87%
Agriculture, Forestry, Fishing and Hunting	8.75%	12.30%
Arts, Entertainment, and Recreation	0.11%	0.53%
Construction	3.76%	0.00%
Educational Services	8.14%	11.67%

[27] North Carolina Department of Commerce. (2024). Quarterly Census of Employment and Wages. Demand Driven Data Delivery (D4). Retrieved June 18, 2025, from https://d4.nccommerce.com/?q=3OL7

Employment Sectors	Duplin County	Sampson County
Finance and Insurance	0.99%	1.33%
Health Care and Social Assistance	8.47%	12.41%
Information	0.07%	0.00%
Management of Companies and Enterprises	1.62%	0.00%
Manufacturing	34.18%	17.69%
Mining, Quarrying, and Oil and Gas Extraction	0.00%	0.00%
Other Services (except Public Administration)	1.19%	2.56%
Professional, Scientific, and Technical Services	1.06%	1.62%
Public Administration	6.10%	8.01%
Real Estate and Rental and Leasing	0.44%	0.34%
Retail Trade	9.58%	14.15%
Transportation and Warehousing	3.33%	1.61%
Unclassified	0.00%	0.00%
Utilities	0.13%	0.20%
Wholesale Trade	1.74%	3.01%

***Table 3-14**: Top 10 industries and employers for each county in the planning area in 2024*[28]

Employment Rank	Duplin County			Sampson County		
	Employer	**Industry**	**Range of Employees**	**Employer**	**Industry**	**Range of Employees**
1	Butterball LLC	Manufacturing	1000+	Smithfield Foods Inc.	Manufacturing	1000+
2	House of Raeford Farms Inc.	Manufacturing	1000+	Sampson County Board of Education	Educational Services	1000+
3	Duplin County Board of Education	Educational Services	1000+	Prestage Farms Inc.	Agriculture, Forestry, Fishing and Hunting	500-999

[28] N.C. Department of Commerce. (2024). Quarterly Census of Employment and Wages. Demand Driven Data Delivery. Retrieved June 20, 2025, from https://d4.nccommerce.com/QCEWLargestEmployers.aspx

Employment Rank	Duplin County			Sampson County		
	Employer	Industry	Range of Employees	Employer	Industry	Range of Employees
4	Smithfield Foods Inc.	Manufacturing	500-999	County of Sampson	Public Administration	500-999
5	County of Duplin	Public Administration	500-999	Hog Slat Inc.	Manufacturing	500-999
6	Murphy Family Ventures LLC	Agriculture, Forestry, Fishing and Hunting	500-999	Sampson Regional Medical Center	Health Care and Social Assistance	250-499
7	Lear Corporation	Manufacturing	250-499	Clinton City Schools	Educational Services	250-499
8	Pitt County Memorial Hospital	Health Care and Social Assistance	250-499	Sampson Technical Institute	Educational Services	250-499
9	Villari Food Group LLC	Manufacturing	250-499	Wal-Mart Associates Inc.	Retail Trade	250-499
10	James Sprunt Community College	Educational Services	250-499	Sampson-Bladen Oil Co Inc.	Wholesale Trade	100-249

SECTION 4: HAZARD IDENTIFICATION

The following sections describe the Hazard Identification process for developing the Regional Hazard Mitigation Plan (RHMP).

- 4.1 Overview
- 4.2 Description of Full Range Hazards
- 4.3 Disaster Declarations
- 4.4 Hazard Identification Results

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.

4.1 Overview

As defined by the Federal Emergency Management Agency (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 Sampson Duplin Regional Plan in North Carolina. The risk assessment process identifies and profiles relevant hazards and assesses the exposure of lives, property, and infrastructure to these hazards. The method provides a better understanding of a jurisdiction’s potential risk from natural hazards and 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: Capability Assessment** inventories existing mitigation activities and policies, regulations, and plans that pertain to mitigation and can affect net vulnerability.

The HMPC conducted a hazard identification study to determine the natural and man-made hazards that threaten the Region. Existing hazard data from the North Carolina Division of Emergency Management (NCEM), FEMA, the National Oceanic and Atmospheric Administration (NOAA), and other sources were examined to assess the significance of these hazards to the planning area. Significance was measured in general terms and focused on key criteria such as frequency and resulting damage, which includes deaths and injuries, as well as property and economic damage.

4.2 Description of Full Range of Hazards

The North Carolina Enhanced Hazard Mitigation Plan (2023) identifies a comprehensive range of hazards that may impact communities statewide, including both natural hazards, such as flooding, hurricanes, severe winter weather, and wildfires, and technological or human-caused hazards, such as hazardous materials incidents, radiological emergencies, terrorism, and cyber events. The State's identification process considers historical occurrences, scientific data, spatial extent, severity, and potential future conditions to assess risk and vulnerability across all hazards. The table below reflects the full range of state-level hazards, which served as the foundation for the Planning Committee's evaluation of which hazards to prioritize in the Sampson-Duplin planning area.

***Table 4-1**: Descriptions of the Full Range of Initially Identified Hazards*

State of NC Enhanced HMP (2023) Hazard Identification	Description
Natural Hazards Identified	
Flooding	Flooding is a localized hazard that generally results from excessive precipitation within a drainage basin. Floods fall into two general categories: flash floods, which result from heavy, localized precipitation over a short period at a given location; and general floods, which occur over a more extended period within a particular river basin.
Hurricanes & Coastal Hazards	Hurricanes are cyclonic storms that originate in tropical ocean waters poleward of about 5 degrees latitude. Hurricanes are heat engines, fueled by the latent heat released during the condensation of warm water. Their formation requires several elements, including a low-pressure disturbance, a sufficiently warm sea surface temperature, rotational force from Earth's rotation, and the absence of wind shear in the lowest 50,000 feet of the atmosphere. Hurricanes can produce a range of hazardous conditions, including storm surge, high winds, torrential rain, and tornadoes.
Severe Winter Weather	The winter storms that typically impact North Carolina generally form in the Gulf of Mexico or off the southeast Atlantic Coast. The entire state has a likelihood of experiencing severe winter weather. The threat varies by location and storm type. Coastal areas typically face their greatest weather threat from nor'easters and other severe winter coastal storms. These storms can contain strong waves and often result in extensive beach erosion and flooding. Freezing rain and ice storms typically occur once every several years at coastal locations, and severe snowstorms have been recorded occasionally in coastal areas. Rising global temperatures may reduce the

	number of frozen precipitation events in North Carolina but may also increase the likelihood of non-freezing storm events in the winter months.
Excessive Heat	Excessive heat is a dangerous and deadly occurrence in North Carolina. According to the National Weather Service, heat is one of the leading weather-related causes of loss of life in the United States. The Centers for Disease Control and Prevention (CDC) indicates that 618 people on average in the United States are killed by extreme heat every year. That number represents more deaths than hurricanes, lightning, tornadoes, earthquakes, and floods combined. The CDC defines extreme heat as “summertime temperatures that are much hotter and/or more humid than average.” The National Weather Service defines a heat wave as “a period of abnormally and uncomfortably hot and unusually humid weather, typically lasting two or more days.” The North Carolina Department of Environmental Quality (NCDEQ) 2020 Climate Science Report suggests that the average number of high-heat/humidity days in North Carolina will increase over the coming decades, placing additional stress on populations, certain industries, infrastructure, and healthcare systems.
Earthquakes	An earthquake is a vibration or shaking of Earth’s surface due to an underground release of energy. Various conditions, such as sudden movements along geological faults or volcanic activity, can cause them. Earthquake magnitudes, or severity, are recorded on the Richter scale with seismographs. Some may be so small as to go virtually unnoticed, while others can destroy entire cities. Seismology, the study of earthquakes, helps scientists understand which areas are more prone to earthquakes, such as along the Ring of Fire around the Pacific Ocean; however, earthquakes are generally unpredictable. According to the United States Geological Survey (USGS), about 500,000 earthquakes are reported each year, but only about 100,000 are strong enough to be felt.
Wildfire	Wildfires are uncontrolled fires in grasslands, brush, or woodlands. The potential for wildfire depends on surface fuel characteristics, recent and current climate conditions, and fire behavior. Hot, dry summers and dry vegetation increase the risk of fire in the fall, a particularly dangerous time of year for wildfires.
Dam Failures	Dams store water in reservoirs during periods of excess flow, so it can be released during periods when natural flows are inadequate to meet water users' needs. Dams can pose risks to communities if not properly designed, operated, and maintained. In the event of a dam failure, the energy of the water stored behind even a small dam can cause loss of life and considerable property damage downstream. Many dam failures have resulted from design flaws that have prevented the safe passage of flood flows. Failures caused by hydrologic conditions can range from sudden (complete breaching or collapse) to gradual (progressive erosion and partial breaching). The most common modes of failure associated with hydrologic conditions include overtopping, the erosion of earth spillways, and overstressing the dam or its structural components.
Drought	Drought refers to an extended period of below-average rainfall relative to the region's long-term average. Drought can be defined according to meteorological, hydrological, and agricultural criteria. Meteorological drought

	uses long-term precipitation data to measure current precipitation relative to normal precipitation. Hydrological drought is defined by deficiencies in the surface and subsurface water supply, as reflected in streamflow, lake and reservoir levels, and groundwater levels. Agricultural drought occurs when there is insufficient soil moisture to satisfy the water budget of a specific crop, leading to destroyed or underdeveloped crops with greatly depleted yields.
Tornadoes / Thunderstorms	A tornado is a violently rotating column of air in contact with the ground and extending from the base of a thunderstorm. A condensation funnel does not need to reach the ground for a tornado to be present; a debris cloud beneath a thunderstorm is all that is needed to confirm the presence of a tornado, even in the total absence of a condensation funnel. Thunderstorms can produce a variety of accompanying hazards, including wind, hail, and lightning. Although thunderstorms generally affect a small area, they are very dangerous and may cause substantial property damage.
Geological	In North Carolina, the primary geological hazards are landslides, sinkholes, and coastal erosion, which can cause property damage and loss of life. Other geological hazards not included in this plan: ground collapse caused by old mines and prospects; rippable vs. non-rippable earth materials; expansive soils (shrink-swell clays); acid-producing rock; radon in air and groundwater (linked to geology); arsenic in groundwater (linked to geology). A landslide is a downward movement of earth or rock driven by gravity. Natural or man-made factors, such as heavy rains, earthquakes, rapid snowmelt, erosion, or slope modification, can trigger landslides. According to the USGS, a sinkhole is an area of ground with no natural surface drainage. When it rains, all the water stays inside the sinkhole and typically drains into the subsurface. Sinkholes can vary in size from a few feet to hundreds of acres, and from less than 1 to more than 100 feet deep. Some are shaped like shallow bowls or saucers, whereas others have vertical or concave walls. Coastal or beach erosion is the wearing away of the beach and dune sediments due to winds, tidal currents, or wave action. Erosion is typically event-driven and tends to happen during periods of strong winds, high tides, and waves, such as a storm; however, continued erosion wears away the coastal profile and can create imbalance on shorelines. An eroding beach may lose feet of sand per year.
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 to address the often urgent need to prevent or respond to 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 North Carolina. However, control systems can fail, and when people from outside the state come together, outbreaks can occur, even in the most modern of communities.

Technological Hazards Identified	
Hazardous Substances	North Carolina Emergency Management (NCEM) defines a hazardous substance as any element, chemical, substance, compound, mixture, agent, solution or substance that an accidental or deliberate release of may cause disease or harm to human health and the environment. Hazardous substances may have one or more of the following intrinsic properties: explosiveness, flammability, ability to oxidize (or accelerate a fire), human toxicity, or corrosiveness. Hazardous materials are found in many different forms and quantities that can potentially cause property damage, injuries, long-lasting health effects, and death. Many of these materials are used and stored daily in homes and businesses, and transported through major highways, waterways, pipelines, and railways. Each hazard has a different threshold level and can be naturally occurring, creating many risks in the event of an accidental or intentional incident.
Radiological Emergencies	The International Atomic Energy Agency defines a nuclear and radiation accident as “an event that has led to significant consequences to people, the environment, or the facility.” Often, this type of incident results from damage to the reactor core of a nuclear power plant, caused by a range of proximate factors, which can release radioactivity into the environment. The degree of exposure from nuclear accidents has varied from serious to catastrophic.
Terrorism	Terrorism is defined in the United States by the Code of Federal Regulations as “the unlawful use of force or violence against persons or property to intimidate or coerce a government, civilian population, or any segment thereof, in furtherance of political or social objectives.” Terrorist acts may include assassinations, kidnappings, hijackings, bombings, small arms attacks, vehicle ramming attacks, edged weapon attacks, incendiary attacks, cyber-attacks (computer-based), and the use of chemical, biological, nuclear, and radiological weapons of mass destruction (WMD).
Civil Disturbance	Civil disruption is a term that generally refers to groups of people deliberately choosing not to comply with a law, regulation, or rule, often to draw attention to a cause, concern, or agenda. In North Carolina, state statutes differentiate between public disturbances and riots based on the presence of disorderly or violent conduct. A public disturbance is defined as “Any annoying, disturbing, or alarming act or condition exceeding the bounds of social toleration normal for the time and place in question which occurs in a public place or which occurs in, affects persons in, or is likely to affect persons in a place to which the public or a substantial group has access,” whereas a riot is defined as “the public assemblage of three or more persons which by disorderly and violent conduct, or the imminent threat of disorderly and violent conduct, results in injury or damage to persons or property or creates a clear and present danger of injury or damage to persons or property” (G.S. §14- 288.2).
Cyber	Cyberattacks are deliberate attempts to gain unauthorized access to a computer or system, or to cause damage. As the world becomes 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 detect and often use malicious code to alter data or steal information.

Electromagnetic Pulse	The United States Department of Energy defines electromagnetic pulses (EMPs) as "intense pulses of electromagnetic energy resulting from solar-caused effects or man-made nuclear and pulse power devices." EMPs can be naturally occurring or human-caused hazards. Examples of natural electromagnetic pulse events include lightning electromagnetic pulses, electrostatic discharges, meteoric electromagnetic pulses, and coronal mass ejections, also known as solar electromagnetic pulses.
Food Emergency	A food emergency refers to the adulteration and/or contamination, threatened or actual, of food that impacts or may impact human health or the safety or availability of the state's food supply (National Food and Agriculture Incident Annex to the Response and Recovery Federal Interagency Operations Plans, August 2019). A food emergency could result from a natural hazard, such as hurricanes, floods, severe weather, or from associated power outages, leading to food loss due to contamination or spoilage. A food emergency may also be human-caused, including unintentional or deliberate contamination or adulteration that poses a public health threat or triggers a foodborne disease outbreak. For example, improper processing or production of a food product, or deliberate contamination or adulteration of food, could cause harm to the public or to the United States economy.

4.3 Disaster Declarations

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 the Counties. Table 4-2 presents a list of all major disaster declarations that have occurred in the Region since 1984. This table presents the foundation for identifying which hazards pose the greatest risk to the region.

***Table 4-2**: Major Disaster Declarations in (1984 – 2024)*[1]

Declaration #	Date	Event Details
Sampson County		
724	1984	HURRICANE DIANA
699	1984	SEVERE STORMS & TORNADOES
1134	1996	HURRICANE FRAN
1240	1998	HURRICANE BONNIE
3146	1999	HURRICANE FLOYD EMERGENCY DECLARATIONS
1292	1999	HURRICANE FLOYD MAJOR DISASTER DECLARATIONS
1490	2003	HURRICANE ISABEL
3222	2005	HURRICANE KATRINA EVACUATION
3254	2005	HURRICANE OPHELIA

[1] Federal Emergency Management Agency [FEMA]. (n.d.-a). Disasters and Other Declarations. FEMA.gov. Retrieved August 15, 2025, from https://www.fema.gov/disaster/declarations

Declaration #	Date	Event Details
4019	2011	HURRICANE IRENE
1969	2011	SEVERE STORMS, TORNADOES, AND FLOODING
4285	2016	HURRICANE MATTHEW
3380	2016	HURRICANE MATTHEW
4393	2018	HURRICANE FLORENCE
3401	2018	HURRICANE FLORENCE
4465	2019	HURRICANE DORIAN
3423	2019	HURRICANE DORIAN
3471	2020	COVID-19
4487	2020	COVID-19 PANDEMIC
3534	2020	HURRICANE ISAIAS
4588	2020	TROPICAL STORM ETA
3586	2022	HURRICANE IAN
3608	2024	TROPICAL STORM DEBBY
3617	2024	HURRICANE HELENE
Duplin County		
699	1984	SEVERE STORMS & TORNADOES
1127	1996	HURRICANE BERTHA
1134	1996	HURRICANE FRAN
1240	1998	HURRICANE BONNIE
3146	1999	HURRICANE FLOYD EMERGENCY DECLARATIONS
1292	1999	HURRICANE FLOYD MAJOR DISASTER DECLARATIONS
1490	2003	HURRICANE ISABEL
3222	2005	HURRICANE KATRINA EVACUATION
3254	2005	HURRICANE OPHELIA
3314	2010	HURRICANE EARL
4019	2011	HURRICANE IRENE
3327	2011	HURRICANE IRENE
4285	2016	HURRICANE MATTHEW
3380	2016	HURRICANE MATTHEW
4393	2018	HURRICANE FLORENCE

Declaration #	Date	Event Details
3401	2018	HURRICANE FLORENCE
4465	2019	HURRICANE DORIAN
3423	2019	HURRICANE DORIAN
3471	2020	COVID-19
4487	2020	COVID-19 PANDEMIC
3534	2020	HURRICANE ISAIAS
4588	2020	TROPICAL STORM ETA
3586	2022	HURRICANE IAN
3608	2024	TROPICAL STORM DEBBY
3617	2024	HURRICANE HELENE

4.4 Hazard Identification Results

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

***Table 4-3**: Summary of Hazard Identification and Prioritization*

State of NC Enhanced HMP (2023) Hazard Identification	Prioritized Hazard for the Sampson-Duplin Plan?	Why?
Flooding	Yes	The frequency and severity of the natural hazard can have significant impacts on the planning area. The Sampson-Duplin HMP specifically includes this hazard as Inland Flooding.
Hurricanes & Coastal Hazards	Yes	The frequency and severity of the natural hazard can have significant impacts on the planning area. The Sampson-Duplin HMP specifically includes this hazard as Hurricanes / Tropical Storms.
Severe Winter Weather	Yes	The frequency and severity of the natural hazard can have significant impacts on the planning area. The Sampson-Duplin HMP specifically includes this hazard as Winter Storm.
Earthquakes	Yes	The frequency and severity of the natural hazard can have significant impacts on the planning area.

Wildfire	Yes	The frequency and severity of the natural hazard can have significant impacts on the planning area.
Dam Failures	Yes	The frequency and severity of the natural hazard can have significant impacts on the planning area.
Drought	Yes	The frequency and severity of the natural hazard can have significant impacts on the planning area.
Tornadoes / Thunderstorms	Yes	The frequency and severity of the natural hazard can have significant impacts on the planning area. This hazard is separated into two individual hazards in the Sampson-Duplin HMP: Severe Weather (Thunderstorm, Wind, Lightning & Hail) & Tornado.
Excessive Heat	Yes	The frequency and severity of the natural hazard can have significant impacts on the planning area. The Sampson-Duplin HMP specifically includes this hazard as Extreme Heat.
Geological	No	Geological hazards such as landslides were excluded due to the region's low-relief coastal plain topography, which does not support conditions necessary for damaging slope failures.
Infectious Disease	No	Infectious disease hazards were not prioritized because existing public health systems and response protocols already address these risks, and local stakeholders determined that other hazards pose a more significant and direct threat to community safety and infrastructure.
Hazardous Substances	No	Hazardous substance incidents were not identified as a priority hazard because they have not demonstrated recurring, high-impact events across the region and are more appropriately addressed through existing emergency response and regulatory programs.
Radiological Emergencies	No	Radiological emergencies were excluded from prioritization due to the absence of regional radiological facilities and the lack of any historical regional impacts that would justify further hazard-specific mitigation actions.
Terrorism	No	Terrorism was not prioritized because there is no evidence of recurring or credible threats within the region, and past regional emergency operations have not identified terrorism as a driver of long-term community vulnerability.

Civil Disturbance	No	Civil disturbance was not identified as a priority hazard because it has not produced significant, recurring effects on public safety or infrastructure within the two-county region.
Cyber	No	Cyber hazards were not prioritized because they are primarily managed through existing internet technology security measures and are not viewed as a leading threat to life safety or critical community operations in the region.
Electromagnetic Pulse	No	EMP was excluded due to its extremely low probability of occurrence and the absence of any regional indicators suggesting a meaningful risk that can be mitigated at the local level.
Food Emergency	No	Food emergencies were not prioritized because the region has not experienced disruptions severe enough to warrant hazard-specific mitigation activities, and such issues are better managed through state and federal agricultural and food security systems.

SECTION 5: HAZARD PROFILES

5.1 HAZARD PROFILE OVERVIEW

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

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

The Hazard Mitigation Planning Committee (HMPC) recognizes the need to continually capture and update the data in the risk assessment as development and hazards occur in the participating jurisdictions. Additionally, in some cases, the data captured is at the county level; work will be done to capture more detailed data at the city level. As progress is being made to mitigate hazards, this section of the plan will also be reviewed and updated, as needed, along with any hazardous events. Information from the Hazard Mitigation Planning Team (HMPC) members has been integrated into this chapter, along with information from other data sources. Each hazard is profiled in the following format:

Hazard Description

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

Location and Spatial Extent

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

Past Occurrences

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

Probability of Future Occurrence

This section gauges the likelihood of future occurrences based on past events and existing data. National Risk Index (NRI) data were used alongside other available data sources. This was to provide a wide range of vulnerability analyses and a standardized comparison across

different communities in the United States to assess levels of vulnerability. Because some hazards within this plan represent multiple types of precipitation or weather within an overall hazard category (e.g., winter storms and freezing events may encompass ice, snow, snowstorms, etc.), the hazard names in the NRI data may vary. The NRI hazard names are listed as indicated in the NRI data to distinguish between multiple data sets that may fall under the same hazard category included in this plan. See Section 3 for a more detailed look at census tracts in the planning area.

The jurisdictional probability summary was developed by identifying census tracts that overlap with jurisdictional boundaries, as jurisdictional-level data is not available for NRI datasets. This section gauges the likelihood of future occurrences based on past events and existing data. The definitions of each category differ by hazard to provide a more specific likelihood for each hazard.

Consequence and Impact Analysis

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

Those hazards determined to be of high or medium significance were characterized as priority hazards that required further evaluation in this section. Significance was determined by the frequency of the hazard and the resulting damage, including deaths and injuries, property damage, crop damage, 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 allowed the HMPC to prioritize hazards of greatest significance and focus resources where they are most needed.

Study Area

The Region includes 18 participating municipalities, listed below. Figure 5-1 on the following page provides a base map, for reference, of the Region and the participating municipalities.

Participating Jurisdictions

Sampson County

- Town of Autryville
- City of Clinton
- Town of Garland
- Town of Harrells
- Town of Newton Grove
- Town of Roseboro
- Town of Salemburg
- Town of Turkey

Duplin County

- Town of Beulaville
- Town of Calypso
- Town of Faison
- Town of Greenevers
- Town of Kenansville
- Town of Magnolia
- Town of Rose Hill
- Town of Teachey
- Town of Wallace
- Town of Warsaw

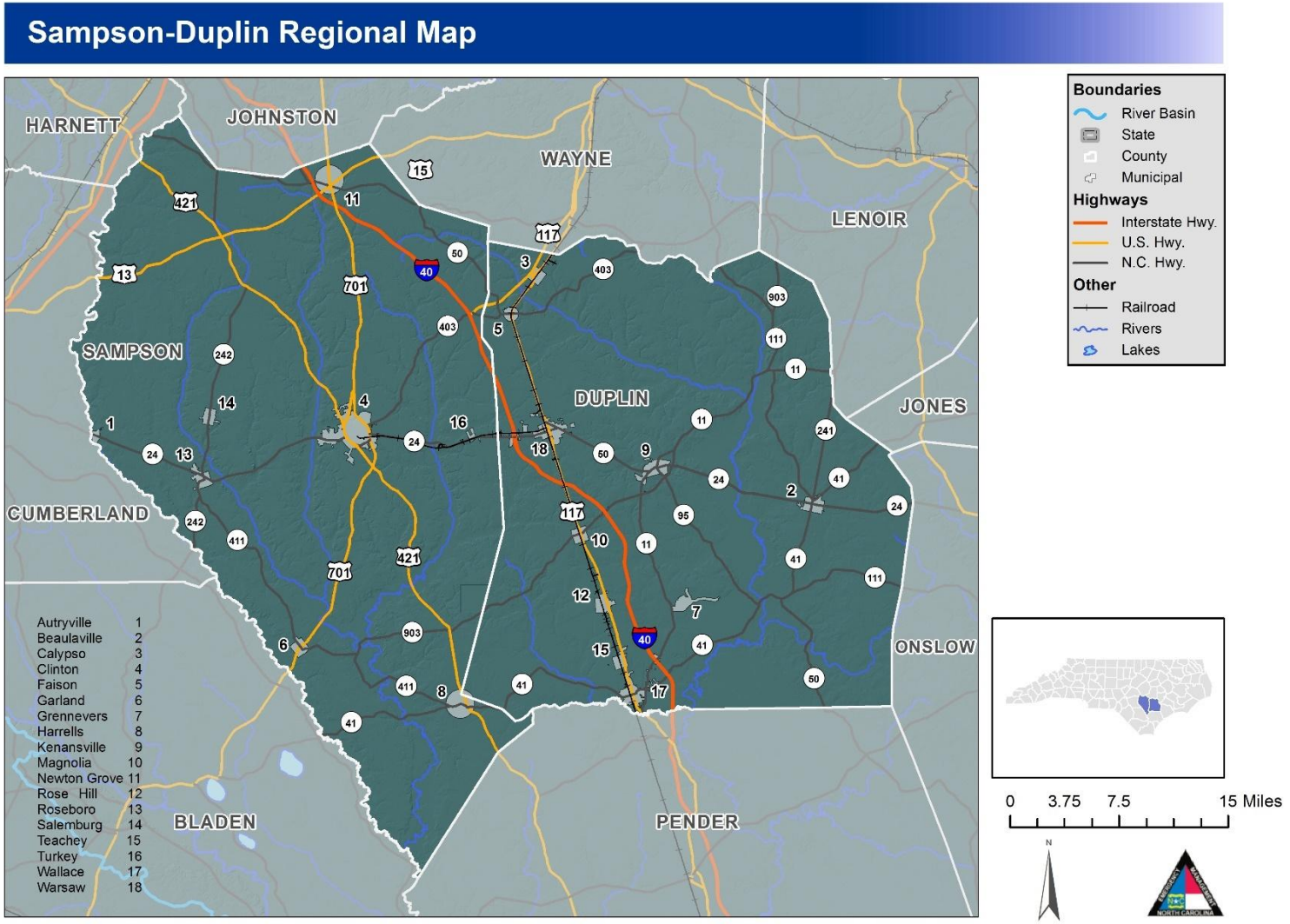


***Figure 5-1**: Sampson-Duplin Regional Map*

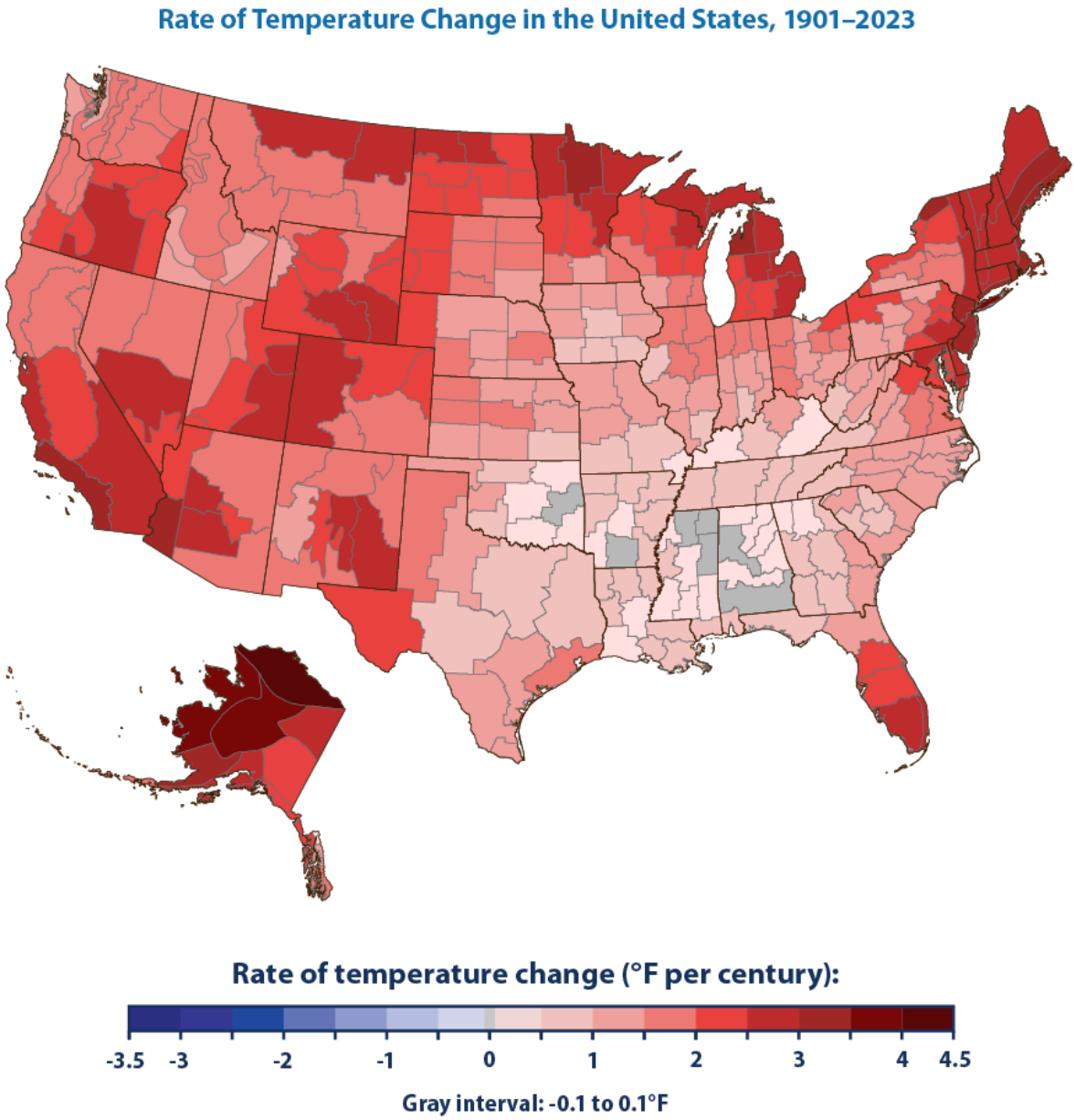


***Figure 5-2**: Rate of Temperature in the United States (1901-2023)*

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 to external forcing, such as modulations of the solar cycle, volcanic eruptions, and persistent anthropogenic changes in atmospheric composition or 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 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.

Since 1901, the average surface temperature across the contiguous 48 states has risen at an average rate of 0.14°F per decade (1.4°F per century). Average temperatures have risen more quickly since the late 1970s (0.36 to 0.55°F per decade). Seven of the top ten warmest years on record for the contiguous 48 states have occurred since 1998, and 2012 was the warmest year on record.

According to the North Carolina Climate Science Report[1] (NCCSR), the annual average temperature in NC has increased about 1°F since 1895, compared to the global increase of about 1.8°F during the same period. Average yearly temperatures in NC have also been consistently above normal since 1990. The temperatures from 2009 to 2018 were reported as the warmest 10-year period on record. The NCCSR reports that it is very likely that temperatures in NC will continue to increase substantially throughout all seasons.

The 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. A discussion of the effect of climate risks on the individual hazards profiled below has been included in the Probability of Future Occurrence subsection for each hazard as applicable.

5.1.1 NRI Overview

Each natural hazard included in the FEMA National Risk Index has associated risk values, risk scores, and risk ratings that represent a county or census tract's vulnerability to that hazard relative to other communities at the same level. To represent the risk more thoroughly of 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 listed in Table 5-1. For more information about NRI Calculations and methodology, please refer to the NRI Technical Documentation.[2]

[1] Kunkel, K.E., D.R. Easterling, A. Ballinger, S. Bililign, S.M. Champion, D.R. Corbett, K.D. Dello, J. Dissen, G.M. Lackmann, R.A. Luettich, Jr., L.B. Perry, W.A. Robinson, L.E. Stevens, B.C. Stewart, and A.J. Terando, 2020: North Carolina Climate Science Report. North Carolina Institute for Climate Studies, 233 pp. https://ncics.org/nccsr

[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.

Table 5-1: 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	
	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, 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	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

Table 5-2: NRI Risk Index EAL and Social Vulnerability Ratings and Scores for the jurisdictions in the planning area

County	Jurisdiction	Risk Index EAL		Risk Index Social Vulnerability	
		Rating	Score	Rating	Score
Duplin	Beulaville	Very High	92.44	Relatively High	72.29
	Calypso	Very High	93.12	Relatively High	93.23
	Faison	Very High	93.12	Very High	93.23
	Greenevers	Very High	87.47	Very High	80.15
	Kenansville	Very High	85.06	Very High	59.27
	Magnolia	Very High	97.34	Relatively Moderate	70.29
	Rose Hill	Very High	97.55	Relatively High	69.19
	Teachey	Very High	90.76	Relatively High	78.00
	Wallace	Very High	92.47	Relatively High	82.75
	Warsaw	Very High	88.57	Very High	64.28
	Unincorporated Area	Very High	90.43	Relatively High	61.79
Sampson	Autryville	Relatively High	69.89	Relatively Low	20.43
	Clinton	Very High	92.22	Very High	84.04
	Garland	Very High	99.45	Very High	94.78
	Harrells	Very High	90.69	Relatively High	62.96
	Newton Grove	Relatively High	68.57	Relatively Moderate	59.70
	Roseboro	Very High	92.38	Relatively High	71.09
	Salemburg	Very High	62.13	Relatively Moderate	46.18
	Turkey	Very High	94.00	Relatively High	69.09
	Unincorporated Area	Very High	91.41	Relatively High	70.89

Table 5-3: Census tracts that overlap jurisdictional boundaries in the planning area that are used to derive jurisdictional-level NRI data

County	Municipality	Overlapping Census Tracts
Duplin	Beulaville	37061090503, 37061090505
	Calypso	37061090202
	Faison	37061090202
	Greenevers	37061090704
	Kenansville	37061090401, 37061090402
	Magnolia	37061090401, 37061090801
	Rose Hill	37061090803, 37061090804
	Teachey	37061090706
	Wallace	37061090703, 37061090704, 37061090705, 37061090706
	Warsaw	37061090301, 37061090302
	Unincorporated Area	37061090101, 37061090103, 37061090201, 37061090506, 37061090600
Sampson	Autryville	37163970401
	Clinton	37163970600, 37163970701, 37163970702, 37163970801, 37163970802
	Garland	37163970900
	Harrells	37163971002
	Newton Grove	37163970201
	Roseboro	37163970402
	Salemburg	37163970501
	Turkey	37163970101
	Unincorporated Area	37163970102, 37163970202, 37163970302, 37163970304, 37163970502, 37163971001, 37163971003, 37163970303

The jurisdictional probability summary was developed by identifying census tracts that overlap with jurisdictional boundaries, as jurisdictional-level data is not available for NRI datasets.

Table 5-4: How jurisdictional NRI data was calculated based on census tracts for each natural hazard probability summary

Jurisdiction	Expected Annual Frequency	Expected Annual Loss (EAL)			Risk Score	
		Value	Score	Rating	Score	Rating
Based on North Carolina Department of Transportation (NCDOT) city boundaries[3] and census tracts that overlap the boundaries of each jurisdiction	Average of expected annual frequency for all census tracts that overlap the jurisdictional boundaries	Sum of EAL for each census tract that overlaps the boundaries of the jurisdiction	Average of EAL scores for all census tracts that overlap the jurisdictional boundaries	Percentile score based on risk rating percentile groupings and descriptions in Table 5-1	Average of national percentile risk score of all census tracts that overlap the jurisdictional boundaries	Percentile score based on risk rating percentile groupings and descriptions in Table 5-1

[3] N.C. Department of Transportation [NCDOT]. (2024). NCDOT City Boundaries (By NC OneMap) [Dataset]. NCDOT.gov. https://www.nconemap.gov/maps/ee098aeaf28d44138d63446fbdaac1ee/about

5.2 DAM FAILURE

5.2.1 Hazard Description

Dam Failure

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

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

Dam failures usually occur when the spillway capacity is inadequate, and water overtops the dam or when internal erosion in the dam foundation occurs (also known as piping). If internal erosion or overtopping causes 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 on roads, bridges, and homes are also of major concern. Associated water quality and health concerns could also be issues. Factors that influence the potential severity of a full or partial dam failure are the amount of water impounded, the density, type, and value of development and infrastructure located downstream, and the speed of failure.

Each state has definitions and methods to determine the Hazard Potential of a dam. In North Carolina, dams are regulated by the state if they are 25 feet or more in height and impound 50 acre-feet or more. Dams and impoundments smaller than that may fall under state regulation if it is determined that failure of the dam could result in loss of human life or significant damage to property. The height of a dam is from the highest point on the crest of the dam to the lowest point on the downstream toe, and the storage capacity is the volume impounded at the elevation of the highest point on the crest of the dam.

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

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

***Table 5-5**: Dam Hazard Classifications*

Hazard Classification	Description	Quantitative Guidelines
Low	1) Interruption of road service, low-volume roads 2) Economic damage	1) Less than 25 vehicles per day 2) Less than $30,000
Intermediate	1) Damage to highways, interruption of service 2) Economic damage	1) 25 to less than 250 vehicles per day 2) $30,000 to less than $200,000
High	1) Probable loss of human life due to breached roadway or bridge on or below the dam 2) Economic damage	1) Probable loss of 1 or more human lives 2) More than $200,000

5.2.2 Location and Spatial Extent

The figures below show the counts and locations of high- and intermediate-hazard dams in each participating jurisdiction, based on the NC Dam Safety Office Dam Inventory.[4]

[4] NC Department of Environmental Quality [NCDEQ]. (2024). North Carolina Dam Inventory [Dataset]. In NCDEQ Online GIS. NCDEQ. https://data-ncdenr.opendata.arcgis.com/

***Table 5-6**: Counts of High, Intermediate, and Low hazard dams in the planning area*[5]

County	Jurisdiction	Dam Hazard Status		
		High	Intermediate	Low
Duplin	Wallace	0	0	1
	Warsaw	1	0	1
	Unincorporated Area	7	5	32
	Duplin Total	8	5	34
Sampson	Clinton	1	0	4
	Unincorporated Area	4	5	44
	Sampson Total	5	5	48
Planning Area Total		13	10	82

**Please note that the jurisdictions are counted only when the dams are physically located within jurisdictional boundaries*

[5] NC Department of Environmental Quality [NCDEQ]. (2024). North Carolina Dam Inventory [Dataset]. In NCDEQ Online GIS. NCDEQ.

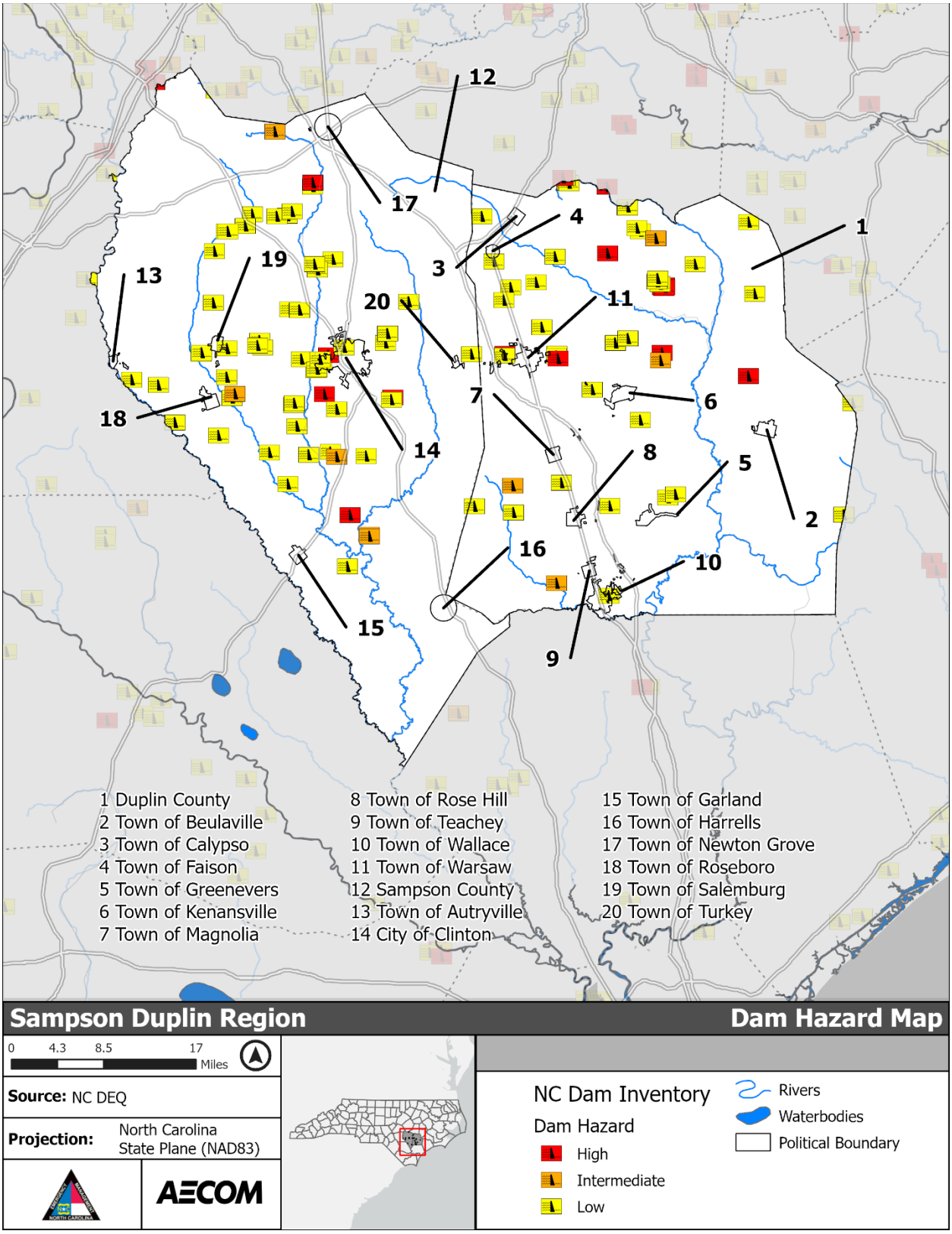


Figure 5-3: Sampson-Duplin Dam Hazard Map - Regional

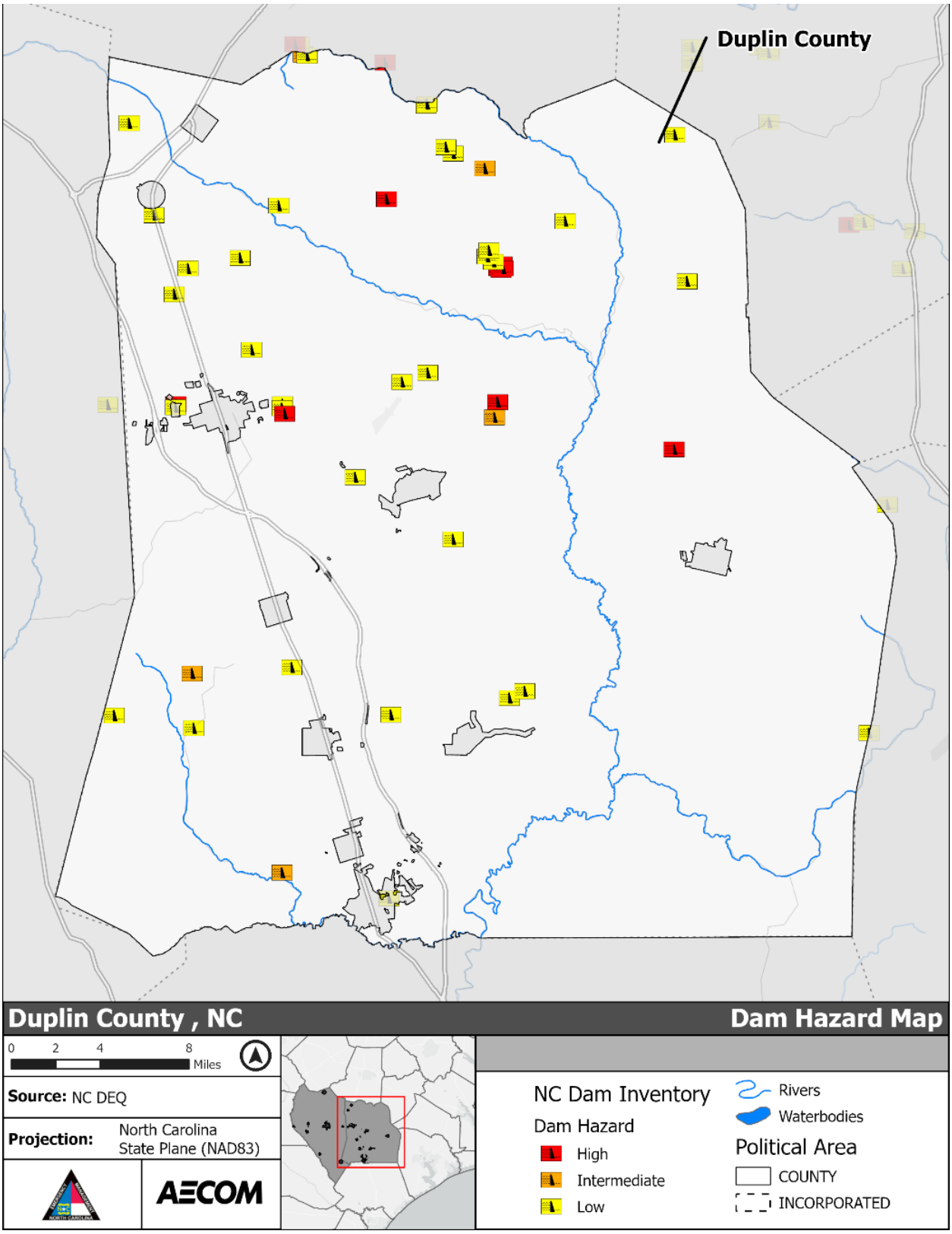


Figure 5-4: Duplin County Dam Hazard Map

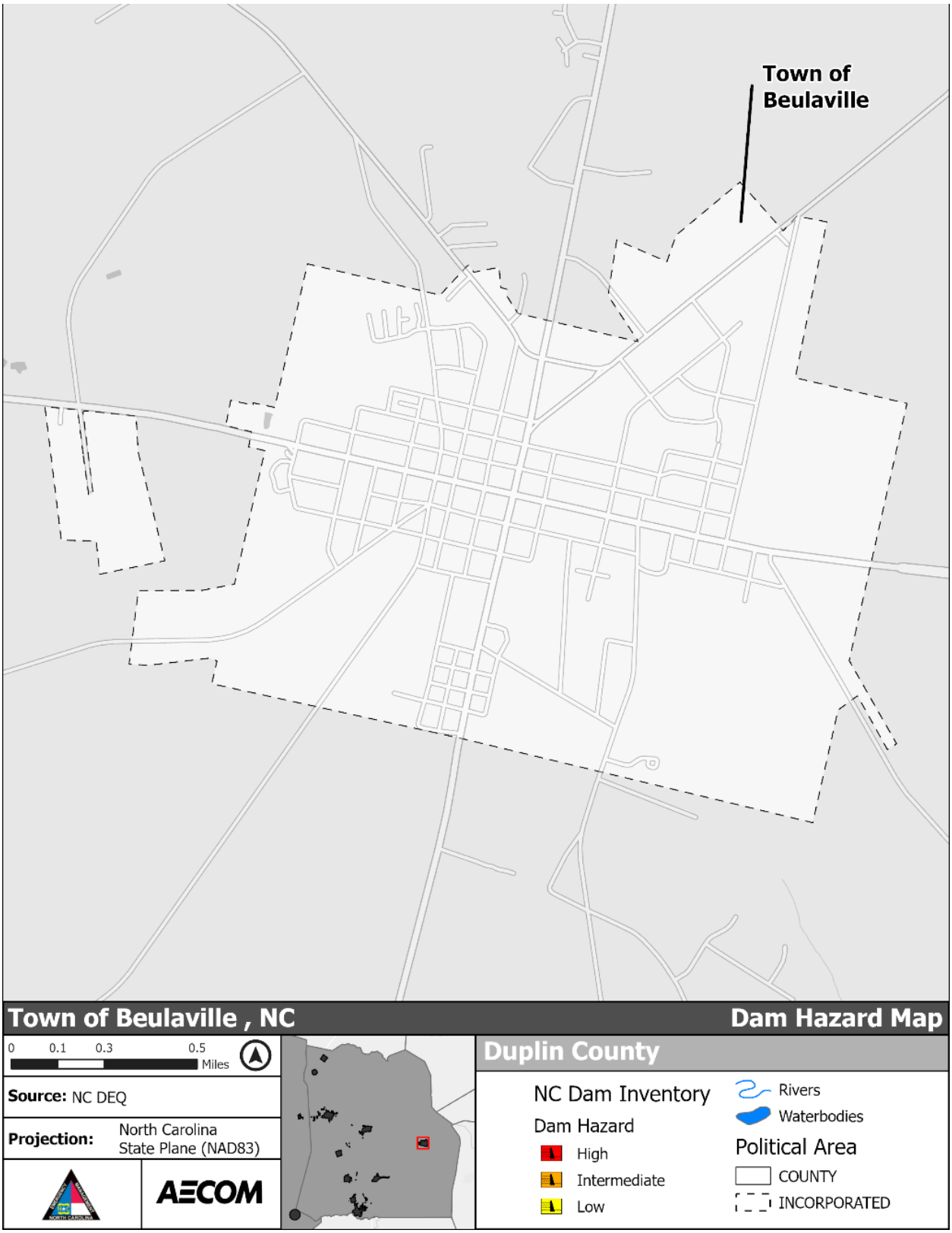


***Figure 5-5**: Town of Beulaville Dam Hazard Map*

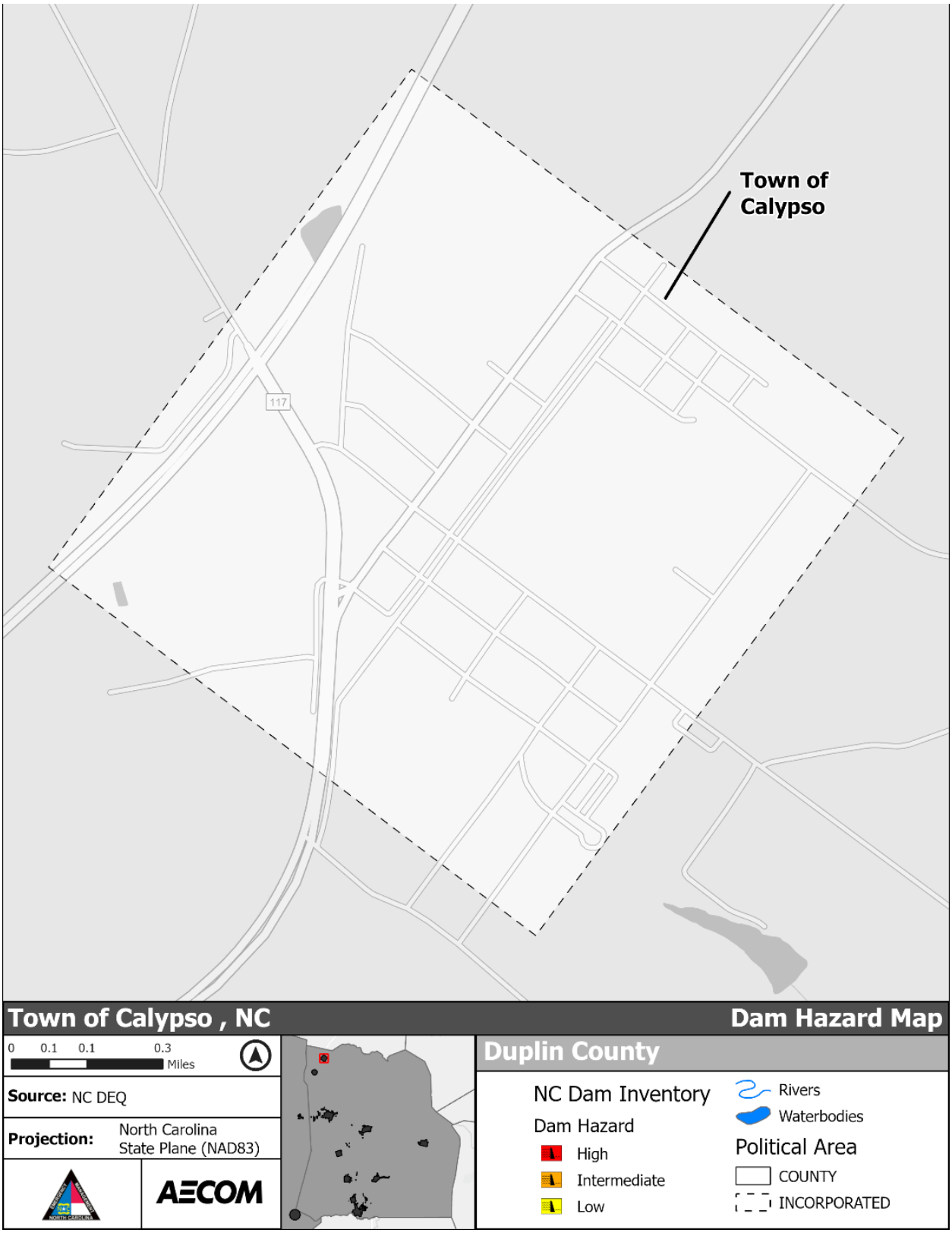


***Figure 5-6**: Town of Calypso Dam Hazard Map*

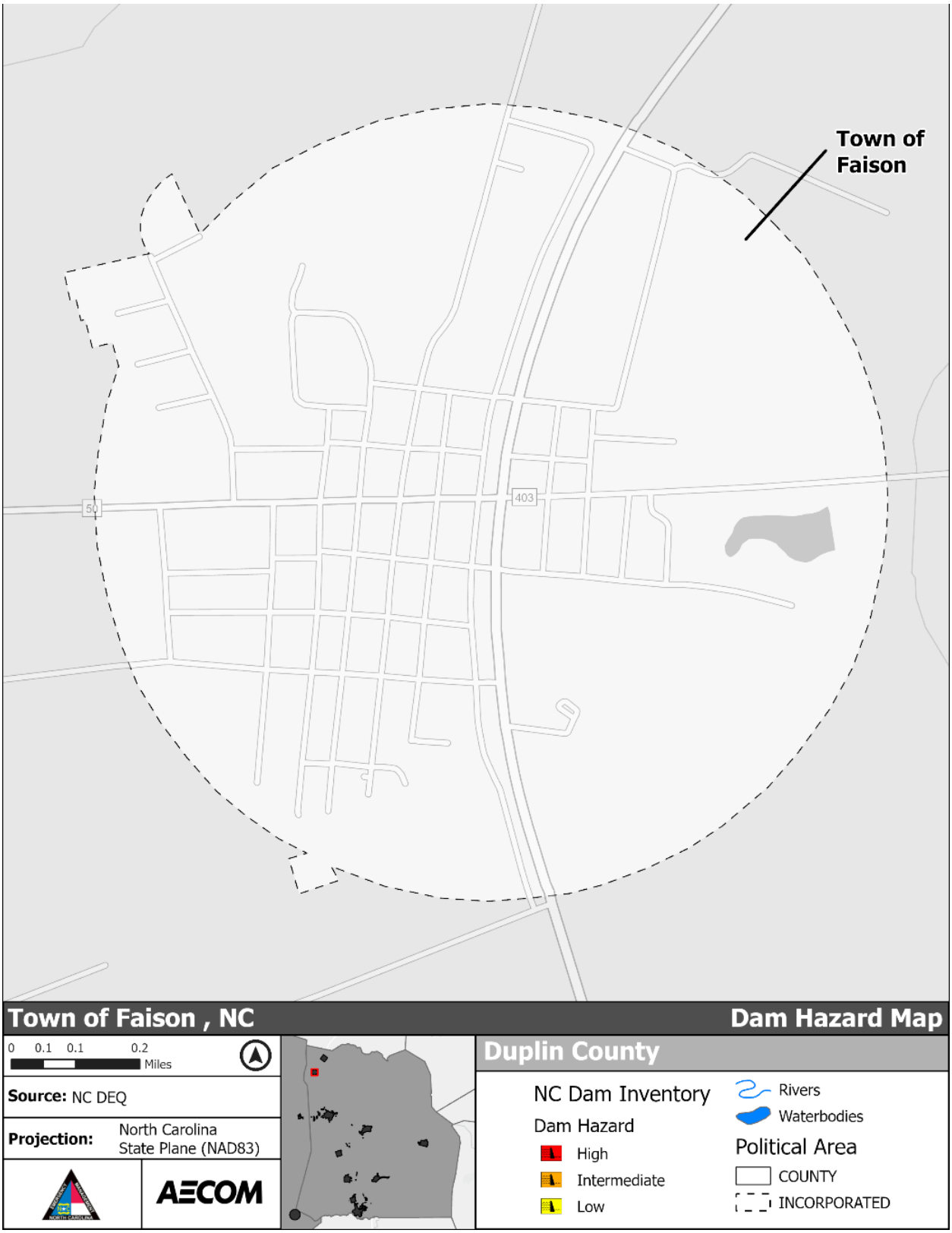


***Figure 5-7**: Town of Faison Dam Hazard Map*

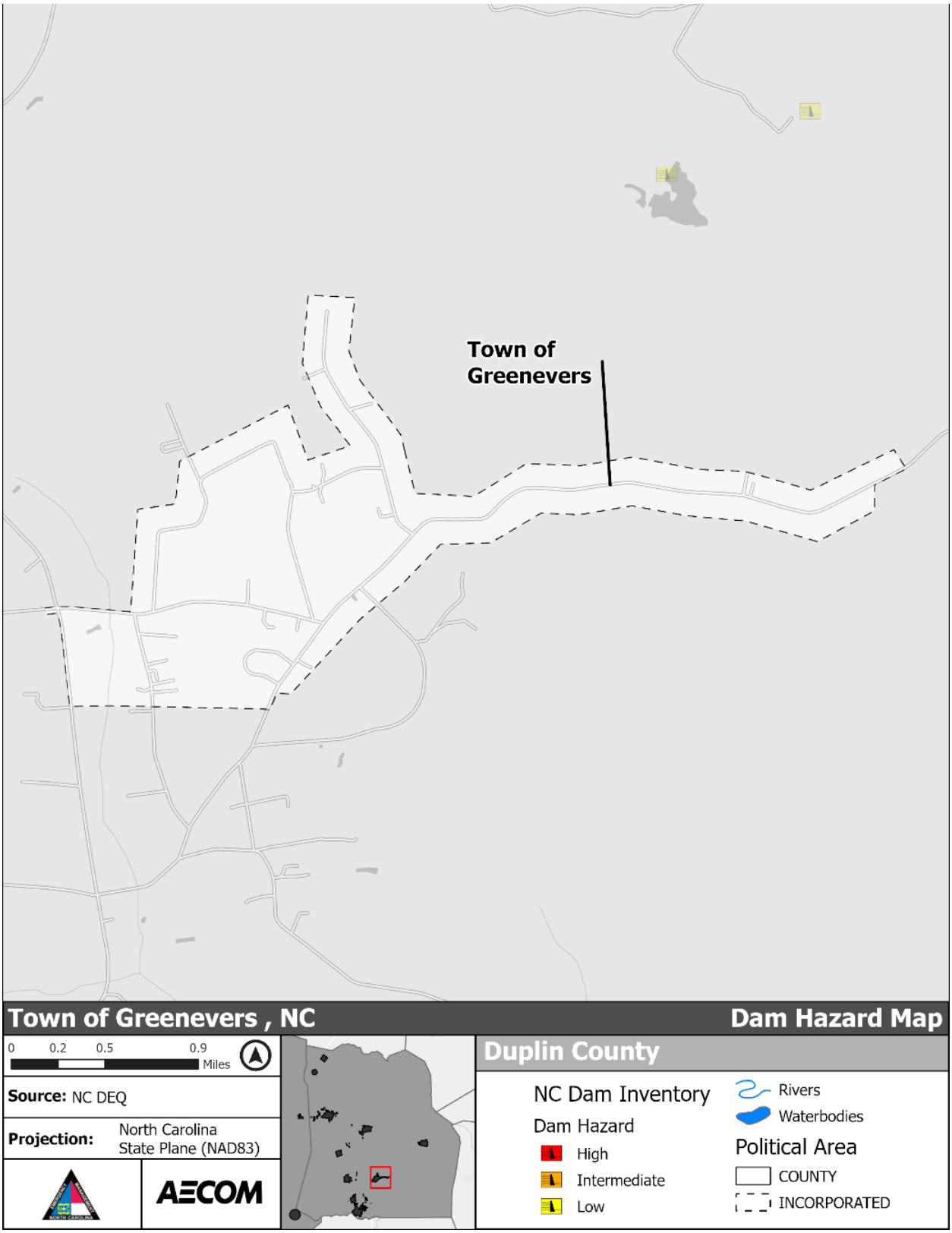


***Figure 5-8**: Town of Greenevers Dam Hazard Map*

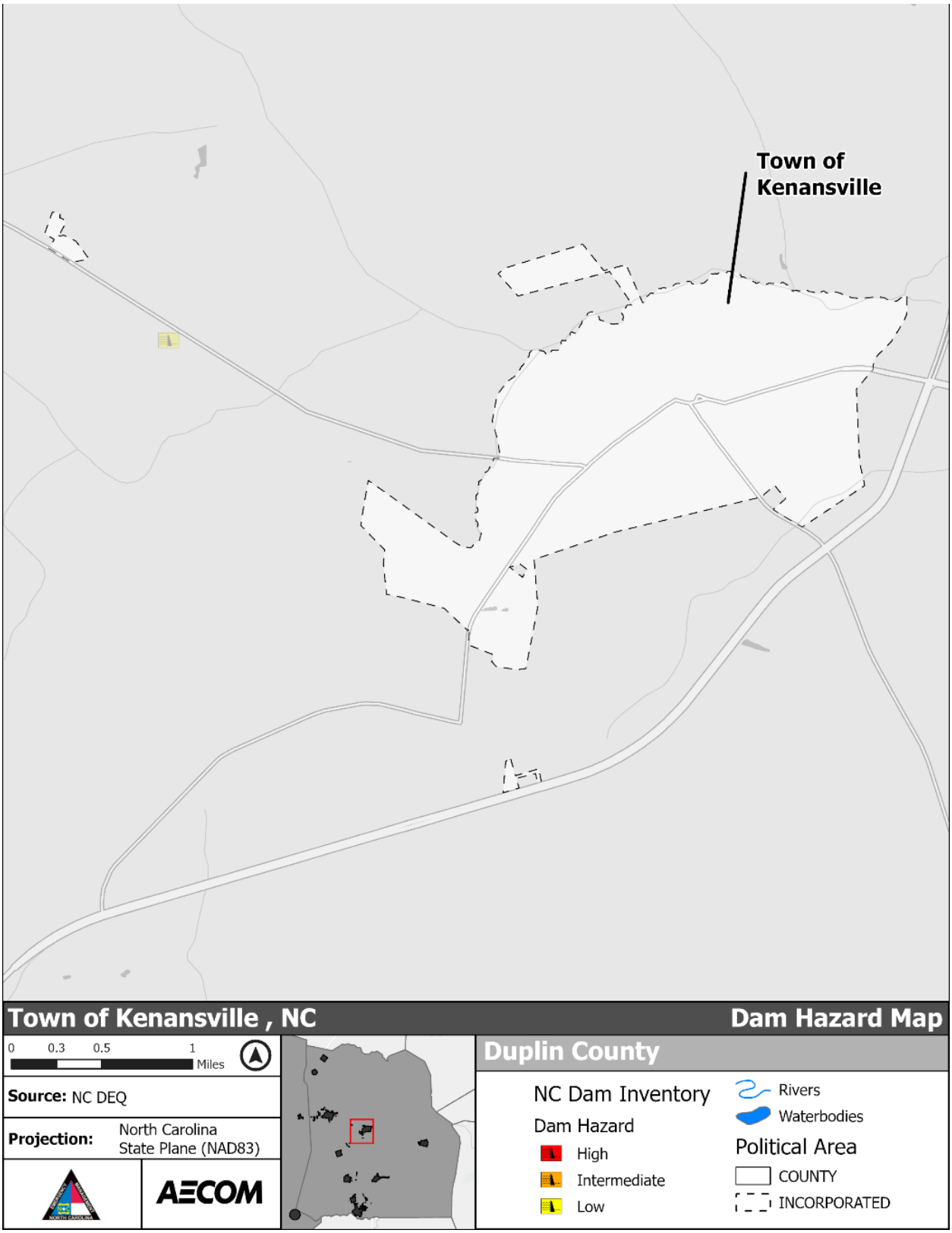


***Figure 5-9**: Town of Kenansville Dam Hazard Map*

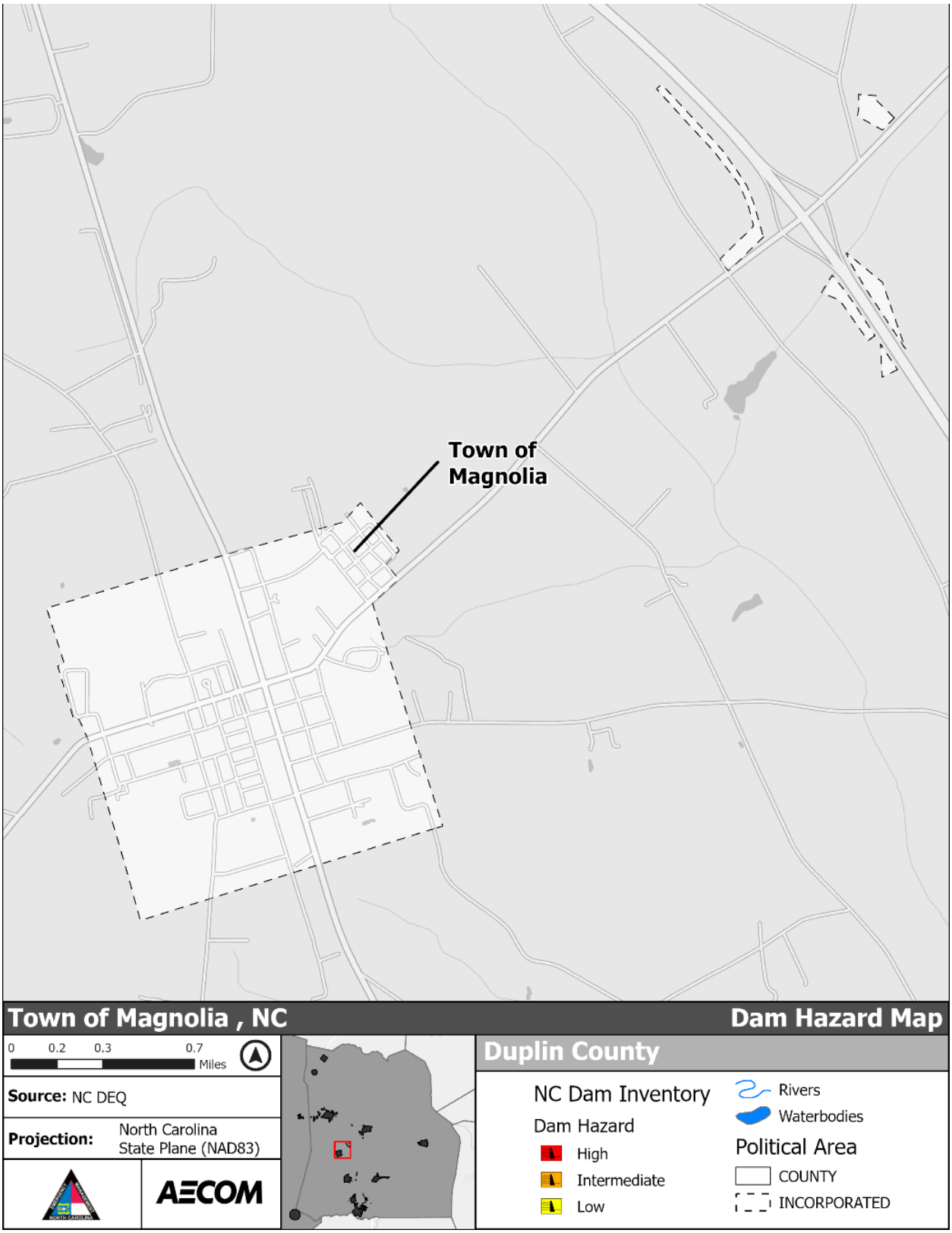


Figure 5-10: Town of Magnolia Dam Hazard Map

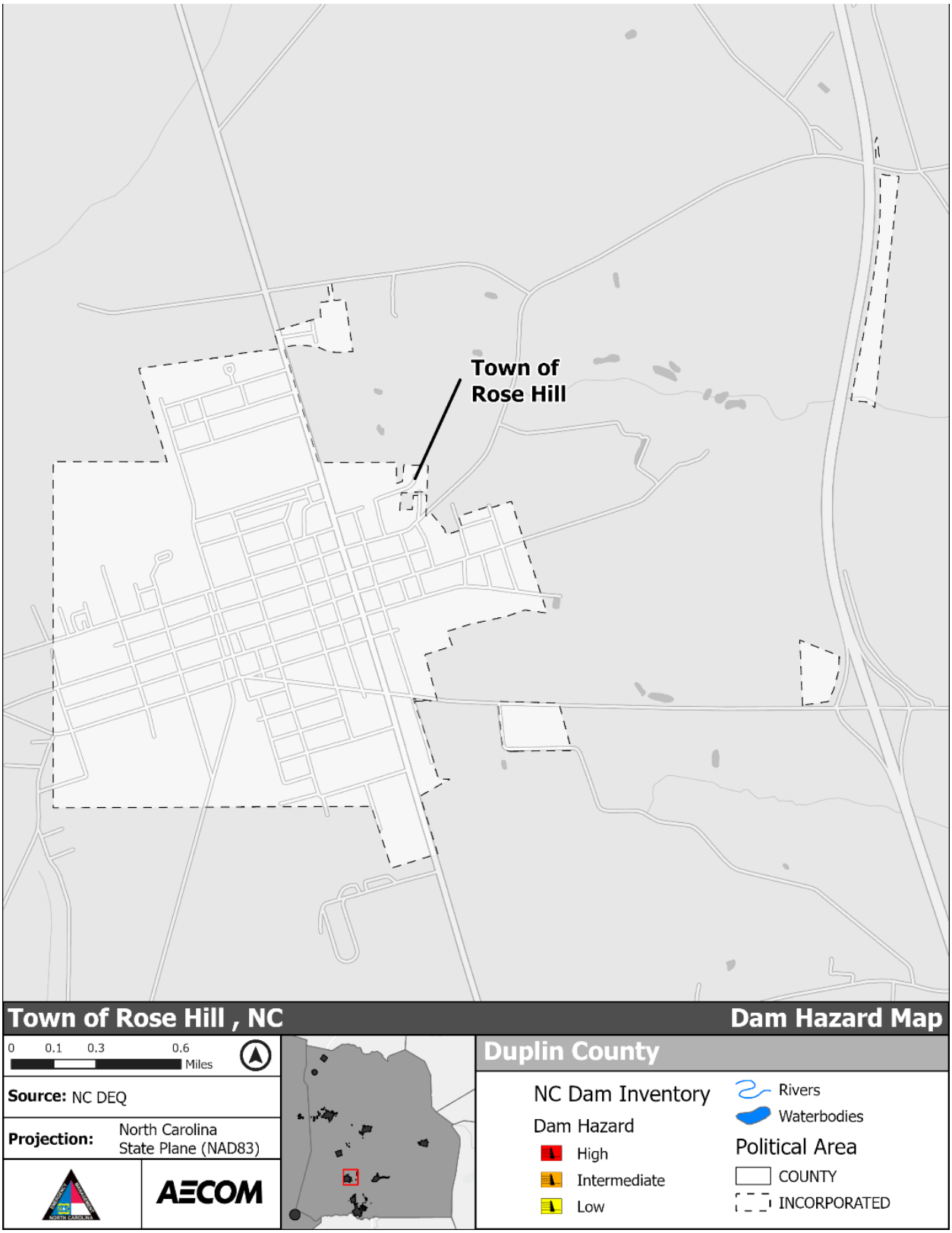


Figure 5-11: Town of Rose Hill Dam Hazard Map

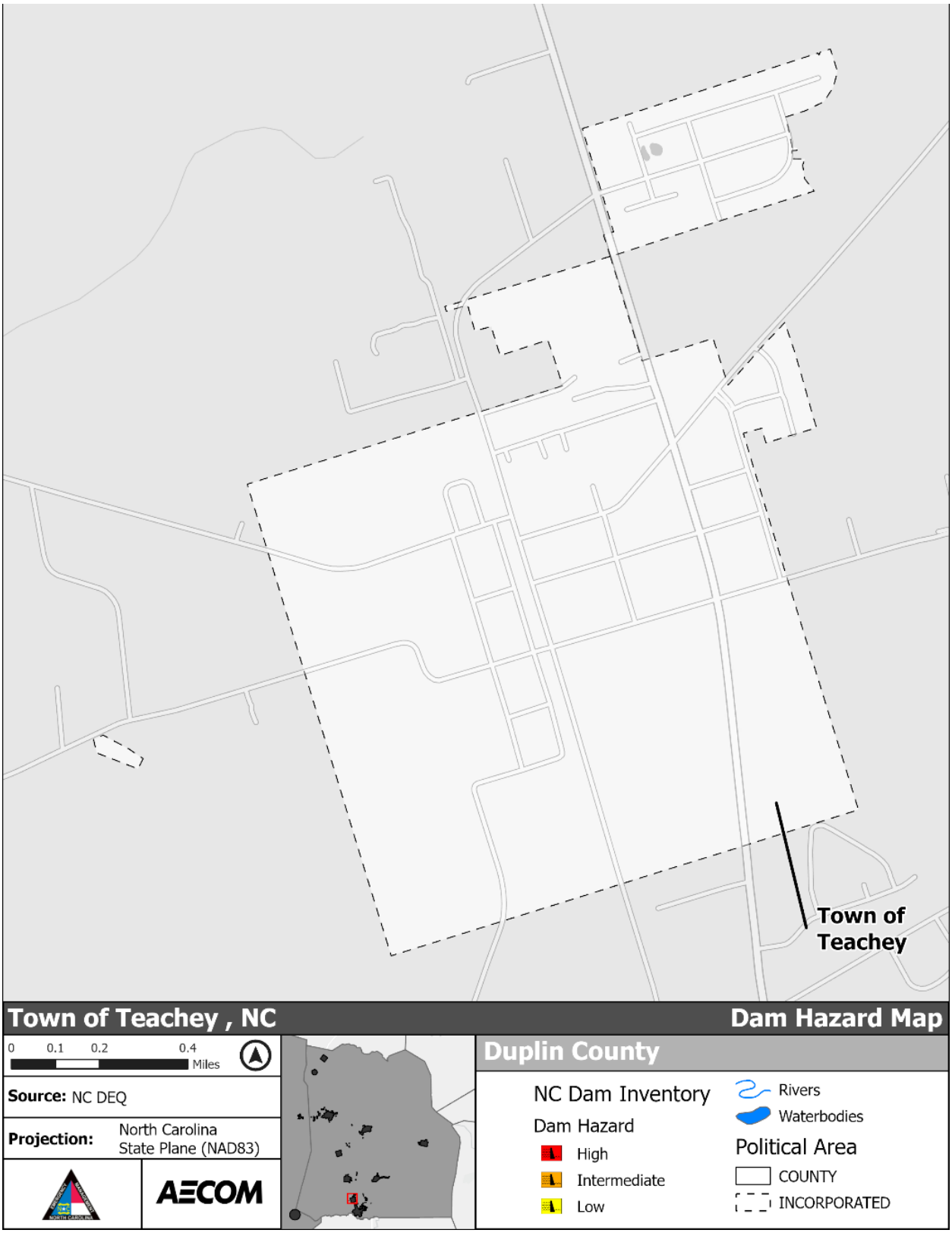


Figure 5-12: Town of Teachey Dam Hazard Map

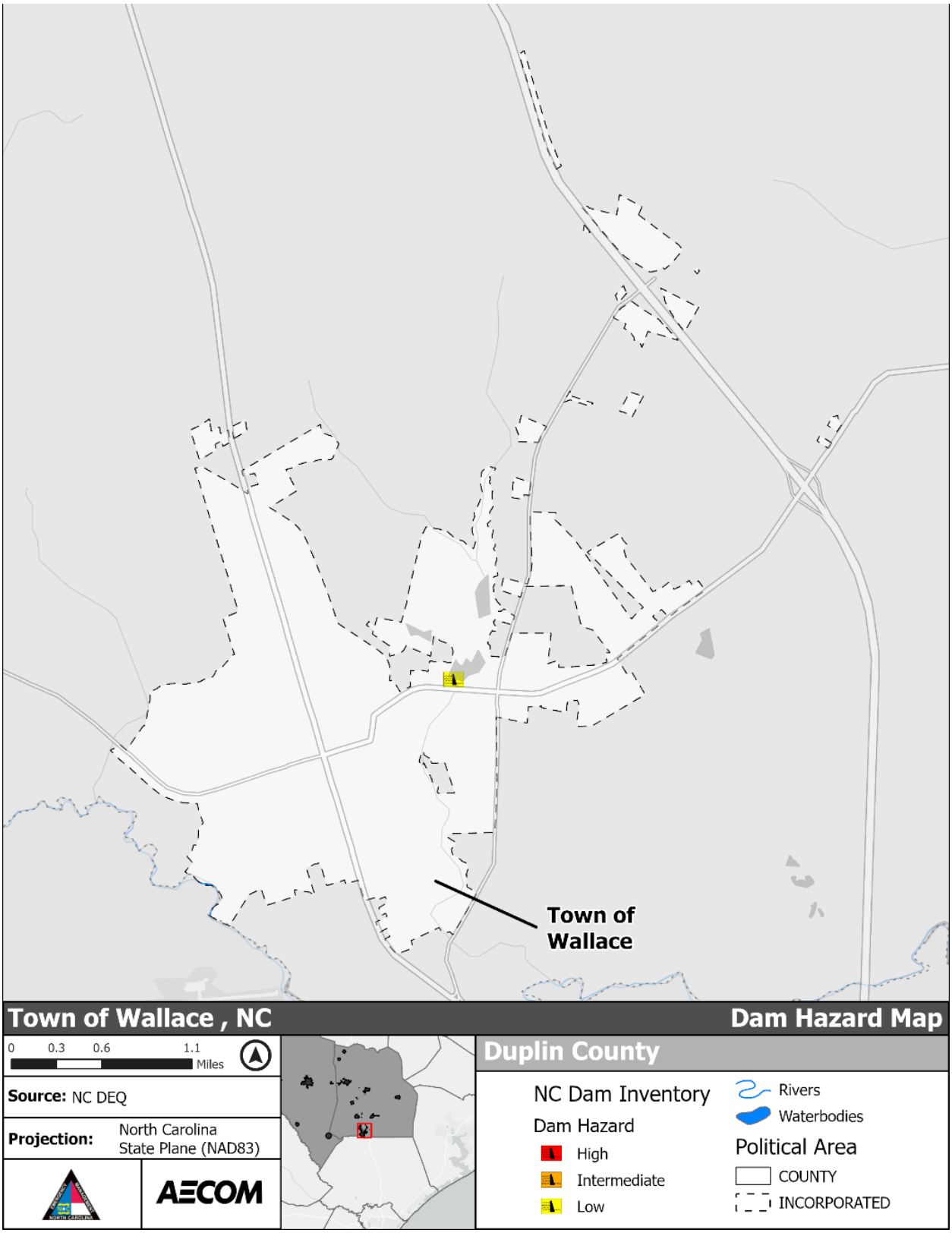


Figure 5-13: Town of Wallace Dam Hazard Map

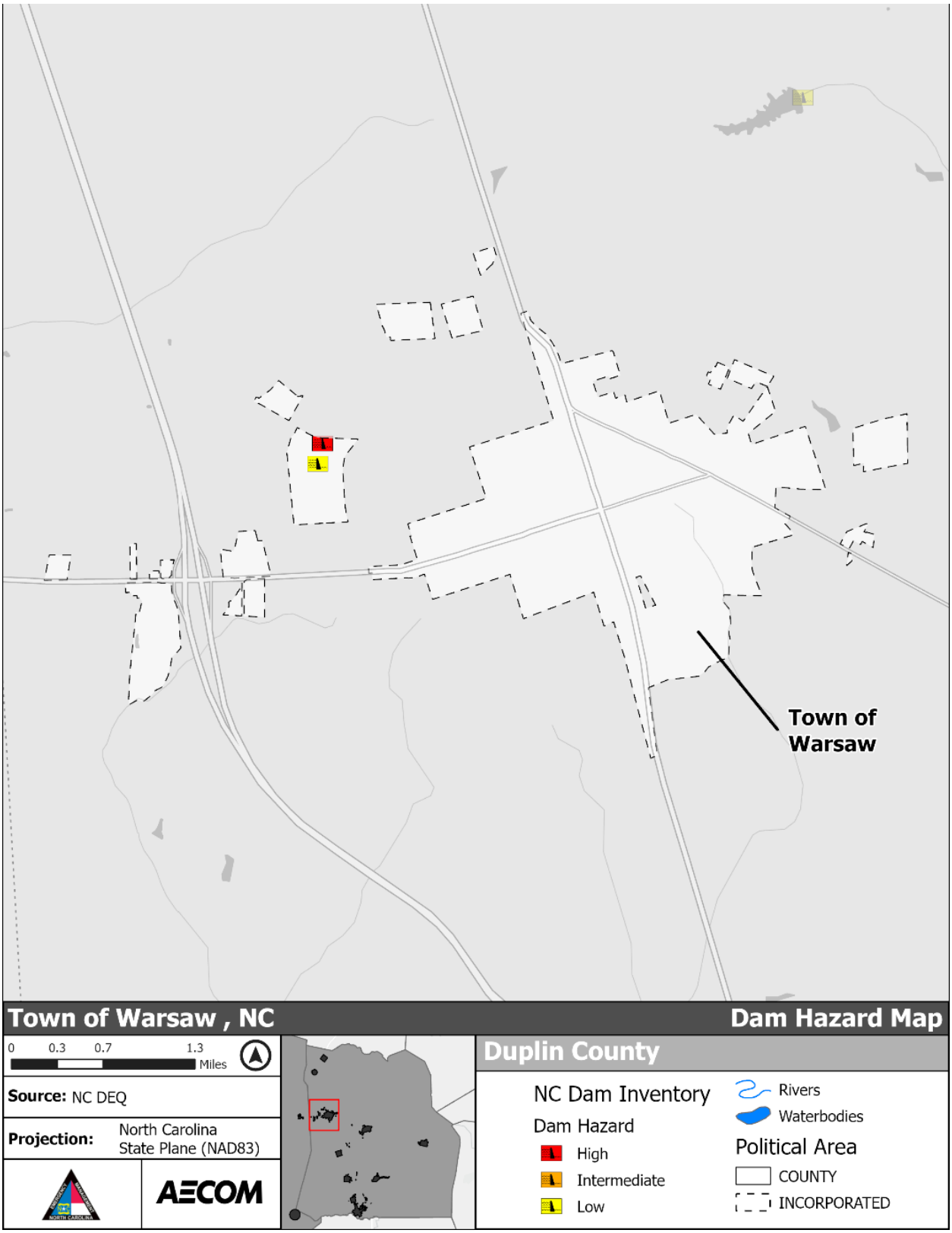


***Figure 5-14**: Town of Warsaw Dam Hazard Map*

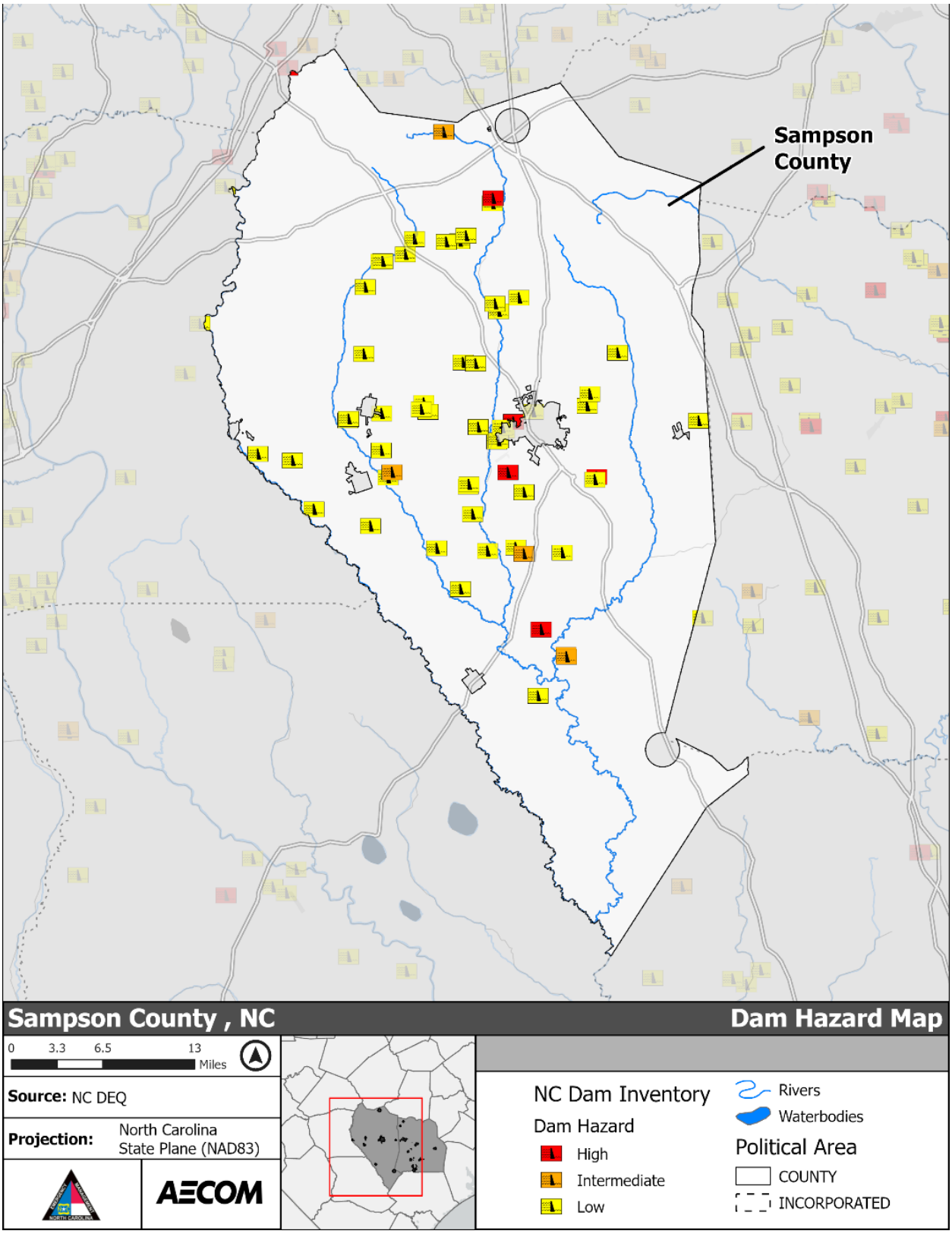


Figure 5-15: Sampson County Dam Hazard Map

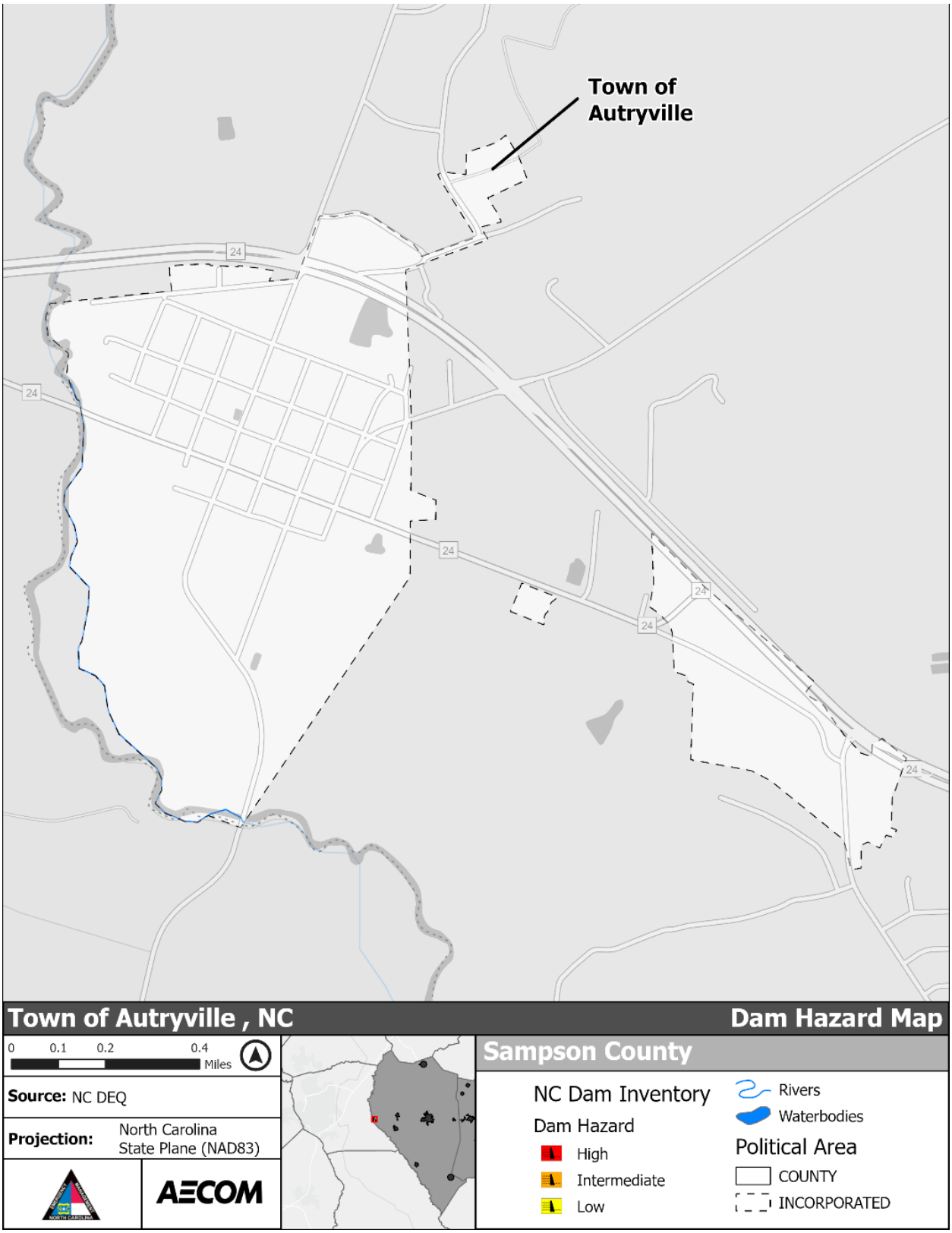


Figure 5-16: *Town of Autryville Dam Hazard Map*

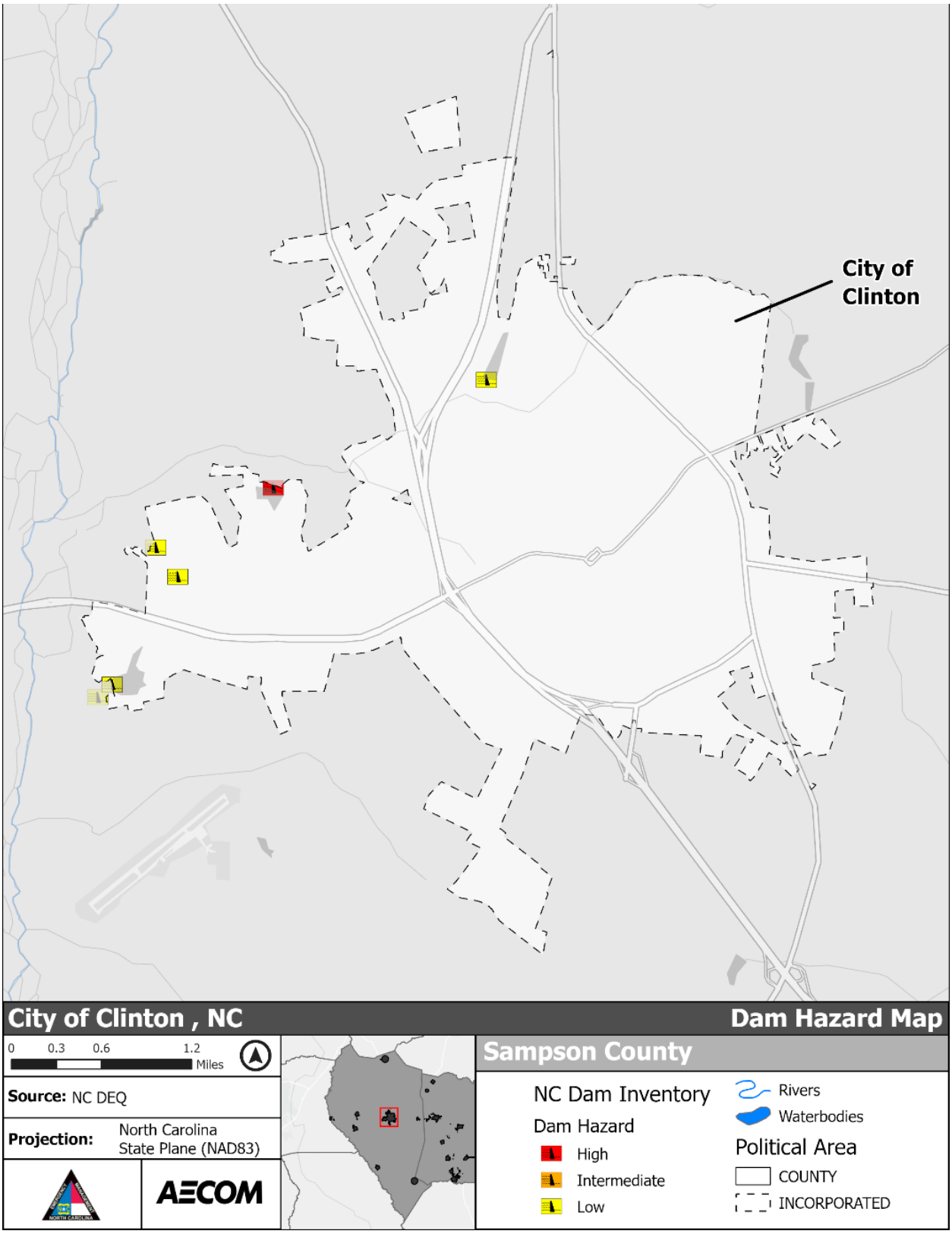


Figure 5-17: *City of Clinton Dam Hazard Map*

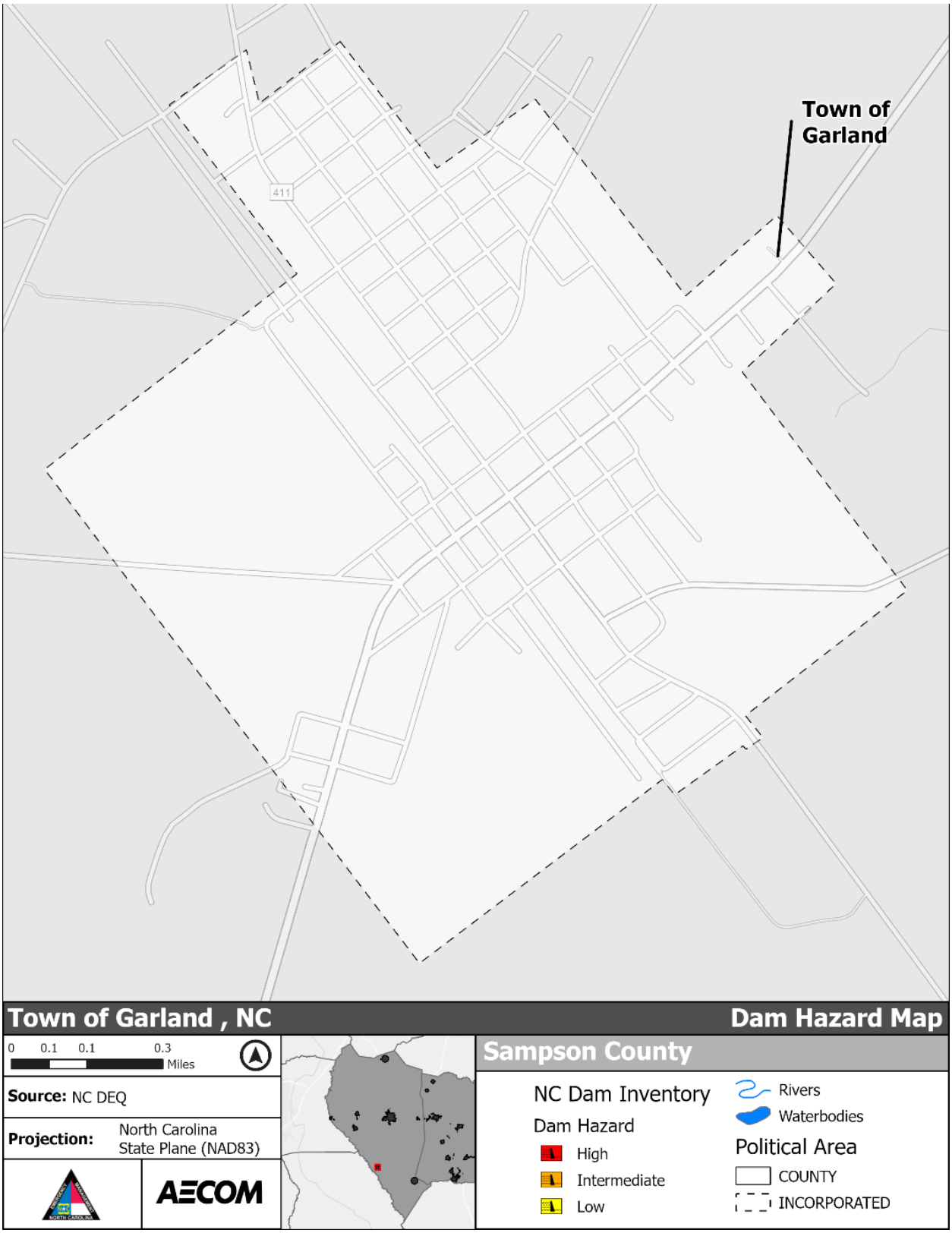


Figure 5-18: *Town of Garland Dam Hazard Map*

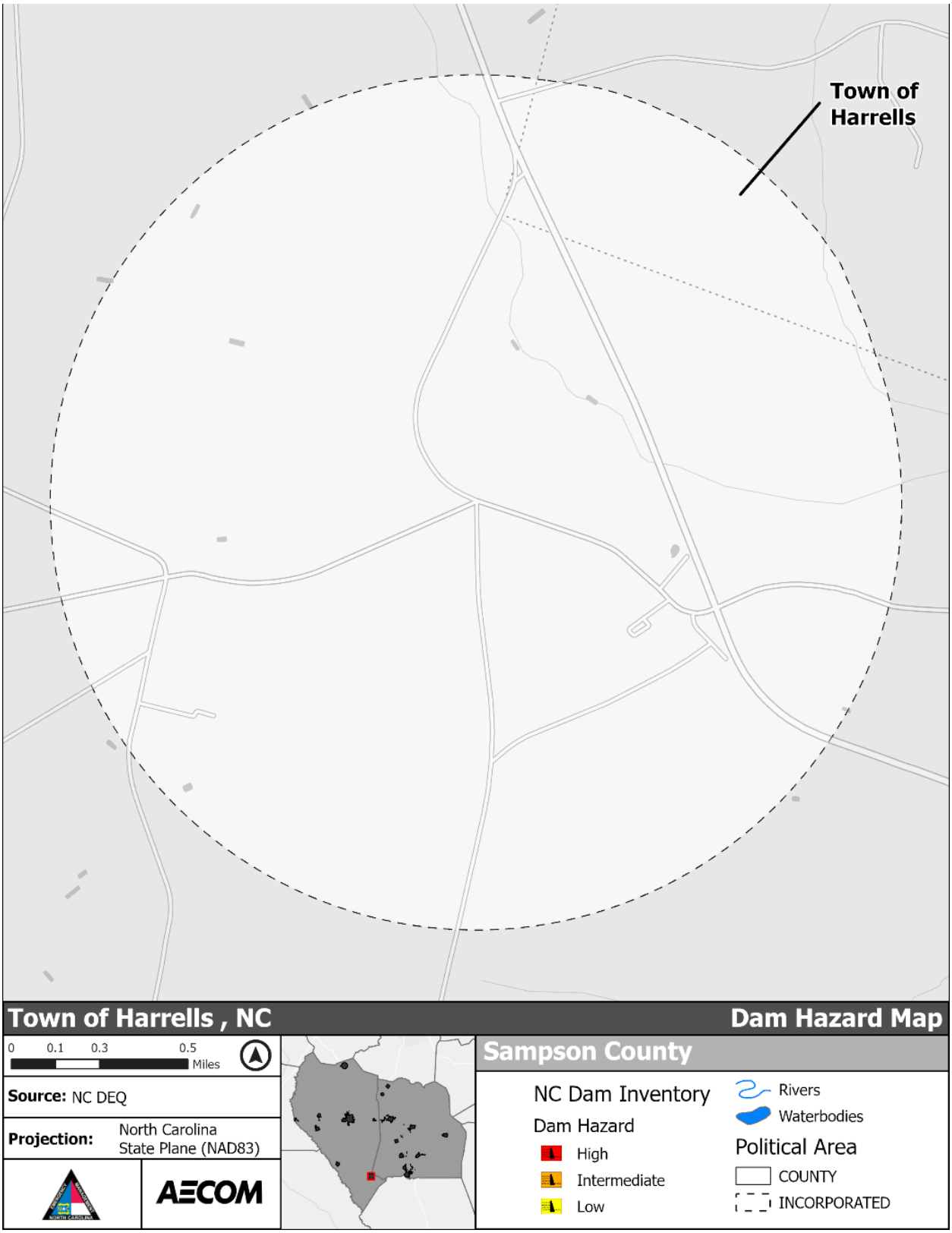


Figure 5-19: *Town of Harrells Dam Hazard Map*

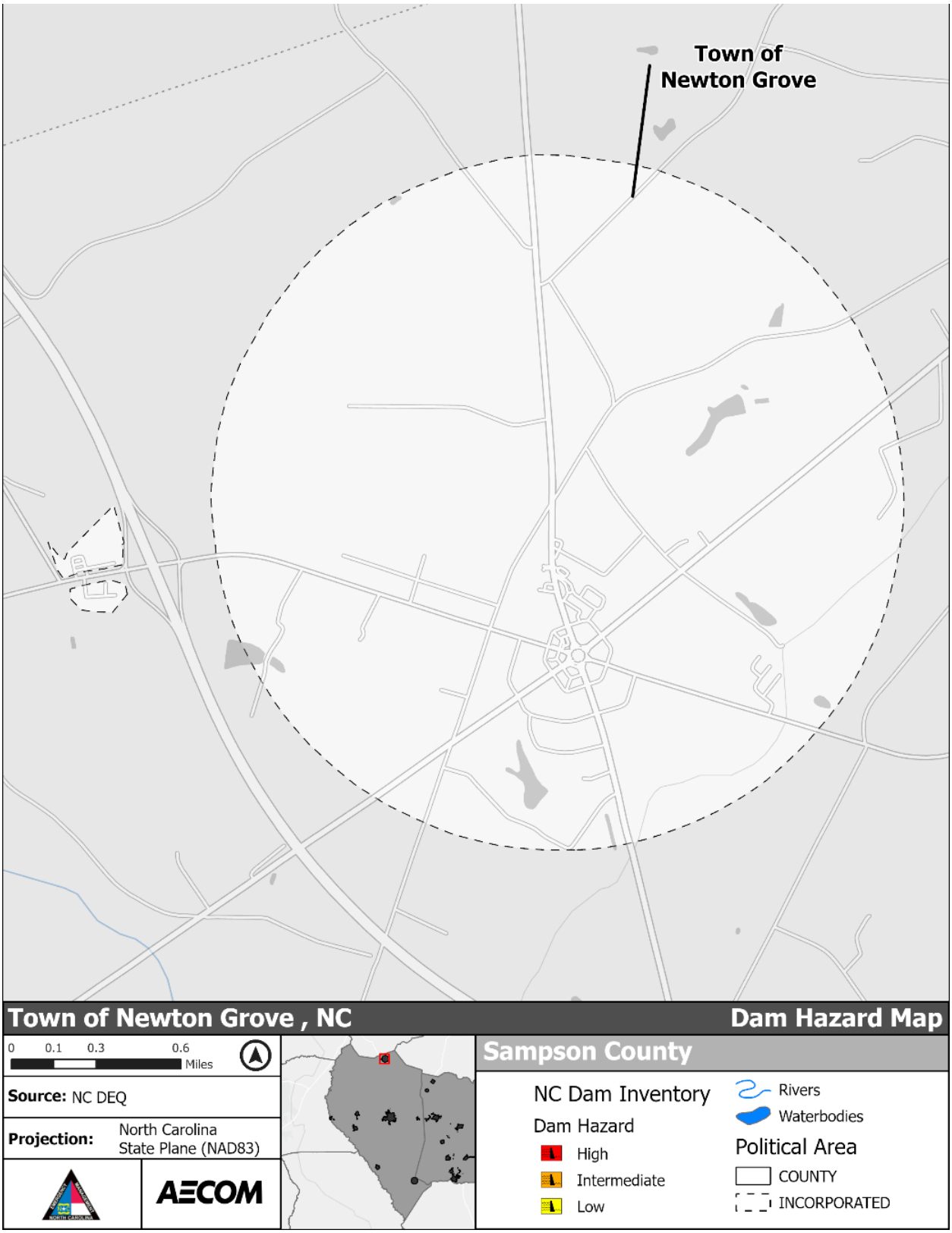


Figure 5-20: *Town of Newton Grove Dam Hazard Map*

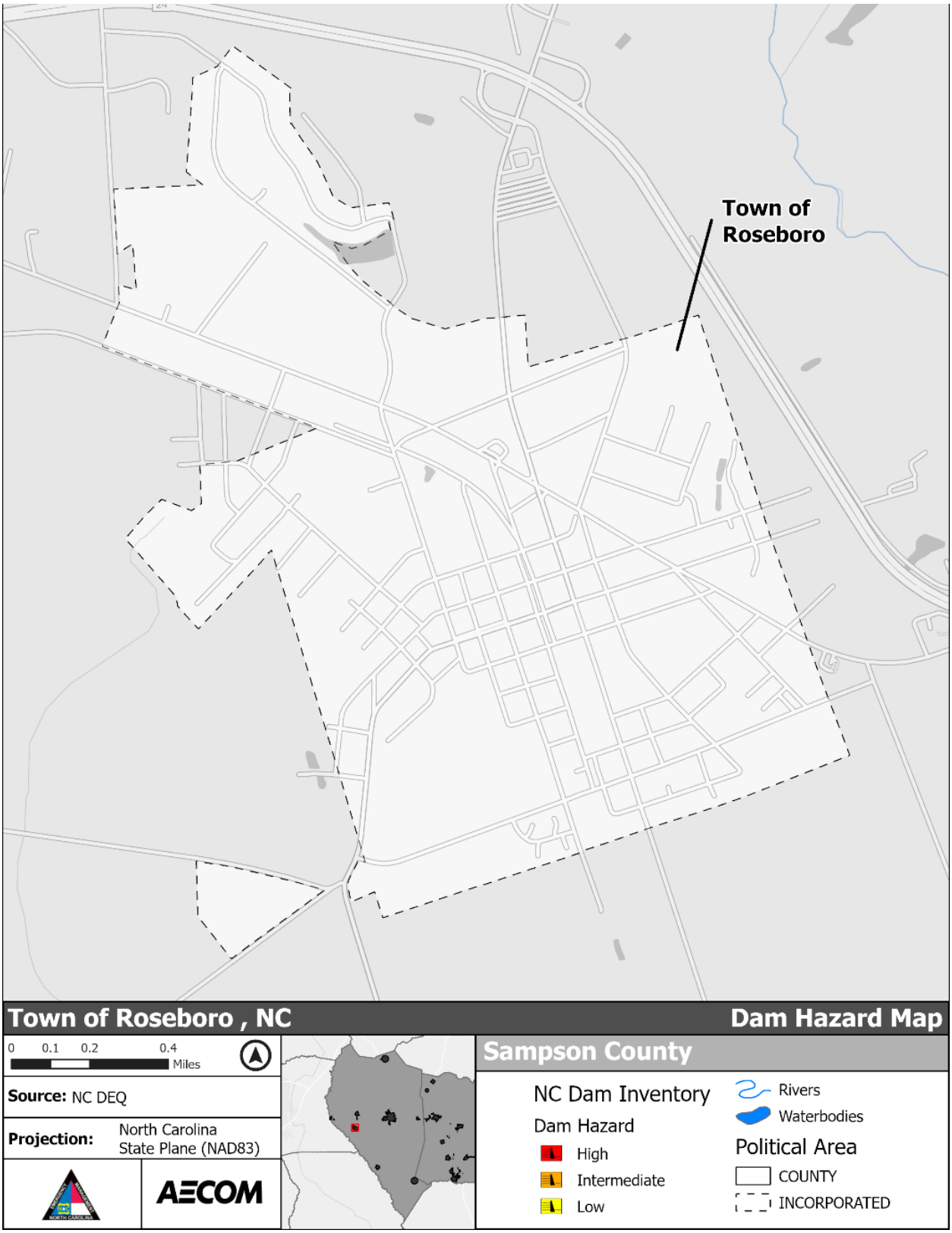


Figure 5-21: Town of Roseboro Dam Hazard Map

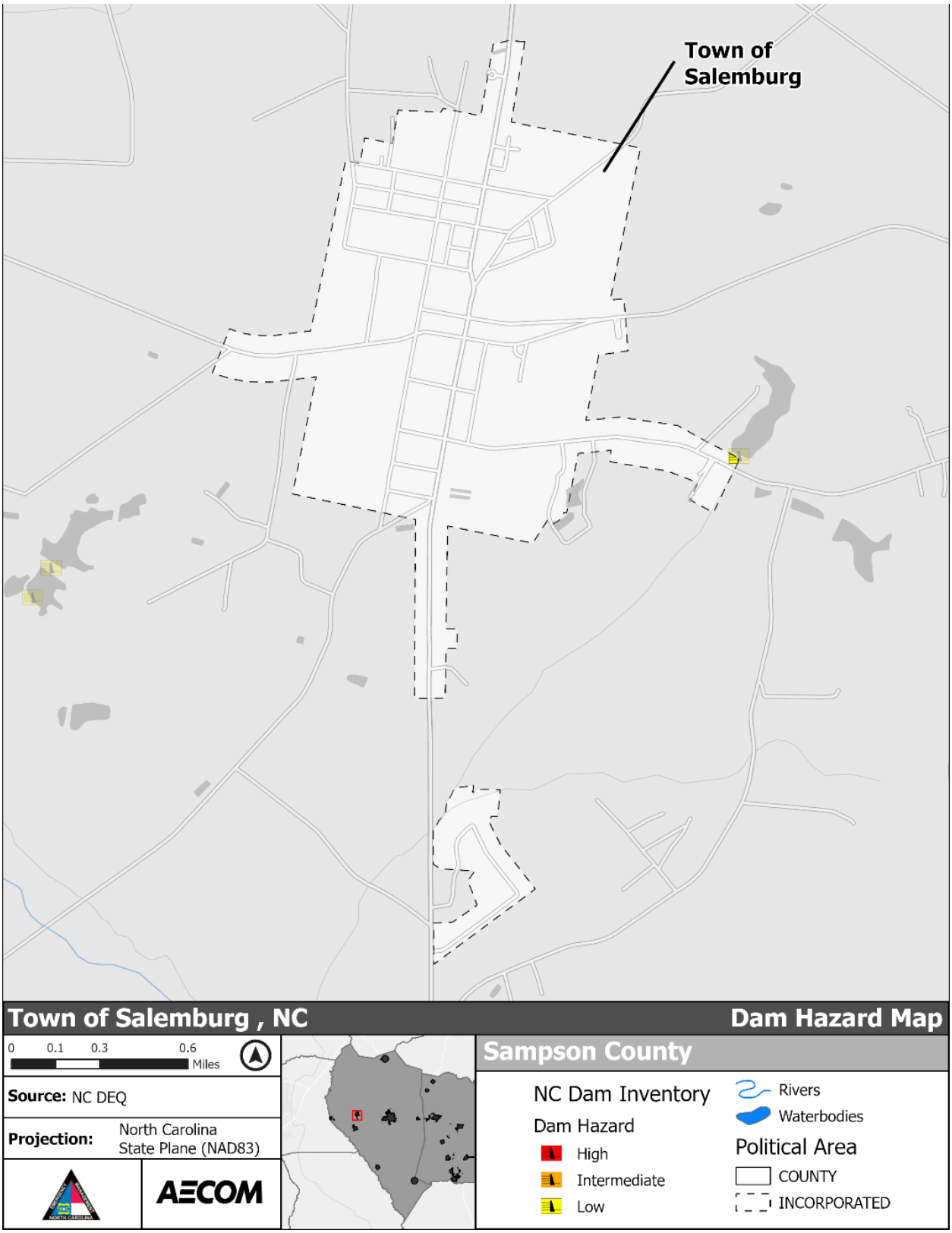


Figure 5-22: Town of Salemburg Dam Hazard Map

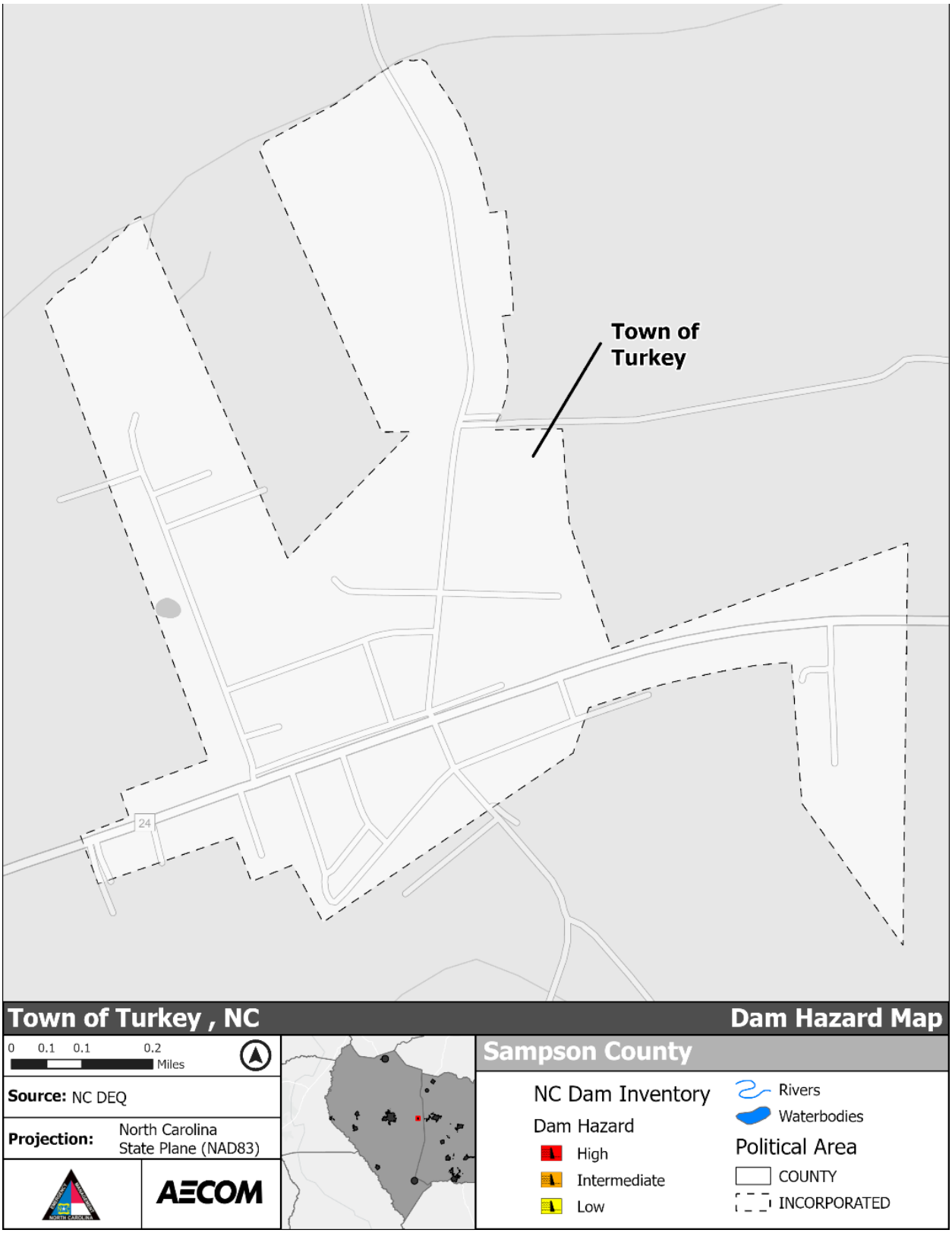


Figure 5-23: *Town of Turkey Dam Hazard Map*

5.2.3 Extent

Two factors influence the potential severity of a dam failure: the amount of water impounded, and the density, type, and value of development and infrastructure located downstream. The potential extent of dam failure may be classified according to their "hazard potential," meaning the probable damage that would occur if the structure failed, in terms of loss of human life and economic loss or environmental damage. The State of North Carolina classifies dam structures under its regulations according to hazard potential. 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.

Table 5-7: Dams in the Sampson Duplin Planning Area, their names, status, hazard, condition, last inspection date, and next inspection date[6]

State Dam ID	NID ID	Dam Name	County	Dam Status	Hazard	Condition	Last Inspection	Next Inspection Date
DUPLI-001	NC01147	Jackson Lake Dam	Duplin	IMPOUNDING	Low	Fair	10/6/2015	01/06/2020
DUPLI-002	NC01159	Hall Lake Dam	Duplin	BREACHED	Low	Not Rated	10/6/2015	03/03/2020
DUPLI-003	NC02256	Taylor Pond Dam	Duplin	IMPOUNDING	Low	Not Rated	10/6/2015	12/09/2020
DUPLI-004	NC01162	Taylor Lake Dam	Duplin	IMPOUNDING	Low	Not Rated	10/6/2015	12/09/2020
DUPLI-005	NC01165	Bowden Millpond Dam	Duplin	BREACHED	Low	Not Rated	10/6/2015	04/01/2020
DUPLI-006	NC01161	Gold Lake Dam	Duplin	IMPOUNDING	Intermediate	Fair	10/6/2015	01/09/2016
DUPLI-007	NC01158	Newkirk Lake Dam	Duplin	IMPOUNDING	Low	Satisfactory	10/6/2015	12/09/2020
DUPLI-008	NC01163	Taylor Lake Dam	Duplin	IMPOUNDING	Low	Not Rated	10/6/2015	05/27/2020
DUPLI-009	NC01166	Works Lake Dam	Duplin	IMPOUNDING	Low	Not Rated	10/6/2015	12/09/2020
DUPLI-010	NC01160	Johnson Lake Dam	Duplin	IMPOUNDING	Low	Not Rated	10/6/2015	01/06/2020
DUPLI-011	NC01164	Merritt Millpond Dam	Duplin	BREACHED	Low	Not Rated	10/6/2015	01/06/2020
DUPLI-012	NC02257	Blanchard Pond Dam	Duplin	IMPOUNDING	Low	Not Rated	2/21/2015	02/21/2020
DUPLI-013	NC01429	Deaver Millpond Dam	Duplin	BREACHED	Low	Not Rated	2/21/2015	10/01/2020
DUPLI-014	NC02258	Whitfield Pond Dam	Duplin	BREACHED	Low	Not Rated	2/21/2015	10/01/2020
DUPLI-015	NC02259	Teachy Pond Dam	Duplin	IMPOUNDING	Low	Not Rated	10/6/2015	03/11/2020
DUPLI-016	NC02260	Rouse Pond Dam	Duplin	IMPOUNDING	Low	Not Rated	7/2/2020	01/01/2021
DUPLI-017	NC01156	Maxwell Millpond Dam	Duplin	BREACHED	Low	Not Rated	8/9/2024	01/01/2025
DUPLI-018	NC02261	Basden Pond Dam	Duplin	IMPOUNDING	Low	Not Rated	10/7/2015	03/11/2020
DUPLI-019	NC01430	Mccullen Lake Dam	Duplin	IMPOUNDING	Low	Not Rated	10/7/2015	02/06/2020
DUPLI-020	NC02262	Scott Pond Dam	Duplin	IMPOUNDING	High	Fair	8/9/2024	01/01/2025
DUPLI-021	NC01167	Murry-Jerome Lake Dam	Duplin	IMPOUNDING	Low	Poor	10/7/2015	08/01/2017
DUPLI-022	NC01155	Holly Lake Dam	Duplin	BREACHED	Low	Not Rated	10/7/2015	03/01/2020
DUPLI-023	NC01157	Lake Genele Dam	Duplin	BREACHED	Low	Not Rated	10/7/2015	08/01/2016
DUPLI-024	NC04959	Limestone Creek Watershed Dam #1 (Cabin Lake Dam)	Duplin	IMPOUNDING	High	Not Rated	8/9/2024	01/01/2025

[6] NC Department of Environmental Quality [NCDEQ]. (2024). North Carolina Dam Inventory [Dataset]. In NCDEQ Online GIS. NCDEQ.

State Dam ID	NID ID	Dam Name	County	Dam Status	Hazard	Condition	Last Inspection	Next Inspection Date
DUPLI-025	NC05032	Phillips Farm Hog Waste Lagoon Dam	Duplin	RECLAIMED	Low	Not Rated	2/21/2015	01/01/2020
DUPLI-026	NC05268	Barwick Swine Waste Lagoon Dam	Duplin	IMPOUNDING	Low	Not Rated	2/21/2015	03/01/2020
DUPLI-027	NC05269	House of Raeford Farms Waste Lagoon Dam (Main Spray Field Lagoon Dam)	Duplin	IMPOUNDING	Intermediate	Not Rated	2/21/2015	01/06/2020
DUPLI-028	NC05270	Kornegay Lake Dam	Duplin	IMPOUNDING	Low	Not Rated	10/7/2015	04/16/2020
DUPLI-029	NC05271	Vestal Farms Lagoon Dam No. 3	Duplin	IMPOUNDING	Low	Not Rated	2/19/2015	02/11/2099
DUPLI-030	NC05272	Price Brothers Farm Lagoon Dam No. 1	Duplin	IMPOUNDING	Intermediate	Satisfactory	1/24/2013	08/01/2017
DUPLI-031	NC05546	Boney Millpond Dam	Duplin	IMPOUNDING	Low	Not Rated	2/19/2015	02/12/2020
DUPLI-032	NC05975	NC Hwy 11-903 Dam	Duplin	IMPOUNDING	High	Not Rated	8/9/2024	01/01/2025
DUPLI-033	NC05976	Norman Outlaw Pond Dam	Duplin	IMPOUNDING	High	Not Rated	8/9/2024	01/01/2025
DUPLI-034	NC05977	Bennetts Bridge Road Dam	Duplin	IMPOUNDING	High	Not Rated	8/9/2024	01/02/2025
DUPLI-035	NC06130	Bennetts Bridge Upper South Dam	Duplin	IMPOUNDING	High	Not Rated	8/9/2024	01/02/2025
DUPLI-036	NC06131	Bennetts Bridge Upper North Dam	Duplin	IMPOUNDING	High	Not Rated	8/9/2024	01/01/2025
DUPLI-037	NC06291	Warsaw Biogas Lined Process Holding Pond Dam	Duplin	IMPOUNDING	High	Not Rated	8/9/2024	01/01/2027
DUPLI-038	NC06426	Carbon Cycle (Penny Branch Road) Dam	Duplin	IMPOUNDING	Low	Not Rated	8/9/2024	01/01/2027
DUPLI-039	NC07012	Mac Farms Lagoon Dam	Duplin	IMPOUNDING	Intermediate	-	-	-
DUPLI-040	NC07013	Brock Pond Dam	Duplin	PENDING	Low	-	-	-
DUPLI-041	NC07017	Scott Dam	Duplin	PENDING	Low	-	-	-

State Dam ID	NID ID	Dam Name	County	Dam Status	Hazard	Condition	Last Inspection	Next Inspection Date
DUPLI-042	NC07018	Kornegay Grains Lower Dam	Duplin	PENDING	Low	-	-	-
DUPLI-043	NC07019	Kornegay Grains Upper Dam	Duplin	PENDING	Low	-	-	-
DUPLI-044	NC07020	Levai Farm Lagoon Dam	Duplin	IMPOUNDING	Intermediate	-	-	-
DUPLI-045	NC07249	Rhodes Pond Dam	Duplin	IMPOUNDING	Low	-	-	-
DUPLI-046	NC07250	Frederick Pond Dam	Duplin	PENDING	Low	-	-	-
DUPLI-047	NC07251	Silver Lake Dam	Duplin	IMPOUNDING	Low	Not Rated	8/9/2024	01/01/2025
SAMPS-001	NC04119	King Pond Dam	Sampson	IMPOUNDING	Low	Not Rated	6/14/2012	06/14/2022
SAMPS-002	NC04120	Gallagher Pond Dam	Sampson	IMPOUNDING	Low	Not Rated	6/7/2012	06/02/2022
SAMPS-003	NC04121	Williams Pond Dam	Sampson	IMPOUNDING	Low	-	4/8/2008	04/08/2013
SAMPS-004	NC04122	Faircloth Pond Dam	Sampson	IMPOUNDING	Low	Fair	1/6/2022	01/06/2027
SAMPS-005	NC04123	Williams Pond Dam Lower	Sampson	IMPOUNDING	Low	Fair	2/3/2011	02/03/2016
SAMPS-006	NC04124	Bass Pond Dam	Sampson	IMPOUNDING	Low	-	4/8/2008	04/08/2013
SAMPS-007	NC04125	Edwards Pond Dam (Arrowhead Lake Dam)	Sampson	IMPOUNDING	High	Fair	6/28/2024	06/28/2026
SAMPS-008	NC04126	Barwick Pond Dam Lower	Sampson	IMPOUNDING	Low	Fair	10/24/2013	10/24/2099
SAMPS-009	NC04127	Carnett Boney Dam	Sampson	IMPOUNDING	Low	Fair	2/18/2022	02/18/2027
SAMPS-010	NC04128	Boykin Lake Dam (Johnson Pond Dam)	Sampson	IMPOUNDING	High	Poor	4/29/2024	04/29/2025
SAMPS-011	NC04129	Stafford Pond Dam	Sampson	IMPOUNDING	High	Fair	6/28/2024	06/28/2026
SAMPS-012	NC04130	Newman Pond Dam	Sampson	IMPOUNDING	Low	-	4/8/2008	04/08/2013
SAMPS-013	NC04131	Mccullen Pond Dam (Bass Lake Dam)	Sampson	IMPOUNDING	Low	Not Rated	6/7/2012	06/07/2022
SAMPS-014	NC04132	Ashley Pond Dam #2	Sampson	IMPOUNDING	Low	-	3/18/2008	03/18/2013
SAMPS-015	NC04133	Ashley Pond Dam #1	Sampson	IMPOUNDING	Low	-	3/18/2008	03/18/2013

State Dam ID	NID ID	Dam Name	County	Dam Status	Hazard	Condition	Last Inspection	Next Inspection Date
SAMPS-016	NC01083	Laurel Lake Dam	Sampson	BREACHED	Low	-	2/15/2008	02/15/2013
SAMPS-017	NC01084	Hall Lake Dam	Sampson	IMPOUNDING	Low	Poor	3/7/2011	01/05/2015
SAMPS-018	NC01181	Williams Lake Dam Upper	Sampson	IMPOUNDING	Intermediate	Poor	1/22/2021	01/22/2023
SAMPS-019	NC01182	Fox Lake Dam	Sampson	IMPOUNDING	Low	Fair	1/6/2022	01/06/2027
SAMPS-020	NC01183	Blackman Lake Dam	Sampson	IMPOUNDING	Intermediate	-	2/15/2008	02/15/2013
SAMPS-021	NC01184	Sampson Acres Lake Dam	Sampson	IMPOUNDING	Low	Fair	1/6/2022	01/06/2027
SAMPS-022	NC01185	Sinclair Lake Dam	Sampson	IMPOUNDING	Low	Not Rated	5/3/2012	05/03/2022
SAMPS-023	NC01186	Mclamb Lake Dam	Sampson	IMPOUNDING	Low	-	2/28/2008	02/28/2013
SAMPS-024	NC01187	Jackson Lake Dam	Sampson	IMPOUNDING	Low	Fair	3/4/2022	03/04/2027
SAMPS-025	NC01188	Matthews Lake Dam	Sampson	BREACHED	Low	-	2/15/2008	02/15/2013
SAMPS-026	NC01189	Smith Lake Dam	Sampson	IMPOUNDING	Low	Fair	7/29/2013	02/21/2013
SAMPS-027	NC01190	Best Lake Dam	Sampson	IMPOUNDING	Low	-	2/21/2008	02/21/2013
SAMPS-028	NC01191	Dubose Lake Dam	Sampson	IMPOUNDING	Low	Not Rated	6/7/2012	06/07/2022
SAMPS-029	NC04134	Mclamb Lagoon Dam	Sampson	IMPOUNDING	Intermediate	Not Rated	5/24/2012	05/24/2022
SAMPS-030	NC04135	Herring Lake Dam	Sampson	IMPOUNDING	Low	Fair	1/6/2022	01/06/2027
SAMPS-031	NC04136	Crumpler Lake Dam	Sampson	IMPOUNDING	Low	Not Rated	6/7/2012	06/07/2022
SAMPS-032	NC04137	Carroll's of Warsaw Dam	Sampson	IMPOUNDING	Intermediate	Fair	10/24/2013	10/24/2099
SAMPS-033	NC04138	Carroll's of Warsaw Dam #2	Sampson	IMPOUNDING	Intermediate	Fair	10/24/2013	10/24/2099
SAMPS-034	NC04139	Charles Naylor Dam	Sampson	IMPOUNDING	Low	Not Rated	6/13/2012	02/28/2013
SAMPS-035	NC04140	David Weil Dam	Sampson	IMPOUNDING	Low	Fair	10/24/2013	10/24/2099
SAMPS-036	NC04141	Matthews Dam	Sampson	IMPOUNDING	Low	Fair	10/24/2013	10/24/2099
SAMPS-037	NC04843	Melva Brook Pond Lower Dam	Sampson	IMPOUNDING	High	Poor	4/29/2024	04/29/2025
SAMPS-038	NC04844	Melba Brook Pond Upper Dam	Sampson	IMPOUNDING	Low	Unsatisfactory	1/5/2011	02/05/2011
SAMPS-039	NC04845	Hobbs Pond Dam (Faircloth Dam)	Sampson	IMPOUNDING	Low	Fair	11/5/2013	06/13/2022
SAMPS-040	NC04846	Surles Pond Dam	Sampson	BREACHED	Low	Not Rated	1/10/2023	01/10/2025

State Dam ID	NID ID	Dam Name	County	Dam Status	Hazard	Condition	Last Inspection	Next Inspection Date
SAMPS-041	NC04847	Stafford Pond Dam	Sampson	BREACHED	Low	Not Rated	1/10/2023	01/10/2028
SAMPS-042	NC04848	Kitchen Dam	Sampson	IMPOUNDING	Low	Not Rated	6/13/2012	06/13/2022
SAMPS-043	NC05217	Tyndall Swine Lagoon Dam	Sampson	IMPOUNDING	Low	Fair	10/24/2013	10/24/2099
SAMPS-044	NC05393	Edwards Pond Dam	Sampson	IMPOUNDING	Low	Not Rated	6/13/2012	06/13/2022
SAMPS-045	NC05394	Beaver Dam 3, 4 & 5 (C&C Farm Lagoon Dam)	Sampson	IMPOUNDING	Low	Not Rated	6/13/2012	06/13/2022
SAMPS-046	NC05467	Colee Naylor Pond Dam	Sampson	BREACHED	Low	Not Rated	1/10/2023	01/10/2025
SAMPS-047	NC05468	House-Autry Dam	Sampson	IMPOUNDING	Low	Not Rated	9/25/2018	09/01/2019
SAMPS-048	NC05469	Ballis Dam	Sampson	IMPOUNDING	Low	Satisfactory	7/13/2012	07/13/2022
SAMPS-049	NC05575	NCDA Clinton Research Station Dam	Sampson	IMPOUNDING	Low	Not Rated	5/10/2012	05/10/2022
SAMPS-050	NC05576	B. Vann Dam	Sampson	DRAINED	High	Fair	6/28/2024	06/28/2026
SAMPS-051	NC06319	Vinson Pond Dam	Sampson	IMPOUNDING	Low	-	-	-
SAMPS-052	NC06427	Gardner Pond Dam (Bullard Pond Dam)	Sampson	BREACHED	Low	Fair	2/18/2022	02/18/2027
SAMPS-053	NC07093	Bradshaw Farm Pond Dam	Sampson	PENDING	Low	-	-	-
SAMPS-054	NC07194	Watery Branch Pond Dam	Sampson	PENDING	Low	-	-	-
SAMPS-055	NC07195	Clinton Country Club Lakes Dam #1	Sampson	PENDING	Low	-	-	-
SAMPS-056	NC07196	Canady Pond Dam	Sampson	PENDING	Low	-	-	-
SAMPS-057	NC07197	Eva Greene Pond Dam	Sampson	PENDING	Low	-	-	-
SAMPS-058	NC07466	Bass Pond Upper Dam	Sampson	PENDING	Low	-	-	-

5.2.4 Past Occurrences

According to the Association of State Dam Safety Officials' Dam Incident Database, there were four dam overtopping incidents in the planning area on October 8, 2016, due to Hurricane Matthew. The four dams failed, overtopping and causing severe damage to the breach area. Maxwell Millpond Dam breached and discharged through the spillway, causing severe damage to bridges downstream, with an estimated $100,000 to $500,000 in economic damage. The Bennetts Bridge Road Dam had a small, controlled breach that did not damage the nearby road. However, the dam is currently listed as a high-hazard dam, and the incident is estimated to have caused $500,000 to $1 million in economic damage. Laurel Lake Dam's breach caused Laurel Lakes Road to be washed out completely, and the estimated economic damage associated with the incident was between $1 million and $5 million. The House-Autry Dam breached and failed at the principal spillway, resulting in significant scouring and road damage, with estimated economic losses of $1 million and $5 million.

***Table 5-8**: Association of State Dam Safety Officials Dam Incidents in the Sampson Duplin Planning Area*[7]

State Dam ID	NID ID	Incident Date	Dam Name	Dam Status (Current)	Dam Hazard (Current)	Incident Type	Incident Cause	Incident Type	Economic Damage
DUPLI-017	NC01156	2016-10-08	Maxwell Millpond Dam	Breached	Low	Failure	Hydrologic/ Flooding	Overtopping	$100,000 to $500,000
			Breached; discharge from spillway and possible overtopping caused severe damage to bridge abutments just downstream from dam						
DUPLI-034	NC05977	2016-10-08	Bennetts Bridge Road Dam	Impounding	High	Failure	Hydrologic/ Flooding	Overtopping	$500,000 to $1 million
			Small dam breach on left side in a controlled fashion, did not cause damage to road						
SAMPS-016	NC01083	2016-10-08	Laurel Lake Dam	Breached	Low	Failure	Hydrologic/ Flooding	Overtopping	$1 million to $5 million
			Dam breached and washed-out Laurel Lakes Road completely						
SAMPS-047	NC05468	2016-10-08	House-Autry Dam	Impounding	Low	Failure	Hydrologic / Flooding	Overtopping	$1 million to $5 million
			Breached, dam failure at principal spillway due to overtopping. EM spillway had significant scouring and caused road damage						

[7] Association of State Dam Safety Officials [ASDSO]. (n.d.). Dam Incident Database [Dataset]. In Association of State Dam Safety Officials. ASDSO. https://damsafety.org/incidents

5.2.5 Probability of Future Occurrence

Given the current dam inventory and historical data, a dam breach is unlikely in the future (annual probability less than 1%). However, as has been demonstrated in the past, regular monitoring is necessary to prevent these events.

5.2.6 Consequence and Impact Analysis

5.2.6.1 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 with an Emergency Action Plan (EAP), the vulnerability to loss of life for persons in their homes or on their property may be mitigated by following the EAP evacuation procedures; however, 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.

The dams in the Region do not provide a drinking water supply. As a result, the County is not at risk of major public health threats from a dam failure that disrupts the drinking water supply. However, the population is vulnerable to minor impacts, including the loss of the aesthetic or recreational use of the lakes upstream of dams following failure. Sampson County and the jurisdiction of Clinton are most vulnerable to dam breaches due to past occurrences.

To mitigate the impacts of dam failure, there should be a way for all residents in dam failure areas to receive emergency alerts in a timely manner, reducing the potential loss of life. Communication through reverse-911, text message, or internet alerts has become a critical tool for alerting residents of impending hazard impacts. However, this may be limited for those without access to a computer or the internet. In Duplin County, an estimated 0.6% of housing units lack telephone service, with Magnolia and Beulaville having the highest estimated percentages at 5.2% and 3.1%, respectively.[8] Additionally, an estimated 16.9% of households in Sampson County and 20.9% in Duplin County lack internet subscriptions, limiting residents' ability to access a wide range of publicly available preparedness materials online.[9] It is also estimated that 11.7% of housing units in Sampson County and 11.9% in Duplin County lack computing devices, further limiting residents' access to public awareness information.[10] Given the large portion of the planning area lacking internet subscriptions and computing devices, the planning area should equip residents with a wide range of public awareness materials and initiatives across multiple media, such as radio, newspaper, and commercial ads, as well as flyers.

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[8] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Housing Characteristics. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP04

[9] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Housing Characteristics. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP04

[10] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Housing Characteristics. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP04

To prepare for dam or levee failure events, it is important that residents of the planning area receive dam failure notifications and have access to preparedness information. Not having telephone service in the primary housing unit can limit the ability to receive emergency text message alerts warning about imminent hazards that require immediate response and preparation. In Sampson County, an estimated 0.9% of housing units lack telephone service, and the jurisdictions with the highest percentages are Autryville (13.4%) and Salemburg (3.9%).[11] These residents may have limited access to time-sensitive emergency alerts sent with reverse-911 systems or SMS to evacuate high-hazard areas in a timely manner.

Residents who do not have access to a vehicle in their housing unit (5.0% in Sampson County and 5.8% in Duplin County)[12] may be at an increased risk of significant injury or death in the event of a dam failure, which would impact their housing unit. Some jurisdictions have a large portion of residents who do not have access to a vehicle in their housing unit, making these jurisdictions more vulnerable to dam impacts in the event of dam failure. This includes Roseboro, Garland, Beulaville, Clinton, Magnolia, and Kenansville, which are estimated to have 16.3%, 15.7%, 14.3%, 12.3%, 11.8%, and 11.0% of housing units, respectively, without access to a vehicle.

Residents who have a disability (14.6% in Sampson County and 17.3% in Duplin County) or an independent living difficulty (7.1% in Sampson County and 8.4% in Duplin County) may require assistance to evacuate and reach a safe location in the event of a dam failure events.[13] In areas with higher percentages of individuals with disabilities or independent living difficulties, there may be an increased need for assistance in response to a dam failure. For example, Clinton, Kenansville, Greenevers, and Roseboro are estimated to have 12%, 11.2%, 36.1%, and 9.5% of residents with an independent living difficulty, respectively. These areas may require assistance to evacuate safely in the event of a dam failure.

The planning area should develop a plan that ensures all residents can evacuate in a timely manner in the event of dam failure, including those who require extra assistance, such as those with independent living difficulties.

- Ensure that all residents are informed about existing and future risks, preparedness activities, and methods to mitigate risks posed by dam failures in the region.

5.2.6.2 Changes in Development

Vulnerability to the built environment includes damage to the dam itself and to any man-made features located within the inundation area caused by dam failure. Downstream of the dam, vulnerability includes potential damage to homes, personal property, commercial buildings and property, and government-owned buildings and property; destruction of bridge or culvert

[11] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Housing Characteristics. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP04

[12] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Housing Characteristics. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP04

[13] U.S. Census Bureau, U.S. Department of Commerce. "Disability Characteristics." American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1810, https://data.census.gov/table/ACSST5Y2023.S1810

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.

5.2.6.3 Economy

The economic impact of small dams is generally small, and it is often limited to the dam owner and the cost of first responder activities. Large failures can disrupt the economy by displacing workers, damaging commercial employment centers, or destroying infrastructure that impacts commercial activities or access to other economic drivers. Economic impacts can occur when infrastructure, critical facilities, residences, or structures are damaged by dam failures.

5.2.6.4 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 likely cause erosion within and adjacent to the stream. Deposition of eroded deposits may choke instream habitat or disrupt riparian areas. Sediments on the lake bottom and any low-oxygen water from within the lake will be dispersed, potentially causing fish kills or releasing heavy metals from the lake sediment layers. Dam failure can also increase soil erosion and sedimentation, which clog waterways, degrade water quality, contaminate waterways, and damage downstream ecosystems.

5.2.6.5 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 a rapid response to the impacts. Although the response is generally restricted to the stream below the dam, the impact location moves rapidly downstream, requiring multiple response locations.

5.2.6.6 Future Conditions

Changes in the climate are expected to increase the frequency of severe precipitation events, thereby increasing the future risk of dam overtopping, damage, failures, or breaches.

5.3 DROUGHT

5.3.1 Hazard Description

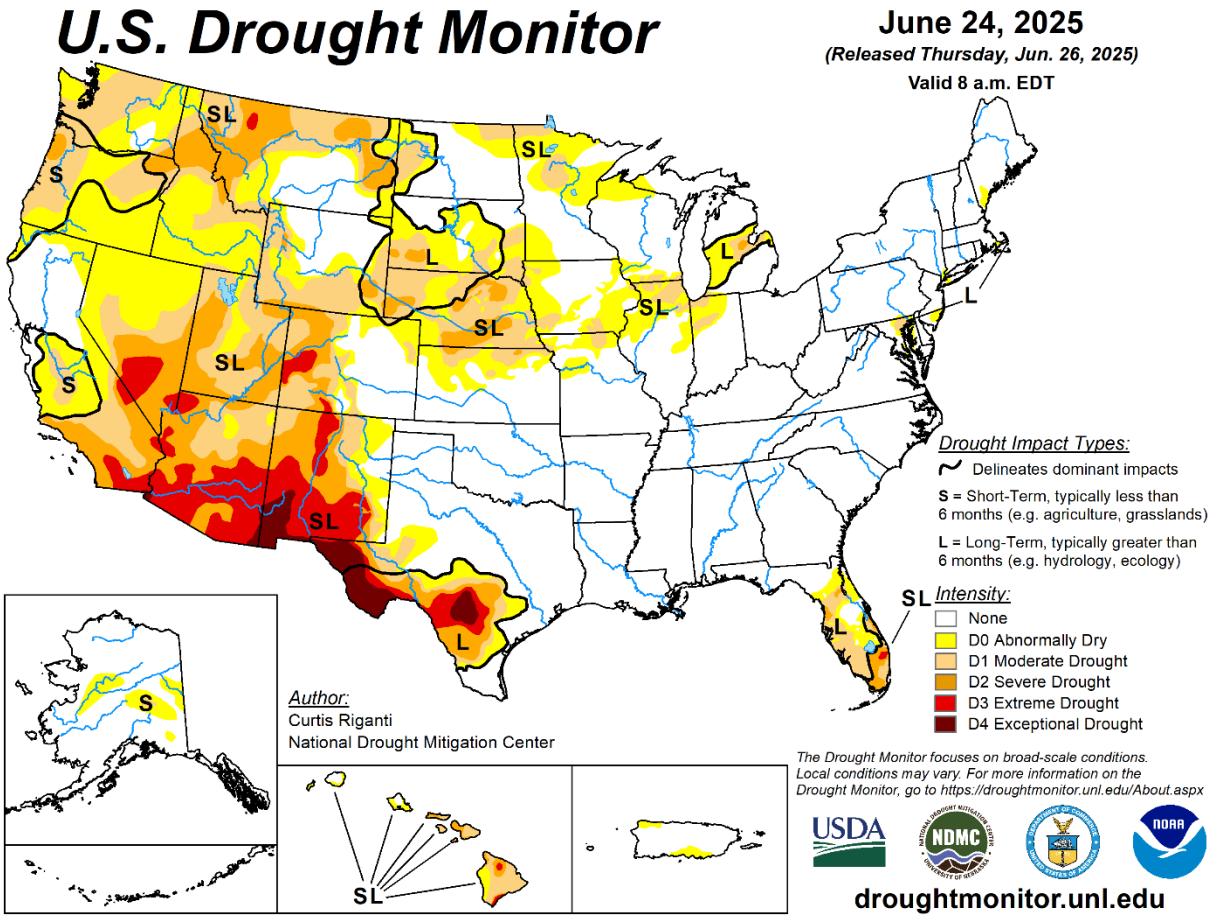
Drought is a normal part of virtually all climatic regions, including areas with high and low average rainfall. Drought is the consequence of a natural reduction in the amount of precipitation expected over an extended period, usually a season or more in length. High temperatures, high winds, and low 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 5-9 presents definitions for these types of droughts.

***Table 5-9**: 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 are relative to the water demands of plant life, usually crops.
Socioeconomic Drought	The effect of demand for water exceeding the supply because to a weather-related supply shortfall.

Droughts are slow-onset hazards, but, over time, can have very damaging effects on 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 ranges from -0.5 (incipient dry spell) to -4.0 (extreme drought). Evident in Figure 5-24, 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 5-24**: Palmer Drought Severity Index Summary Map for the United States*[14]

The wide variety of disciplines affected by drought, its diverse geographical and temporal distribution, and the many scales on which it operates make it challenging to develop both a definition of drought and an index to measure it. Many quantitative measures of drought have been developed in the United States, depending on the discipline, the region, and the application. Several indices developed by Wayne Palmer, along with the Standardized Precipitation Index, help describe drought at multiple scales.

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

[14] U.S. Drought Monitor [USDM]. (2025, June 26). Current Map. U.S. Drought Monitor. Retrieved June 30, 2025, from https://droughtmonitor.unl.edu/CurrentMap.aspx

wet conditions. But the SPI is a probability index that considers only precipitation, whereas Palmer's indices are water-balance indices that account for water supply (precipitation), demand (evapotranspiration), and loss (runoff).

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

5.3.2 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, eastern North Carolina has a relatively low risk of drought. However, local areas may experience much more severe and/or more frequent drought events than are represented on the Palmer Drought Severity Index map. Furthermore, it is assumed that the Region would be uniformly exposed to drought, potentially resulting in widespread spatial extent. 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 the National Climatic Data Center (NCDC) 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 2019 through the North Carolina Drought Monitor. It classifies drought conditions by county on a scale of D0 to D4 (which are depicted below):

***Table 5-10**: Drought Categories and Impact Descriptions*

Drought Category		Impact
D0	**Abnormally Dry**	Pastures are dry; mild crop stress is noted; irrigation increases
		Lawns are brown
D1	**Moderate Drought**	Crop stress increases
		Hay production is reduced; producers feed hay to cattle early
		Wildfire danger is higher than the seasonal normal
		Increased signs of wildlife; trees and landscape are drought-stressed
		Streamflow is reduced; lake and reservoir levels decline
		Voluntary water conservation begins
D2	**Severe Drought**	Dryland crop yields are low
		Wildfires are difficult to extinguish
		Swimming areas and boat ramps begin to close
		Voluntary and mandatory water use restrictions are implemented, and people are asked to refrain from nonessential water use

Drought Category		Impact
D3	Extreme Drought	Hay is scarce, producers are purchasing outside of the state; nitrate levels in forage are high
		Outdoor burn bans are implemented; wildfires are widespread
		Landscaping and greenhouse businesses lose revenue
		Aquatic wildlife is dying; fewer trout are being stocked
		Hydropower generation decreases
		Voluntary conservation is requested even in sufficient water level areas; mandatory restrictions become more severe, and fines are given to violators; stream levels are extremely low
D4	Exceptional Drought	Producers sell cattle; hay shortages and crop loss occur; farmers are stressed
		Daily life is affected for all citizens; people pray for rain; drought education seminars increase
		Epizootic hemorrhagic disease is widespread in deer
		Reservoirs are low; officials are counting the days of remaining water supply; well water is low; residents are hauling water

The probability of future drought is represented by the U.S. Drought Monitor and the University of Nebraska-Lincoln National Drought Mitigation Center (NDMC), which represents the drought occurrences on a weekly basis since 2000. The Drought Monitor uses multiple indices and indicators to classify drought severity and relies on local condition reports from expert observers. The NRI drought risk rating, demonstrated in the maps below, shows the relative risk of drought compared to the rest of the US and the NRI EAL total, by census tract, to represent the expected risk and losses associated with drought events.

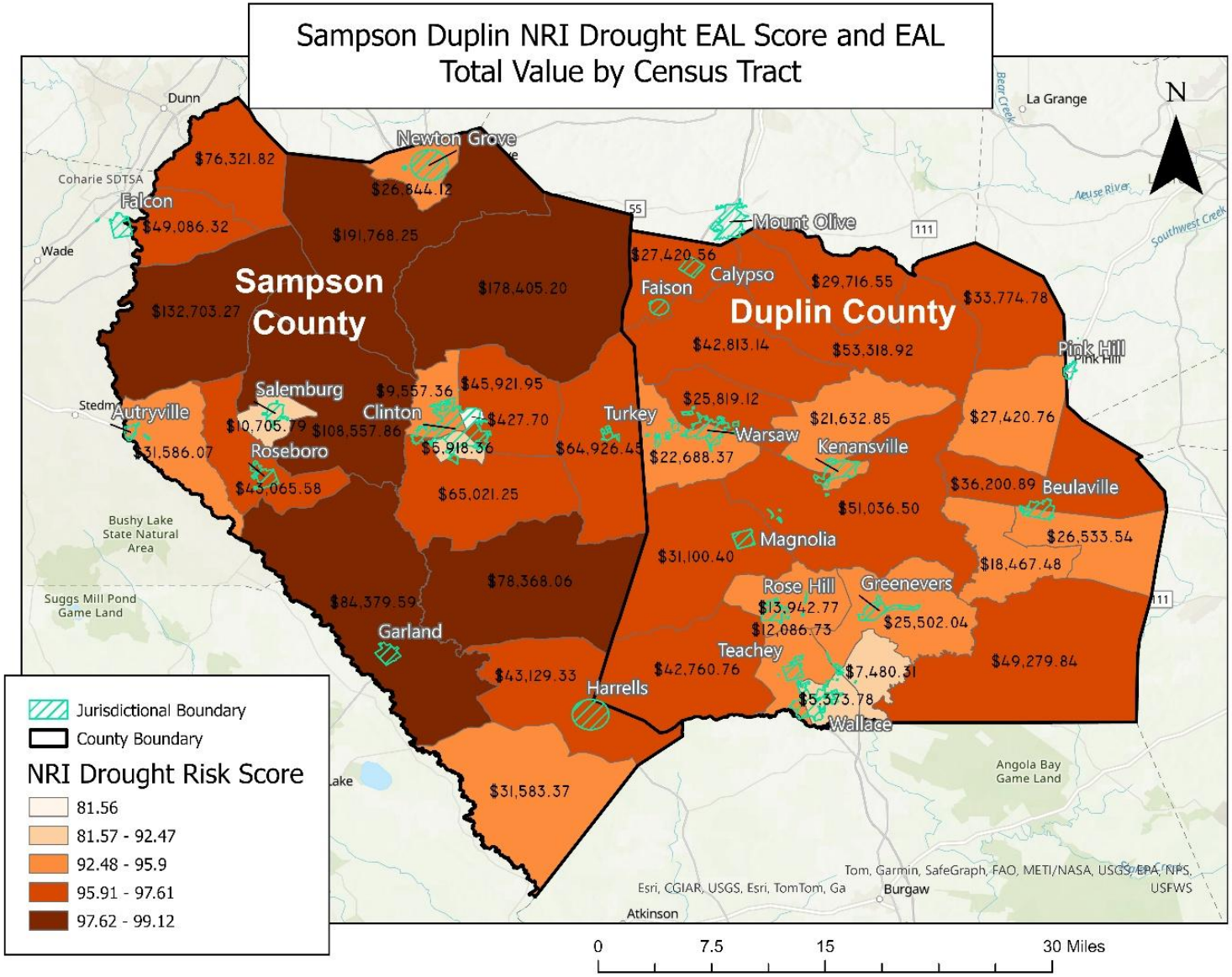


Figure 5-25: NRI Drought Risk Rating and EAL Total by Census Tract for the Sampson-Duplin Region

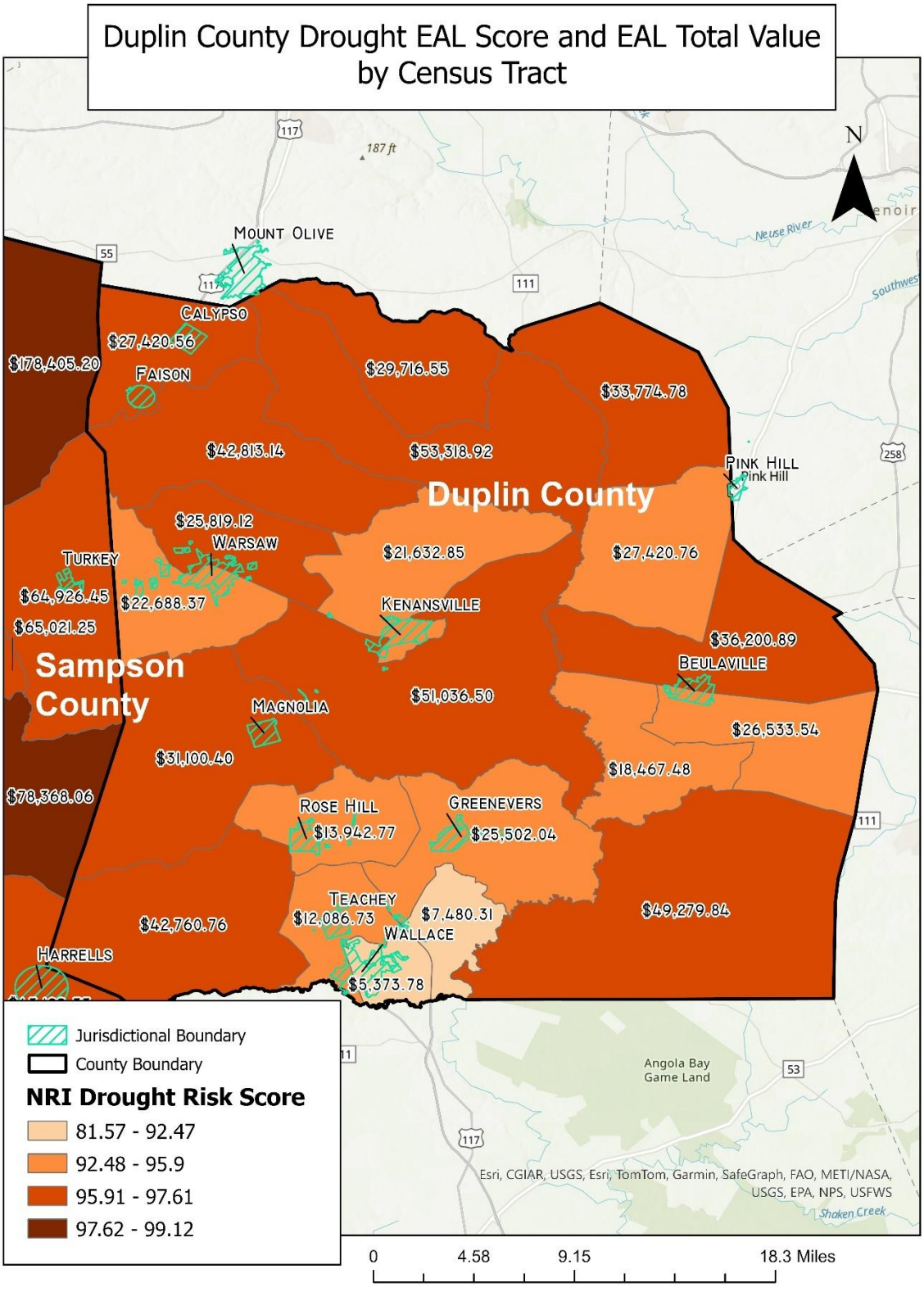


Figure 5-26: NRI Drought Risk Rating and EAL Total by Census Tract for Duplin County

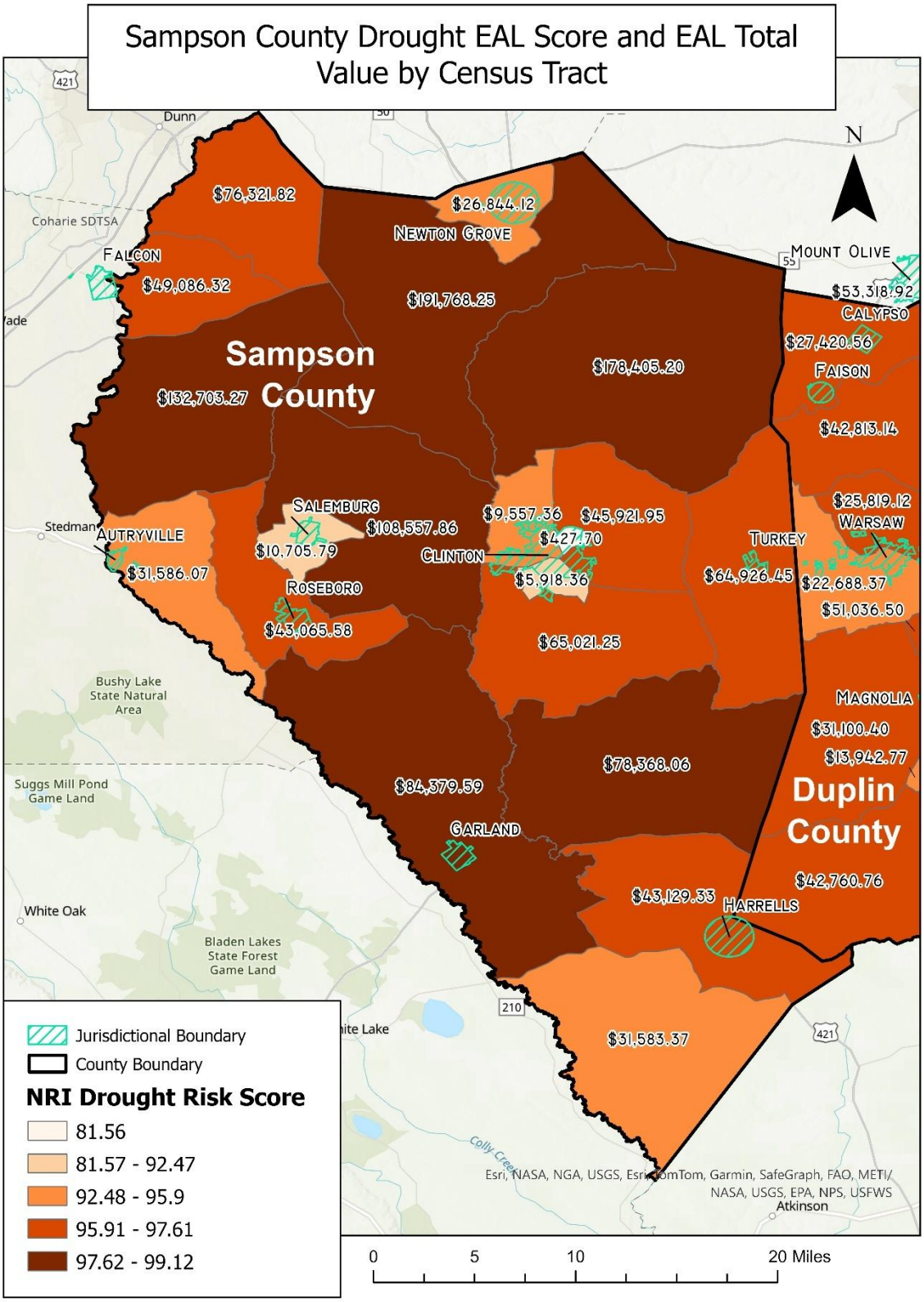


Figure 5-27: NRI Drought Risk Rating and EAL Total by Census Tract for Sampson County

5.3.3 Extent

According to the North Carolina Drought Monitor, all jurisdictions in the planning area in the Region had drought occurrences (including abnormally dry) in the last 20 years (2000-2020) (Figure 5-28). It should be noted that the North Carolina Drought Monitor also estimates the percentage of the county in each drought severity classification. For example, the most severe classification reported may be exceptional, but most of the county may be in a less severe condition.

***Table 5-11**: Percentage of Days in Drought in North Carolina where the Drought Category was the highest level of drought reported 1/1/2005 to 8/18/2025*[15]

Highest Level of Drought	Sum of Days
D0	27.02%
D1	16.90%
D2	4.69%
D3	1.30%
D4	1.39%
None	48.70%
Grand Total	**100.00%**

***Table 5-12**: Percentage of days where the drought classification was at or above the drought class from 6/28/2005 to 6/30/2025*[16]

County	D0	D1	D2	D3	D4	None
Sampson County	27.11%	18.57%	4.18%	1.21%	1.58%	47.35%
Duplin County	26.93%	15.23%	5.20%	1.39%	1.21%	50.05%

[15] U.S. Drought Monitor, National Drought Mitigation Center at the University of Nebraska-Lincoln, United States Department of Agriculture [USDA], & National Oceanic and Atmospheric Administration [NOAA]. (2025). Cumulative Statistics [Dataset]. In U.S. Drought Monitor. U.S. Drought Monitor. https://droughtmonitor.unl.edu/DmData/DataDownload/ComprehensiveStatistics.aspx

[16] U.S. Drought Monitor, National Drought Mitigation Center at the University of Nebraska-Lincoln, United States Department of Agriculture [USDA], & National Oceanic and Atmospheric Administration [NOAA]. (2025). Comprehensive Statistics [Dataset]. In U.S. Drought Monitor. U.S. Drought Monitor. https://droughtmonitor.unl.edu/DmData/DataDownload/ComprehensiveStatistics.aspx

5.3.4 Past Occurrences

According to the North Carolina Drought Monitor, the Region has experienced drought conditions every year since 2000. Figure 5-28 shows the most severe classification for each year by County.

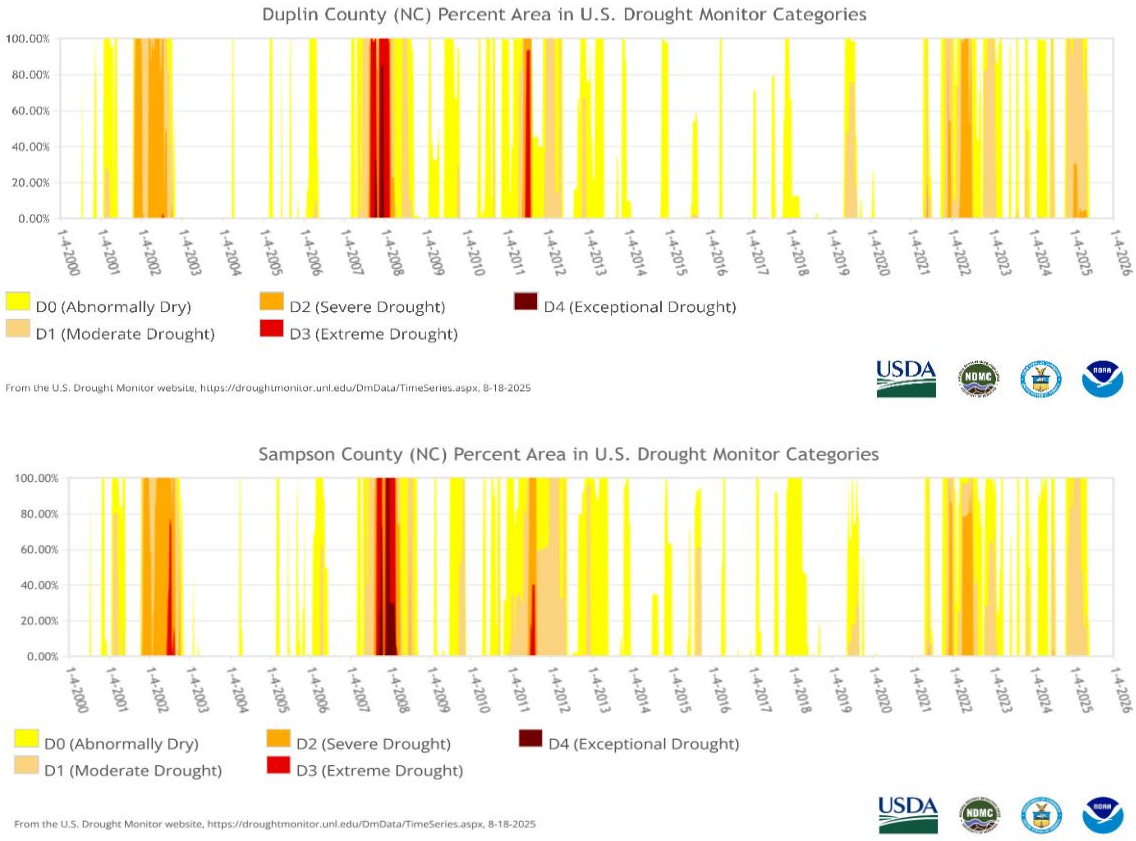


***Figure 5-28**: Historical Drought Occurrences*[17]

5.3.5 Probability of Future Occurrence

The probability of future drought is represented by the U.S. Drought Monitor and the University of Nebraska-Lincoln National Drought Mitigation Center (NDMC), which represents the drought occurrences on a weekly basis since 2000. The Drought Monitor uses multiple indices and indicators to classify drought severity and relies on local condition reports from expert observers.

Duplin County has a total EAL of $604,370, 828.5 Mi^2 of impacted area, an annualized frequency of 8.93 events, a Very High National Percentile Rating, and a Very High Hazard Risk Index Rating. The Unincorporated area has the largest impacted area (339.79 Mi^2), followed by Rose Hill (146.28 Mi^2), Magnolia (123.89 Mi^2), and Wallace (77.62 Mi^2). Sampson County has a total EAL of $1,278,277, 957.4 Mi^2 of impacted area, an annualized frequency of 9.64 events per year, a Very High National Percentile Rating, and a Very High Hazard Risk Index Rating.

Table 5-13: NRI Drought Sum of Impacted Area, Annualized Frequency, EAL total, EAL Rate, and Hazard Risk Rate

Jurisdiction	Sum of Impacted Area (Mi^2)	Drought Annualized Frequency	Drought EAL Total	Average EAL Rate National Percentile	Average EAL National Percentile Rating	Average Hazard Risk Index Score	Average Hazard Risk Index Rating
Duplin County	**828.5**	**8.93**	**$604,370**	**90.35**	**Very High**	**92.9**	**Very High**
Beulaville	75.68	8.91	$62,734	85.40	Very High	96.09	Very High
Calypso	26.03	7.95	$27,421	84.65	Very High	96.35	Very High
Faison	26.03	7.95	$27,421	84.65	Very High	96.35	Very High
Greenevers	39.50	8.91	$25,502	84.75	Very High	95.78	Very High
Kenansville	55.04	8.91	$42,761	85.75	Very High	96.59	Very High
Magnolia	123.89	8.91	$72,669	79.65	Relatively High	96.26	Very High
Rose Hill	146.28	8.91	$82,137	78.80	Relatively High	96.68	Very High
Teachey	77.11	8.91	$56,704	84.72	Very High	95.65	Very High
Wallace	77.62	8.91	$50,443	88.90	Very High	92.78	Very High
Warsaw	49.05	8.75	$48,507	83.45	Very High	96.06	Very High
Unincorporated Area	339.79	8.95	$254,791	81.54	Very High	96.02	Very High
Sampson County	**957.4**	**9.64**	**$1,278,277**	**96.68**	**Very High**	**97.55**	**Very High**
Autryville	98.91	8.78	$126,847	86.07	Very High	92.48	Very High
Clinton	109.17	9.86	$84,380	80.91	Very High	98.37	Very High
Garland	50.22	8.91	$43,129	85.41	Very High	96.65	Very High
Harrells	13.44	8.91	$26,844	90.71	Very High	95.36	Very High
Newton Grove	30.12	9.23	$43,066	87.29	Very High	96.80	Very High
Roseboro	8.74	8.59	$10,706	86.64	Very High	92.47	Very High
Salemburg	48.97	9.55	$64,926	83.15	Very High	97.53	Very High
Turkey	569.56	9.86	$846,794	86.56	Very High	97.93	Very High
Unincorporated Area	28.26	9.55	$31,586	85.45	Very High	94.94	Very High

5.3.6 Consequence and Impact Analysis

5.3.6.1 People

Drought can affect people's health and safety. Examples of its impacts on society include anxiety or depression over economic losses, conflicts over water scarcity, reduced incomes, fewer recreational activities, increased heat-stroke incidents, and even loss of human life. All

jurisdictions in the Region are vulnerable to this impact. As a result of drought, there may be less water available to residents in the planning area, which could lead to water shutoffs and boil-water advisories if lower-quality water sources are used, potentially causing dehydration and heat-related illnesses if accompanied by prolonged or excessive heat.

Without access to adequate hydration and cooling, heat-related illnesses can become more common. Drought events often correspond with an increase in heat-related illness incidents resulting in EMS response, hospitalization, or death, especially with individuals with disabilities (14.6% in Sampson County and 17.3% in Duplin County)[18] and individuals with an independent living difficulty (7.1% in Sampson County and 8.4% in Duplin County) who may require assistance to reach cooling centers, seek medical care for heat-related illnesses, or engage in other activities to prevent severe heat-related illnesses. Individuals who do not have a vehicle available in their housing unit (5.0% in Sampson County and 5.8% in Duplin County)[19] may require assistance to reach cooling centers or to reach medical care in the event of heat-related illness.

As technology becomes increasingly relied upon for conducting public outreach and awareness, it is important that the planning area develops educational materials in multiple languages and formats to ensure that all residents have the opportunity to be aware of drought risks, understand how to prepare for drought impacts, and mitigate the negative impacts of drought on their households. Residents in the planning area without telephone service (0.9% of housing units in Sampson County and 0.6% in Duplin County) may have limited access to emergency alerts sent via reverse-911 systems or SMS, and therefore have limited capacity to prepare for drought impacts. Residents in housing units without computing devices (11.7% of housing units in Sampson County and 11.9% in Duplin County) or without internet subscriptions (16.9% of households in Sampson County and 20.9% of households in Duplin County) may also have a limited capacity to access resources that assist residents in preparing and responding to drought conditions.

- Ensure that all residents are informed about drought impacts, preparation, and methods to mitigate drought impacts.

5.3.6.2 Changes in Development or Housing Characteristics

Drought can affect water supplies 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.

5.3.6.3 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. Agriculture,

[18] U.S. Census Bureau, U.S. Department of Commerce. "Disability Characteristics." American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1810, https://data.census.gov/table/ACSST5Y2023.S1810

[19] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Housing Characteristics. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP04

forestry, fishing, and hunting accounted for 8.75% of employment in Duplin County and 12.30% in Sampson County as of 2023.[20] Businesses that depend on farming may lose business when drought damages crops or livestock, leading to negative economic impacts in the planning area. Extreme drought can also affect local businesses, including landscaping, recreation and tourism, and public utilities. Boat and fishing equipment sellers may be unable to sell some of their goods because drought has dried up lakes and other water sources. The jurisdictions of Autryville and Faison are most vulnerable due to their high agricultural income.

- To reduce the economic impacts of drought in the planning area, the planning area should consider implementing programs to educate businesses that rely on a stable water supply and water quality for their operations about drought prevention, impacts, and mitigation.

5.3.6.4 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 substantially increase wildfire risk. As plants and trees wither and die from a lack of precipitation, increased insect infestations, and diseases associated with drought, they become fuel for wildfires. Long periods of drought can lead to more wildfires, including more intense ones, which affect the economy, the environment, and society in many ways, such as by destroying neighborhoods, crops, and habitats.

- The planning area should ensure that programs or policies are in place to preserve the environment and support soil health, promote groundwater recharge, and prevent ecosystem degradation that would hinder the environment's natural ability to withstand drought impacts.

5.3.6.5 First Responders

The overall effect on first responders would be relatively limited when compared to other hazards. Exceptional drought conditions may impact the amount of water immediately available to respond to wildfires. Heat waves or extreme heat events often accompany drought, so there may be an increase in emergency calls to assist residents with heat-related illnesses.

5.3.6.6 Future Conditions

According to the North Carolina Climate Science Report (NCCSR),[21] major droughts are likely to become more frequent and severe due to climate change, driven by higher temperatures and increased evaporation rates. As a result, the planning area will likely experience more frequent, severe, or persistent drought conditions in the future.

[20] North Carolina Department of Commerce. (2024). Quarterly Census of Employment and Wages. Demand Driven Data Delivery (D4). Retrieved June 18, 2025, from https://d4.nccommerce.com/?q=3OL7

[21] North Carolina Institute for Climate Studies [NCICS]. (2020). North Carolina Climate Science Report. NCICS. Retrieved January 29, 2025, from https://ncics.org/wp-content/uploads/2020/10/NC_Climate_Science_Report_FullReport_Final_revised_September2020.pdf

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 stresses accumulated as a result of the rupture of rocks along opposing fault planes in the Earth's outer crust. These fault planes are typically found along the 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 rock's strength, a rupture occurs. The rock on both sides of the fracture snaps, releasing stored energy and generating seismic waves that produce an earthquake.

Earthquakes are measured in terms of their magnitude and intensity. Magnitude is calculated using the Richter Scale, an open-ended logarithmic scale that describes the energy release of an earthquake by measuring the amplitude of the seismic wave. A detailed description of the Richter Scale is given in Table 5-14.

***Table 5-14**: 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 5-15**: Modified Mercalli Intensity Scale for Earthquakes*

SCALE	INTENSITY	DESCRIPTION OF EFFECTS	CORRESPONDING RICHTER SCALE MAGNITUDE
I	Not felt	Not felt except by a very few under especially favorable conditions.	-
II	Weak	Felt only by a few persons at rest, especially on the upper floors of buildings.	< 4.2
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars	-

SCALE	INTENSITY	DESCRIPTION OF EFFECTS	CORRESPONDING RICHTER SCALE MAGNITUDE
		may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.	
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.	-
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.	< 4.8
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.	< 5.4
VII	Very Strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.	< 6.1
VIII	Severe	Damage slight in specially designed structure; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned.	-
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Great damage in substantial buildings, with partial collapse. Buildings shifted off foundations.	< 6.9
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.	< 7.3
I	Not felt	Not felt except by a very few under especially favorable conditions.	< 8.1
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.	> 8.1

Source: Federal Emergency Management Agency

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 the New Madrid Fault in Tennessee. Both faults have generated earthquakes exceeding 8.0 on the Richter Scale in the last 200 years. In addition, there are several smaller fault lines throughout North Carolina.

Figure 5-29, global seismic risk, and peak ground acceleration, depict the intensity level for North Carolina based on the USGS national map of peak acceleration with a 2% probability of exceedance in 50 years. It is the probability that ground motion will reach a certain level during an earthquake. The data shows a peak horizontal ground acceleration (the fastest measured change in speed of a particle at ground level moving horizontally due to an earthquake) with a 2% probability of exceedance in 50 years. According to this map, the Region lies within a zone with approximate ground acceleration ranging from 6% to 14%. This indicates that the region lies within a moderate seismic risk area.

The following earthquake hazard maps represent the risk of earthquake hazards based on the 2023 50-State US National Seismic Hazard Model (NSHM). The NSHM is used to define the potential for earthquake ground shaking and probability in the US.[22] The data is a time-independent, probabilistic seismic hazard model developed using methods and data including earthquake catalogs, new geodetic- and geologic-based fault and deformation models, earthquake rupture forecast models, and spatially smoothed seismicity. The following maps show the Predicted Horizontal Acceleration (PGA), or the estimated maximum absolute value of ground acceleration, which is expected to occur at a specific location in the horizontal direction during an earthquake as a percentage of the standard acceleration of the Earth due to Earth's gravity.

[22] National Seismic Hazard Model Project [NSHMP]. (2024, January 10). Hazard map from the 2023 50-state update of the National Seismic Hazard Model Project (By U.S. Geological Survey [USGS]). https://www.usgs.gov/media/images/hazard-map-2023-50-state-update-national-seismic-hazard-model-project

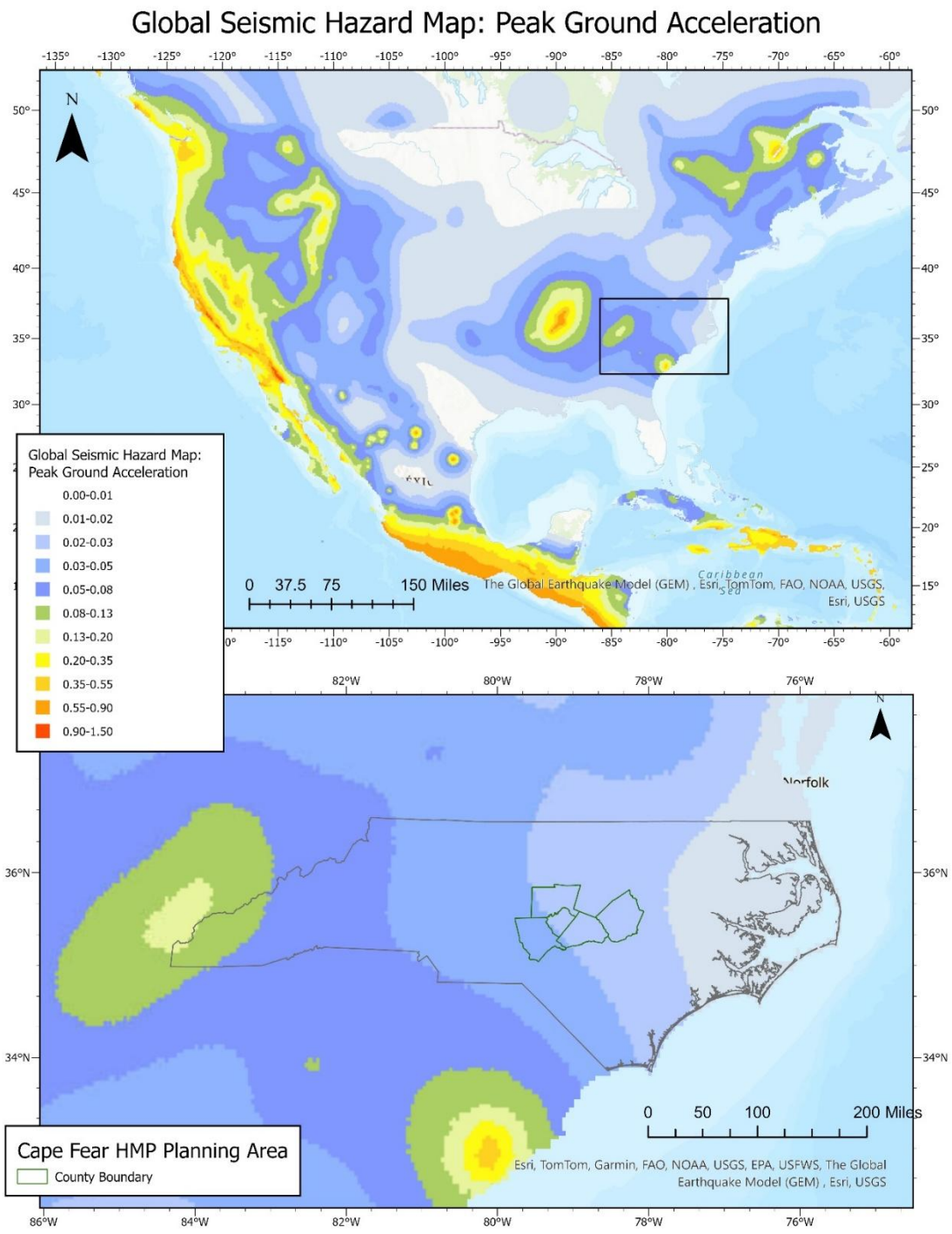


***Figure 5-29**: Peak Acceleration with 10 Percent Probability of Exceedance in 50 Years*[23]

[23] Johnson, K., Villani, M., Bayliss, K., Brooks, C., Chandrasekhar, S., Chartier, T., Chen, Y.-S., Garcia-Pelaez, J., Gee, R., Styron, R., Rood, A., Simionato, M., & Pagani, M. (2023). Global Seismic Hazard Map (v2023.1.0) [Data set]. Zenodo. https://doi.org/10.5281/zenodo.8409647

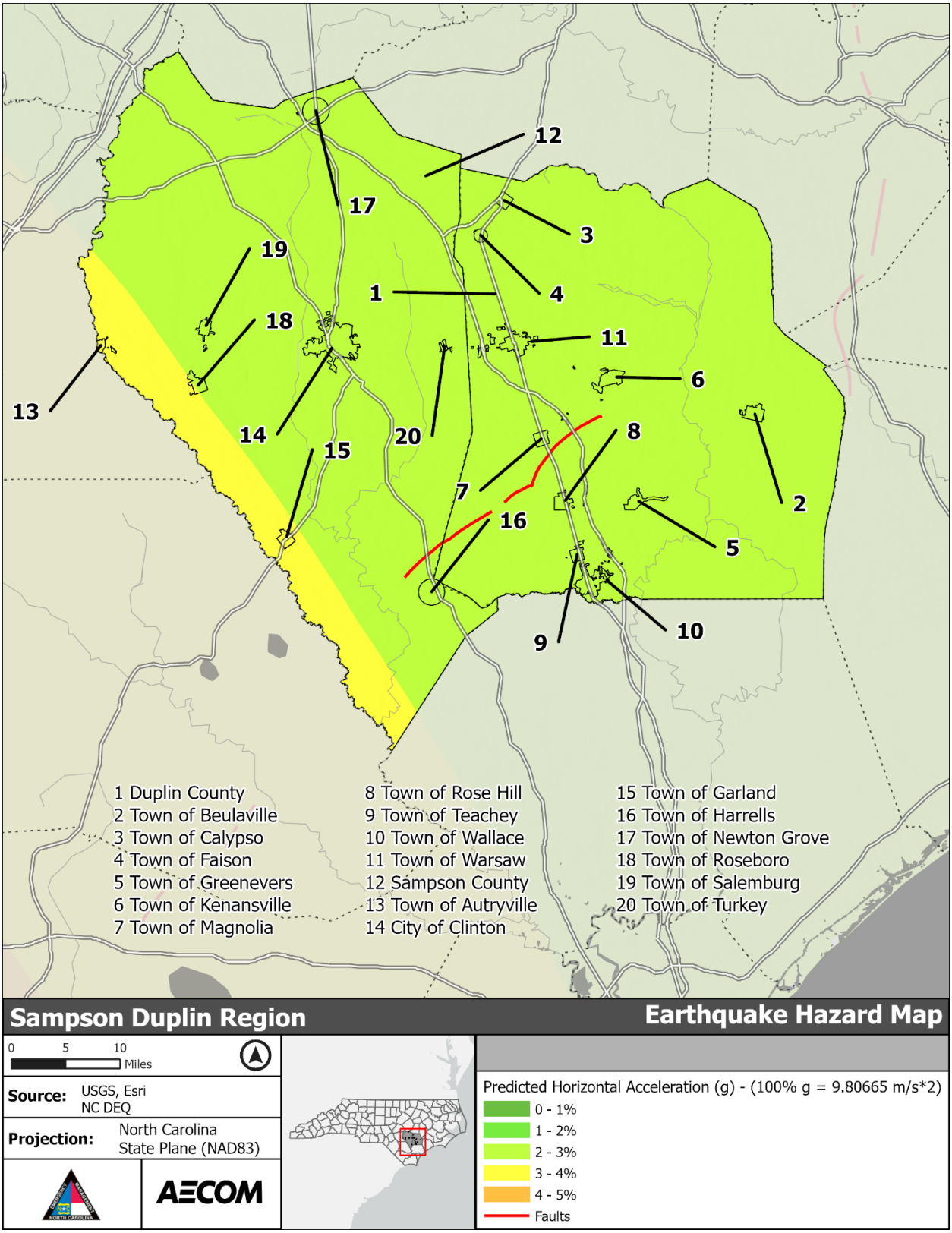


***Figure 5-30**: Sampson-Duplin Earthquake Hazard Areas - Regional*

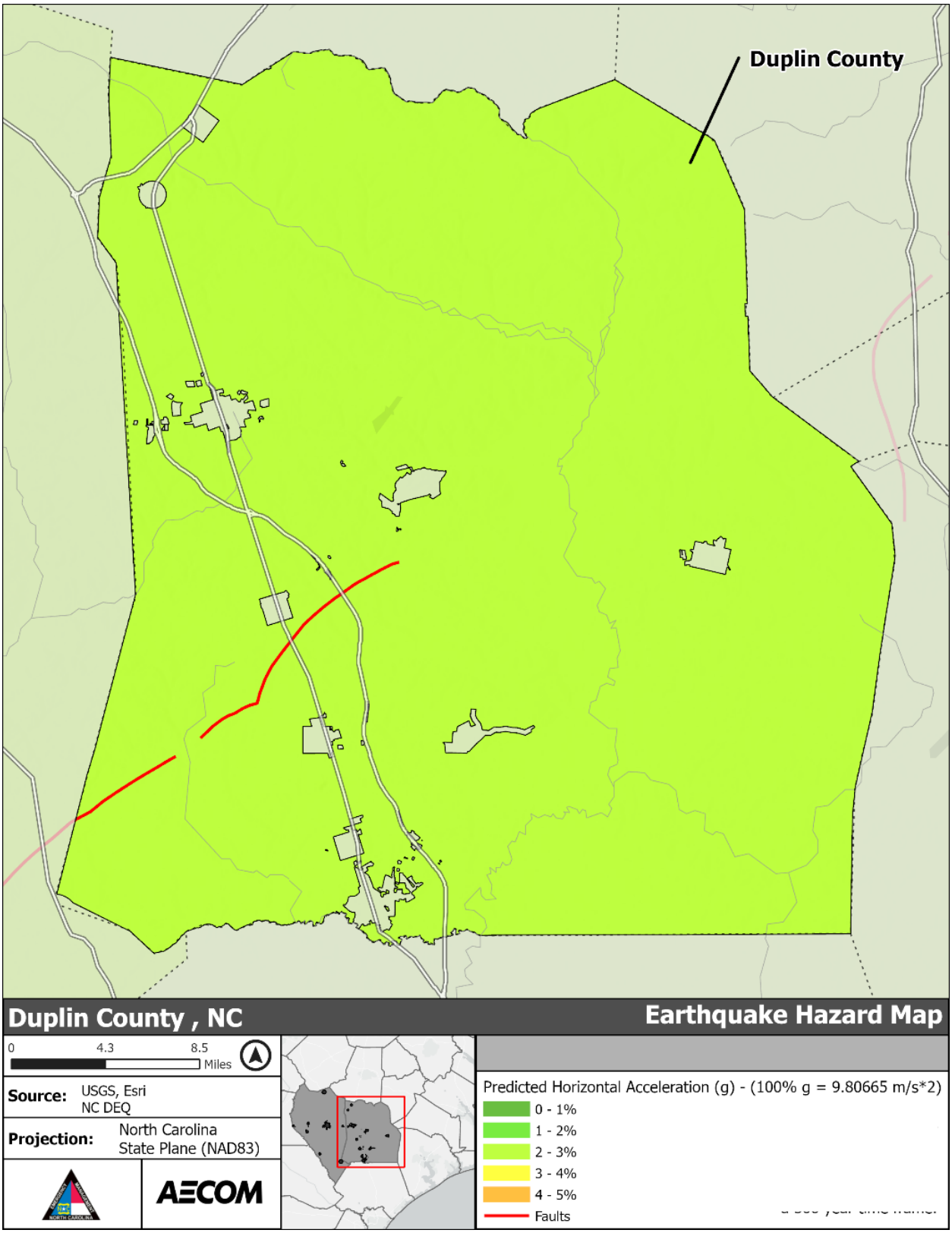


***Figure 5-31**: Duplin County Earthquake Hazard Map*

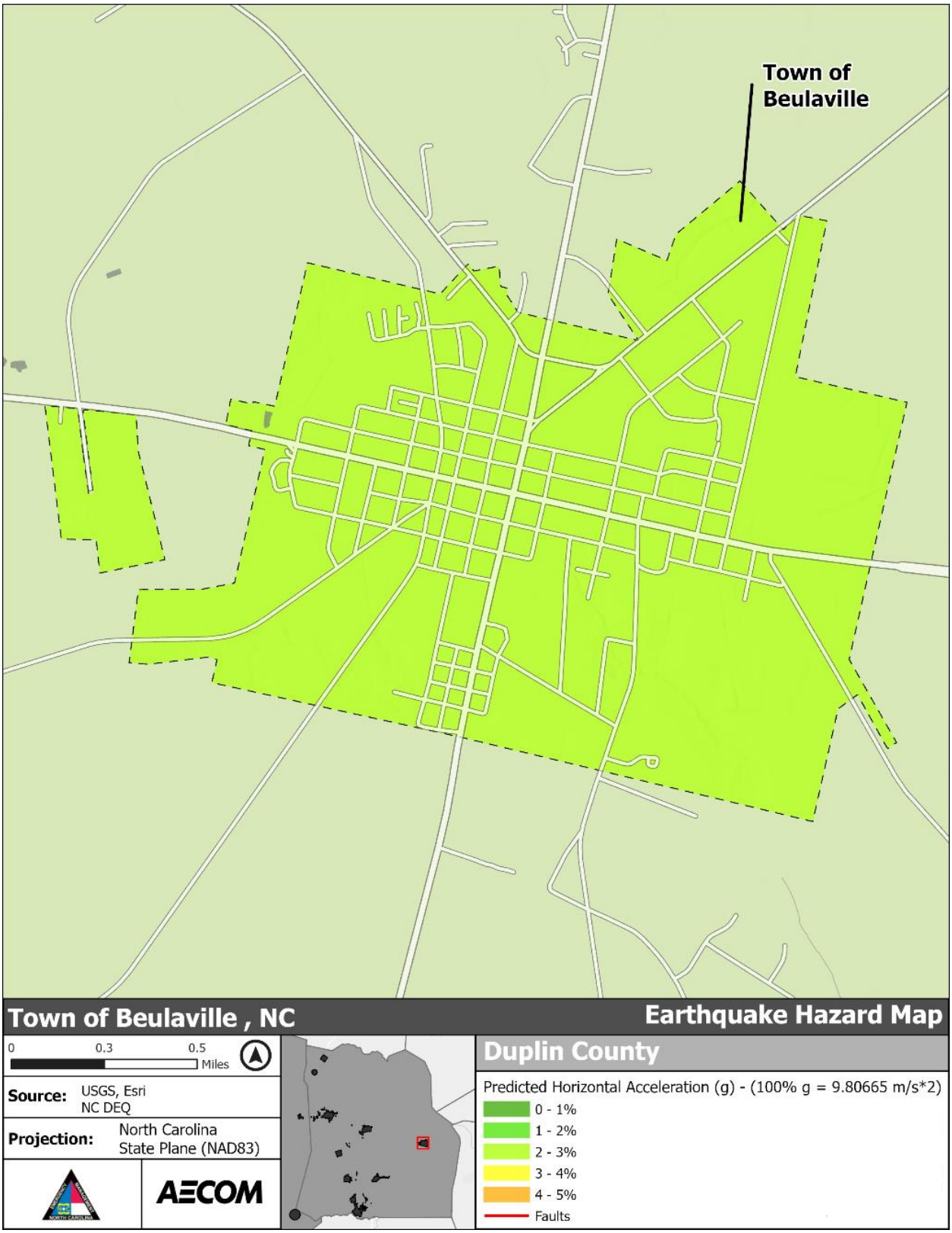


***Figure 5-32**: Town of Beulaville Earthquake Hazard Map*

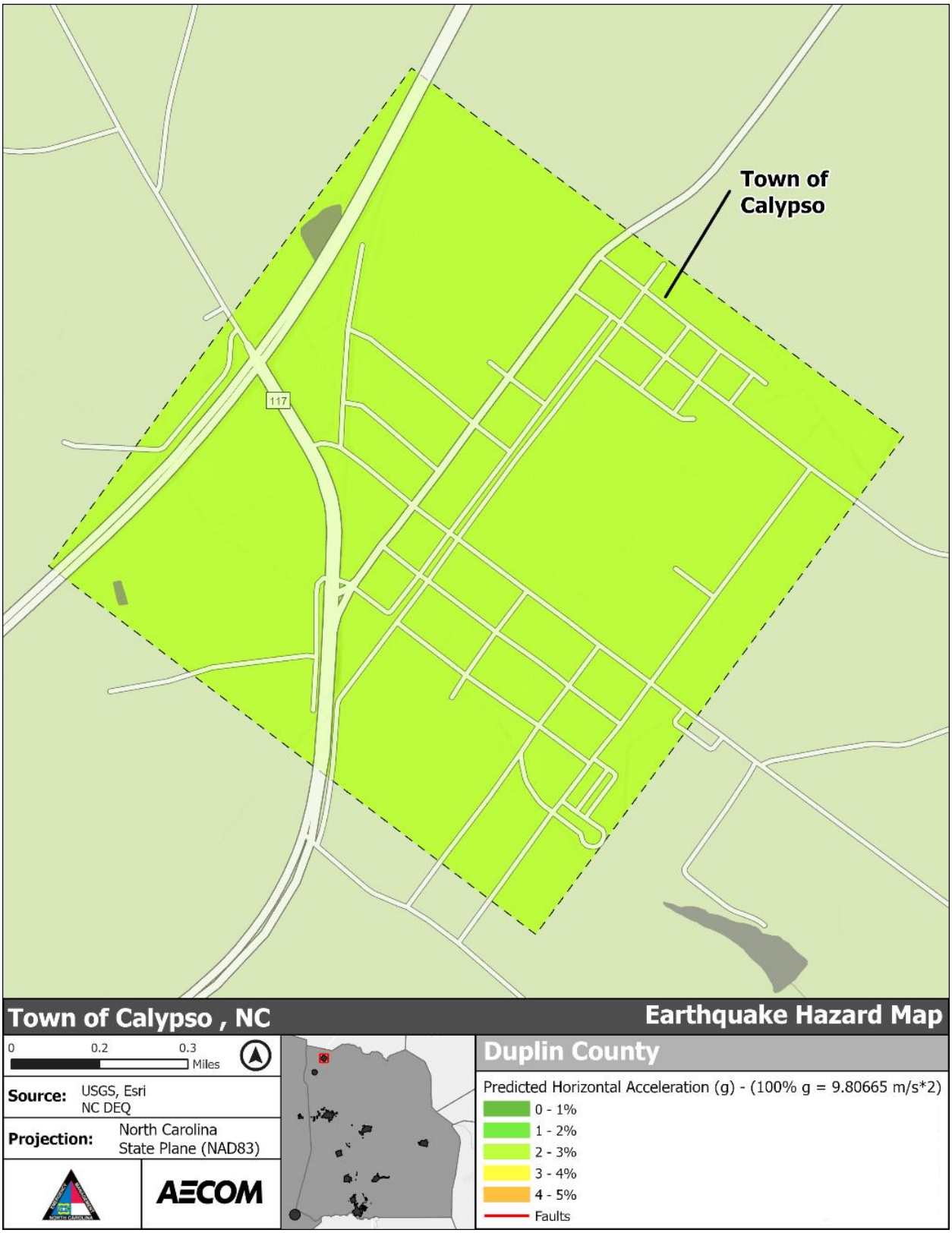


***Figure 5-33**: Town of Calypso Earthquake Hazard Map*

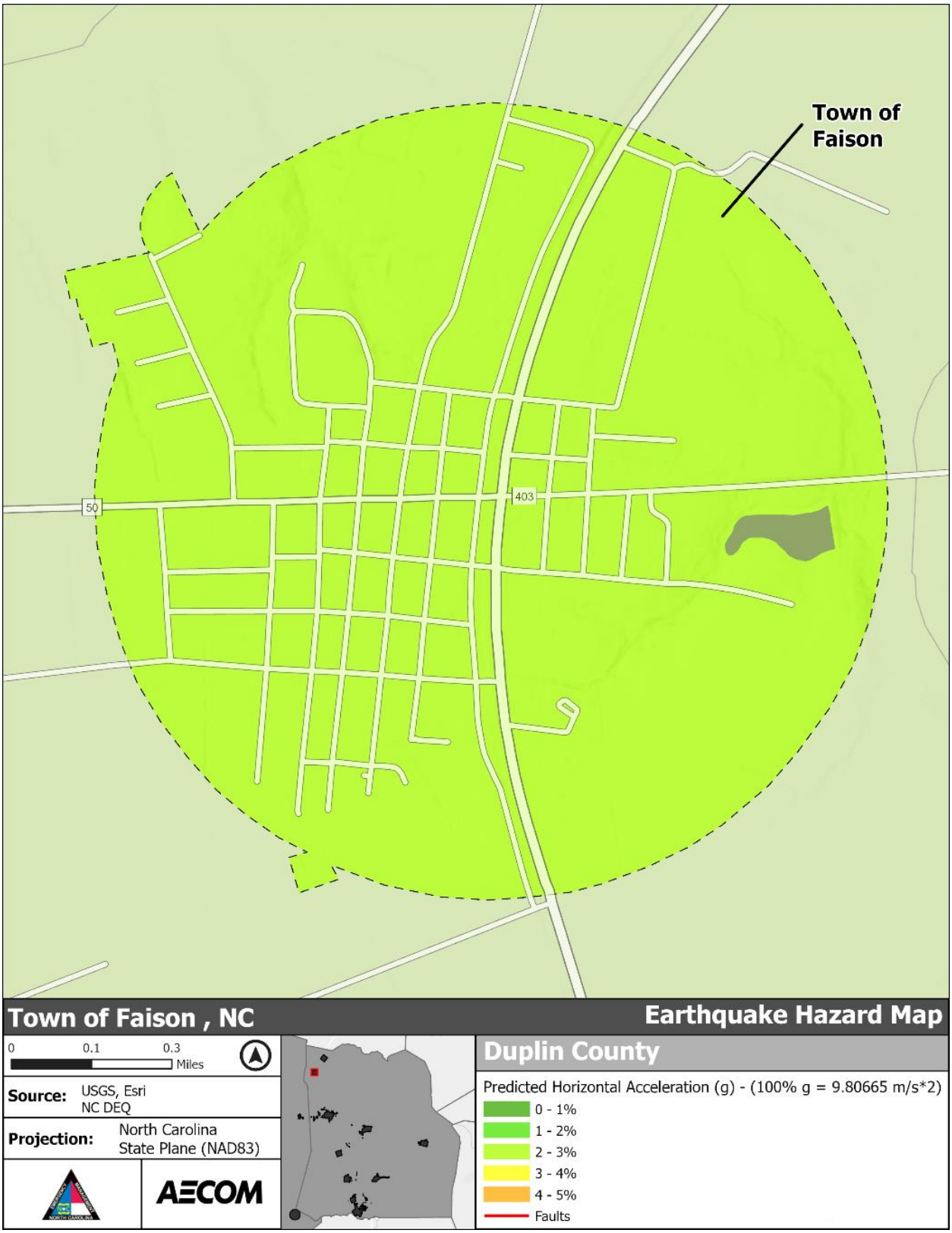


***Figure 5-34**: Town of Faison Earthquake Hazard Map*

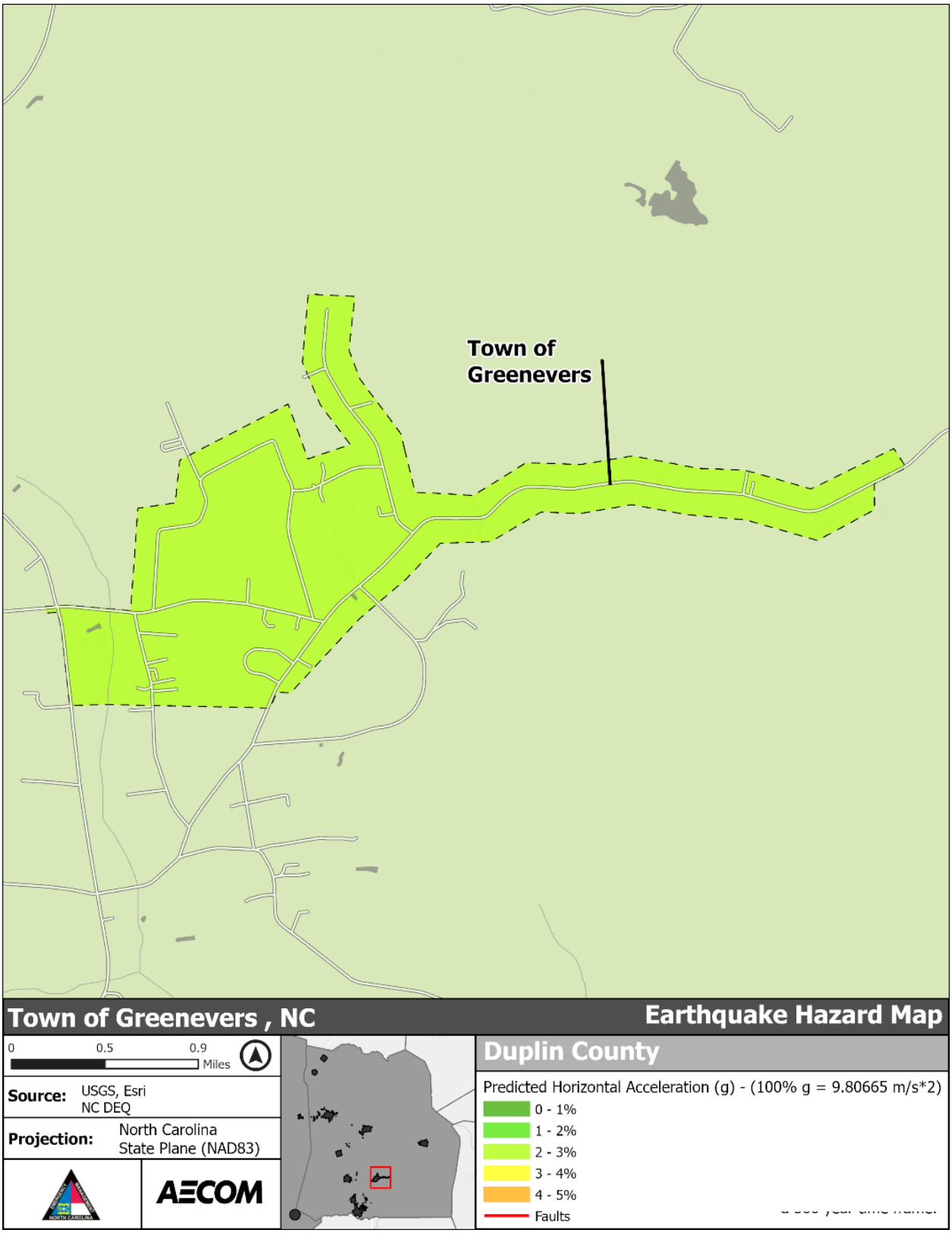


***Figure 5-35**: Town of Greenevers Earthquake Hazard Map*

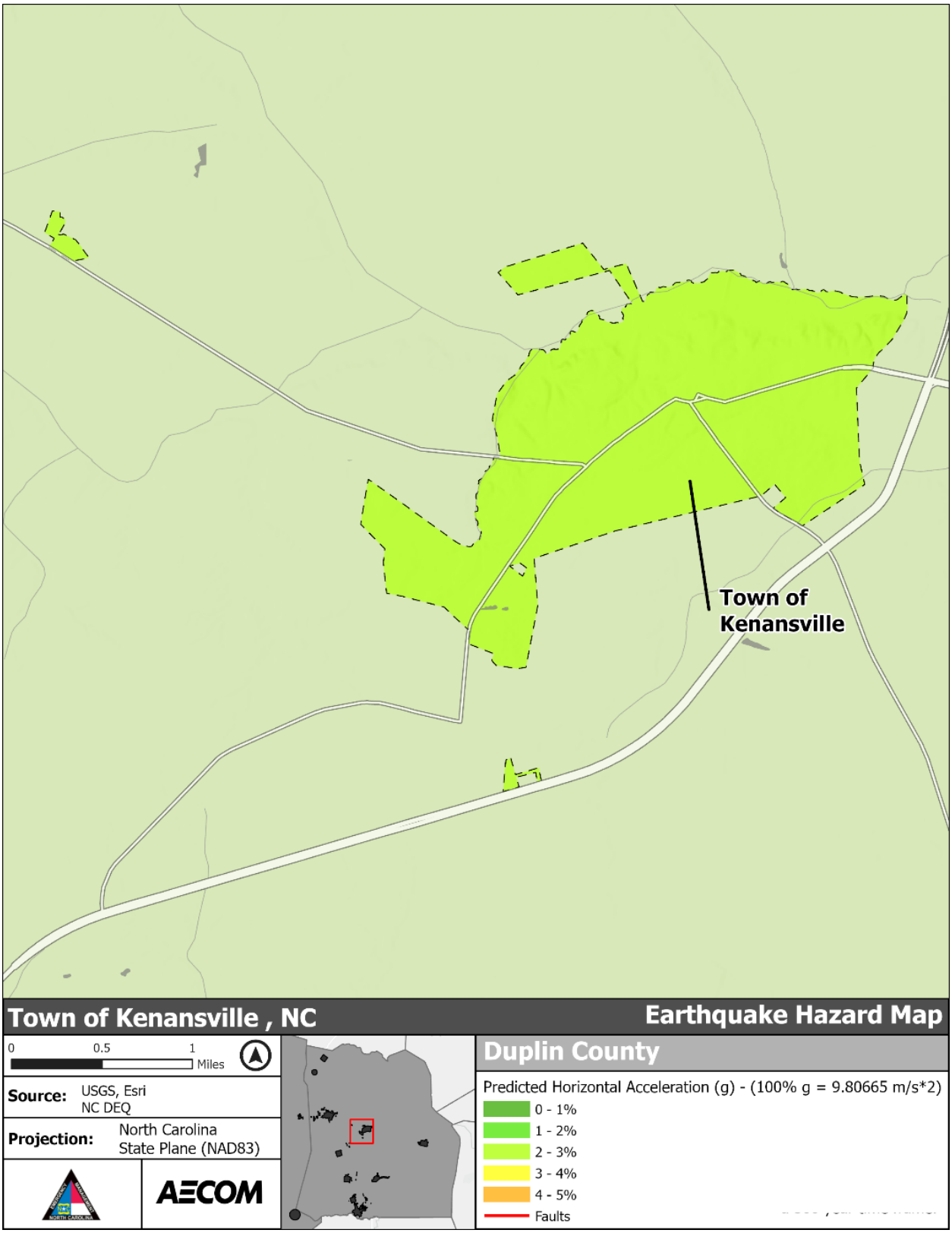


***Figure 5-36**: Town of Kenansville Earthquake Hazard*

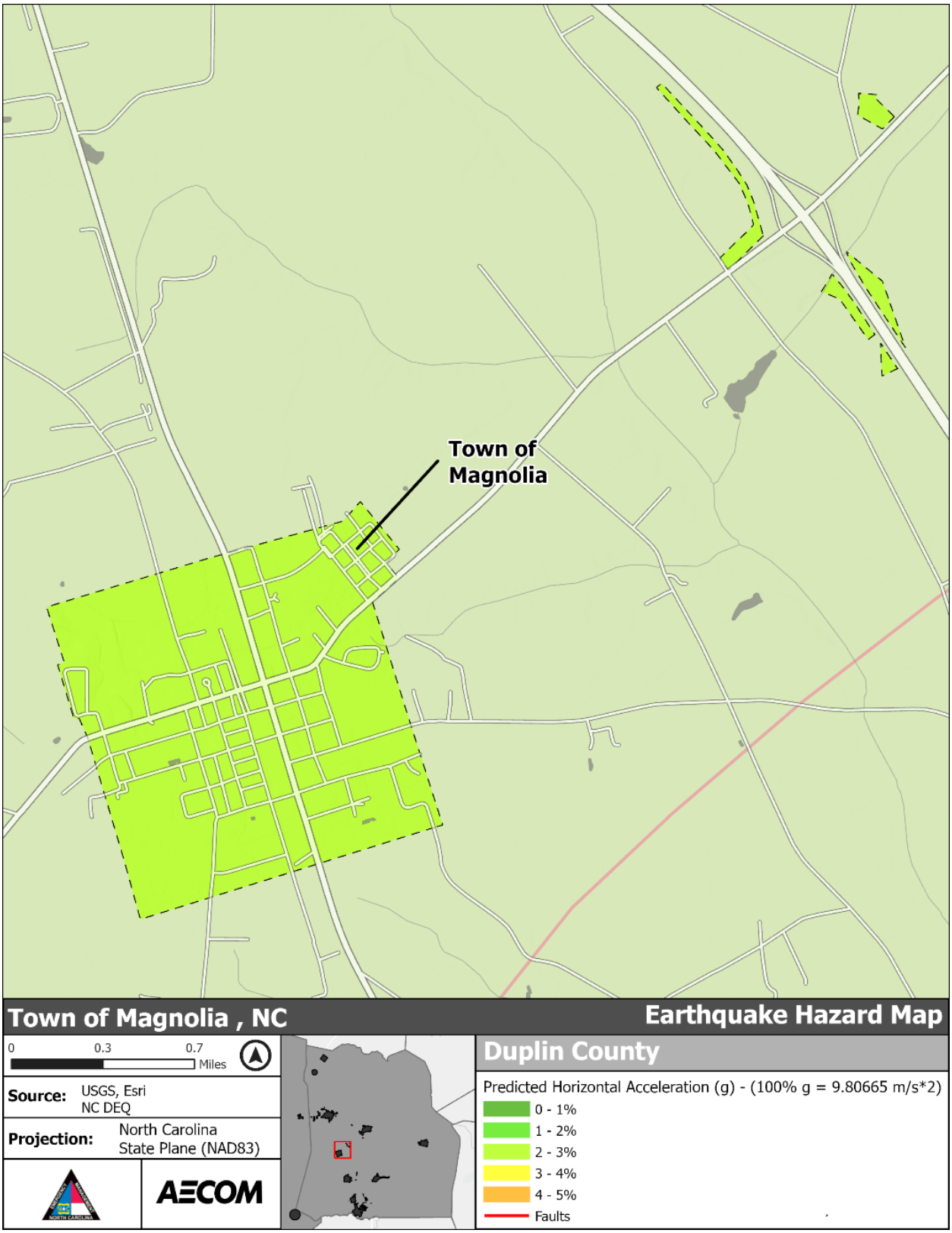


***Figure 5-37**: Town of Magnolia Earthquake Hazard Map*

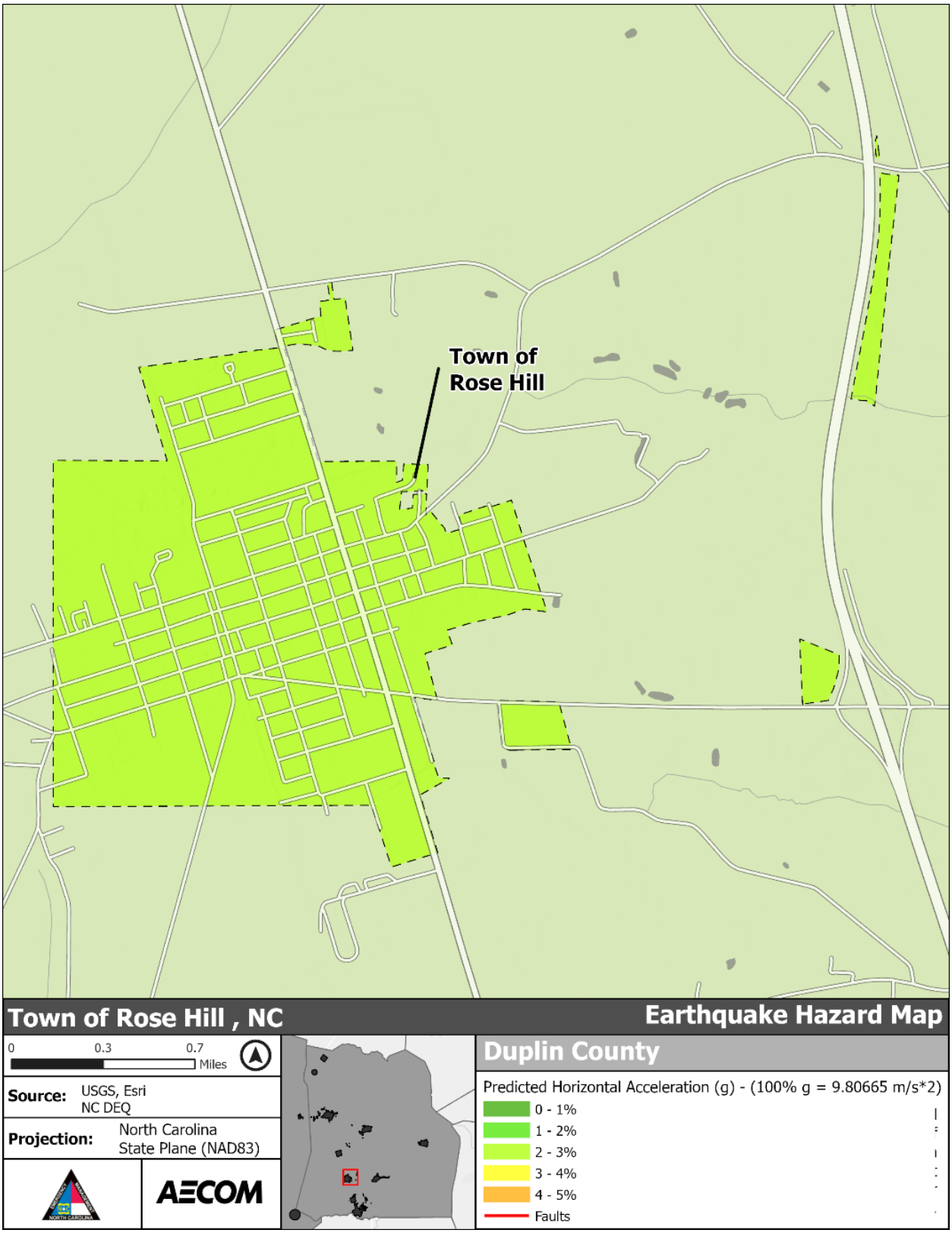


***Figure 5-38**: Town of Rose Hill Earthquake Hazard Map*

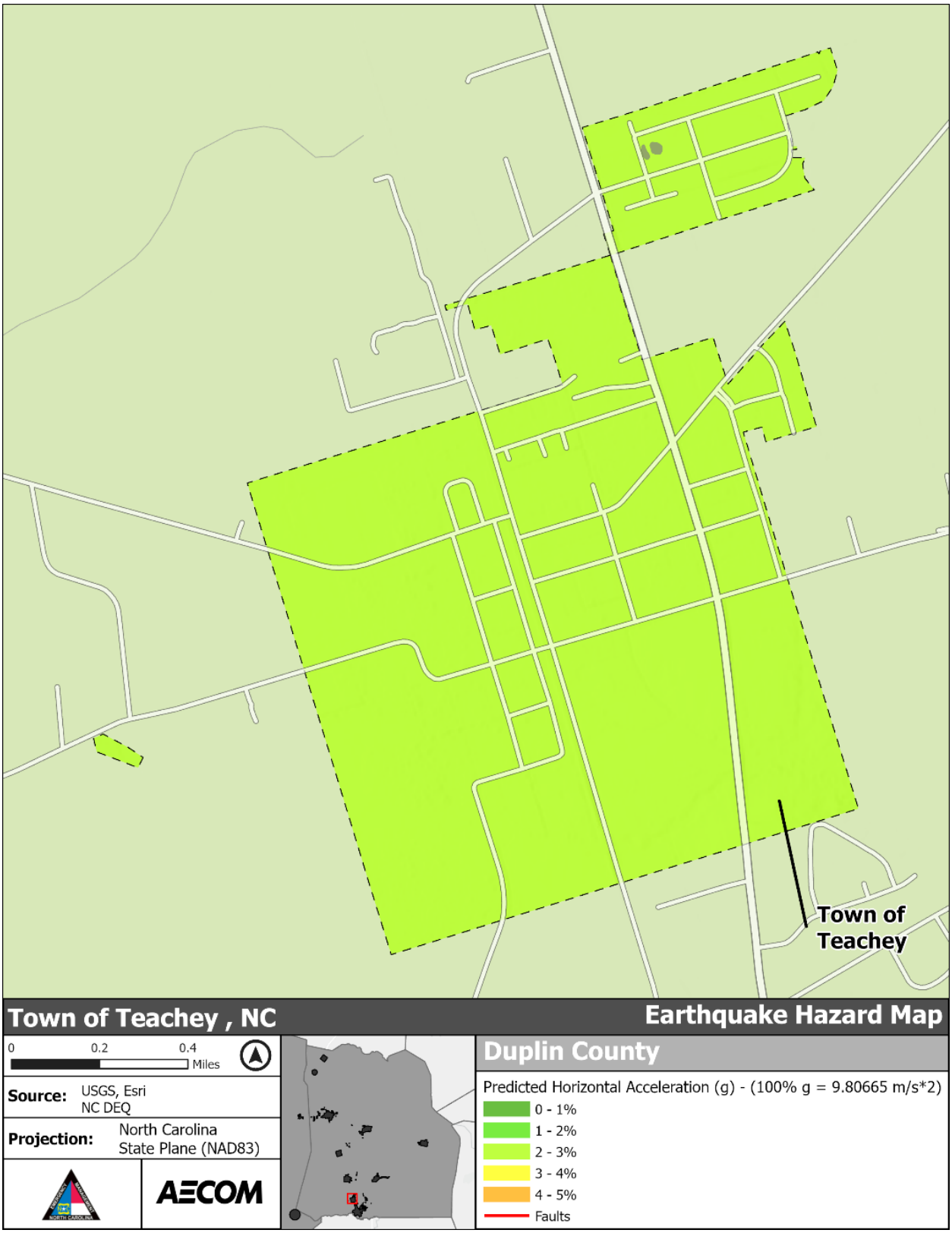


***Figure 5-39**: Town of Teachey Earthquake Hazard Map*

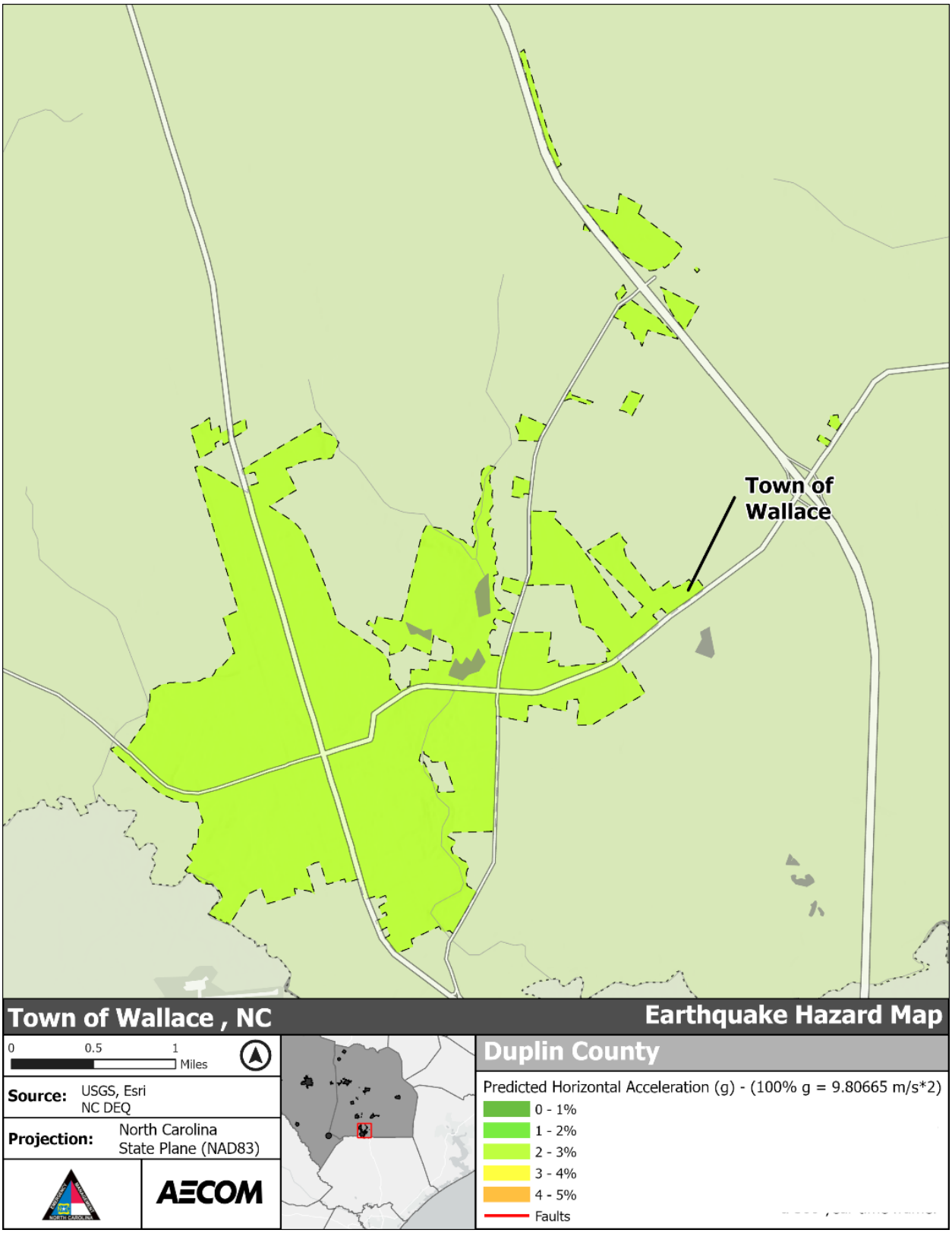


***Figure 5-40**: Town of Wallace Earthquake Hazard Map*

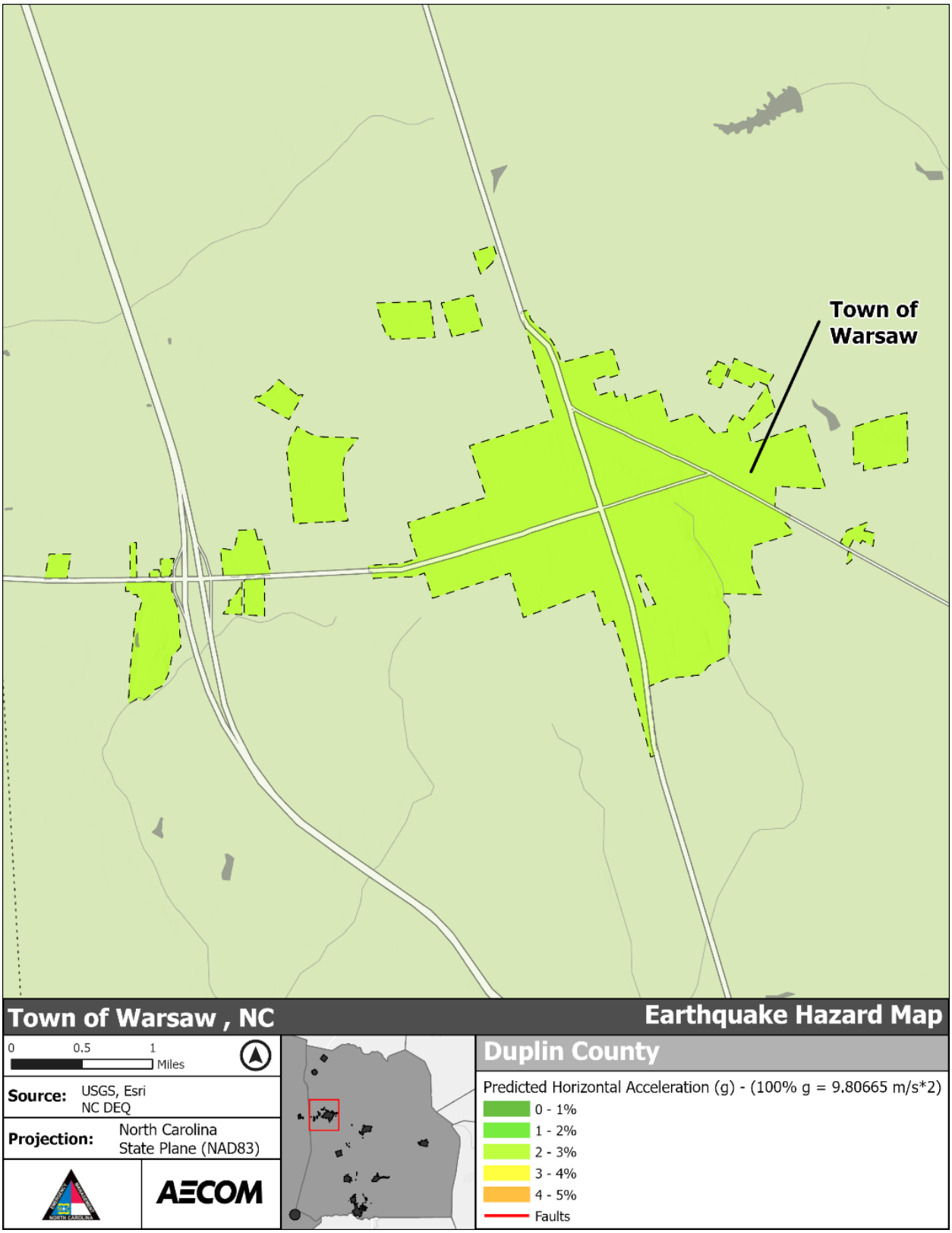


***Figure 5-41**: Town of Warsaw Earthquake Hazard Map*

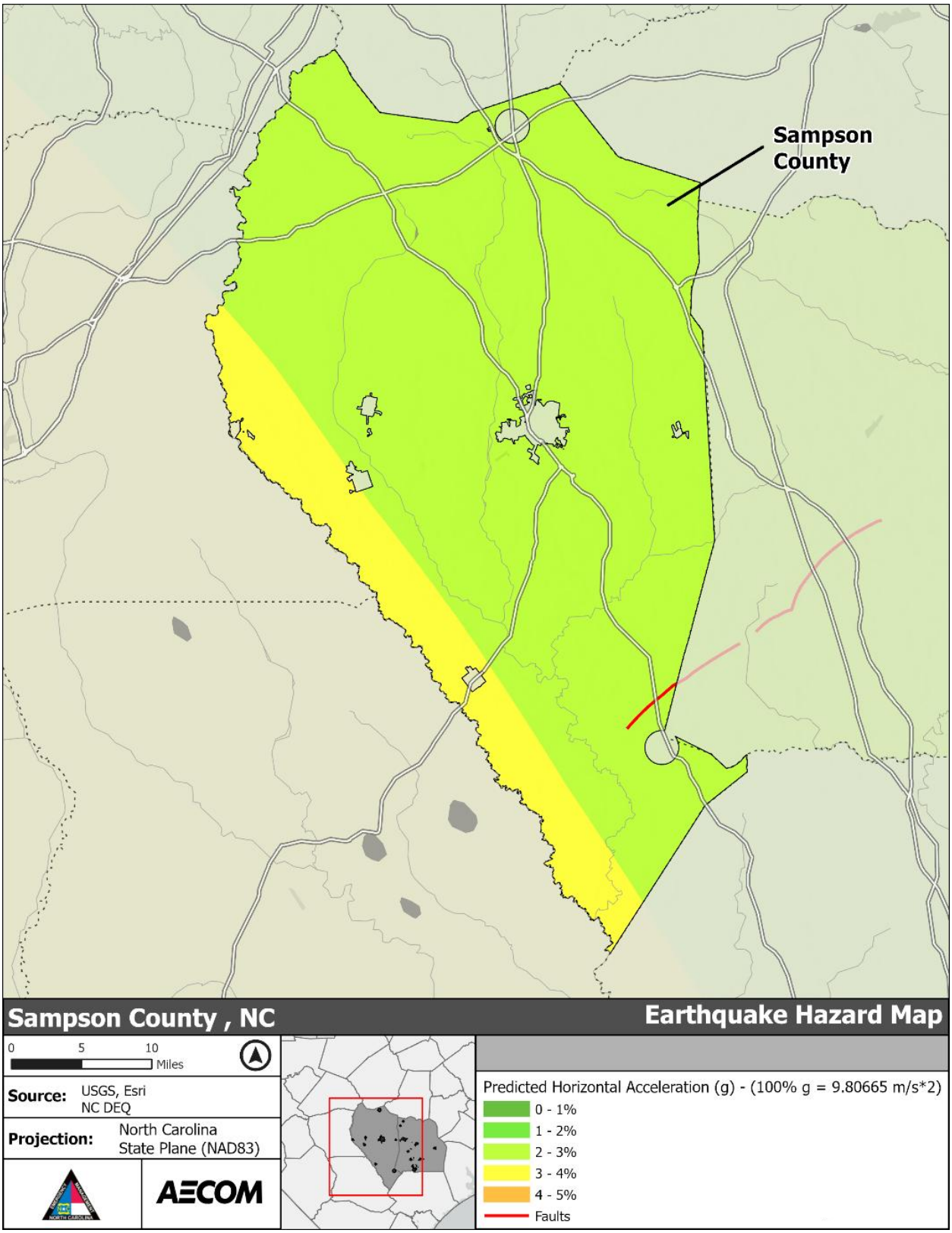


***Figure 5-42**: Sampson County Hazard Map*

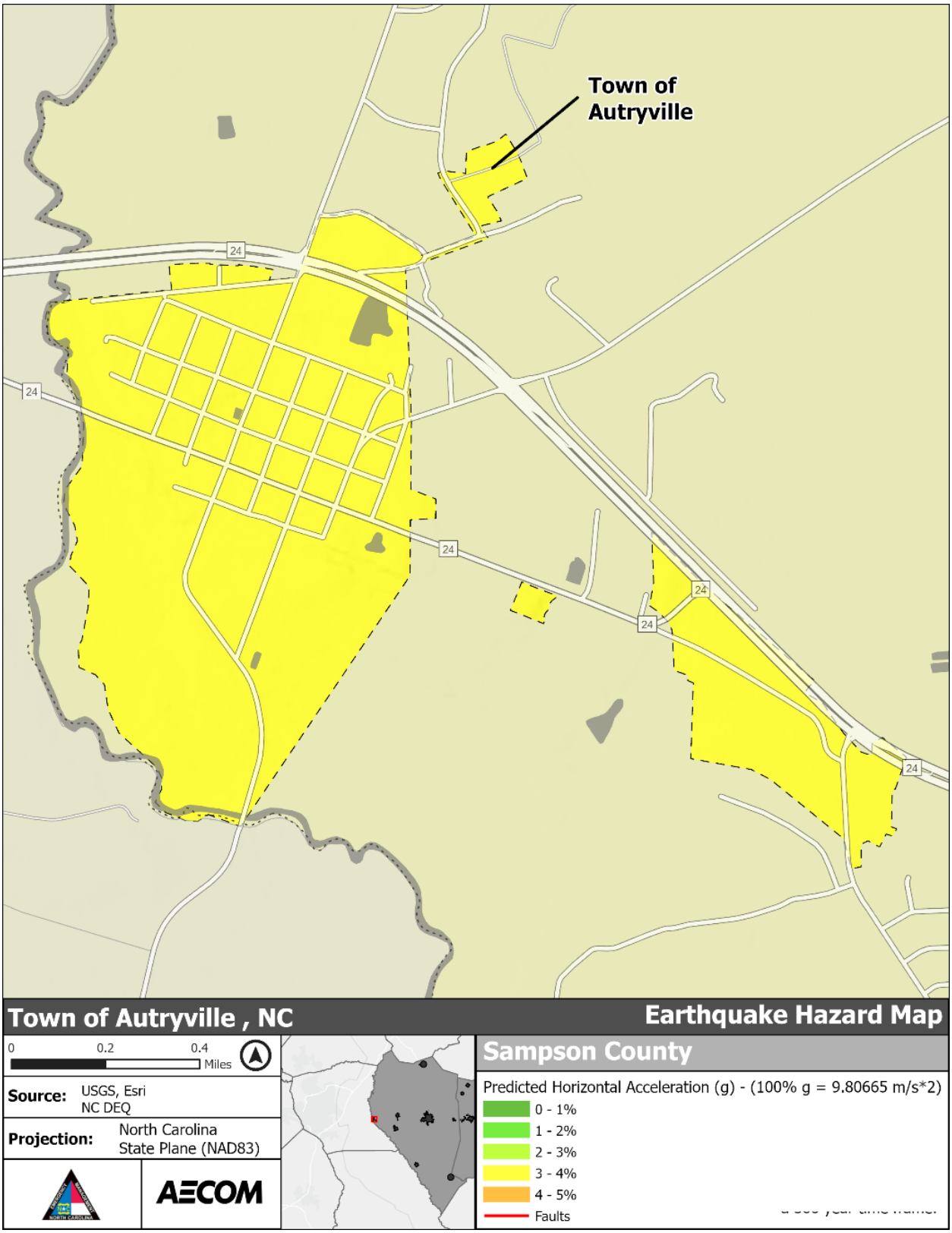


***Figure 5-43**: Town of Autryville Earthquake Hazard Map*

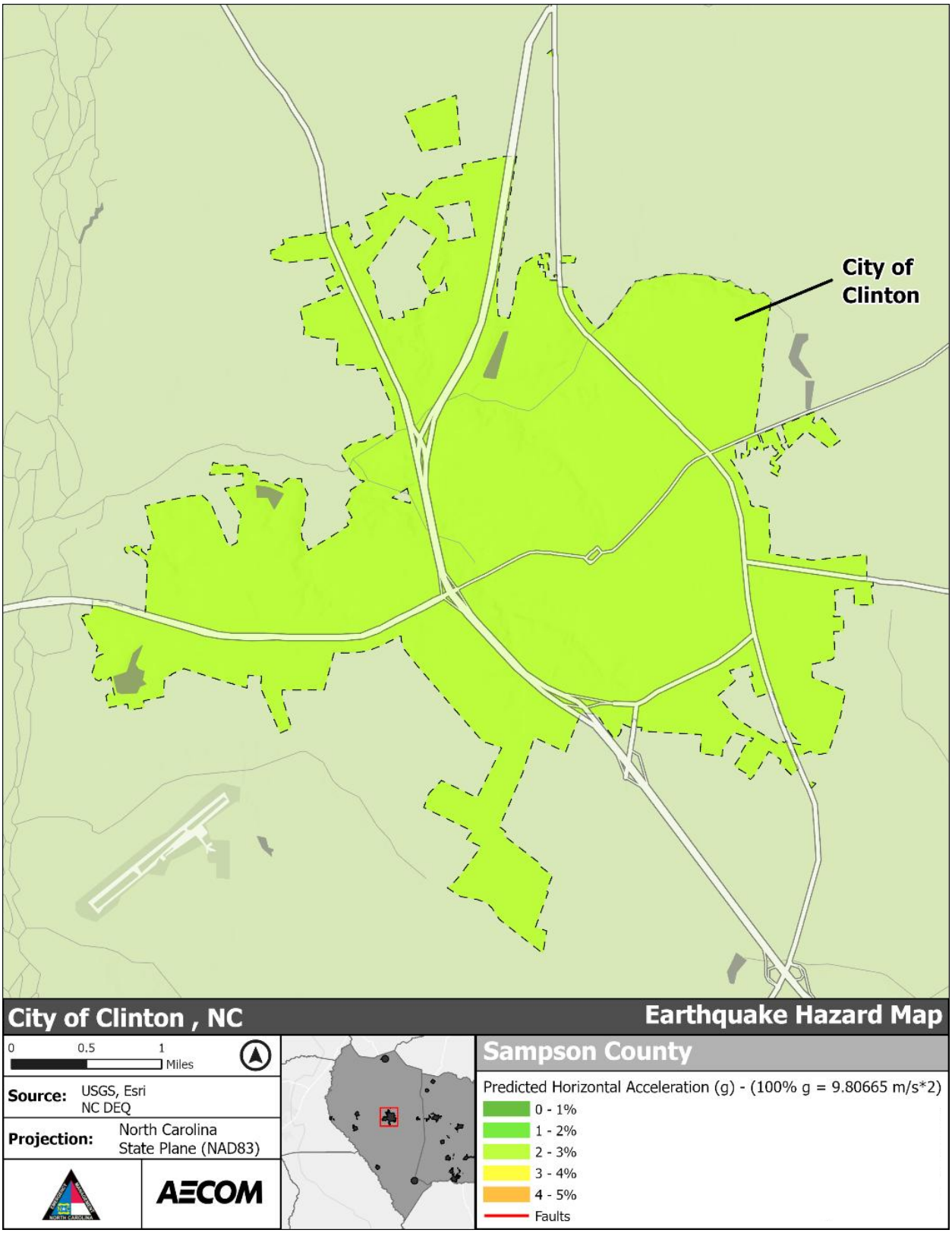


***Figure 5-44**: City of Clinton Earthquake Hazard Map*

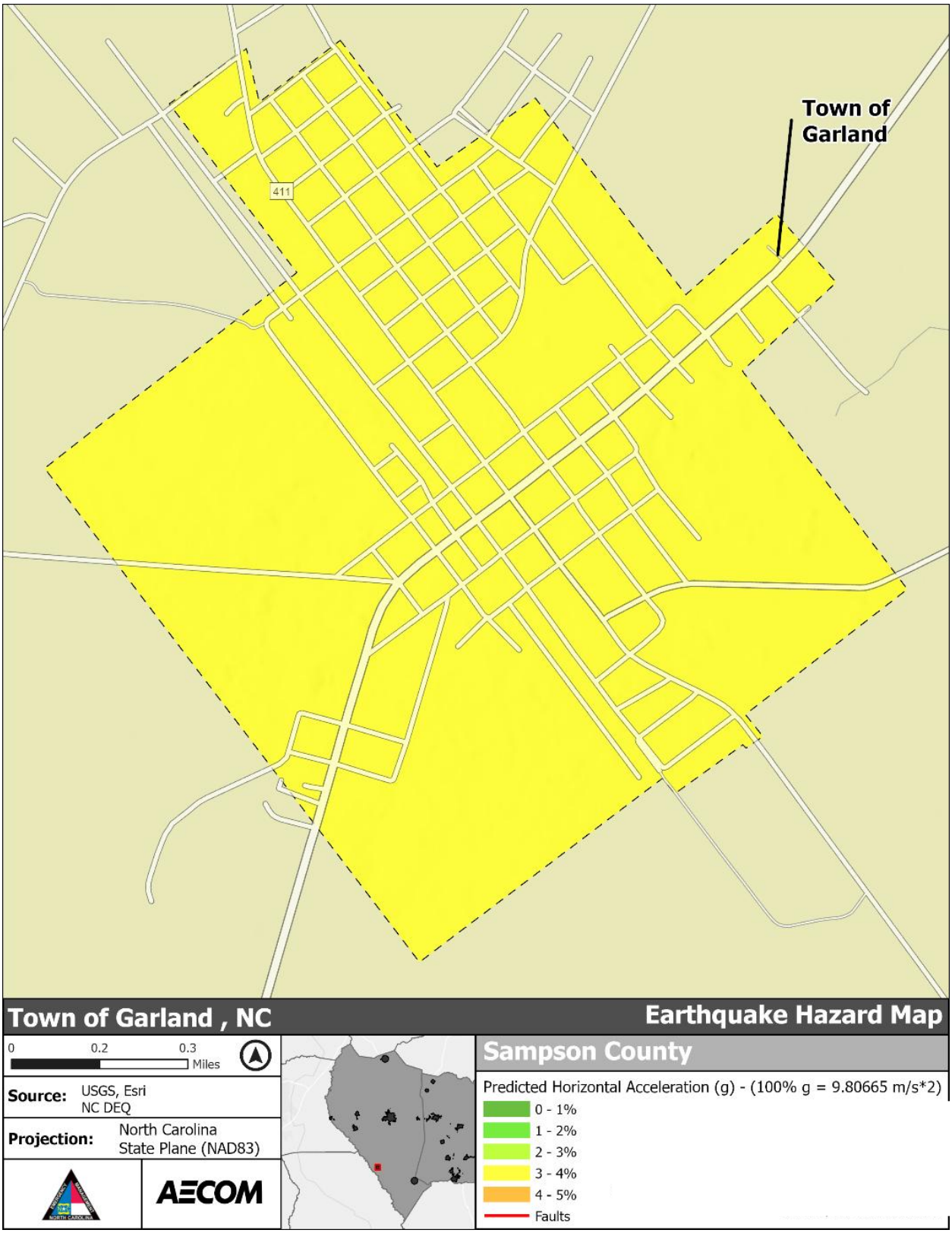


***Figure 5-45**: Town of Garland Earthquake Hazard Map*

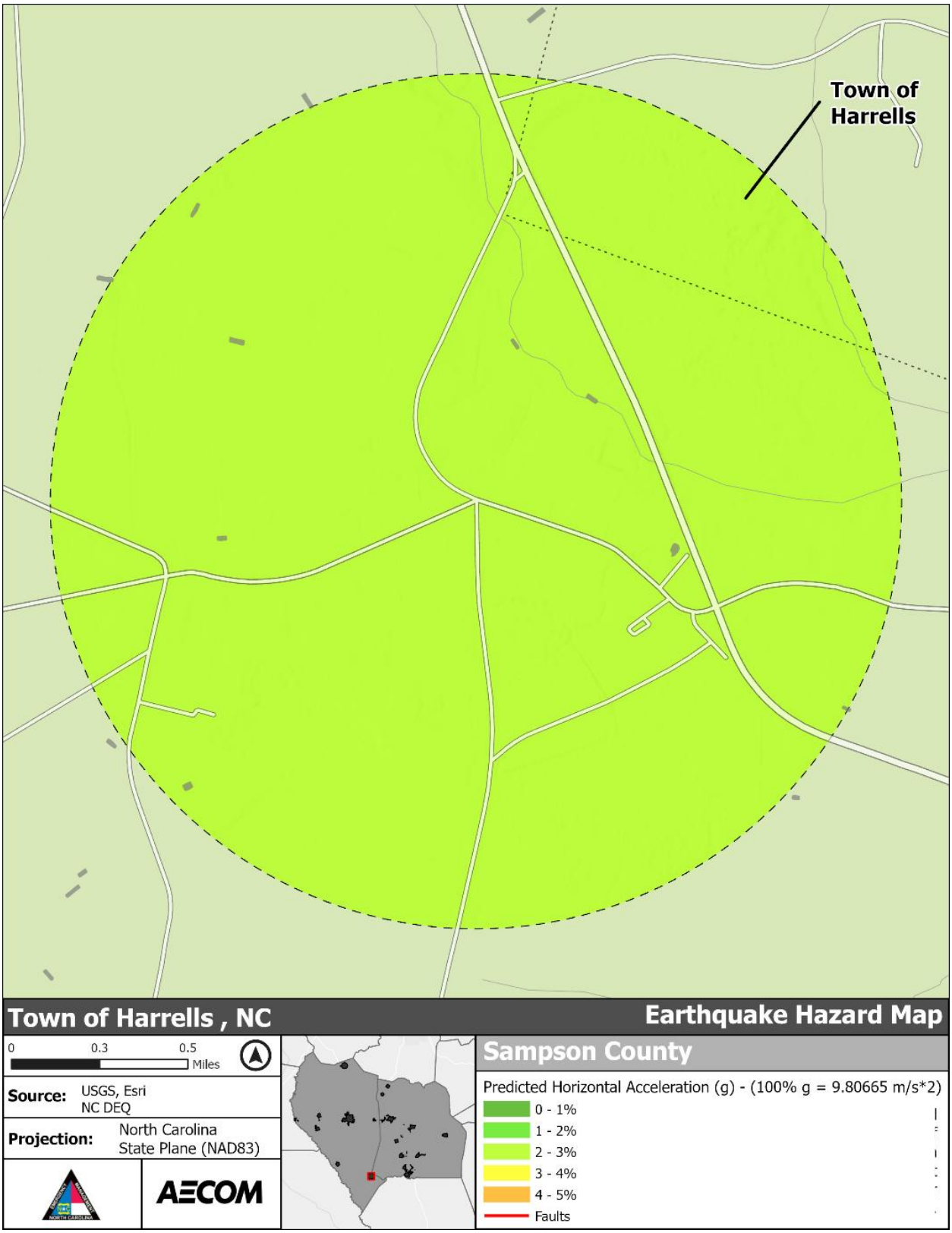


***Figure 5-46**: Town of Harrells Earthquake Hazard Map*

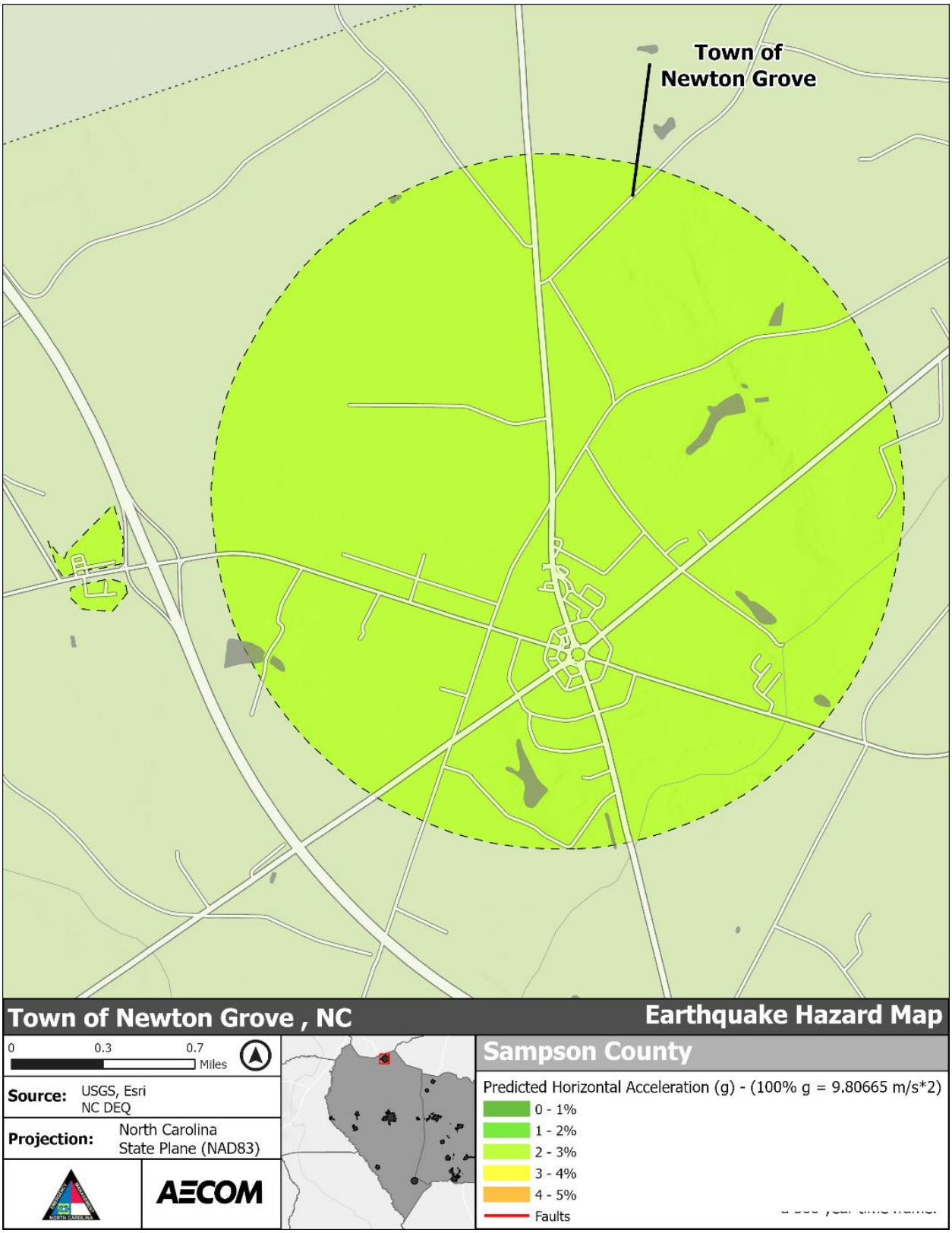


***Figure 5-47**: Town of Newton Earthquake Hazard Map*

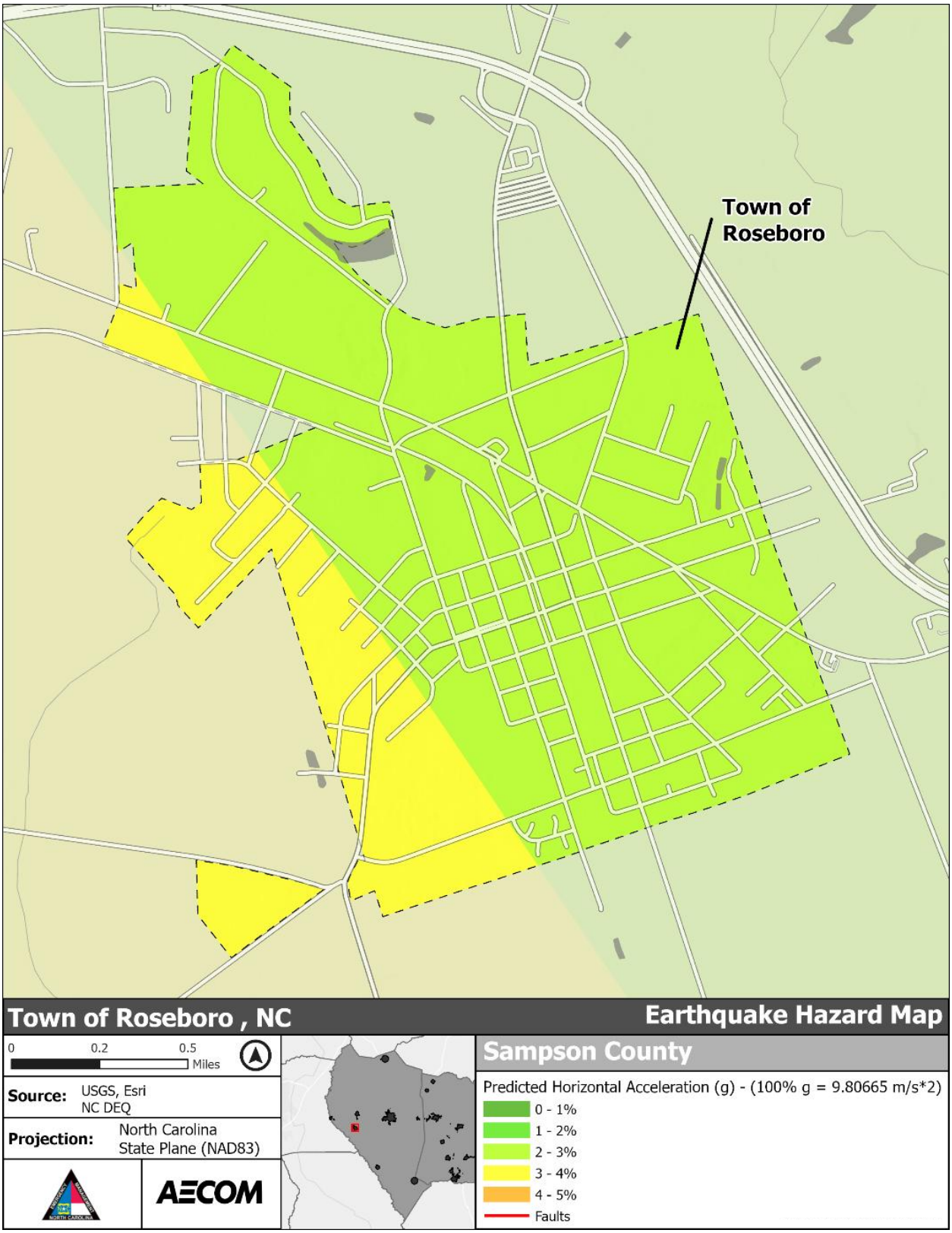


***Figure 5-48**: Town of Roseboro Earthquake Hazard Map*

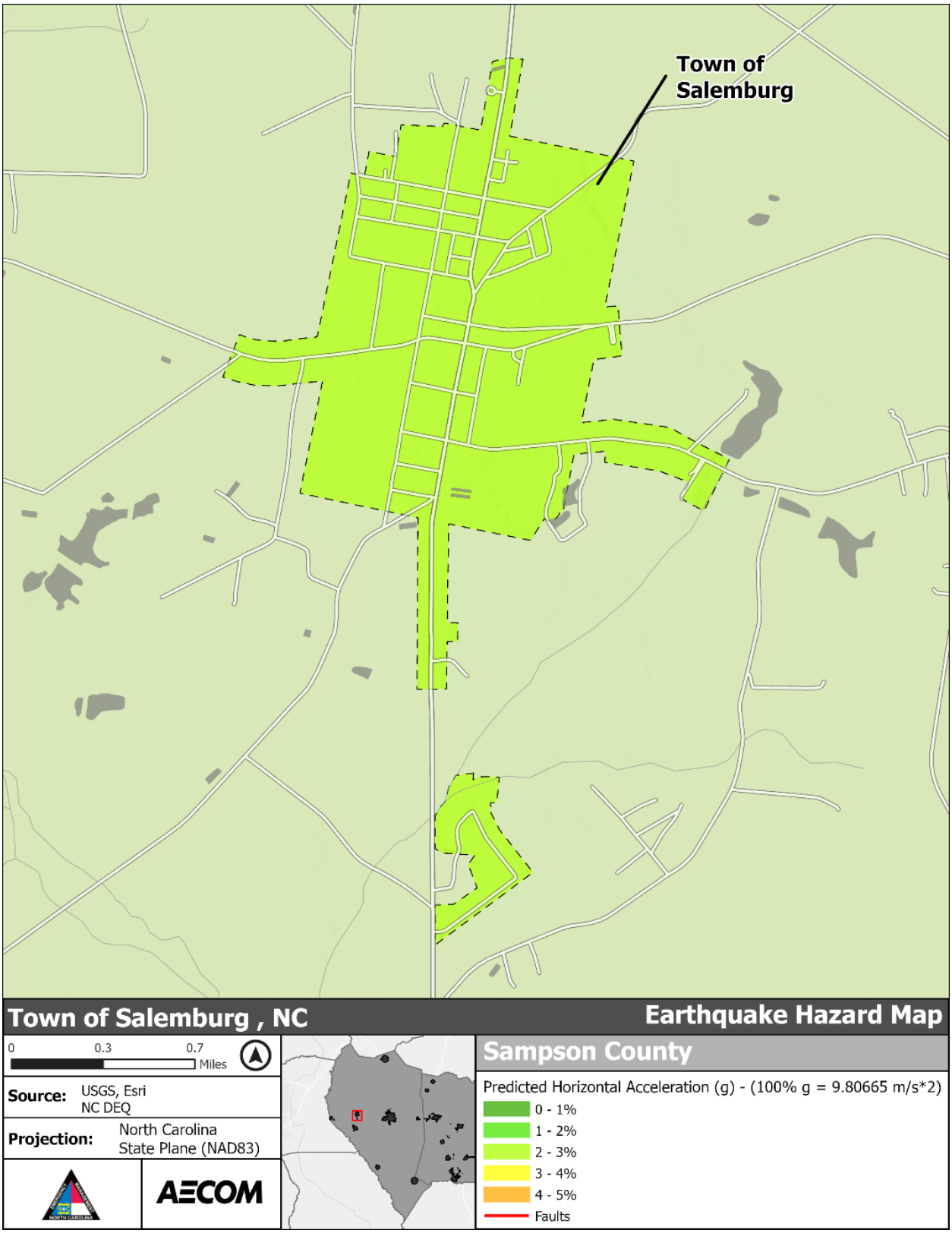


***Figure 5-49**: Town of Salemburg Earthquake Hazard Map*

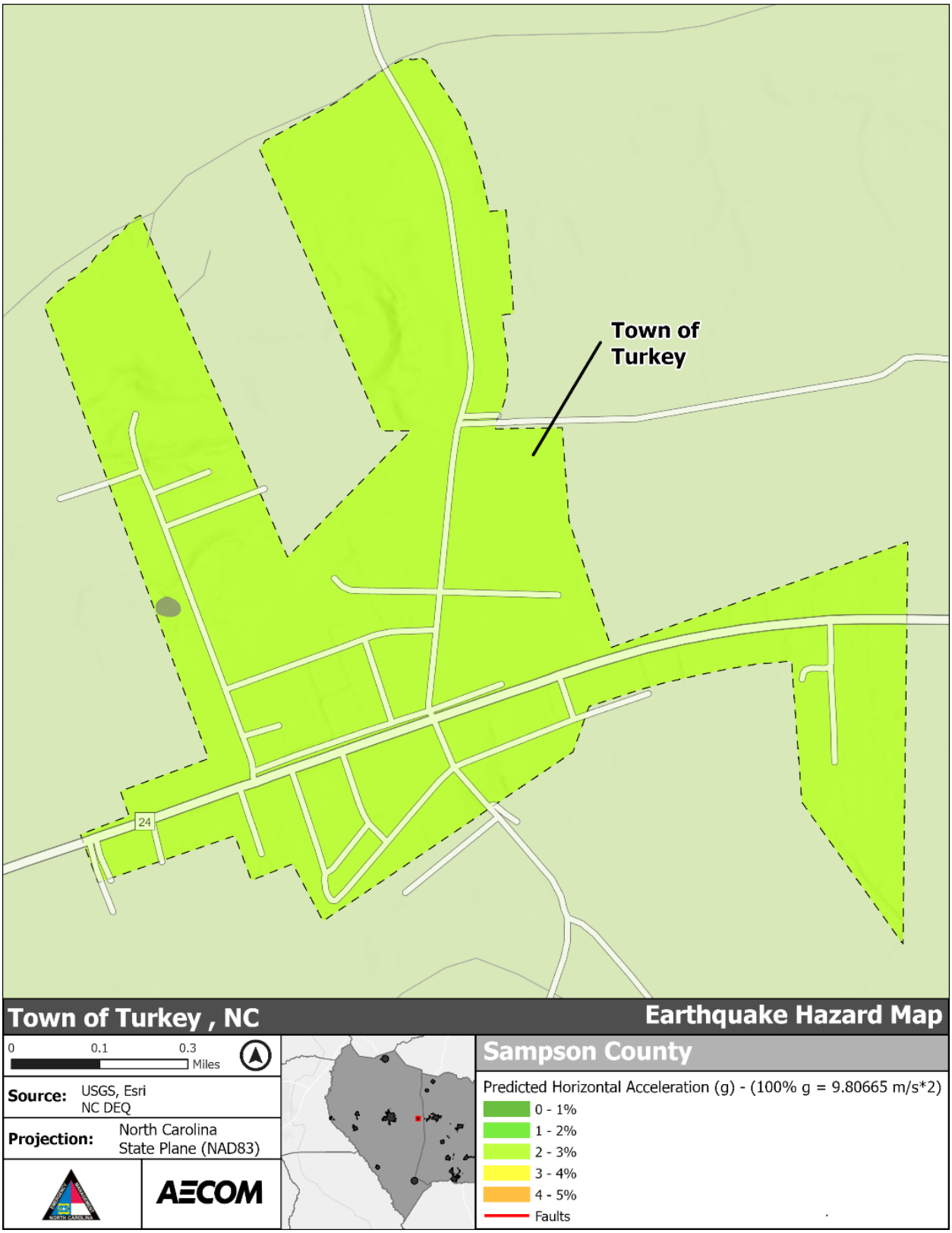


***Figure 5-50**: Town of Turkey Earthquake Hazard Map*

5.4.3 Extent

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 shelves. Earthquakes of greater magnitude may be possible within the Region; however, this is known to be the greatest severity currently on record.

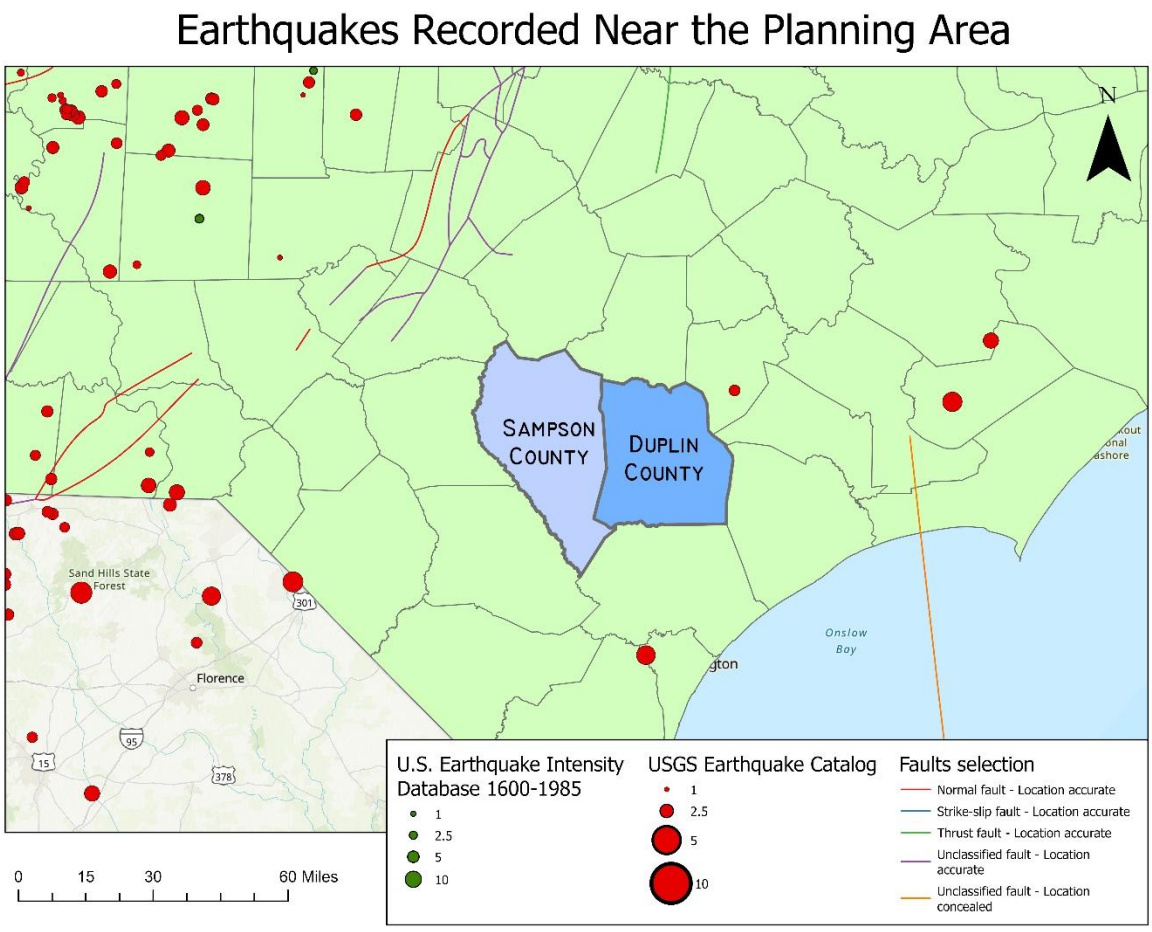


***Figure 5-51**: Earthquakes near the planning area from the U.S. Earthquake Intensity Database[24] (1600-1985) and the USGS Earthquake Catalog[25] with Faults[26]*

[24] National Geophysical Data Center / World Data Service (NGDC/WDS) (2025): United States earthquake intensity database, 1638-1985 [dataset]. PANGAEA, https://doi.org/10.1594/PANGAEA.981234

[25] United States Geological Survey [USGS]. (n.d.). Earthquake Catalog [Dataset]. In USGS Earthquake Hazards Program. USGS Earthquake Hazards Program. https://earthquake.usgs.gov/earthquakes/search/

[26] NC Department of Environmental Quality. (1985). Geological Map of North Carolina. https://www.deq.nc.gov/about/divisions/energy-mineral-and-land-resources/north-carolina-geological-survey/ncgs-publications/statewide-geologic-maps-north-carolina

5.4.4 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 on the size and frequency of earthquakes. Since 1735, North Carolina has experienced 23 earthquakes, each of which caused at least architectural damage. Based on historical data, scientists from the U.S. Geological Survey (USGS) and several university research centers have produced maps that project expected ground motion for various return periods. The last recorded damaging earthquake with an epicenter in North Carolina occurred in the vicinity of Hendersonville in 1981. The epicenter of the previous recorded damaging event affecting the state was Mineral Springs, Virginia, in 2011. A list of earthquakes that have caused damage in North Carolina is presented below in Table 5-17.

***Table 5-16**: USGS Earthquake Catalog: Closest Earthquake near the planning area*[27]

Date	Magnitude	Magnitude Type	Distance to Closest Jurisdiction (Miles)	Closest Jurisdiction	Closest County
6/24/2013	2.1	md	5.03	Beulaville	Duplin
12/12/1915	3.5	mint	8.85	Wallace	Duplin
9/25/2006	3.7	mlg	15.80	Autryville	Sampson
8/6/1994	3.6	mb_lg	17.20	Beulaville	Duplin
10/3/1981	1.1	md	18.25	Autryville	Sampson
3/21/2011	2.9	md	20.79	Autryville	Sampson
9/22/2006	3.4	mlg	20.97	Autryville	Sampson
2/11/2014	2.9	mlg	21.00	Beulaville	Duplin
10/19/2023	2.24	md	21.07	Newton Grove	Sampson
7/29/2012	2.5	md	21.42	Autryville	Sampson
2/2/2022	1.77	md	22.36	Autryville	Sampson
4/9/1980	2.8	md	22.62	Autryville	Sampson
10/12/2004	2.1	md	23.52	Autryville	Sampson
11/15/1983	1	md	24.42	Newton Grove	Sampson
2/25/1978	2.2	mb_lg	24.80	Newton Grove	Sampson
3/4/1981	2.8	mb_lg	25.30	Autryville	Sampson
12/4/1983	1.6	md	26.03	Autryville	Sampson
8/9/2025	1.89	md	27.46	Garland	Sampson
11/15/2015	2.58	md	27.47	Autryville	Sampson
1/28/2020	2.33	md	28.27	Newton Grove	Sampson
4/6/2018	1.95	md	28.72	Autryville	Sampson
8/15/2023	2.21	md	28.73	Newton Grove	Sampson
3/26/2019	2.5	md	28.73	Autryville	Sampson
8/15/2023	2.25	md	28.86	Newton Grove	Sampson
10/27/1959	3.9	fa	28.87	Autryville	Sampson
8/8/2022	1.97	md	28.88	Autryville	Sampson

[27] United States Geological Survey [USGS]. (n.d.). Earthquake Catalog [Dataset]. In USGS Earthquake Hazards Program. USGS Earthquake Hazards Program. https://earthquake.usgs.gov/earthquakes/search/

Date	Magnitude	Magnitude Type	Distance to Closest Jurisdiction (Miles)	Closest Jurisdiction	Closest County
6/17/1986	2.2	md	29.14	Autryville	Sampson
9/13/2019	2.02	md	29.15	Newton Grove	Sampson
3/31/2012	2.2	md	29.33	Autryville	Sampson
9/16/2024	2.2	md	29.35	Autryville	Sampson
7/12/1993	2.7	mb_lg	29.66	Autryville	Sampson
5/18/2017	2.16	md	29.67	Autryville	Sampson
3/14/2025	2.02	md	30.11	Autryville	Sampson
1/18/1992	2.1	md	31.71	Autryville	Sampson
11/24/2017	2.37	md	31.86	Autryville	Sampson
2/18/2023	2.41	md	32.08	Autryville	Sampson
12/20/2017	2.22	md	32.35	Autryville	Sampson
4/27/1979	3.3	mint	32.92	Garland	Sampson
2/18/2000	2.4	md	33.43	Autryville	Sampson
10/6/2019	1.83	md	33.55	Autryville	Sampson
1/15/2020	2.27	md	33.61	Autryville	Sampson
7/25/2020	2.22	md	34.05	Autryville	Sampson
8/31/1989	1.1	md	34.32	Autryville	Sampson
3/26/2020	1.82	md	34.41	Autryville	Sampson
4/29/2019	2.25	md	34.79	Autryville	Sampson
10/17/2006	2.6	mlg	34.83	Autryville	Sampson
9/14/2019	2.37	md	35.01	Autryville	Sampson
11/3/2006	2.5	mblg	35.26	Autryville	Sampson
10/3/1986	2.5	md	35.40	Autryville	Sampson
1/27/1987	2.1	md	35.42	Autryville	Sampson
6/24/2013	2.1	md	5.03	Beulaville	Duplin
12/12/1915	3.5	mint	8.85	Wallace	Duplin
9/25/2006	3.7	mlg	15.80	Autryville	Sampson
8/6/1994	3.6	mb_lg	17.20	Beulaville	Duplin
10/3/1981	1.1	md	18.25	Autryville	Sampson
3/21/2011	2.9	md	20.79	Autryville	Sampson
9/22/2006	3.4	mlg	20.97	Autryville	Sampson
2/11/2014	2.9	mlg	21.00	Beulaville	Duplin
10/19/2023	2.24	md	21.07	Newton Grove	Sampson
7/29/2012	2.5	md	21.42	Autryville	Sampson
2/2/2022	1.77	md	22.36	Autryville	Sampson
4/9/1980	2.8	md	22.62	Autryville	Sampson
10/12/2004	2.1	md	23.52	Autryville	Sampson
11/15/1983	1	md	24.42	Newton Grove	Sampson
2/25/1978	2.2	mb_lg	24.80	Newton Grove	Sampson
3/4/1981	2.8	mb_lg	25.30	Autryville	Sampson
12/4/1983	1.6	md	26.03	Autryville	Sampson
8/9/2025	1.89	md	27.46	Garland	Sampson
11/15/2015	2.58	md	27.47	Autryville	Sampson

Date	Magnitude	Magnitude Type	Distance to Closest Jurisdiction (Miles)	Closest Jurisdiction	Closest County
1/28/2020	2.33	md	28.27	Newton Grove	Sampson
4/6/2018	1.95	md	28.72	Autryville	Sampson
8/15/2023	2.21	md	28.73	Newton Grove	Sampson
3/26/2019	2.5	md	28.73	Autryville	Sampson
8/15/2023	2.25	md	28.86	Newton Grove	Sampson
10/27/1959	3.9	fa	28.87	Autryville	Sampson
8/8/2022	1.97	md	28.88	Autryville	Sampson
6/17/1986	2.2	md	29.14	Autryville	Sampson
9/13/2019	2.02	md	29.15	Newton Grove	Sampson
3/31/2012	2.2	md	29.33	Autryville	Sampson
9/16/2024	2.2	md	29.35	Autryville	Sampson
7/12/1993	2.7	mb_lg	29.66	Autryville	Sampson
5/18/2017	2.16	md	29.67	Autryville	Sampson
3/14/2025	2.02	md	30.11	Autryville	Sampson
1/18/1992	2.1	md	31.71	Autryville	Sampson
11/24/2017	2.37	md	31.86	Autryville	Sampson
2/18/2023	2.41	md	32.08	Autryville	Sampson
12/20/2017	2.22	md	32.35	Autryville	Sampson
4/27/1979	3.3	mint	32.92	Garland	Sampson
2/18/2000	2.4	md	33.43	Autryville	Sampson
10/6/2019	1.83	md	33.55	Autryville	Sampson
1/15/2020	2.27	md	33.61	Autryville	Sampson
7/25/2020	2.22	md	34.05	Autryville	Sampson
8/31/1989	1.1	md	34.32	Autryville	Sampson
3/26/2020	1.82	md	34.41	Autryville	Sampson
4/29/2019	2.25	md	34.79	Autryville	Sampson

Magnitude Types (USGS)[28]

- **FA =** area in km^2 over which the earthquakes shaking was felt
- **Md =** Based on the duration of shaking measured by the time decay of amplitude of the seismogram. Sometimes used for small events but often used to compute magnitude from seismographs with clipped waveforms due to limited dynamic recording range of analog instrumentation which makes it impossible to measure the peak amplitude. Published only when no other magnitudes area available for ~4 or smaller magnitudes.
- **MB_lg =** A magnitude for regional earthquakes based on the amplitude of the Lg surface waves as recorded on short-period instruments. Only authoritative for smaller events in the central and eastern United States, typically <4.0 for which there is no mb or moment magnitude.
- **Mint** = A magnitude estimated from the maximum reported intensity, typically for earthquakes occurring before seismic instruments were in general use. This has been used for events where the felt reports were from too few places to use a magnitude determined from a felt area.

[28] US Geological Survey [USGS]. (n.d.). Magnitude types. USGS Earthquake Hazard Program. Retrieved January 27, 2025, from https://www.usgs.gov/programs/earthquake-hazards/magnitude-types

Date	Magnitude	Magnitude Type	Distance to Closest Jurisdiction (Miles)	Closest Jurisdiction	Closest County

Reference: Catalog of Hawaiian earthquakes, 1823-1959, by Fred W. Klein and Thomas L. Wright U.S. Geological Survey Professional Paper 1623, USGS Information Services, Denver: 2000.

- **Mlg =** short period surface wave. Magnitude for regional earthquakes based on an amplitude of Lg surface waves. Only used for smaller events in central and eastern US, typically events less than 4.0 magnitude or when not moment magnitude is available

***Table 5-17**: Major 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

Source: North Carolina State Hazard Mitigation Plan 2018; Southeast US Seismic Network, USGS

5.4.5 Probability of Future Occurrence

The NRI calculates earthquake risk based on the USGS 100-year probability of minor earthquake shaking. Sampson County has an annualized frequency of approximately 0.0005, a $285,694 EAL, and a Relatively High EAL Rating and Hazard Risk Rating. Duplin County has a similar annualized frequency of 0.000434, an EAL of $68,717, and a Relatively Moderate Average EAL rating and Hazard Risk Index Score.

Table 5-18: NRI Earthquake Risk, EAL Total, and Annualized Frequency

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Duplin County	**0.000434**	**$68,717**	**53.61**	**Relatively Moderate**	**59.85**	**Relatively Moderate**
Beulaville	0.000806	$15,490	40.79	Relatively Moderate	47.23	Relatively Moderate
Calypso	0.000429	$10,775	48.34	Relatively Moderate	58.81	Relatively Moderate
Faison	0.000429	$10,775	48.34	Relatively Moderate	58.81	Relatively Moderate
Greenevers	0.000459	$4,308	28.53	Relatively Low	36.21	Relatively Low
Kenansville	0.000511	$5,079	31.75	Relatively Low	35.55	Relatively Low
Magnolia	0.000844	$21,532	48.00	Relatively Moderate	53.65	Relatively Moderate
Rose Hill	0.000902	$16,851	42.67	Relatively Moderate	48.78	Relatively Moderate
Teachey	0.000987	$17,628	41.71	Relatively Moderate	48.89	Relatively Moderate
Wallace	0.001909	$40,511	42.83	Relatively Moderate	46.89	Relatively Moderate
Warsaw	0.000904	$24,285	50.11	Relatively Moderate	60.38	Relatively High
Unincorporated Area	0.002853	$30,798	28.13	Relatively Low	32.37	Relatively Low
Sampson County	**0.000502**	**$285,694**	**62.55**	**Relatively High**	**68.34**	**Relatively High**
Autryville	0.000582	$5,957	35.10	Relatively Low	31.92	Relatively Low
Clinton	0.002494	$107,206	59.39	Relatively Moderate	65.12	Relatively High
Garland	0.000501	$18,858	59.81	Relatively Moderate	67.73	Relatively High
Harrells	0.000537	$11,137	49.09	Relatively Moderate	52.91	Relatively Moderate

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Newton Grove	0.000453	$5,178	32.13	Relatively Low	35.90	Relatively Low
Roseboro	0.000570	$15,099	55.54	Relatively Moderate	60.32	Relatively High
Salemburg	0.000543	$6,570	37.20	Relatively Low	38.50	Relatively Low
Turkey	0.000478	$7,708	40.77	Relatively Moderate	46.25	Relatively Moderate
Unincorporated Area	0.004009	$107,982	50.67	Relatively Moderate	55.54	Relatively Moderate

5.4.6 Consequence and Impact Analysis

5.4.6.1 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. All jurisdictions in the Region are equally vulnerable to this impact.

5.4.6.2 Changes in Development

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 along a river. The water from the river or the reservoir would then flood the area, damage buildings, and possibly drown 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. Historically, the Region has not been affected by earthquakes of greater than moderate intensity, so damage to the built environment is unlikely.

5.4.6.3 Economy

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

5.4.6.4 Natural Environment

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

5.4.6.5 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 on first responders in the event of a moderate earthquake in the Region.

5.4.6.6 Future Conditions

There are no expected impacts on earthquake vulnerability in the planning area related to climate change.

5.5 EXTREME HEAT

5.5.1 Hazard Description

Extreme heat, like drought, poses little risk to property. However, extreme heat can have devastating effects on health. Extreme heat is often referred to as a "heat wave." According to the National Weather Service, there is no universal definition of a heat wave, but the standard U.S. definition is any event lasting at least three days in which temperatures reach 90 degrees Fahrenheit or higher. However, it may also be defined as an event lasting at least three days during which temperatures are ten degrees above the normal temperature for the affected area. Heat waves are typically accompanied by humidity, but may also be very dry. These conditions can pose serious health threats, with 20 heat-related deaths[29] and 248 hospitalizations for heat-related illness (HRI) in NC in 2022.[30]

The National Weather Service developed the Heat Index to better inform the public about heat dangers. The Heat Index Chart, shown in Figure 5-52, uses air temperature and humidity to determine the heat index, or apparent temperature. Table 5-19 shows the dangers associated with different heat index temperatures. Some populations, such as the elderly and young, are more susceptible to heat danger than other segments of the population.

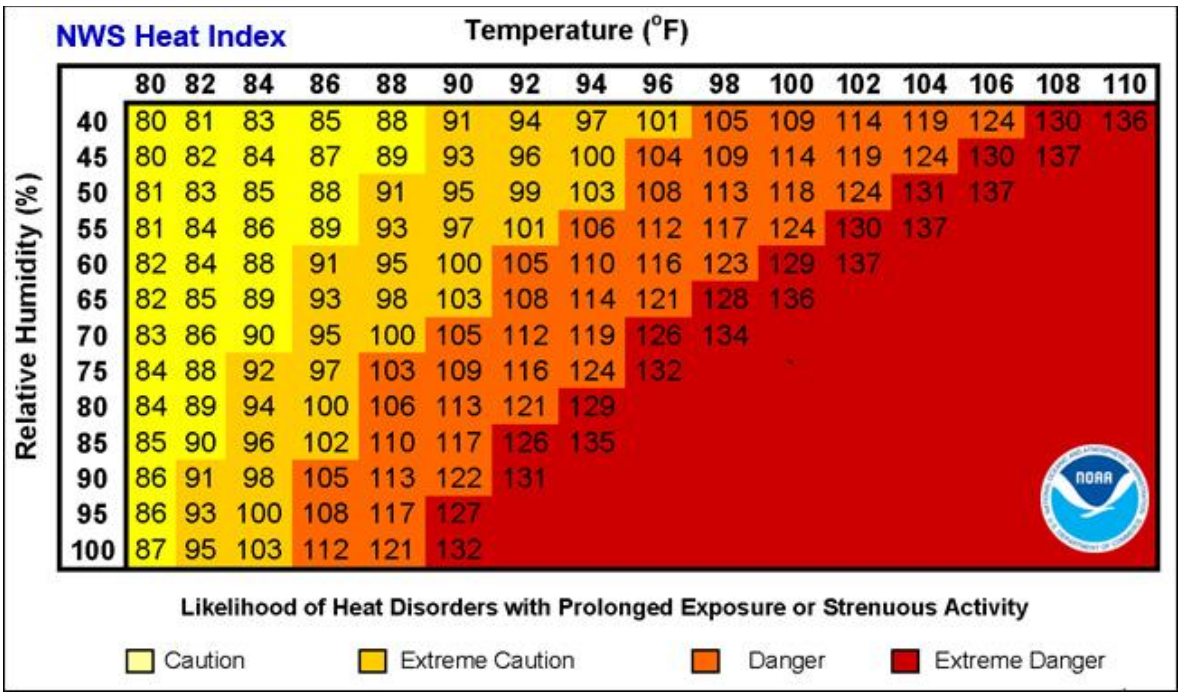


Figure 5-52: *Heat Index Chart*[31]

[29] Centers for Disease Control and Prevention [CDC]. (2022). Heat & Heat-Related Illness (HRI): Mortality From HRI And Annual Number Of Heat-Related Deaths. National Environmental Public Health Tracking Network. Retrieved July 16, 2025, from https://ephtracking.cdc.gov/DataExplorer/?query=e89ff823-2b59-43a1-ac38-d9f731d26858

[30] Centers for Disease Control and Prevention [CDC]. (2022). Heat & Heat-Related Illness (HRI): Hospitalizations for HRI and Annual Number of Hospitalizations for HRI. National Environmental Public Health Tracking Network. Retrieved July 16, 2025, https://ephtracking.cdc.gov/DataExplorer/?query=6fc06266-3c78-4fd6-8bf3-bd3b3e6b39a8

[31] NOAA's National Weather Service. (n.d.-j). What is the heat index? https://www.weather.gov/ama/heatindex

Table 5-19: Heat Disorders Associated with Heat Index Temperature[32]

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

In addition, NOAA has seventeen metropolitan areas participating in the Heat HealthWatch / Warning System to better inform and warn the public of heat dangers. A Heat HealthWatch is issued when conditions are favorable for an excessive heat event in the next 12 to 48 hours. A Heat Warning is issued when an excessive heat event is expected in the next 36 hours. Furthermore, a warning is issued when the conditions are occurring, imminent, or have a high likelihood of occurrence. Urban areas participate in the Heat Health Watch/Warning System because urban areas are at greater risk of heat effects. Stagnant atmospheric conditions trap pollutants, thus adding unhealthy air to excessively hot temperatures. In addition, the "urban heat island effect" can produce significantly higher nighttime temperatures because asphalt and concrete (which store heat longer) gradually release heat at night.

5.5.2 Location and Spatial Extent

Excessive heat typically impacts a large area and cannot be confined to any geographic or political boundaries. The entire Sampson Duplin Region is susceptible to extreme heat events. To represent the risk of extreme heat events, the NRI heat wave data was used. The NRI defines a Heat Wave as a period of abnormal heat and humidity lasting 2 days or more, with temperatures outside the historical averages for a given area. Temperatures classified as heat wave events depend on location and on how the National Weather Service (NWS) weather forecast office defines a heat wave event.[33] The following maps represent the risk rating and EAL total of heat wave events in the planning area by census tract:

[32] NOAA's National Weather Service. (n.d.-f). Heat Index Statistics. https://www.weather.gov/tbw/heat

[33] Zuzak, C., Sheehan, A., Goodenough, E., McDougall, A., Stanton, C., McGuire, P., Mowrer, M., Roberts, B., & Rozelle, J. (2023). National Risk Index: Technical Documentation. In Federal Emergency Management Agency, FEMA.gov. Retrieved May 28, 2024, from https://www.fema.gov/sites/default/files/documents/fema_national-risk-index_technical-documentation.pdf

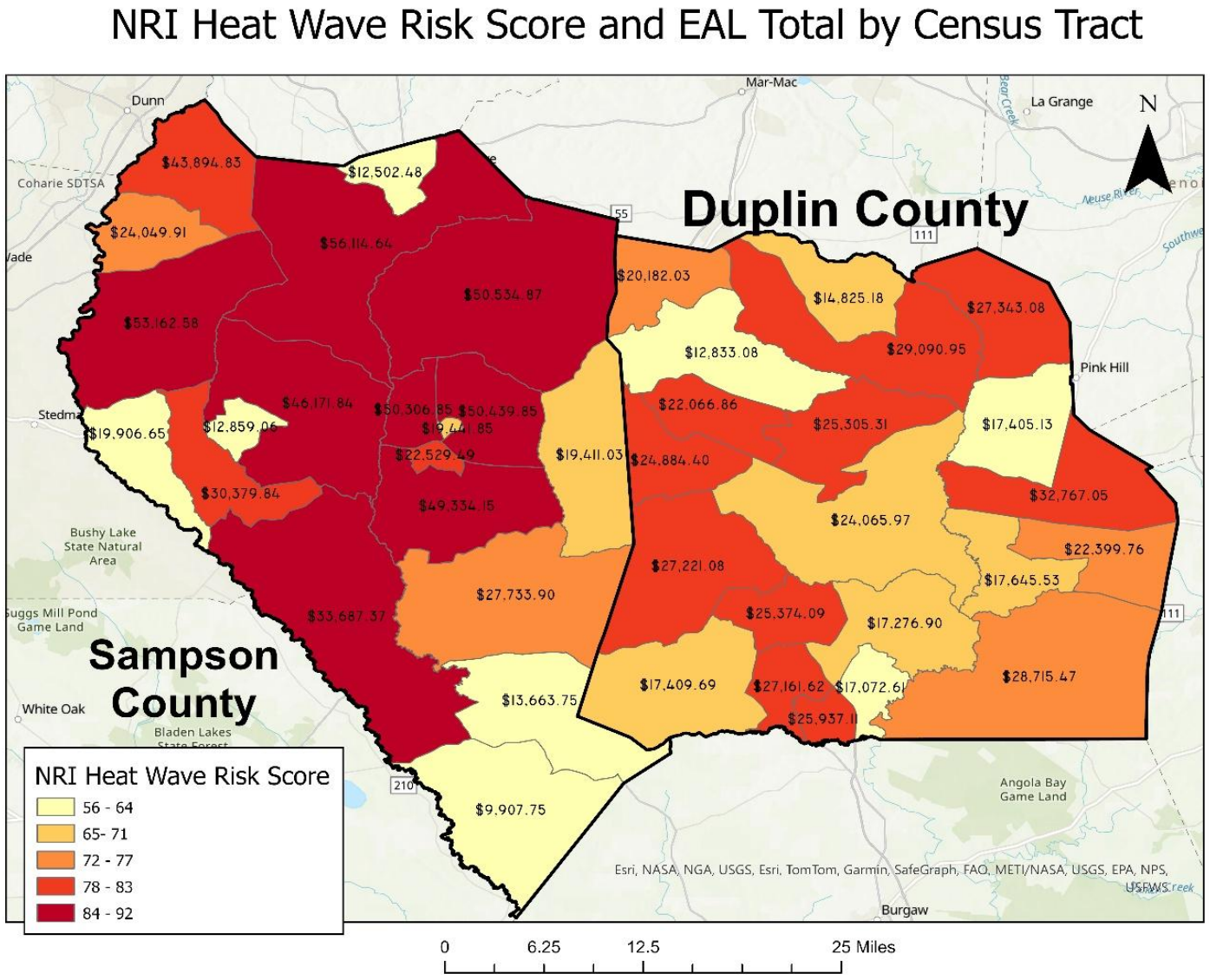


***Figure 5-53**: NRI Heat Wave Risk Score and EAL Total by Census Tract Regional Overview*

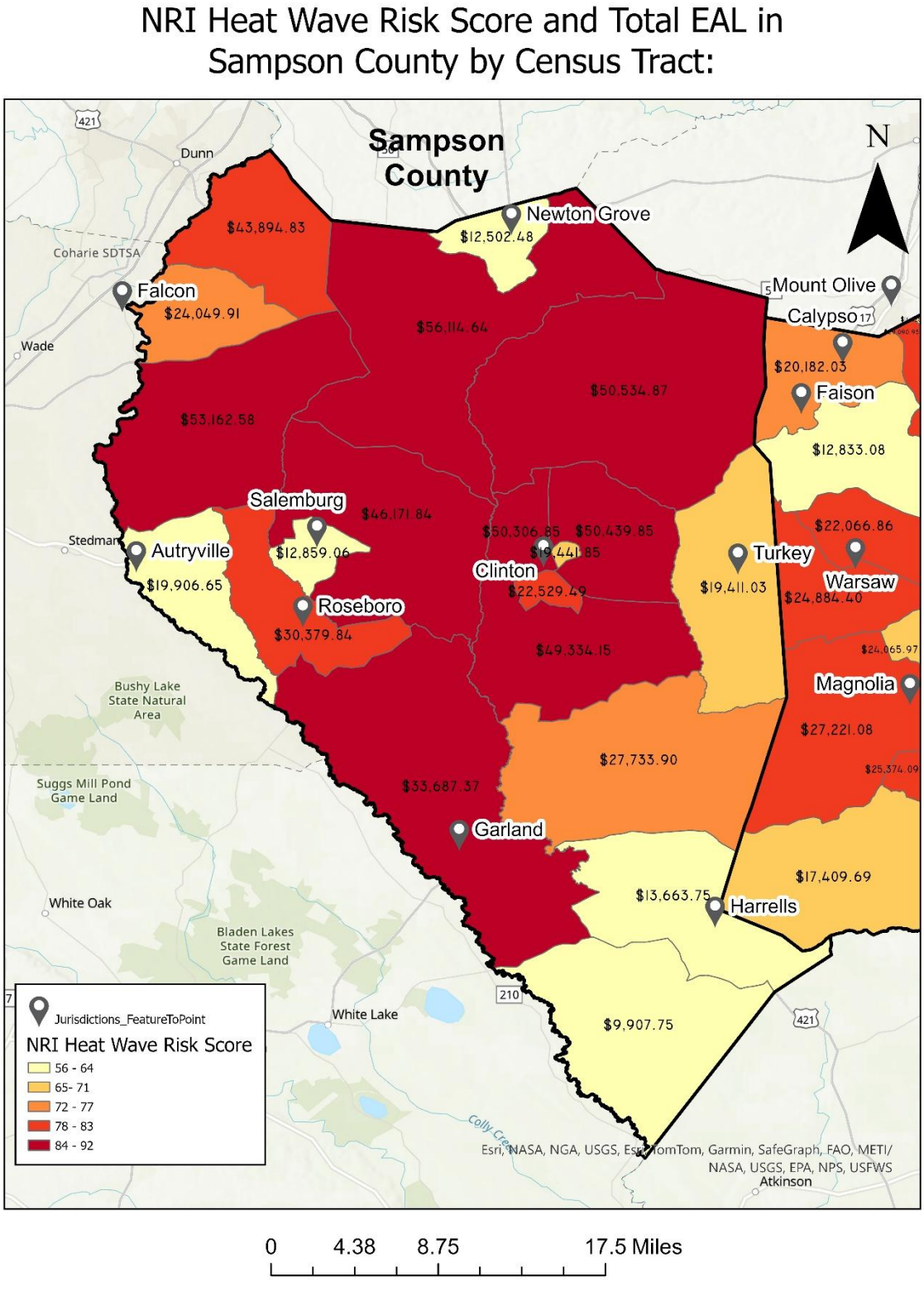


***Figure 5-54**: NRI Heat Wave Risk Score and EAL by Census Tract in Sampson County*

NRI Heat Wave Risk Score and Total EAL in Duplin County by Census Tract:

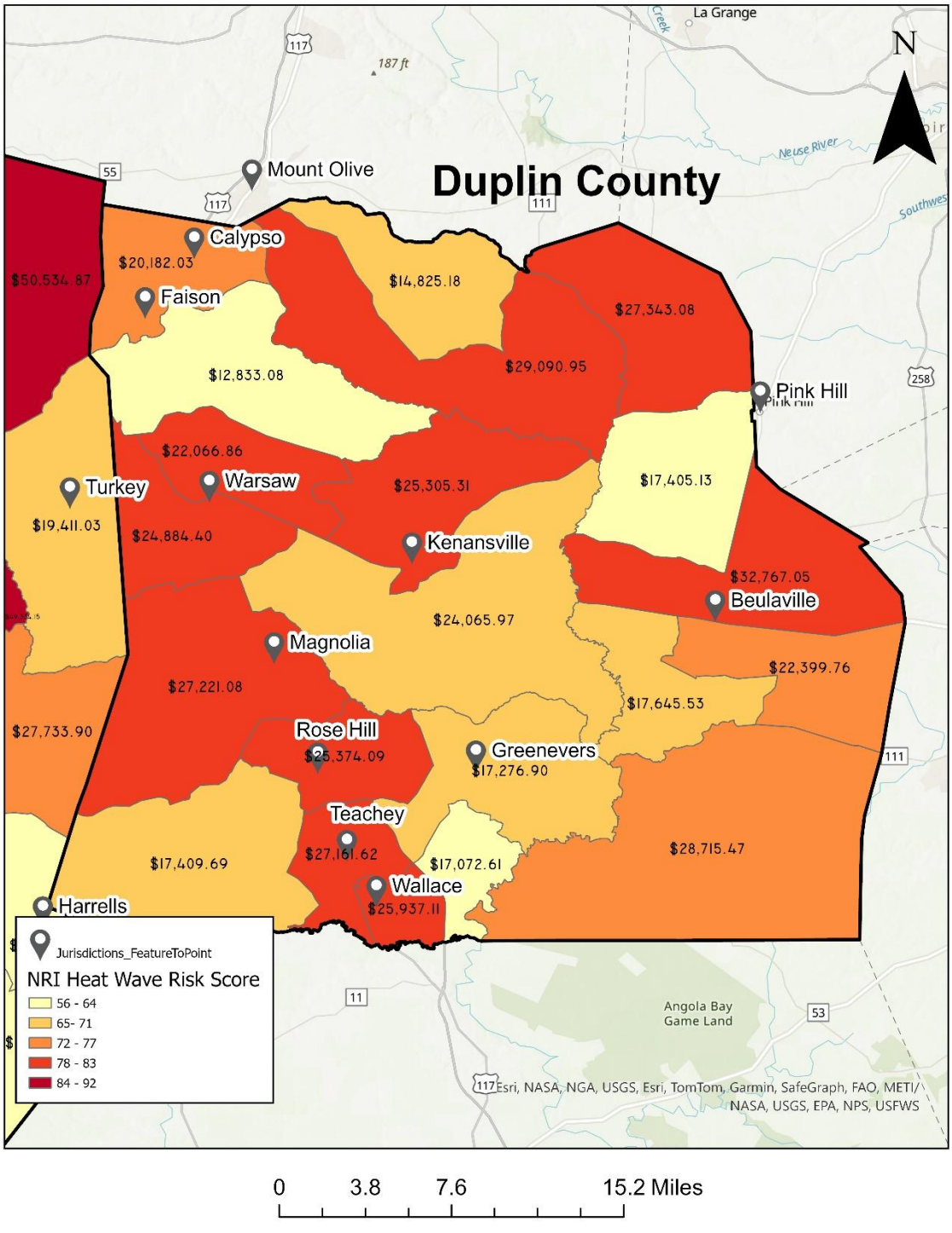


***Figure 5-55**: NRI Heat Wave Risk Score and Total EAL by Census Tract in Duplin County*

5.5.3 Extent

The extent of extreme heat can be defined by the maximum temperature reached. The NCEI Storm Events Database shows six records of excessive heat and heat events in the planning area; however, no injuries, deaths, property damage, or crop damage have been reported as a result of these events.

Table 5-20: NCEI Storm Events Database of Excessive Heat Events in the Planning Area

Area Reported	Event Date	Direct Deaths	Direct Injuries	Event Narrative
Sampson	7/22/1998	0	0	Excessive heat plagued central North Carolina during July 22 through July 23. Maximum temperatures reached the 98 to 103 degree range combined with dew points in the 78 to 80 degree range with little wind to give heat index values of around 110 degrees for several hours each afternoon. To make matters worse, the minimum temperatures did not fall below 80 at several locations and those that did achieve that feat for only an hour or two. Strong thunderstorms ended the 2 day excessive heat ordeal on the evening of the 23 when rain cooled the environment enough to send temperatures into the lower 70s at most locations.
Duplin	8/15/2023	0	0	Kenansville recorded a peak heat index of 113 degrees. A three-day heatwave ended with excessive heat being observed across Eastern NC. The heatwave began on Sunday, August 13th, with heat indices of 105 to 100 degrees. This pattern continued on Monday, August 14th with similar values. The heat and humidity intensified on Tuesday, August 15th ahead of a cold front that would move into Eastern NC. Widespread heat indices of 110 to 115 degrees were recorded, with some places even higher that 115 for a short time. The heatwave broke with the cold front moving in and producing widespread showers and thunderstorms during the evening hours.
Duplin	7/15/2024	0	0	Kenansville reported heat indices up to 110 degrees. A very hot airmass with temperatures well into the 90s combined with extremely high dewpoints in the upper 70s to low 80s to produce excessively high heat indices generally between 110 and 115 degrees during the daytime hours. The excessive heat affected all of Eastern NC except for the Outer Banks.
Duplin	6/24/2025	0	0	Heat indices peaked in the 110-115 degree range each afternoon. Extreme heat due to a combination of hot temperatures and high dewpoints led to heat indices peaking above 105 degrees for much of Eastern NC the last week of June, centered on June 24th through June 25th, when peak

Area Reported	Event Date	Direct Deaths	Direct Injuries	Event Narrative
				heat indices reached as high as 110 to 115 degrees. Little relief was felt overnight, as lows ranged from the upper 70s to around 80.
Sampson	6/24/2025	0	0	Heat indices ranged from 110 to 114 degrees. An anomalously strong high over the southern Appalachians produced very hot and humid conditions during the day with an extreme heat warning. Heat indices were as high as 115 degrees across the eastern Piedmont, Coastal Plain, and Sandhills of central North Carolina.
Sampson	6/25/2025	0	0	Heat indices ranged from 110 to 114 degrees. An anomalously strong high over eastern Tennessee produced very hot and humid conditions during the day with an extreme heat warning. Heat indices were as high as 115 degrees across the eastern Piedmont, Coastal Plain, and Sandhills of central North Carolina.

5.5.4 Past Occurrences

Extreme Heat occurrences are recorded from the NCSU Climate Office[34] and are summarized based on the maximum heat index temperatures. The highest heat index recorded between 2015 and 2025 was 120.1 in Wallace and 115.6 in Clinton. The tables below represent the highest reported heat index in Sampson County and Duplin County, as well as the number of days between 2015 and 2025 that fell within different heat index ranges.

***Table 5-21**: Highest Reported Heat Index in Sampson and Duplin County from NCSU Climatology Office Cardinal Data Interface from 1950 to 2025 based on all available records[35]*

Station Name	City	County	Highest Heat Index	Date
Williamsdale Field Lab	**Wallace**	**Duplin County**	120.1	July 27, 2025
Horticultural Crops Research	**Clinton**	**Sampson County**	115.6	June 25, 2025

[34] State Climate Office of North Carolina, NC State University. Cardinal [data retrieval interface] available at https://products.climate.ncsu.edu/cardinal/request. Accessed December 1, 2025.
[35] State Climate Office of North Carolina, NC State University. Cardinal [data retrieval interface] available at https://products.climate.ncsu.edu/cardinal/request. Accessed December 1, 2025.

Table 5-22: Number of Days where the maximum Recorded Heat Index was within the Heat Index Range from the NCSU Climatology Office Cardinal Data Interface from 2015 to 2025[36]

Station Name	Station Location	Heat Index Range	100-104	105-109	110-114	≥115	Days equal to or over 100
Williamsdale Field Lab	Wallace, Duplin County	Number of Days	175	77	26	2	329
		% of total days	4.79%	2.11%	0.71%	0.05%	9.00%
Horticultural Crops Research	Clinton, Sampson County	Number of Days	149	45	3	1	225
		% of total days	4.08%	1.23%	0.08%	0.03%	6.16%

5.5.5 Probability of Future Occurrences

The NRI defines a Heat Wave as a period of abnormal heat and humidity lasting 2 days or more, with temperatures outside the historical averages for a given area. Temperatures classified as heat wave events depend on location and on how the NWS weather forecast office defines a heat wave event.[37] To utilize NRI risk data, EAL data, and risk index data, NRI heat wave data will be used to understand the impact of extreme heat in the planning area. Duplin County had an annualized frequency of 1.05 heat wave events per year, and Sampson County had an annualized frequency of 1.17 heat wave events per year. The total EAL for heat waves in Duplin County was approximately $566,000, and the total EAL for heat waves in Sampson County was approximately $663,000.

[36] State Climate Office of North Carolina, NC State University. Cardinal [data retrieval interface] available at https://products.climate.ncsu.edu/cardinal/request. Accessed December 1, 2025.

[37] Zuzak, C., Sheehan, A., Goodenough, E., McDougall, A., Stanton, C., McGuire, P., Mowrer, M., Roberts, B., & Rozelle, J. (2023). National Risk Index: Technical Documentation. In Federal Emergency Management Agency, FEMA.gov. Retrieved May 28, 2024, from https://www.fema.gov/sites/default/files/documents/fema_national-risk-index_technical-documentation.pdf

Table 5-23: NRI Heat Wave Annualized Frequency, EAL total, EAL Score, and Hazard Risk Index Score.

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Duplin County	**1.05**	**$565,669**	**70.18**	**Relatively High**	**74.47**	**Relatively High**
Beulaville	1.05	$55,167	74.24	Relatively High	78.29	Relatively High
Calypso	1.05	$20,182	68.49	Relatively High	77.15	Relatively High
Faison	1.05	$20,182	68.49	Relatively High	77.15	Relatively High
Greenevers	1.05	$17,277	65.45	Relatively High	71.26	Relatively High
Kenansville	1.05	$49,371	72.43	Relatively High	76.62	Relatively High
Magnolia	1.05	$51,287	73.14	Relatively High	77.01	Relatively High
Rose Hill	1.05	$42,784	69.29	Relatively High	74.76	Relatively High
Teachey	1.05	$27,162	74.31	Relatively High	80.21	Very High
Wallace	1.05	$87,448	69.60	Relatively High	72.16	Relatively High
Warsaw	1.05	$46,951	71.42	Relatively High	80.00	Very High
Unincorporated Area	1.05	$147,858	68.34	Relatively High	70.55	Relatively High
Sampson County	**1.17**	**$663,442**	**74.21**	**Relatively High**	**77.14**	**Relatively High**
Autryville	1.18	$19,907	68.24	Relatively High	63.45	Relatively High
Clinton	1.18	$192,052	79.06	Relatively High	83.84	Very High
Garland	1.18	$33,687	78.49	Relatively High	85.97	Very High
Harrells	1.11	$31,073	63.11	Relatively High	65.30	Relatively High
Newton Grove	1.18	$12,502	58.69	Relatively Moderate	60.68	Relatively High
Roseboro	1.18	$30,380	76.46	Relatively High	79.99	Relatively High
Salemburg	1.18	$12,859	59.30	Relatively Moderate	58.93	Relatively Moderate
Turkey	1.18	$19,411	67.75	Relatively High	71.26	Relatively High
Unincorporated Area	1.18	$311,570	78.50	Relatively High	81.24	Very High

5.5.6 Consequence and Impact Analysis

5.5.6.1 People

Extreme heat can affect people's health, leading to increased heat stroke cases and even loss of human life. Staying hydrated and avoiding strenuous outdoor exercise during extreme heat can help prevent adverse health risks. Individuals with underlying health issues or those located in rural areas may be vulnerable due to medical access issues. Residents who have a disability (14.6% in Sampson County and 17.3% in Duplin County)[38] or an independent living difficulty (7.1% in Sampson County and 8.4% in Duplin County) may require assistance in the event of

[38] U.S. Census Bureau, U.S. Department of Commerce. "Disability Characteristics." American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1810, https://data.census.gov/table/ACSST5Y2023.S1810

an extreme heat event. Individuals with limited mobility may require assistance to access resources and could be at an increased risk of heat-related illnesses (HRI), hospitalization, and death as a result of extreme heat impacts.

Due to increased strain on the power supply during extreme heat events, residents may experience power outages and a loss of the ability to adequately power cooling devices. Residents who do not have access to a vehicle in their housing unit (5.0% in Sampson County and 5.8% in Duplin County)[39] may be at increased risk of significant injury or death in the event of a power outage during extreme heat events, as access to resources without a vehicle can be limited by travel and other factors.

Technology has become an important tool for issuing extreme heat warnings, distributing extreme heat preparedness information, and communicating with friends, family, neighbors, and emergency services. This includes communication through telephone, through computing devices, or over the internet. An estimated 16.9% of households in Sampson County and 20.9% of households in Duplin County do not have an internet subscription, and it is also estimated that 11.7% of housing units in Sampson County and 11.9% in Duplin County do not have computing devices, further limiting the methods of accessing public awareness information for these residents. Additionally, in Sampson County, an estimated 0.9% of housing units lack telephone service, and the jurisdictions with the highest percentages are Autryville (13.4%) and Salemburg (3.9%).[40] In Duplin County, an estimated 0.6% of housing units lack telephone service, with Magnolia and Beulaville having the highest estimated percentages at 5.2% and 3.1%, respectively. Without access to a computing device or an internet subscription, these residents are at increased risk of experiencing the impacts of extreme heat.

5.5.6.2 Changes in Development or Housing Characteristics

Between 2013 and 2023, Sampson County and Duplin County experienced 5.22% and 7.02% decreases, respectively, in the number of housing units, which could be due to reclassifications, demolitions, or zoning changes. However, future development can lead to greater infrastructure that absorbs heat, creating the heat island effect, which can form under many conditions, including in small cities, large cities, and suburban areas. This is due to reduced natural landscapes, which generally provide natural cooling, shade, and moisture to mitigate extreme heat impacts; increased absorption of solar energy by human-made materials; and heat generated by human activities.[41]

5.5.6.3 Economy

All major industries in the planning area require power availability and would be impacted by an extreme heat event that causes power interruptions or outages. Increasing power demand can

[39] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Housing Characteristics. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP04

[40] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Housing Characteristics. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP04

[41] US Environmental Protection Agency. (2025, April 3). What are heat islands? US EPA. Retrieved July 17, 2025, from https://www.epa.gov/heatislands/what-are-heat-islands

also raise power costs during peak periods, negatively impacting businesses in the planning area by increasing utility costs. Individuals working outdoors during extreme heat events in professions such as construction, landscaping, agriculture, and public safety face an increased risk of heat-related illnesses.

5.5.6.4 Natural Environment

Extreme heat can impact the environment in the planning area by damaging sensitive vegetation. When trees are replaced with impervious surfaces and materials in urban areas, it contributes to the heat island effect. Urban forests (street trees and wooded areas) can mitigate heat islands, reducing local air temperatures by up to 9°Farenheit.[42] As development increases in the planning area, the natural environment and the urban heat island effect are likely to be affected.

5.5.6.5 First Responders

Extreme heat events may lead to increased wildfire occurrence, which could impact first responders in the planning area by increasing wildfire incidents and increasing their risk of HRI.

5.5.6.6 Future Conditions

According to the NCCSR[43], the years between 2009 and 2018 have been the warmest 10-year period in NC, with an average of 0.6°F warmer than the warmest decade of the 20th century between 1930 and 1939. The NCCSR also states that temperatures in NC are very likely to increase across all seasons, with projected increases of 6-10°F (in the higher scenario) and 2-6°F (in the lower scenario). Other notable projections show that the number of warm nights (nighttime minimum temperature of 70°F or higher) and very warm nights (nighttime minimum temperature of 75°F or higher) is very likely to increase. The NCCSR reports that it is very possible that summer heat index values and humidity will increase, and that the number of hot (daytime maximum temperature of 90°F or higher) and very hot (daytime maximum temperature of 95°F or higher) days will likely increase.

[42] U.S. Department of Health and Human Services Centers for Disease Control and Prevention. Extreme Heat Can Impact Our Health in Many Ways. Retrieved from: https://www.cdc.gov/climateandhealth/pubs/EXTREME-HEAT-Final_508.pdf

[43] North Carolina Institute for Climate Studies [NCICS]. (2020). North Carolina Climate Science Report. NCICS Retrieved January 29, 2025, from https://ncics.org/wp-content/uploads/2020/10/NC_Climate_Science_Report_FullReport_Final_revised_September2020.pdf

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 the eastern Pacific Ocean. All Atlantic and Gulf of Mexico coastal areas are subject to hurricanes. The Atlantic hurricane season runs from June to November, with peak activity 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 intensify as sustained wind speeds increase. The progression of a tropical disturbance is described below.

- **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.

Hurricanes and tropical storms are classified as cyclones. They are characterized by a closed circulation around a low-pressure center, with winds rotating counterclockwise in the Northern Hemisphere (or clockwise in the Southern Hemisphere), and a diameter of 10 to 30 miles. A tropical cyclone refers to any such circulation that develops over tropical waters. Tropical cyclones function 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 poleward 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, the Caribbean Sea, and the Gulf of Mexico during the official Atlantic hurricane season, which runs from 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. The National Hurricane Center in Miami, Florida, closely monitors it. 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 intensity from 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 5-24. This scale estimates potential property damage. Hurricanes reaching Category 3 or higher are considered major hurricanes due to their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous and require preventive measures.

***Table 5-24**: 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 5-25 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 5-25**: 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	

Storm Category	Damage Level	Description of Damages	Photo Example
		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

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 landfalling hurricanes and tropical storms, their impact can be felt hundreds of miles inland. The entire Region is equally susceptible to hurricanes and tropical storms. The maps below show all past hurricane paths through the Region.

The following hurricane hazard maps represent the NRI EAL. The NRI utilizes NOAA's National Centers for Environmental Prediction HURDAT2 Best Track Data Archive[44] from 1851 to 2020 to calculate the risk values and related risk data, which includes the EAL displayed by census track in the maps below. The maps below also include the International Best Track Archive for Climate Stewardship (IBTRACS),[45] which represent the location, intensity, and path of tropical cyclones from the 1840s to the present in 3-hour intervals, if available. Other data parameters may also be included in the records, depending on the source data agency.

[44] National Oceanic and Atmospheric Association [NOAA] & National Hurricane Center [NHC]. (2021). HURDAT2 Best Track Data Archive [Dataset]. In NHC.NOAA.gov. https://www.nhc.noaa.gov/data/

[45] Gahtan, J., Knapp, K., Schreck, C., Diamond, H., Kossin, J., & Kruk, M. (2025). International Best Track Archive for Climate Stewardship (IBTRACS) Project [Dataset]. In National Oceanic and Atmospheric Administration [NOAA], National Centers for Environmental Information (NCEI). NCEI. https://doi.org/10.25921/82ty-9e16

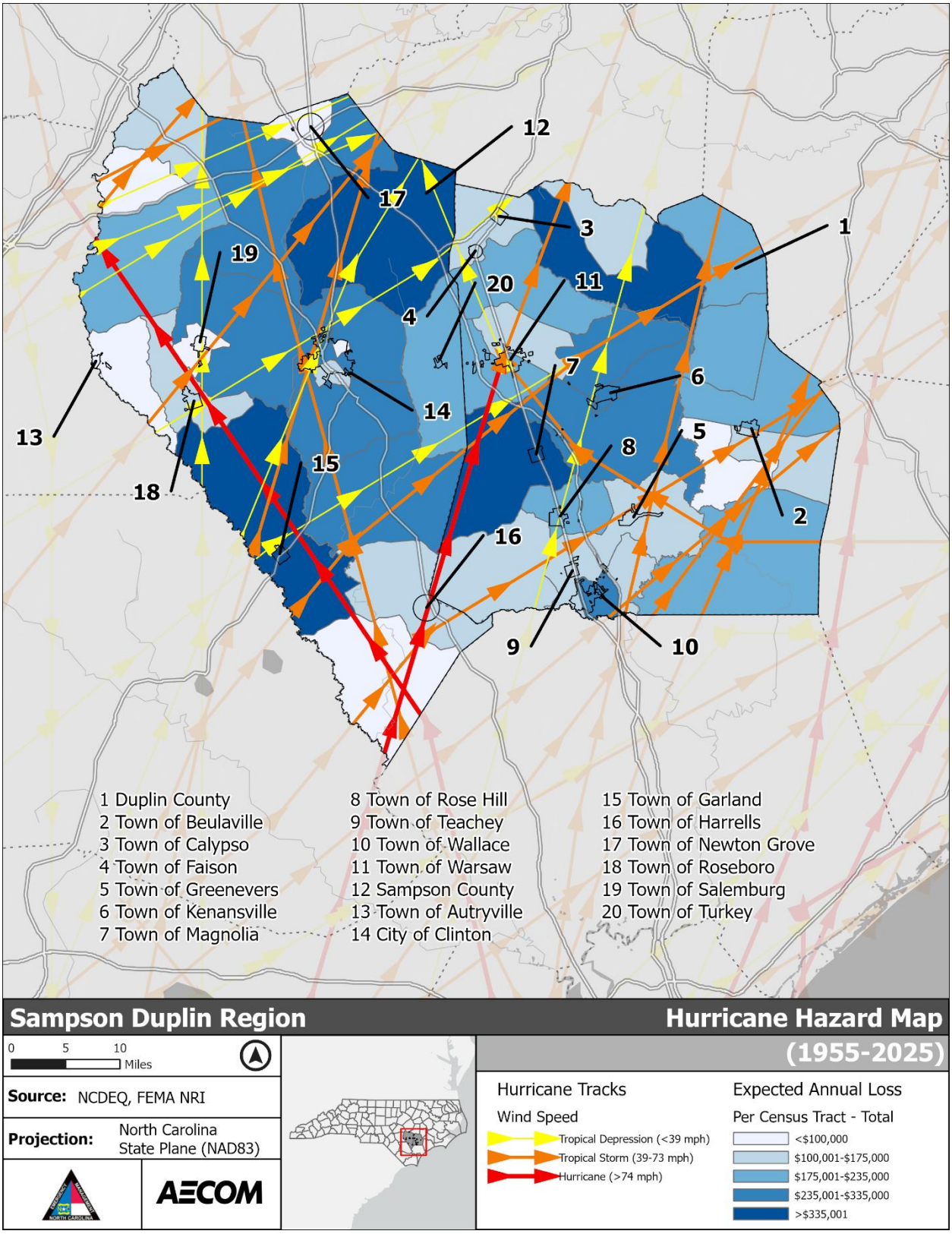


***Figure 5-56**: Sampson-Duplin Hurricane Hazard Map - Regional*

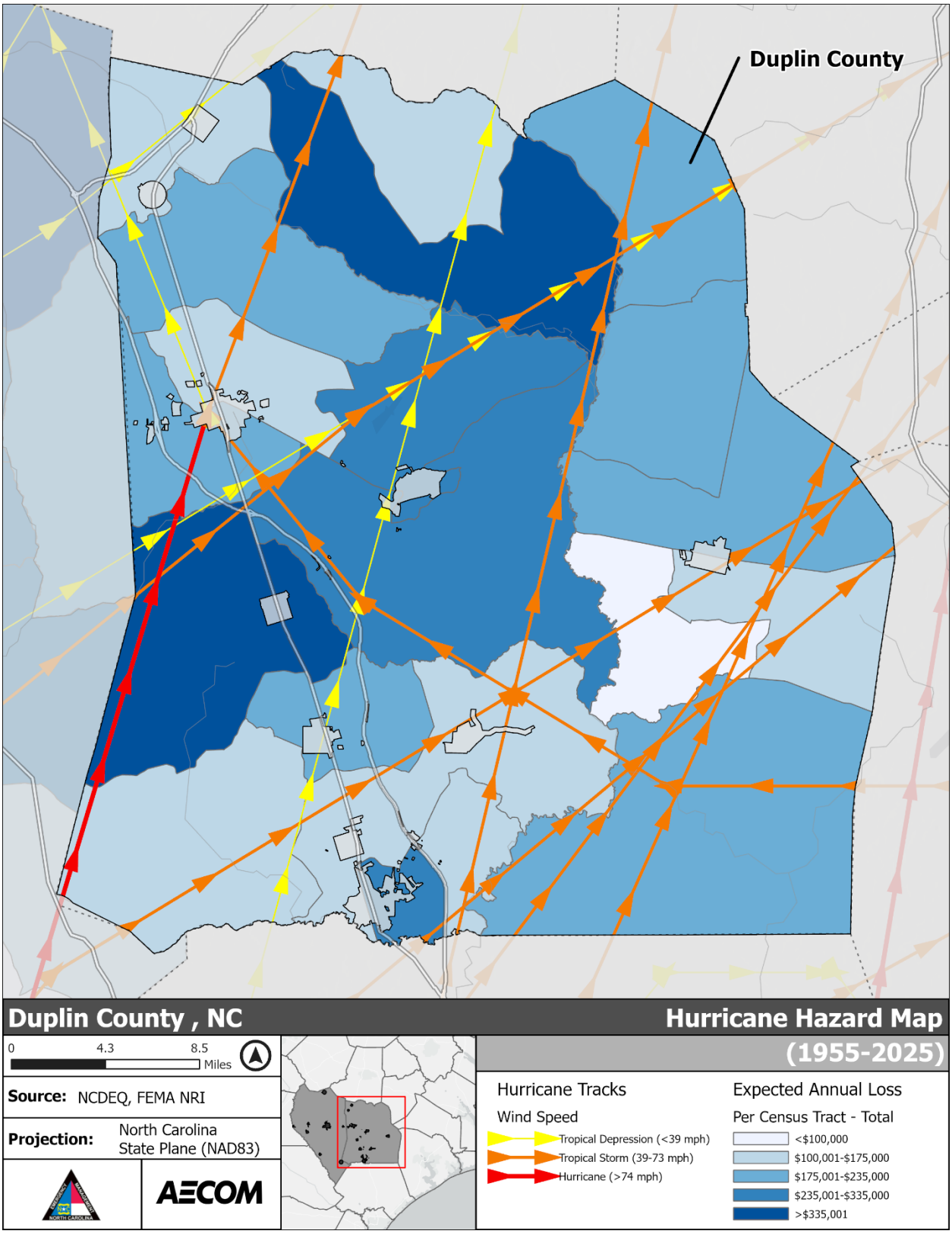


***Figure 5-57**: Duplin County Hurricane Hazard Map*

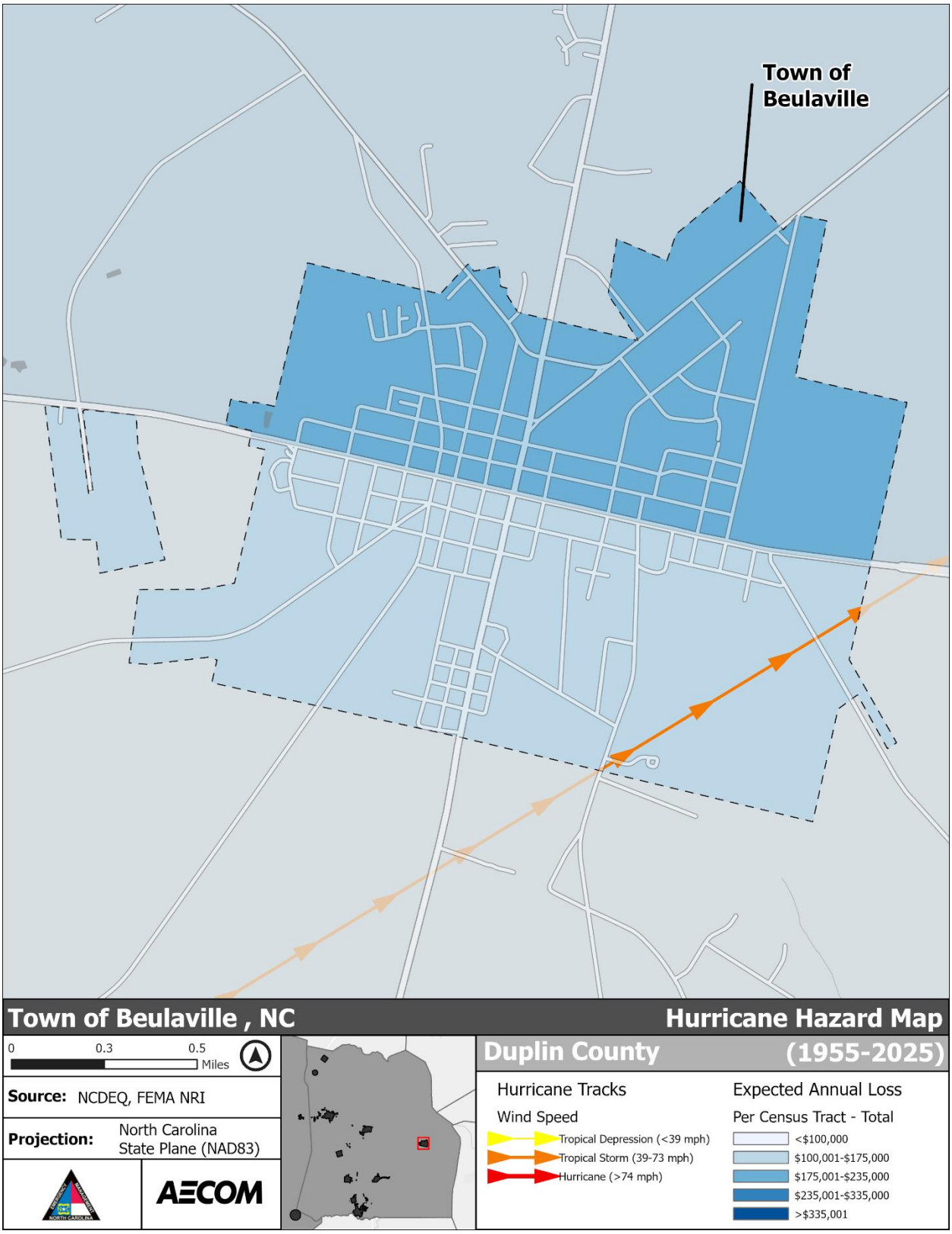


***Figure 5-58**: Town of Beulaville Hurricane Hazard Map*

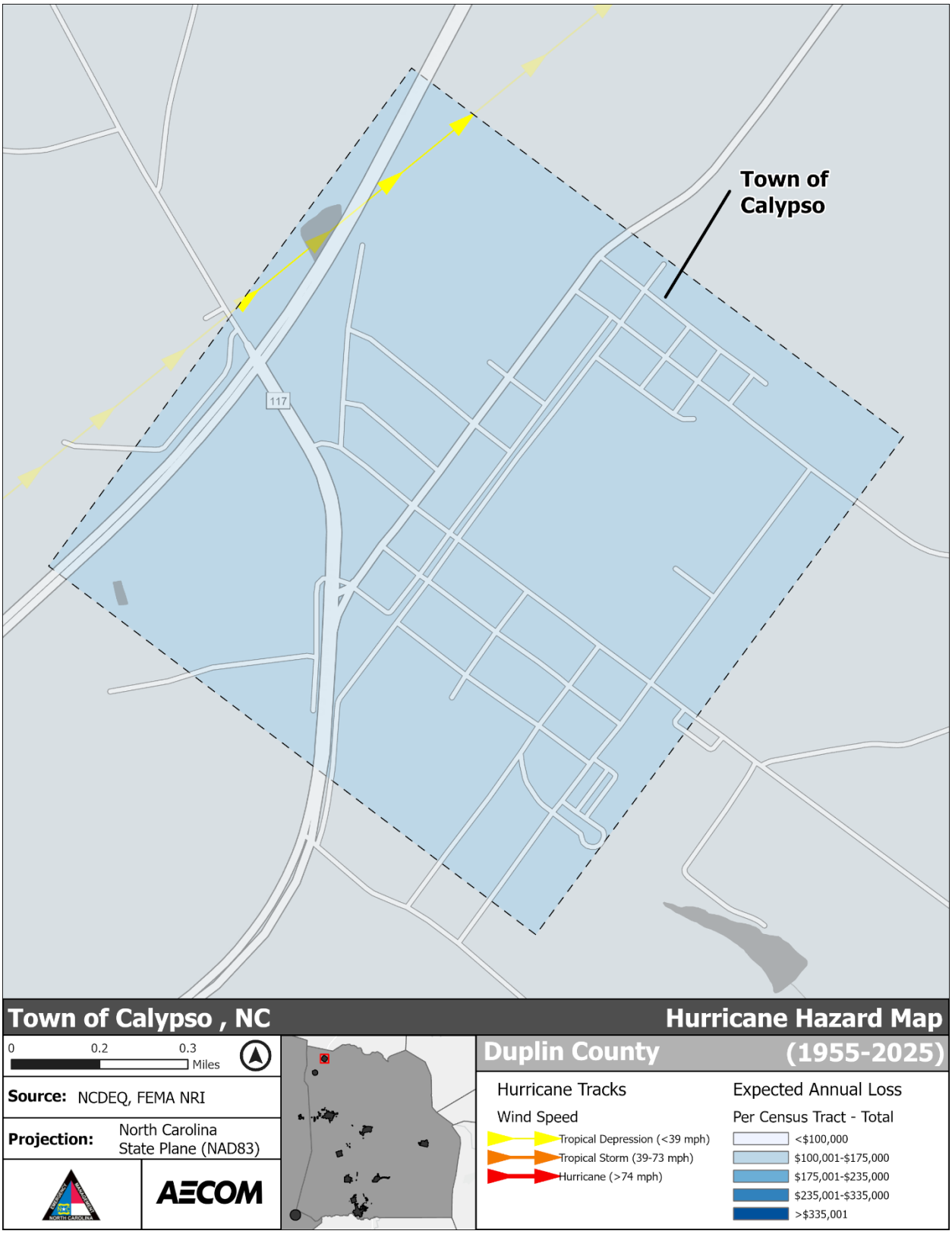


***Figure 5-59**: Town of Calypso Hurricane Hazard Map*

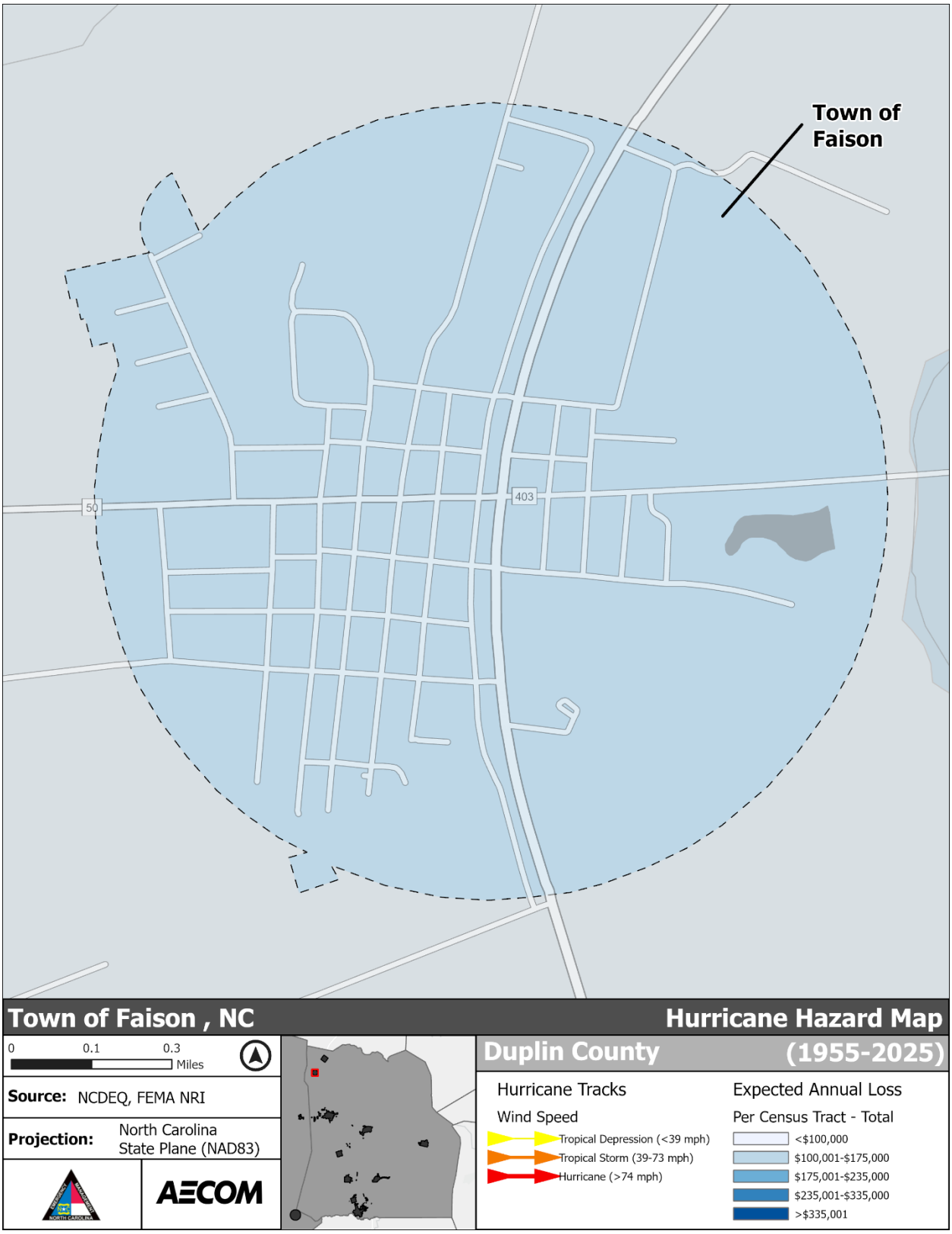


***Figure 5-60**: Town of Faison Hurricane Hazard Map*

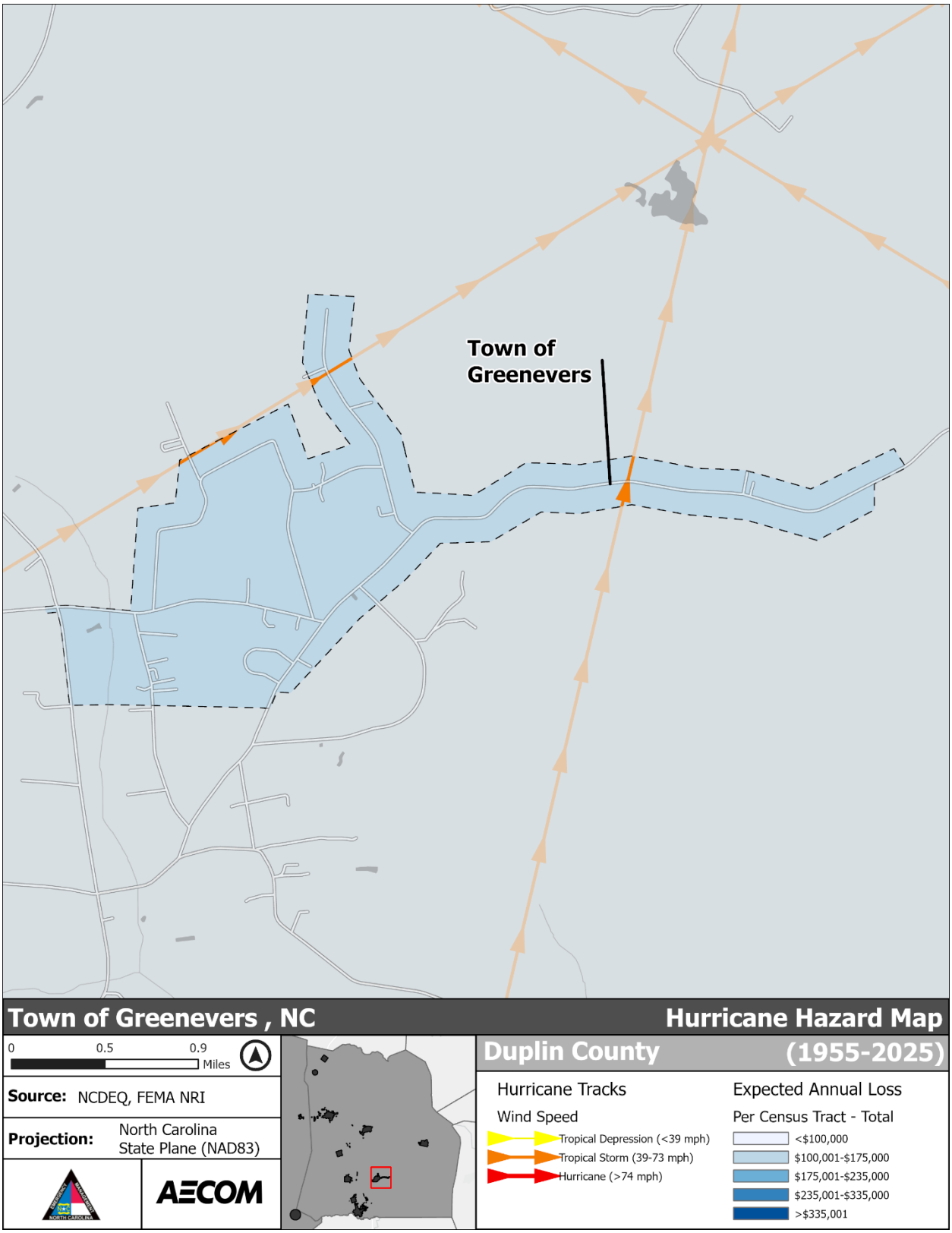


***Figure 5-61**: Town of Greenevers Hurricane Hazard Map*

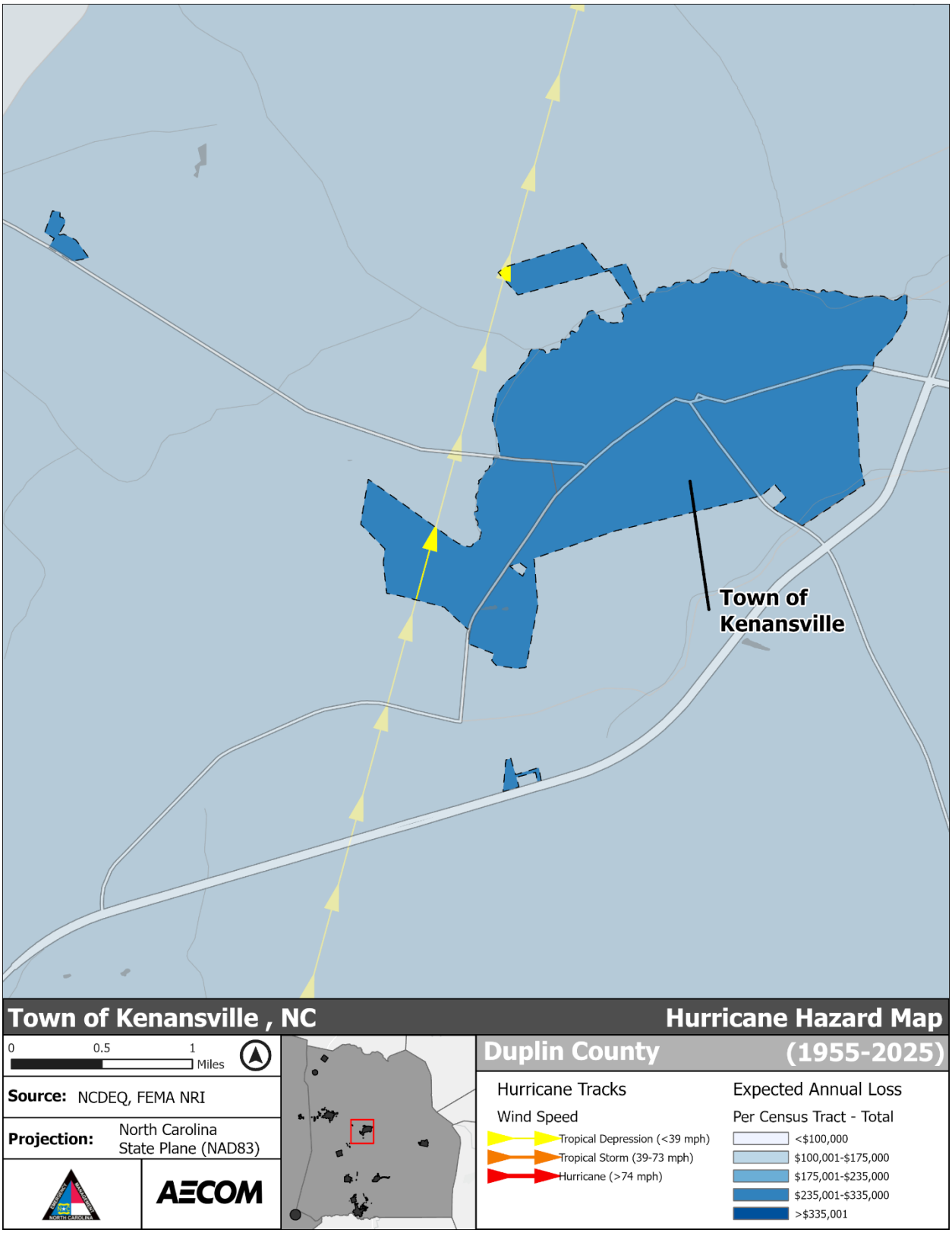


***Figure 5-62**: Town of Kenansville Hurricane Hazard Map*

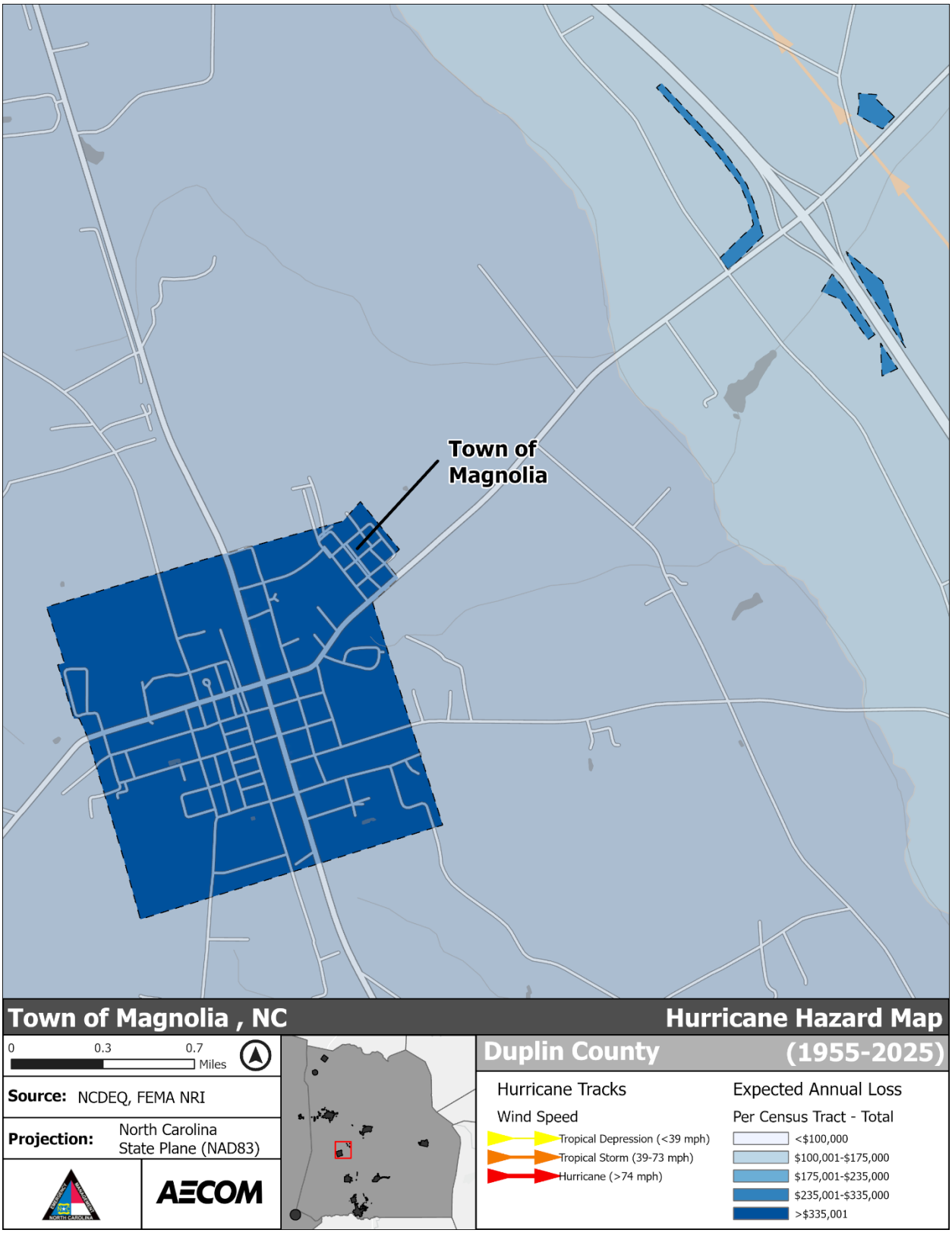


***Figure 5-63**: Town of Magnolia Hurricane Hazard Map*

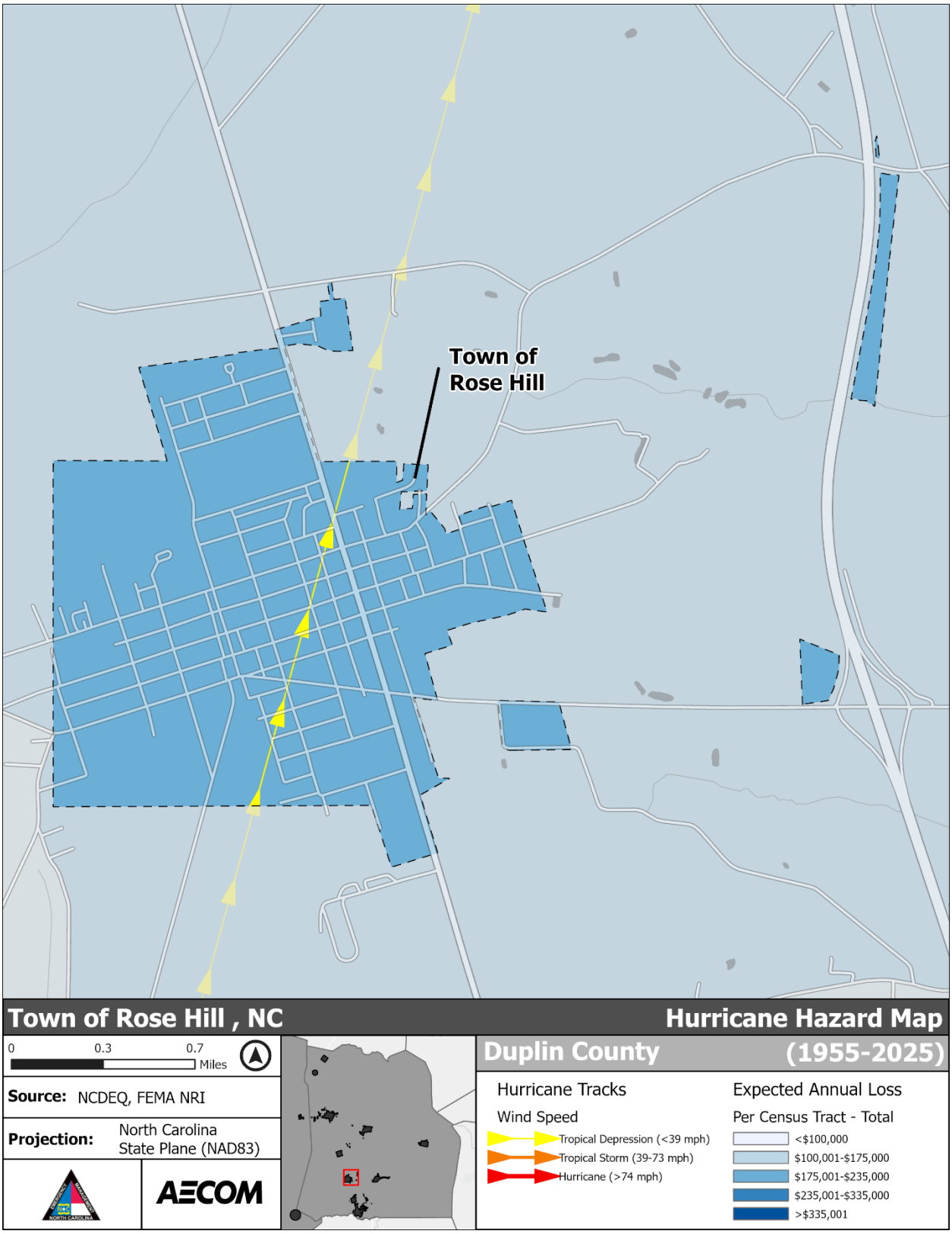


***Figure 5-64**: Town of Rose Hill Hurricane Hazard Map*

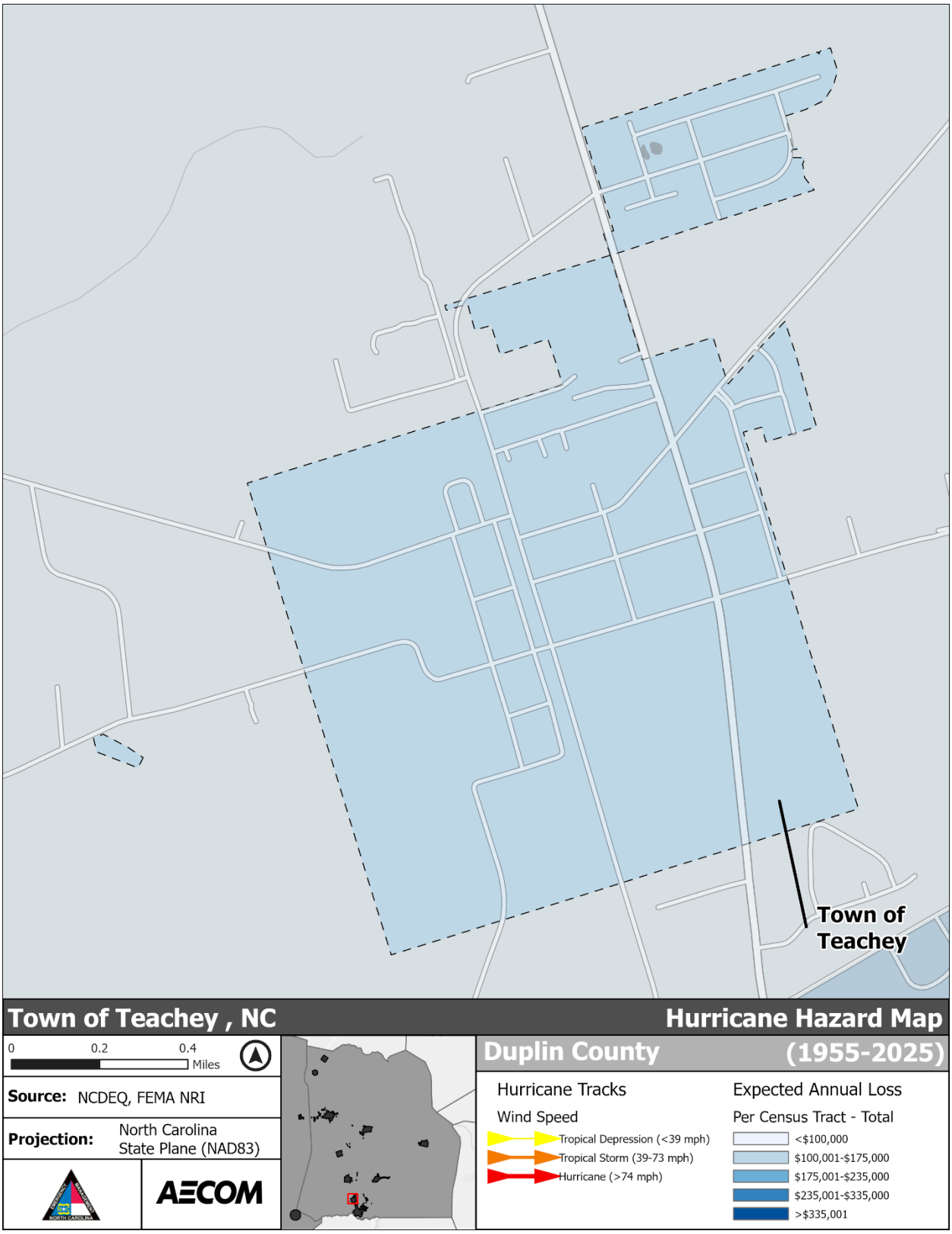


***Figure 5-65**: Town of Teachey Hurricane Hazard Map*

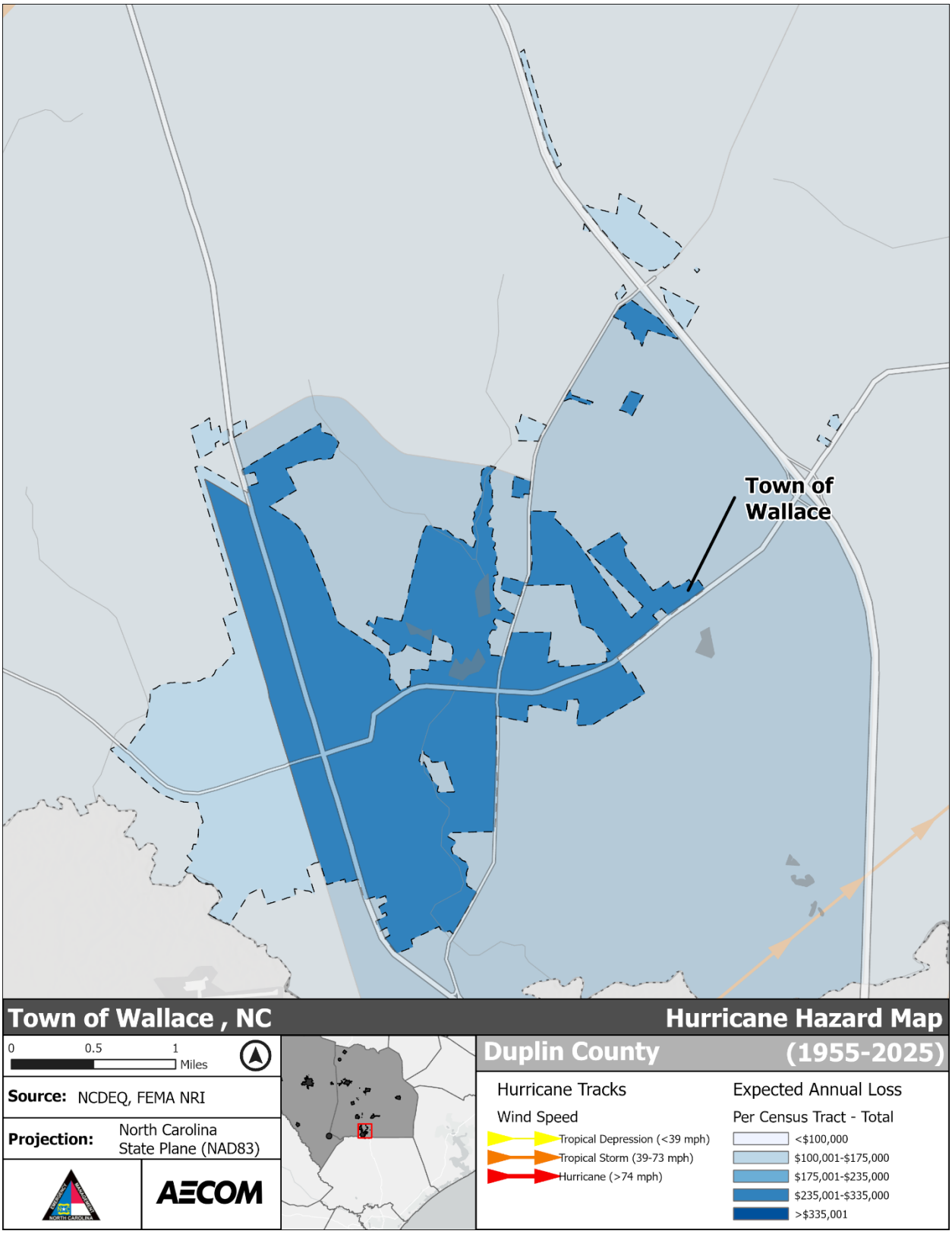


***Figure 5-66**: Town of Wallace Hurricane Hazard Map*

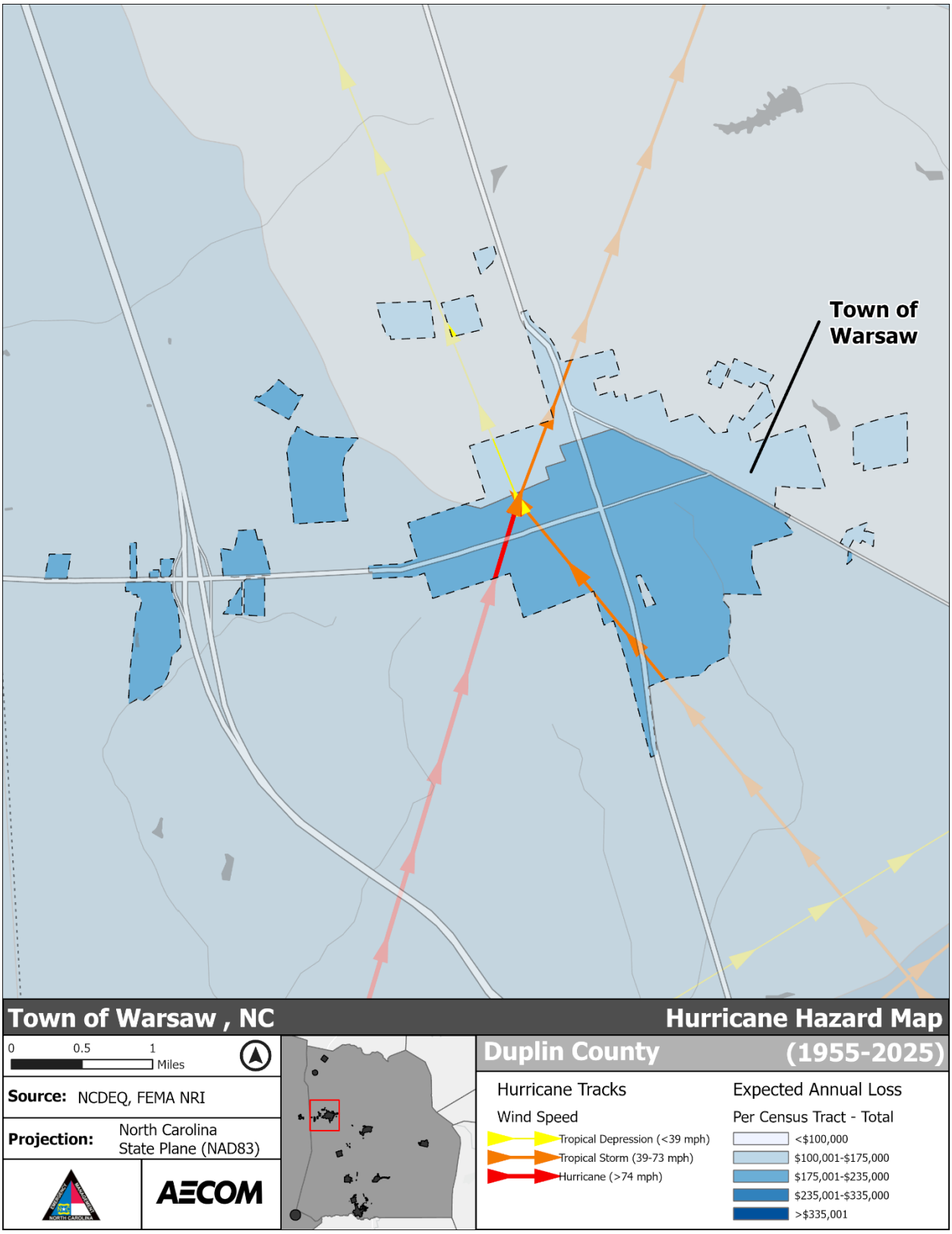


***Figure 5-67**: Town of Warsaw Hurricane Hazard Map*

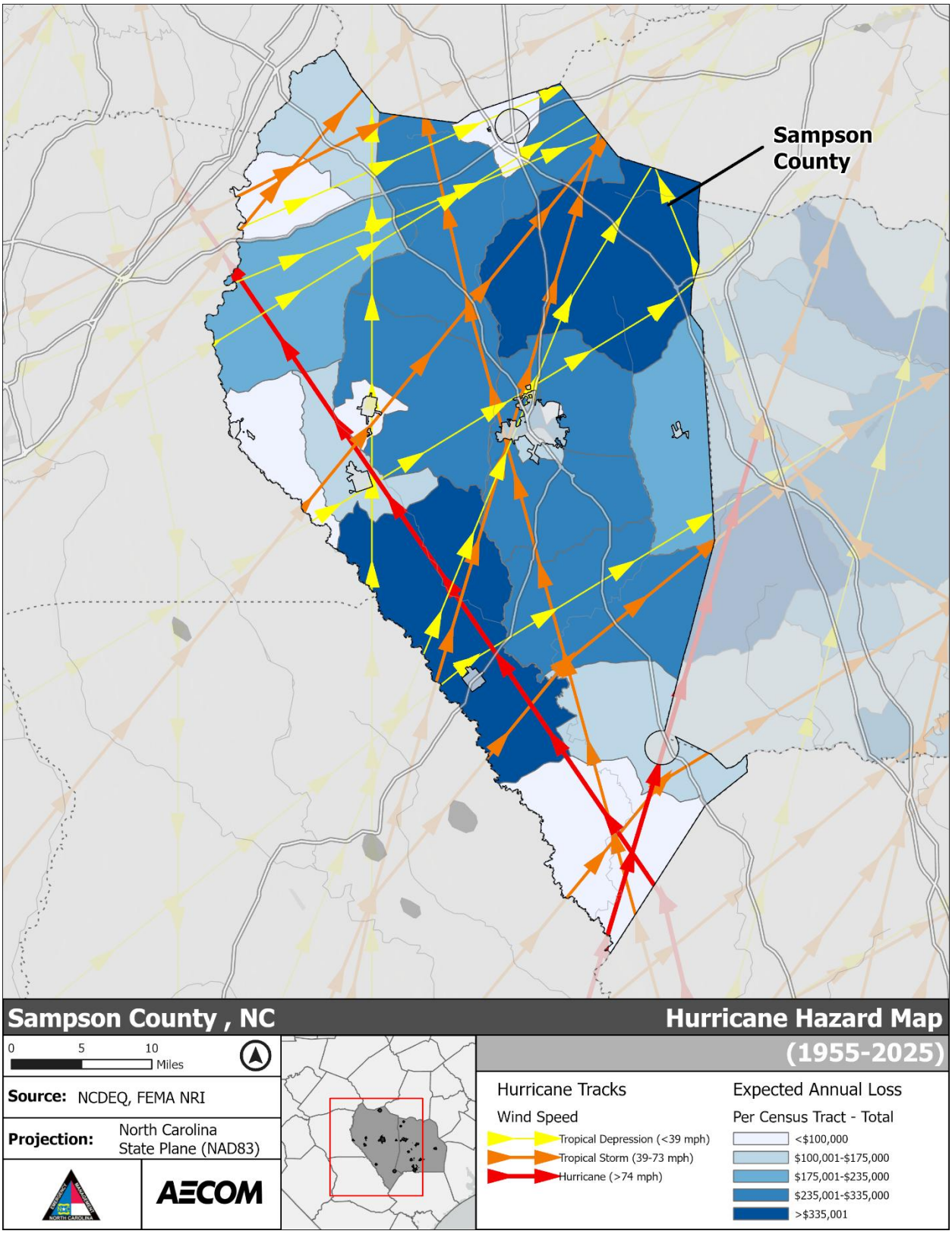


***Figure 5-68**: Sampson County Hurricane Hazard Map*

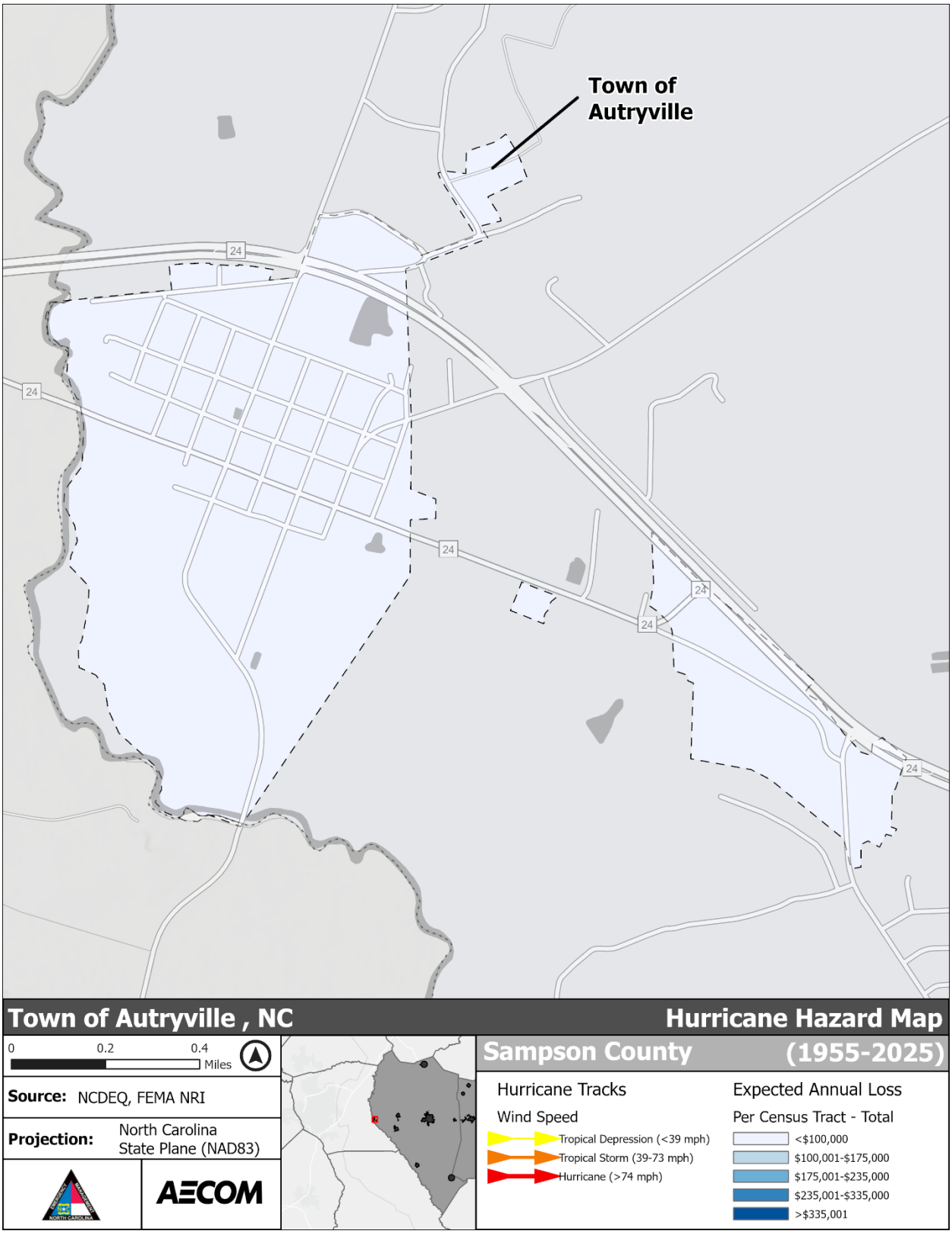


***Figure 5-69**: Town of Autryville Hurricane Hazard Map*

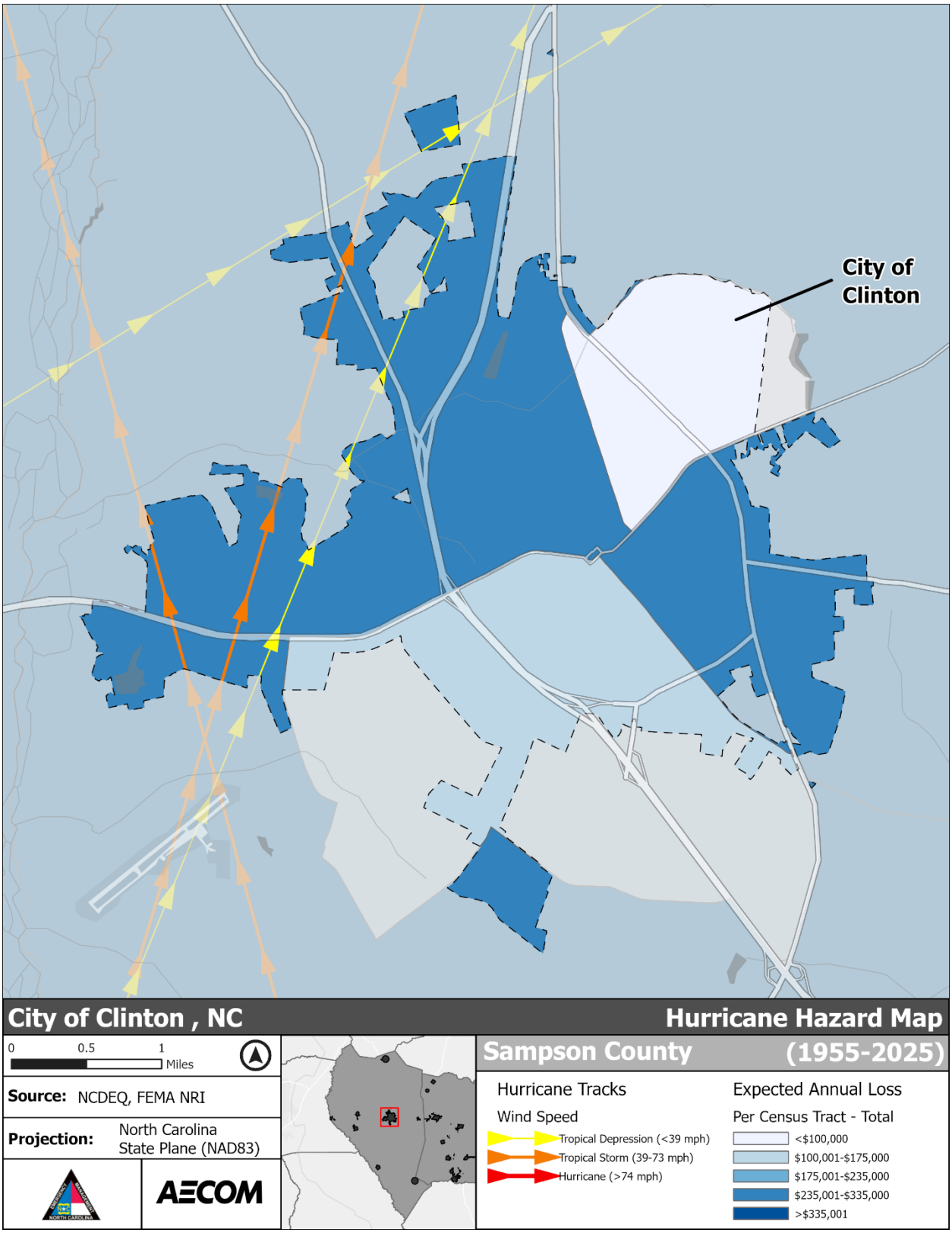


***Figure 5-70**: City of Clinton Hurricane Hazard Map*

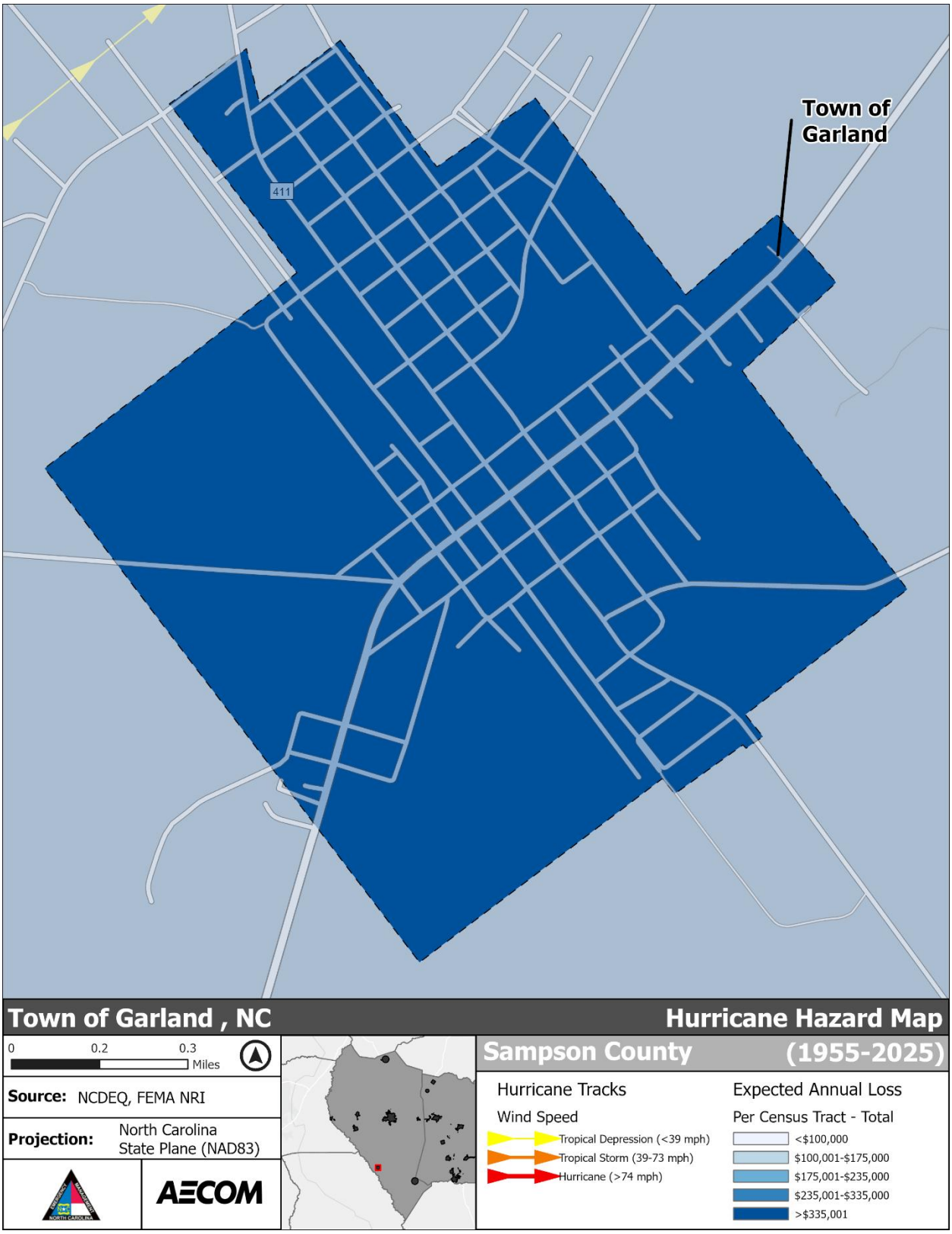


***Figure 5-71**: Town of Garland Hurricane Hazard Map*

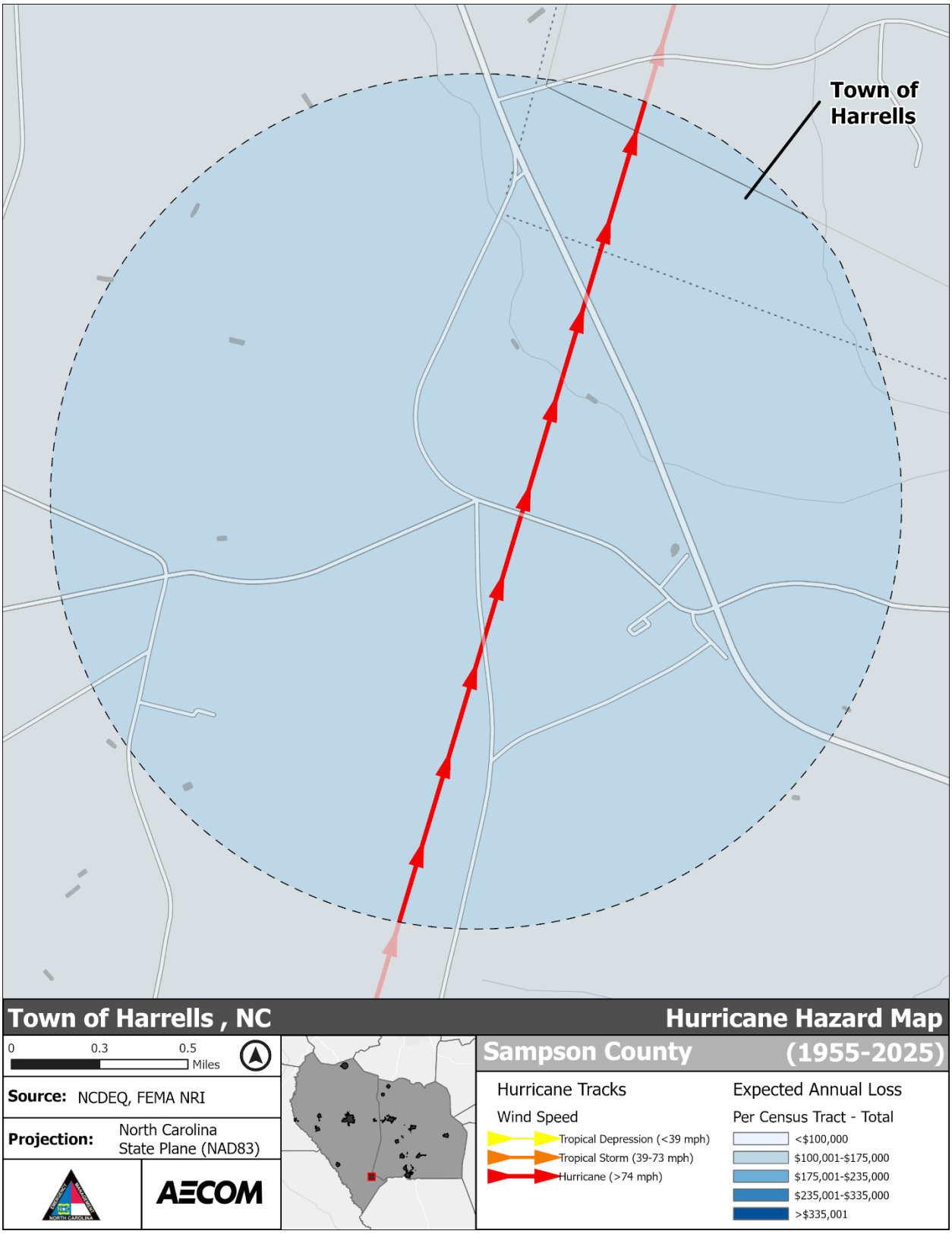


***Figure 5-72**: Town of Harrells Hurricane Hazard Map*

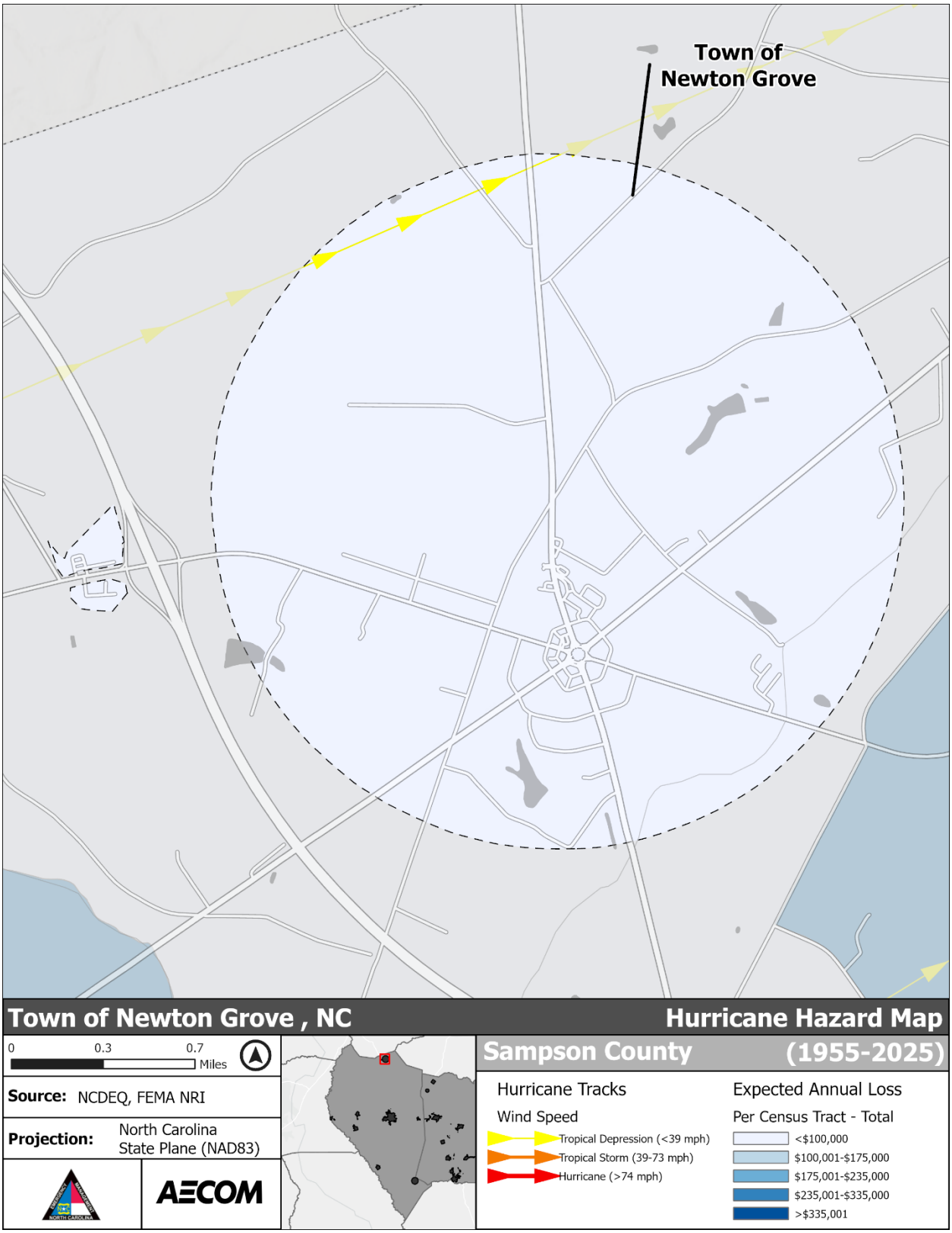


***Figure 5-73**: Town of Newton Grove Hurricane Hazard Map*

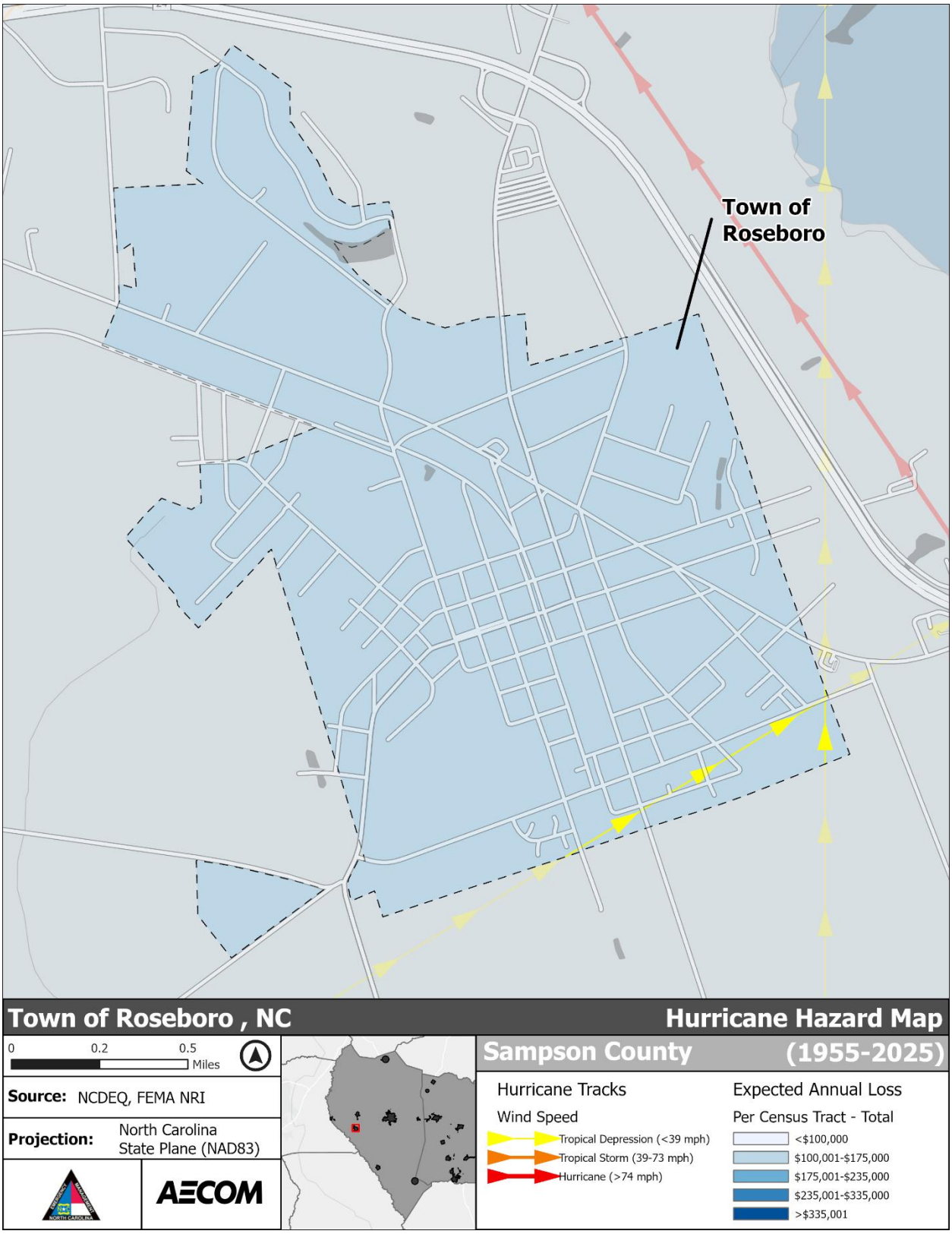


***Figure 5-74**: Town of Roseboro Hurricane Hazard Map*

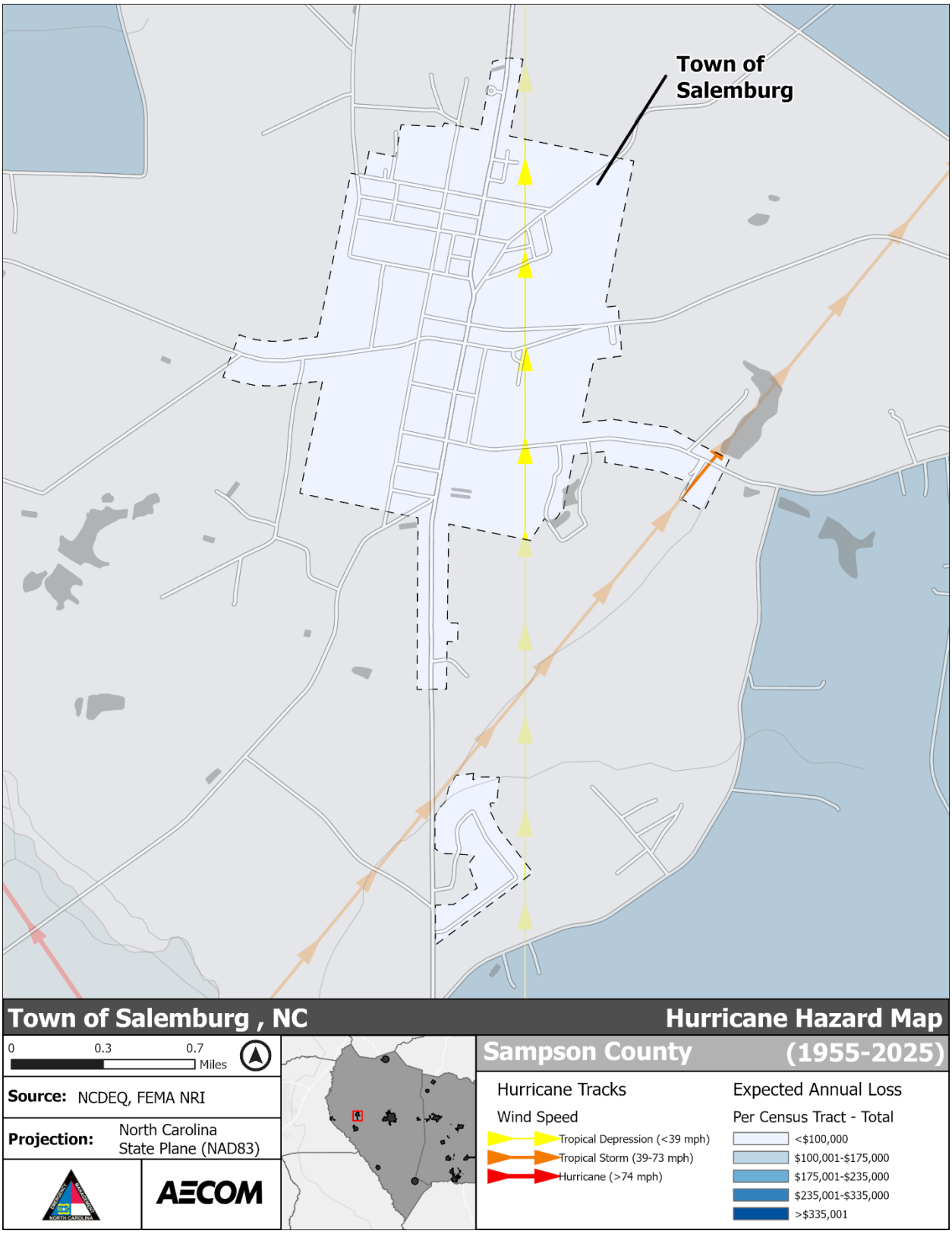


***Figure 5-75**: Town of Salemburg Hurricane Hazard Map*

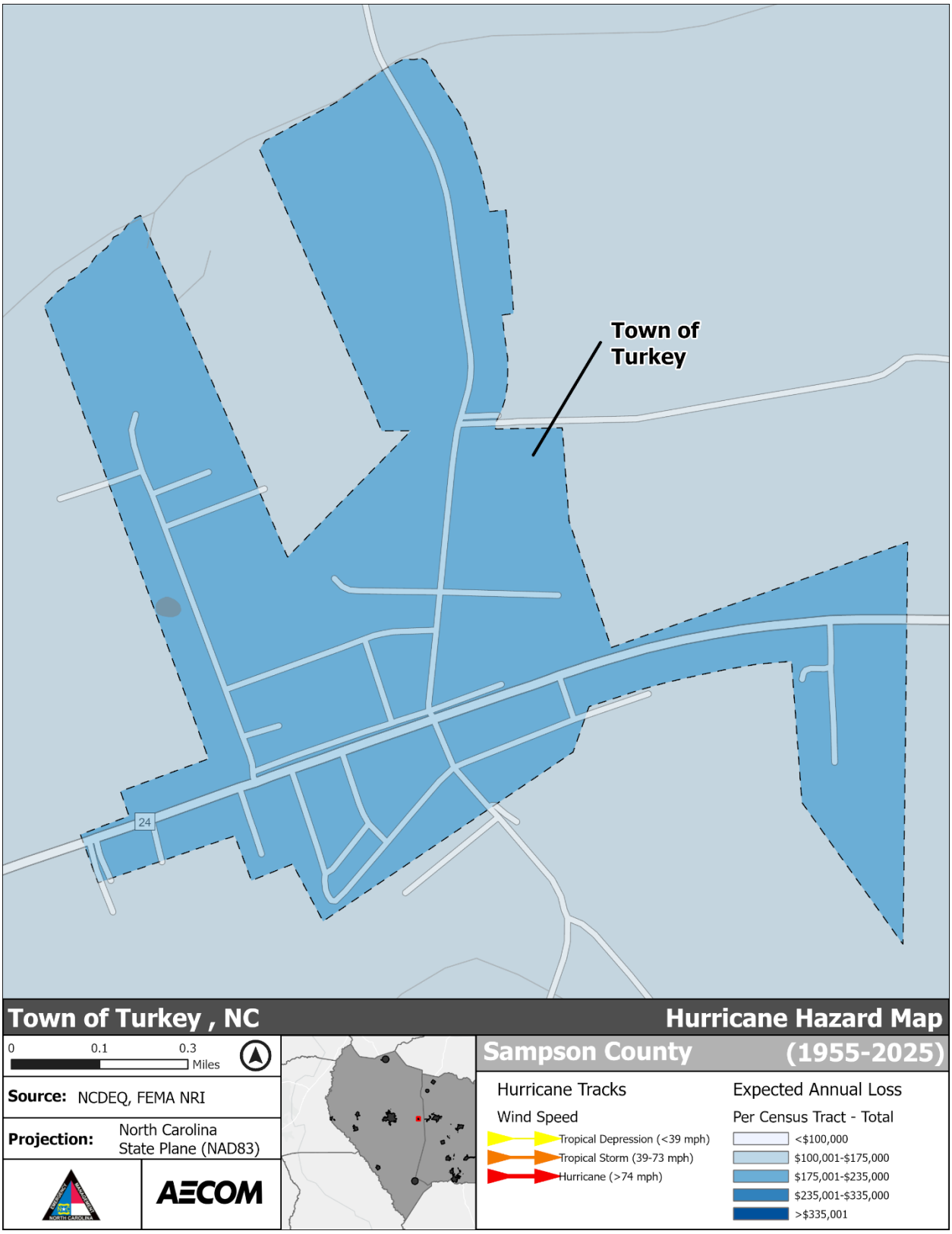


***Figure 5-76**: Town of Turkey Hurricane Hazard Map*

5.6.3 Extent

Hurricane extent is defined by the Saffir-Simpson Scale, which classifies hurricanes into Category 1 through Category 5. The greatest hurricane impact the Region has experienced was Hurricane Isaias, which was classified as a Category 1 hurricane and carried tropical-force winds of 75 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:

- Duplin County and all jurisdictions: Hurricane Isaias (75 knots)
- Sampson County and all jurisdictions: Hurricane Isaias (75 knots)

5.6.4 Past Occurrences

Flooding and high winds are both hazards of concern during hurricane and tropical storm events in the Region, as evidenced by the differences in impacts from Hurricanes Fran and Floyd. Whereas Floyd's effects were primarily due to flooding, Fran's high winds caused damage throughout the county in conjunction with flooding impacts. Some anecdotal information is available for the major storms that have impacted the area, as found below:

***Table 5-26**: Hurricanes and Tropical Storms Reported from 2000 to 2018 by the NCEI Storm Events Database*[46]

County	Date	Event Name	Damages	Event Narrative	Episode Narrative
Duplin	9/17/2003	Hurricane Isabel	Property Damage: $200,000 Crop Damage: $50,000	Hurricane Isabel made landfall early in the afternoon on September 18th as a Category 2 hurricane across Core Banks in extreme eastern Carteret County. Isabel moved north-northwest near 20 mph across eastern North Carolina during the afternoon. Areas mainly near and east of the storm center experienced significant wind and storm surge effects. Major ocean over wash and beach erosion occurred along the North Carolina Outer Banks, where waves up to 20 feet accompanied a 6-to-8-foot storm surge. Almost 350 million dollars in damage occurred in Dare County alone, where several thousand homes and businesses, several piers, and sections of Highway 12 were damaged or washed away. Eastern Carteret, eastern Pamlico, southern Craven, Beaufort, and Hyde counties experienced significant storm surge damage, with hundreds of homes flooded in most of these counties. The highest storm surges were experienced in the lower reaches of the Neuse River, where water levels rose to as high as 10.5 feet at the mouth of Adams Creek. Storm surge values ranged from 6 to 10 feet across eastern Pamlico County, with the highest water levels recorded near Oriental. A 4-to-7-foot storm surge occurred across Core Sound in eastern Carteret County, except water levels rose between 8 and 10 feet along the South River and Big Creek. Storm surge values were around 7 feet in portions of Beaufort County in Washington and Belhaven. Virtually every business on Main Street in Belhaven was flooded with 2 to 3 feet of water. Storm surges of 2 to 6 feet occurred across Hyde County, with the highest water levels recorded in Swan Quarter, the southwest part of the county, where hundreds of homes and businesses flooded. Wind damage was more significant across Hyde, Washington, Tyrell, Martin, and the Outer Banks counties, where wind gusts reached around 100 mph. Hurricane-force winds resulted in structural damage to homes. Numerous trees and power lines were downed across these areas, resulting in power outages for several weeks in some locations. Hurricane-force winds were also experienced in parts of the inland counties of Jones, Craven, and Pitt counties during the afternoon of September 18th, where inland hurricane wind warnings had been in effect for 11 hours. Other counties west of the center of the storm experienced wind gusts between 60 and 65 mph.	

[46] Information [NCEI, N. C. for E. (n.d.). Storm Events Database. https://www.ncdc.noaa.gov/stormevents/

County	Date	Event Name	Damages	Event Narrative	Episode Narrative
Duplin	8/14/2004	Tropical Storm Charley	Property Damage: $100,000 Crop Damage: $250,000	Tropical Storm Charley moved northeast across the Coastal Plains of Eastern North Carolina during the afternoon hours on August 14th. Onslow County received the most damage, with estimates over $ 5 million, as winds gusted to near-hurricane force, toppling trees and power lines and causing structural damage to homes and businesses. Winds gusted from 60-70 mph across Inland areas near the center of the storm, resulting in wind damage to structures and damage to crops reaching into the millions. Winds gusted from 40 to 50 mph across locations across Eastern North Carolina, with minor wind damage reported. Storm surge values were highest along the Onslow County coastline, where a 2-to-3-foot surge was estimated, and 8-foot waves caused minor beach erosion along the south-facing beaches. Water levels rose to 2 feet across the lower reaches of the Neuse and the Pamlico Rivers, and across the Outer Banks. Storm total rainfall, estimated between 4 to 6 inches, occurred across a large part of the area, resulting in freshwater flooding in 7 counties across the Coastal Plains. Five weak tornadoes were reported across the area associated with Charley, with damage reported. The most significant damage related to a tornado occurred along the Outer Banks in Nags Head.	
Duplin	9/13/2005	Hurricane Ophelia	Property Damage: $5,000,000 Crop Damage: $3,000,000	Category one Hurricane Ophelia, with maximum sustained winds of 85 mph, approached the North Carolina coast on the 13th. The hurricane remained offshore, brushing the southern coastal counties of Onslow and Carteret on the 14th and 15th. The highest winds and damage occurred across this area, where winds gusted to near 100 mph, and storm surges of up to 6 feet resulted in structural damage totaling nearly 35 million dollars. The highest surge was reported along the lower reaches of the Neuse River in southern Craven County, where water levels rose to 8 feet, during the night of the 14th. Ophelia brushed by Outer Banks Hyde and Dare counties on the 16th with hurricane-force wind gusts, primarily across coastal Hyde County, where minor flooding and structural damage occurred. Minor wind damage occurred across the inland counties of Duplin, Jones, Lenoir, and Craven, where tropical storm force wind gusts blew shingles off roofs, and downed trees and power lines. The combination of a surge from Pamlico Sound and heavy storm total rainfall, from 4 to 9 inches, resulted in the flooding of streams, roads, and lower elevations in Beaufort, Carteret, Craven, Jones, Onslow, and Pamlico counties.	

County	Date	Event Name	Damages	Event Narrative	Episode Narrative
Duplin	8/31/2006-9/1/2006	Tropical Storm Ernesto	Property Damage: $100,000 Crop Damage: $14,000,000	Tropical Storm Ernesto produced flooding and high winds across the county. Emergency officials reported approximately 75 trees were uprooted. Three structures sustained damage as well. There were also numerous reports of road flooding from rainfall amounts of 4 to 6 inches. Finally, crop and livestock damage was estimated at $ 14.3 million. Tropical Storm Ernesto, with maximum sustained winds of 70 mph, made landfall on August 31st during the late evening hours. The strong tropical storm moved across the coastal plain region during the early morning hours on Friday, September 1st. In general, wind gusts ranged from 40 to 60 mph, with the highest gusts near 70 mph along the coastal sections of Onslow County. Minor storm surge flooding and beach erosion occurred along the Onslow and Carteret County coastline and the Neuse River. A more significant surge occurred along the Pamlico River in Beaufort County, prompting evacuations. Storm total rainfall ranged from 4 inches to nearly 10 inches. This heavy rainfall resulted in extensive freshwater flooding and eventual river flooding across the area, with some primary and many secondary roads flooded. The northeast Cape Fear River at Chinquapin remained in major flood from September 2nd through September 7th, flooding primary roads and homes and forcing the evacuation of many residents in the Chinquapin area. Heavy rainfall during the evening of August 31st through the early morning hours of September 1st resulted in extensive flooding of low-lying areas, roads, and streams across eastern North Carolina, mainly west of the Highway 17 corridor. Areal flood warnings were issued for most of the county warning area as Ernesto moved across the coastal plain counties of eastern North Carolina. Duplin County was hardest hit, with primary roads flooded, including a 12-mile stretch of Interstate 40. Many streams and roads across the coastal plain counties remained flooded for several days. Freshwater flooding and river flooding from Ernesto caused most of the damage across eastern North Carolina. The most significant storm surge effects occurred along the Pamlico and Pungo rivers in Beaufort County, where estimated water level rises of 4 to 6 feet resulted in flooding of many roads, low-lying areas, homes, and businesses in Washington, Whichard's Beach, and Belhaven. Highest wind gusts occurred in the coastal plain counties, with gusts near 70 mph along coastal Onslow County, with wind damage reported. Thirty homes and businesses were damaged, mainly by freshwater flooding, in Onslow County, with damage estimated at nearly 1/2 million dollars. Thirty homes were flooded or reported wind damage in Jones County, with damage estimates exceeding $100,000. Crop damage in Jones County was estimated at up to $ 5 million. Freshwater flooding was extensive in Duplin County, and significant river flooding occurred along the northeast Cape Fear River near Chinquapin, where several primary and many secondary roads were flooded for nearly one week. Evacuations of many homes and rescues due to high water were required across several locations across the county, especially near
Sampson			Crop Damages: $14,000,000		

County	Date	Event Name	Damages	Event Narrative	Episode Narrative
				Chinquapin. An estimated sound-side flooding of 3 feet occurred at Collington Harbor in Dare County, where several homes and businesses were flooded with an estimated fifty thousand dollars in damages. Minor wind or flooding damages were reported in many other counties in Eastern North Carolina. Three weak tornadoes were reported across Carteret and Onslow counties, causing minor damage.	
Duplin	9/5/2008	Tropical Storm Hanna	--	Winds of 60 mph brought down some trees and power lines, resulting in sporadic power outages across the county.	Tropical Storm Hanna moved across eastern North Carolina during the morning hours on September 6th, resulting in minor storm surge, beach erosion, and wind damage. Storm surge along the coast was estimated at 2 to 3 feet. Water levels rose 2 to 4 feet above normal along the lower reaches of the Neuse River and 4.5 feet above normal along the Pamlico River in Washington. Wind gusts near 60 mph resulted in sporadic power outages, with some trees and power lines down.
Duplin	8/26/2011	Hurricane Irene	Property Damage: $10,000,000 Crop Damage: $10,000,000	Across Duplin County...winds gusting as high as 60 mph resulted in downed trees and power lines with power outages. Storm total rainfall caused flooding on roads and in low-lying areas. Minor flooding occurred on the northeast Cape Fear River at Chinquapin. Significant damage occurred to structures and crops.	Hurricane Irene made landfall during the morning of the 27th, near Cape Lookout, as a large Category 1 hurricane on the Saffir/Simpson Hurricane Wind Scale. Due to the large size of the hurricane, strong, damaging winds, major storm surge, and flooding rains were experienced across much of eastern North Carolina. Several destructive tornadoes occurred during the evening of the 26th, associated with the hurricane. Millions of dollars in damage were reported across the area. Property and crop damage was estimated at 381 million dollars. Storm surge damage was estimated at $ 240 million. The lowest pressure, 950.6 millibars, was recorded in Duck at 2112 UTC on the 27th. The highest official sustained wind measured was 63 knots or 73 mph at Cedar Island at 1050 UTC on the 27th. The highest wind gust of 100 knots was recorded at the Cedar Island Ferry at 1150 UTC on the 27th. The highest storm surges of 8-11 feet occurred along the Pamlico Sound, and the lower reaches of the Neuse and Pamlico Rivers on the 27th. Storm total rainfall ranged from 5.2 to 15.74 inches across the area, with the heaviest rainfall across Pamlico, Beaufort, and Craven counties. Two direct fatalities occurred in Pitt County. One fatality was due to a

County	Date	Event Name	Damages	Event Narrative	Episode Narrative
					fallen tree on a house, and a second fatality resulted when a man drove into a tree. There were two indirect fatalities as well. In Beaufort Co. a woman with a pre-existing medical condition had an emergency as the hurricane began, and emergency personnel were unable to reach her for two hours due to downed trees and flooding. She passed away the following day. In Onslow County, a man died from a heart attack while boarding up before the hurricane.
Duplin	6/6/2013	Tropical Storm Andrea	--	Tropical Storm Andrea moved across the area on the 7th with wind gusts from 30-40 mph. Storm total rainfall near 5.0 inches resulted in minor localized flooding, with a few secondary roads closed.	Tropical Storm Andrea made landfall in the Florida Big Bend area during the late afternoon on June 6th. Andrea had the greatest impact across Eastern NC on June 7th as it moved inland across the region. The lowest pressure over land, 998.6 millibars, was measured at the Washington Airport in Beaufort County on June 7th at 2035 UTC. The lowest pressure over a marine area, 1001.3 millibars, was measured at Oregon Inlet at 2206 UTC. Maximum sustained winds 31 knots, 36 mph, occurred over land at Piney Island Bombing Range on June 7th at 1956 UTC. Maximum wind gusts, 46 knots, 53 mph, were measured there on the 7th at 2156 UTC. Maximum sustained winds, at a marine location, 38 knots or 44 mph, were measured at Oregon Inlet on June 7th at 2212 UTC. Maximum wind gusts, 46 knots or 53 mph, occurred at Cape Lookout on June 7th at 1800 UTC. Minor wind damage was mainly confined to trees. Storm total rainfall was highest across the coastal plains in Duplin County, southeast of Mount Olive, where 5 inches was measured through June 7th. Coastal locations received 2 to 3 inches of total rainfall from the storm. Minor localized flooding occurred inland, mainly across the coastal plain counties. Minor coastal flooding occurred along south-facing coastal and sound-side areas with very little beach erosion. A maximum storm surge of 2.33 feet or 3.45 ft storm tide was recorded at Oregon Inlet on June 8th at 0012 UTC. No dollar damages were reported, and there were no injuries or fatalities as a result of Tropical Storm Andrea.

County	Date	Event Name	Damages	Event Narrative	Episode Narrative
Sampson	9/2/2016	Tropical Storm Hermine	Property Damage: $10,000	Numerous trees and power lines were reported down across the county.	Tropical Storm Hermine tracked along the Southeast United States coastline and across coastal portions of the Carolinas. Tropical Storm Hermine produced heavy rain across portions of central North Carolina. However, due to dry antecedent conditions, no flooding occurred despite rainfall of 3 to 5 inches across the southeastern portions of central North Carolina. Given the rain and gusty winds associated with Hermine, there were numerous reports of downed trees and wind damage, resulting in power outages.

The following are descriptions of the five most recent hurricane or tropical storm events in the planning area in the NCEI Storm Events Database:

Hurricane Matthew - October 8, 2016

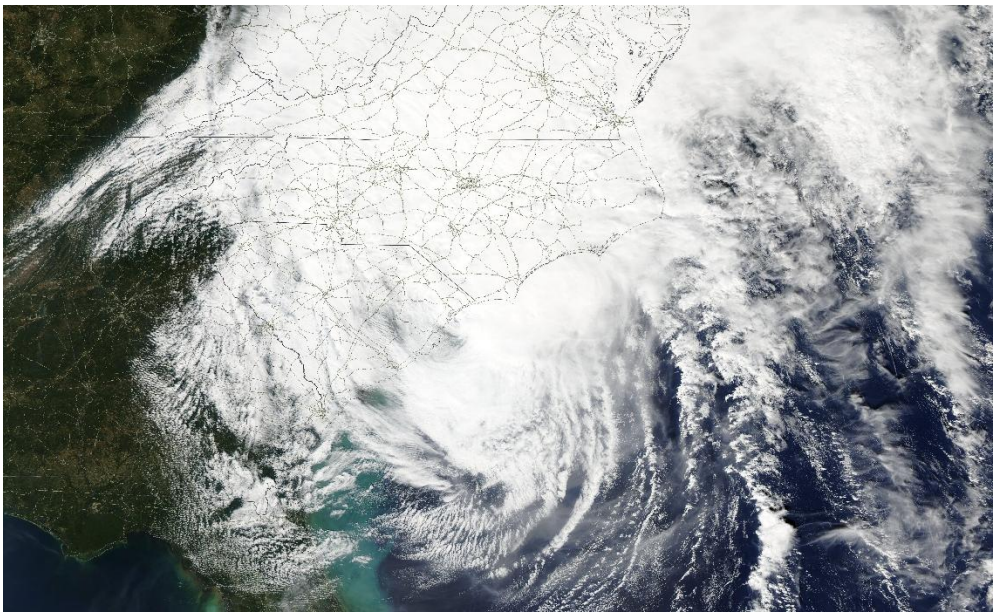


***Figure 5-77**: Hurricane Matthew from NASA Worldview Application*[47]

Hurricane Matthew, a Category 1 storm, moved up the eastern seaboard, bringing very heavy rain and strong winds. Rainfall of 12 inches or more occurred across multiple areas of the county, leading to river flooding that damaged roads, homes, and businesses in the planning area. Wind gusts reached 49 mph at Kenansville Airport, and storm-force winds combined with flooded ground caused widespread tree and power line damage. Widespread power outages were reported throughout the impacted regions. The river gauge at the Lumber River at Lumberton failed; however, high-watermark data from the U.S. Geological Survey indicated the water level may have reached over 25 feet, exceeding the previous record by more than 4 feet. There was no reported property damage or crop damage attributed to Hurricane Matthew in the planning area, according to the NCEI Storm Events Database. However, dozens of roads were closed due to flooding and washouts, leaving thousands in Sampson County without power.[48]

Hurricane Florence – September 2018

Hurricane Florence began as a tropical storm on September 1st over the Cape Verde Islands off the coast of West Africa. A ridge of high pressure stalled Florence's movement a few miles off the SE NC Coast on September 13 and eventually made landfall on September 15, weakening as it moved inland. 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, and, despite being weakened, still produced 40 to 75 mph gusts, uprooting trees

[47] NASA Worldview. (n.d.). Retrieved August 19, 2025, from https://worldview.earthdata.nasa.gov
[48] Disaster response continues in southern Sampson. (2016, October 11). Sampson Independent. https://www.clintonnc.com/news/13978/disaster-response-continues-in-southern-sampson

and causing power outages throughout the Carolinas. The storm moved inland, bringing 10 to 25 inches of rain and leading to widespread flooding; large stretches of I-40 and I-95 remained impassable for days after the storm had passed. 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 included a record-breaking storm surge of 9 to 14 feet and devastating rainfall of 20 to 30 inches, producing catastrophic, life-threatening flooding. Across the state, there were three direct deaths and six indirect deaths attributed to the hurricane.

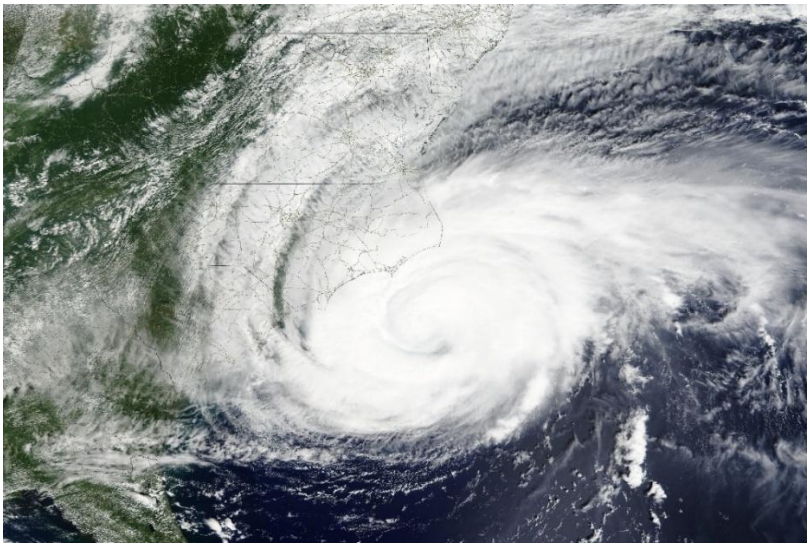


***Figure 5-78**: Hurricane Florence from September 13, 2018, from NASA Worldview Application*[49]



***Figure 5-79**: Flooding from Hurricane Florence along Island Creek Road in SW Duplin County*[50]

[49] NASA Worldview. (n.d.). Retrieved August 19, 2025, from https://worldview.earthdata.nasa.gov

[50] Terry Lebo. (n.d.). Flood waters rise. Retrieved August 19, 2025, from https://www.dla.mil/About-DLA/Images/igphoto/2002149739/



***Figure 5-80**: NC 24 (Turkey Highway) East of Clinton after Hurricane Florence*[51]

In Duplin County, $98,300,000 in property damage and two deaths were attributed to Hurricane Florence. There was around 16-20 inches of rainfall throughout Duplin County, with 26.62 inches reported west of Albertson and 19.98 inches of rain in Mount Olive. The heavy rainfall led to flash flooding and road washouts, which transitioned into riverine flooding, causing many roadways and homes to flood. The NE Cape Fear River rose quickly and flooded other tributaries, reaching 25.77 feet and breaking the record set during Hurricane Floyd. Portions of I-40 were closed near Wallace due to flooding. The wind and flooding related to Hurricane Florence led to widespread power outages and many downed trees. A 74-year-old male and a 22-year-old female died due to carbon monoxide poisoning from generator use while inside the home. During Hurricane Florence, flooding and frequent wind gusts of 50-70mph resulted in trees falling on homes, cars, power lines, and structures throughout Sampson County. This led to widespread power outages, $1,000,000 of property damage, and two deaths were reported.

[51] The year that was: 2018. (2019, January 1). Sampson Independent. https://www.clintonnc.com/news/local/36162/the-year-that-was-2018

Pre-Hurricane Florence Orthoimagery 2016



NOAA Imagery from Hurricane Florence in Eastern Duplin County

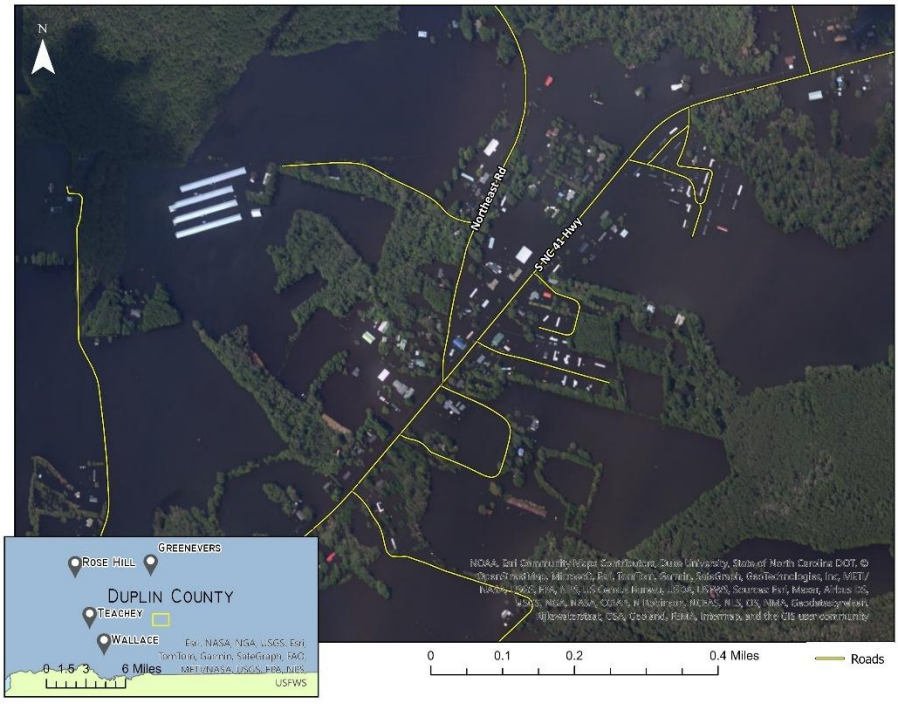


***Figure 5-81**: NOAA Imagery from Eastern Duplin County after Hurricane Florence[52] and before Hurricane Florence Orthoimagery[53]*

[52] NOAA & National Geodetic Survey. (n.d.). Hurricane FLORENCE Imagery. Emergency Response Imagery. Retrieved August 19, 2025, from https://storms.ngs.noaa.gov/

[53] NC Orthoimagery 2016. (2025, April 14). NC OneMap. https://www.nconemap.gov/search?collection=dataset

Hurricane Michael – October 8, 2018

Michael originated as a Category 5 hurricane that moved up the Gulf Coast and first made landfall around the Florida/Georgia border. Tropical Storm Michael gradually weakened as it tracked from the South Carolina Midlands through portions of 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 down, especially across the Piedmont. Flooding continued east for days after the storm hit. Duplin and Sampson 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.

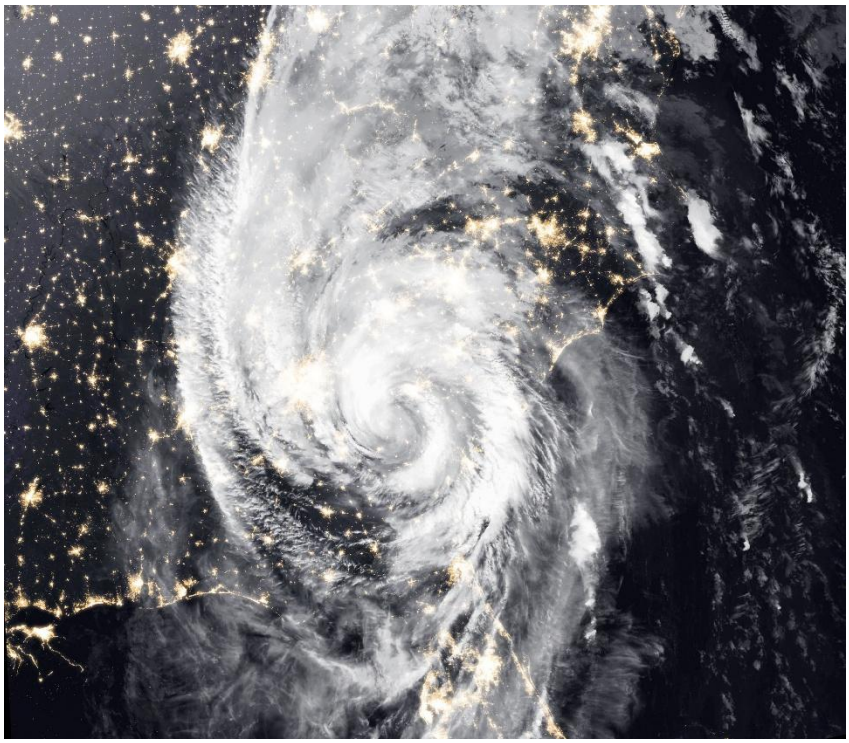


***Figure 5-82**: Satellite image of Hurricane Michael from NASA Earth Observatory*[54]

Hurricane Dorian – September 5, 2019

Hurricane Dorian formed on August 24, 2019, and rapidly intensified into a Category 4 hurricane. On September 1, Dorian became a Category 5 hurricane with maximum sustained winds of 185mph. On September 3, Dorian began moving slowly north, strengthening from a Category 2 hurricane back to a Category 3 hurricane on September 5. The impact in NC started with several tornadoes in eastern NC, heavy rainfall of 3-7 inches producing flash flooding across the Coastal Plain in central NC, and damaging winds of 35-55 mph, scattering numerous trees and downing power lines across Sampson County. There was $1,000,000 reported in property damage in Sampson County.

[54] NASA Goddard, & Stevens, J. (2018). Hurricane Michael Reaches North Carolina [Photo]. https://www.flickr.com/photos/gsfc/31417257688/

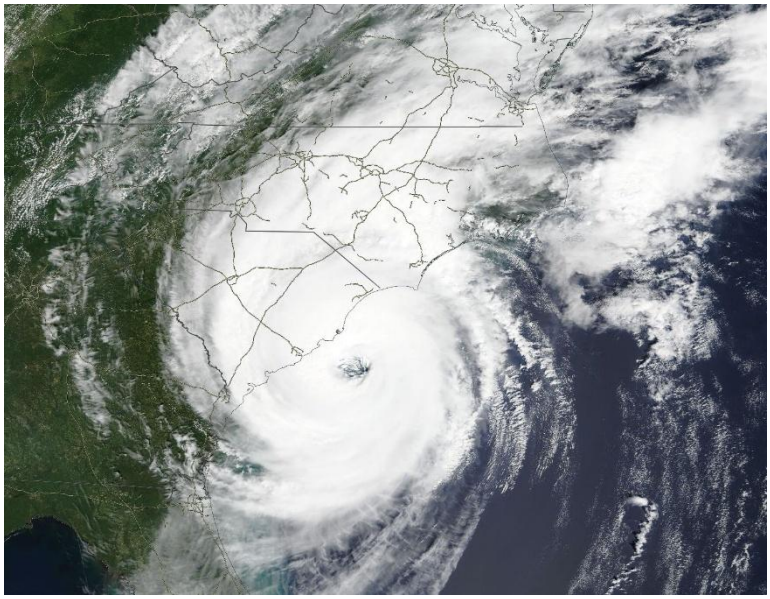


Figure 5-83: Satellite Image of Hurricane Dorian on September 5, 2019, from NASA Worldview[55]

Hurricane Isaias – August 4, 2020

On August 1, the storm made landfall on North Andros, Bahamas, and subsequently weakened to a tropical storm before paralleling the east coast of Florida and Georgia. As it approached the Carolina coastline, it re-intensified to a hurricane shortly before making landfall near Ocean Isle Beach, North Carolina, at 11:10 PM EDT on August 3 as a high-end Category 1 hurricane. It accelerated up the East Coast of the United States. Across eastern North Carolina, Isaias produced heavy rainfall, minor storm surges, and tornadoes.

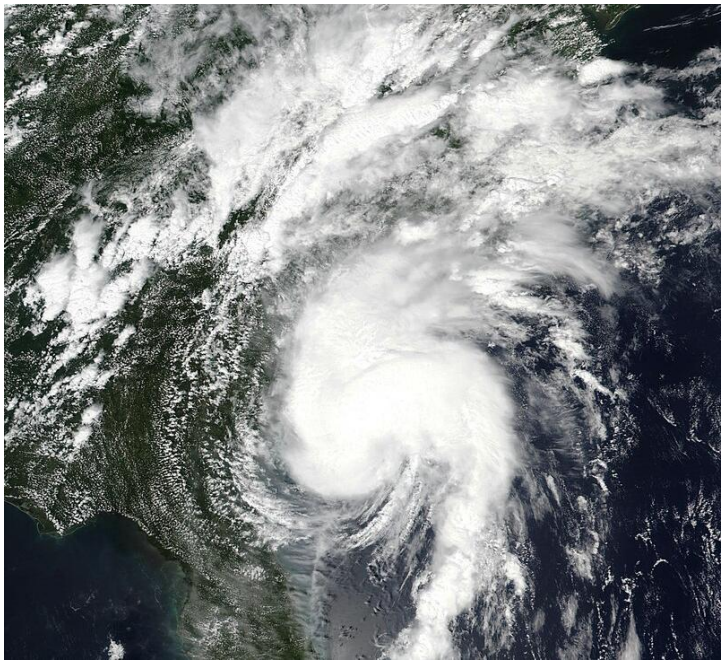


Figure 5-84: Hurricane Isaias on August 3, 2020, from NASA Worldview[56]

Hurricane Ian – September 30, 2022

Hurricane Ian made landfall off the west coast of Florida as a Category 4 hurricane, crossing the Atlantic and making landfall on the South Carolina coast as a Category 1 hurricane. For eastern NC, tropical-storm-force winds, elevated water levels, along with 3-6 inches of rain. Numerous

[55] NASA Worldview. (n.d.). Retrieved August 19, 2025, from https://worldview.earthdata.nasa.gov
[56] NASA Worldview. (n.d.). Retrieved August 19, 2025, from https://worldview.earthdata.nasa.gov/

reports of wind damage and power outages were reported in NC. In Sampson County, wind gusts of 40-60 mph were reported, resulting in downed trees and power lines. Numerous customers across Sampson County lost power, and an estimated $750,000 in property damage was attributed to the event.

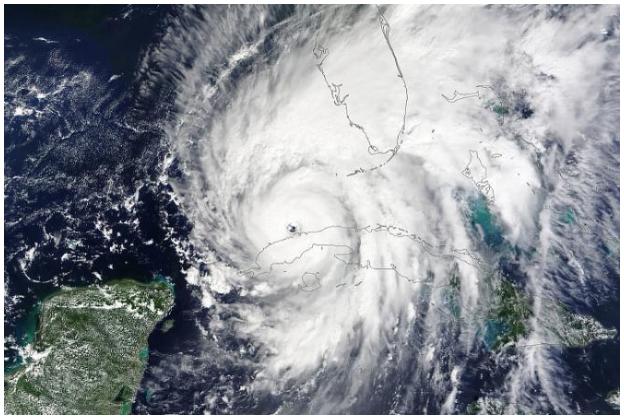


***Figure 5-85**: Hurricane Ian entering the Gulf of Mexico before making landfall as a Category 3 storm from NASA Visible Earth*[57]

The following table lists all hurricanes and tropical storms with recorded paths, including the planning area and the areas they passed through, from the International Best Track Archive for Climate Stewardship (IBTrACS).

***Table 5-27**: Hurricanes and Tropical Storms that have passed through the planning area from the International Best Track Archive for Climate Stewardship (IBTrACS), and the counties and jurisdictions that they have passed through*[58]

System Name	Date	Nature of Storm	Maximum Sustained Wind (kts.)	Saffir-Simpson Hurricane Scale Rating	Jurisdictions	County
UNNAMED	1851-08-25	Tropical Storm	40	Tropical Storm	Autryville	Sampson
UNNAMED	1852-08-28	Tropical Storm	0	Unknown	-	Sampson
UNNAMED	1852-10-10	Tropical Storm	50	Tropical Storm	Turkey	Sampson
UNNAMED	1861-09-27	Tropical Storm	0	Unknown	-	Sampson
UNNAMED	1867-08-15	Tropical Storm	0	Unknown	-	Sampson
UNNAMED	1872-10-25	Tropical Storm	50	Tropical Storm	-	Duplin
UNNAMED	1874-09-29	Tropical Storm	65	Category 1	Faison, Calypso	Sampson
UNNAMED	1881-09-09	Tropical Storm	70	Category 1	Kenansville	Duplin
UNNAMED	1883-09-11	Tropical Storm	70	Category 1	Clinton	Sampson
			60	Tropical Storm		

[57] Lauren Dauphin & NASA Earth Observatory. (2022, September 27). Hurricane Ian Enters the Gulf of Mexico. NASA Visible Earth; NASA Visible Earth. https://visibleearth.nasa.gov/images/150406/hurricane-ian-enters-the-gulf-of-mexico

[58] Gahtan, J., Knapp, K., Schreck, C., Diamond, H., Kossin, J., & Kruk, M. (2025). International Best Track Archive for Climate Stewardship (IBTRACS) Project [Dataset]. In National Oceanic and Atmospheric Administration [NOAA], National Centers for Environmental Information (NCEI). NCEI. https://doi.org/10.25921/82ty-9e16

System Name	Date	Nature of Storm	Maximum Sustained Wind (kts.)	Saffir-Simpson Hurricane Scale Rating	Jurisdictions	County
			50			
			50			
UNNAMED	1887-10-20	Tropical Storm	30	Tropical Depression	-	Sampson
UNNAMED	1893-10-04	Tropical Storm	38	Tropical Storm	Warsaw	Sampson
			35			Duplin
UNNAMED	1894-10-09	Tropical Storm	60	Tropical Storm	-	Sampson
UNNAMED	1895-06-11	Tropical Storm	0	Unknown	-	Sampson
UNNAMED	1912-06-14	Extratropical Storm	35	Post-tropical System	-	Sampson
UNNAMED	1913-09-03	Tropical Storm	55	Tropical Storm	Calypso	Duplin
			48			Sampson
			40			
UNNAMED	1916-05-16	Tropical Storm	35	Tropical Storm	-	Sampson
UNNAMED	1916-09-06	Tropical Storm	40	Tropical Storm	Warsaw	Sampson
			35			Duplin
UNNAMED	1924-09-30	Extratropical Storm	58	Post-tropical System	-	Sampson
			60			Duplin
UNNAMED	1928-09-19	Tropical Storm	60	Tropical Storm	Warsaw	Sampson
UNNAMED	1944-08-02	Tropical Storm	60	Tropical Storm	-	Sampson
			53			
UNNAMED	1946-10-09	Extratropical Storm	30	Post-tropical System	Kenansville	Sampson
						Duplin
UNNAMED	1947-09-25	Extratropical Storm	35	Post-tropical System	Warsaw	Sampson
						Duplin
HAZEL	1954-10-15	Tropical Storm	115	Category 4	-	Sampson
DIANE	1955-08-17	Tropical Storm	58	Tropical Storm	Clinton	Sampson
			55			
FLOSSY	1956-09-26	Extratropical Storm	45	Post-tropical System	Greenevers	Sampson
			48		Beulaville	
			50			Duplin
			50			
BRENDA	1960-07-30	Tropical Storm	55	Tropical Storm		Duplin
UNNAMED	1964-07-23	Tropical Storm	20	Tropical Depression	Roseboro	Sampson
					Calypso	
UNNAMED	1965-06-16	Extratropical Storm	35	Post-tropical System	Newton Grove	Sampson
UNNAMED	1967-06-18	Tropical Storm	30	Tropical Depression	Kenansville	Duplin
GINGER	1971-10-01	Tropical Storm	55	Tropical Storm	Warsaw	Duplin
			50			
			45			
			38			Sampson
			30	Tropical Depression		

System Name	Date	Nature of Storm	Maximum Sustained Wind (kts.)	Saffir-Simpson Hurricane Scale Rating	Jurisdictions	County
AGNES	1972-06-21	Tropical Storm	30	Tropical Depression	-	Sampson
			35	Tropical Storm		
DIANA	1984-09-14	Tropical Storm	45	Tropical Storm	-	Sampson
			43			
			40			Duplin
UNNAMED	1987-09-08	Tropical Storm	0	Unknown	Salemburg	Sampson
					Roseboro	
FRAN	1996-09-06	Tropical Storm	84	Category 2		Sampson
JOSEPHINE	1996-10-08	Extratropical Storm	45	Post-tropical System	-	Duplin
EARL	1998-09-04	Extratropical Storm	50	Post-tropical System	Salemburg	Sampson
HELENE	2000-09-23	Tropical Storm	30	Tropical Depression	-	Sampson
CHARLEY	2004-08-14	Tropical Storm	60	Tropical Storm	-	Duplin
ALBERTO	2006-06-14	Extratropical Storm	35	Post-Tropical System	-	Sampson
ERNESTO	2006-09-01	Tropical Storm	50	Tropical Storm	Greenevers	Duplin
HANNA	2008-09-06	Tropical Storm	54	Tropical Storm	Clinton	Sampson
ANDREA	2013-06-07	Extratropical Storm	40	Post-Tropical System	-	Sampson
		Tropical Storm		Tropical Storm		
ANA	2015-05-11	Tropical Storm	30	Tropical Depression	Clinton	Sampson
ISAIAS	2020-08-04	Tropical Storm	80	Category 1	Harrells, Warsaw	Sampson
			60	Tropical Storm		Duplin
CLAUDETTE	2021-6-21	Tropical Storm	40	Tropical Storm	-	Sampson

5.6.5 Probability of Future Occurrences

The NRI utilizes NOAA's National Centers for Environmental Prediction HURDAT2 Best Track Data Archive from 1851 to 2020 to calculate the risk values. According to the NRI, Duplin County has an annualized hurricane frequency of 0.32, a total EAL of $41,511,584, and Very High average EAL and average Risk scores. Sampson County has a total EAL of $42,015,970, an average annual frequency of 0.27, and Very High average EAL and Risk scores. The average EAL score and Hazard Index Rating for each jurisdiction in the planning area is Very High.

***Table 5-28**: NRI Risk, EAL, and Annualized Frequency for Hurricanes in the planning area*

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Duplin County	**0.32**	**$42,015,970**	**95.46**	**Very High**	**96.32**	**Very High**

Beulaville	0.32	$3,498,308	94.10	Very High	96.11	Very High
Calypso	0.26	$1,387,955	92.47	Very High	96.36	Very High
Faison	0.26	$1,387,955	92.47	Very High	96.36	Very High
Greenevers	0.36	$1,121,638	90.48	Very High	93.52	Very High
Kenansville	0.32	$6,279,739	98.09	Very High	98.86	Very High
Magnolia	0.31	$6,808,372	98.44	Very High	98.96	Very High
Rose Hill	0.34	$3,180,585	93.26	Very High	95.34	Very High
Teachey	0.36	$1,512,318	93.22	Very High	96.07	Very High
Wallace	0.36	$6,593,986	93.24	Very High	94.40	Very High
Warsaw	0.26	$3,183,730	93.47	Very High	97.04	Very High
Unincorporated Area	0.32	$14,391,898	94.69	Very High	95.51	Very High
Sampson County	**0.27**	**$41,511,584**	**93.52**	**Very High**	**94.71**	**Very High**
Autryville	0.26	$887,441	88.35	Very High	86.98	Very High
Clinton	0.26	$11,517,569	94.74	Very High	96.46	Very High
Garland	0.30	$4,242,268	99.14	Very High	99.80	Very High
Harrells	0.30	$1,616,139	93.78	Very High	95.17	Very High
Newton Grove	0.26	$604,109	84.93	Very High	86.56	Very High
Roseboro	0.29	$1,699,276	94.19	Very High	96.01	Very High
Salemburg	0.26	$569,068	84.40	Very High	85.31	Very High
Turkey	0.26	$1,898,696	95.08	Very High	96.62	Very High
Unincorporated Area	0.26	$18,477,018	94.61	Very High	95.69	Very High

5.6.6 Consequence and Impact Analysis

5.6.6.1 People

Hurricanes may affect people in several ways, including causing deaths, injuries, property loss, outbreaks of disease, mental trauma, and the destruction of 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 hurricane impacts. 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 infections can spread easily.

Evacuations may occur due to hurricane or tropical storm impacts, which means that individuals who have limited mobility, lack transportation in their housing unit (5.0% in Sampson County and 5.8% in Duplin County[59]), have a disability (14.6% in Sampson County and 17.3% in Duplin County), or have an independent living difficulty (7.1% in Sampson County and 8.4% in Duplin County).[60] To ensure that residents in the planning area can evacuate in a timely manner, emergency services should consider developing specialized evacuation plans to assist those with disabilities, those without access to vehicles in their housing units, and those with independent living difficulties.

Preparing for hurricane and tropical storm events can help residents avoid property loss, potential injuries, or loss of life. Many preparedness resources and alerts are issued online. While it is increasingly common to issue public safety alerts and preparedness information through online resources, many residents lack access to computers. Approximately 11.7% of housing units in Sampson County and 11.9% in Duplin County lack computing devices, further limiting residents' access to public awareness information. Additionally, an estimated 16.9% of households in Sampson County and 20.9% of households in Duplin County do not have an internet subscription, which limits residents' ability to access a wide range of publicly available preparedness materials online. To prepare residents for hurricane and tropical storm events, it is important that the planning area considers developing a wide range of preparedness and awareness materials to communicate hurricane and tropical storm risk. This includes using various media, such as radio, flyers, and newspapers.

Many emergency alerts are issued through reverse 911 systems and require a telephone service to receive them. However, several household units are estimated not to have telephone service (0.9% of Housing Units in Sampson County and 0.6% in Duplin County), which means these residents may not have access to important, time-sensitive emergency alerts.

- Develop a plan to ensure that all residents have a method for receiving emergency alerts and inform residents about the different ways they can receive them.

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[59] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Housing Characteristics. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP04

[60] U.S. Census Bureau, U.S. Department of Commerce. "Disability Characteristics." American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1810, https://data.census.gov/table/ACSST5Y2023.S1810

- Ensure that all residents have an evacuation plan and that individuals who require extra assistance can be assisted during an evacuation.

5.6.6.2 Changes in Development or Housing Characteristics

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 due to 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.

Housing units such as mobile homes (34% of housing units in Sampson County and 31.5% of housing units in Duplin County) or Boats, RVs, and Vans (0.2% of housing units in Sampson County and 0% of housing units in Duplin County) may be at a higher risk of damage during hurricanes and tropical storms. Residents of these types of housing units may be at disproportionate risk of injury, loss, or death during a hurricane or tropical storm.

- Given the large number of housing units that are more susceptible to damage than traditionally built homes, such as mobile homes and RVs, it is important to prioritize retrofitting in high-risk zones and to help homeowners in those areas prepare their housing units for natural hazards.

5.6.6.3 Economy

Economic damage includes property damage from wind, rain, and floods, as well as intangibles such as business interruption and additional living expenses. Damage to infrastructure utilities includes roads, water, power, municipal buildings, and all jurisdictions in the Region are vulnerable to this impact. Hurricanes and tropical storms can create a financial burden on those who are impacted in the planning area from repair costs, replacement costs, displacement costs, and disruption of day-to-day activities.

5.6.6.4 Natural Environment

Hurricanes can devastate wooded ecosystems, removing all foliage from forest canopies, and can change habitats so drastically that indigenous animal populations suffer. 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 damage an above-ground fuel tank, leading to a significant chemical spill.

5.6.6.5 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 the risk of injury or death during a storm event from flooding and high winds. Personnel or their families may be harmed, limiting 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, thereby increasing the number of emergency responses required.

5.6.6.6 Future Conditions

According to the NCCSR,[61] it is very likely that in the future, extreme or heavy precipitation associated with hurricanes will increase, along with the potential for flooding. This means that an increase in climate change impacts will likely be associated with a rise in the frequency and/or severity of hurricanes and tropical storm events in the future.

[61] North Carolina Institute for Climate Studies [NCICS]. (2020). North Carolina Climate Science Report. NCICS. Retrieved January 29, 2025, from https://ncics.org/wp-content/uploads/2020/10/NC_Climate_Science_Report_FullReport_Final_revised_September2020.pdf

5.7 INLAND FLOODING

5.7.1 Hazard Description

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

Sources and Types of Flooding

Flooding within the 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 from 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 in 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 from surface water runoff are most common in urban areas, where greater population density generally increases the amount of impervious surface (e.g., pavement and buildings), thereby generating more surface water. Flooding can occur when the capacity of the stormwater system is exceeded or when conveyance is obstructed by debris, sediment, and other materials that limit drainage volume.

In common usage, the floodplain most often refers to the area inundated by the 100-year flood, the flood that has a 1% chance of being equaled or exceeded in any given year. 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 due to land-use changes and changes to the land surface, which alter 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 made by human activity.

The 100-year flood, which is the minimum standard used by most federal and state agencies, serves as the NFIP's standard for floodplain management and for determining the need for flood insurance. Participation in the NFIP requires adopting and enforcing a local floodplain management ordinance 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 financial protection against flood losses. Since

floods have an annual probability of occurrence, have known magnitudes, depths, and velocities 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.

The area adjacent to the channel is the floodplain, as shown in Figure 5-86. 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 is an area covered by the flood but does not experience strong current. Floodplains are made when floodwater exceeds the capacity of the main channel or escapes the channel by eroding its banks. When this occurs, sediments (including rocks and debris) are deposited, gradually building up over time to create the floor of the floodplain. Floodplains generally contain unconsolidated sediments, often extending below the bed of the stream.

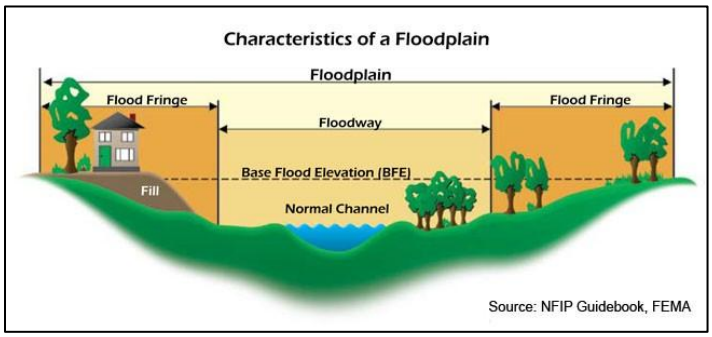


***Figure 5-86**: Characteristics of a Floodplain*

5.7.2 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% chance of flooding during the life of a standard 30-year mortgage. Flood-prone areas were identified using the most current Flood Insurance Study and associated FIRMs developed by FEMA. Table 5-29 summarizes the flood insurance zones identified by the DFIRMs.

***Table 5-29**: Mapped Flood Insurance Zones within the Region*

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.

Zone	Description
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.
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, e. 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 0.2-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 (SFHA) 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 X (0.2-percent annual chance floodplain). The figures below reflect the mapped flood zones for the Region.

***Table 5-30**: Flood Hazard Areas in the planning area within jurisdictional boundaries and county boundaries*

County	Jurisdiction	Total Flood Hazard Zone (miles²)				
		0.2% Annual Chance Flood	Zone A	Zone AO	Zone AE	Zone X
Duplin	Beulaville	-	-	-	-	1.53
	Calypso	-	-	-	-	0.99
	Faison	-	-	-	0.01	0.81
	Falcon	-	-	-	0.06	0.00
	Greenevers	-	-	-	-	1.13
	Kenansville	-	-	-	0.21	1.97
	Magnolia	-	-	-	-	1.07
	Mount Olive	-	-	-	-	0.01
	Pink Hill	-	-	-	-	0.00
	Rose Hill	-	-	-	-	1.88
	Teachey	-	-	-	-	1.28
	Wallace	0.07	-	-	0.28	2.61
	Warsaw	-	-	-	0.07	3.08
	Duplin County Total	**9.23**	**0.01**	**3.57**	**114.21**	**693.59**
Sampson	Autryville	0.01	-	-	0.14	0.38

County	Jurisdiction	Total Flood Hazard Zone (miles²)				
		0.2% Annual Chance Flood	Zone A	Zone AO	Zone AE	Zone X
	Clinton	0.09	-	-	0.46	7.06
	Garland	-	-	-	-	1.13
	Harrells	-	-	-	-	3.11
	Newton Grove	0.02	-	-	0.19	2.97
	Roseboro	-	-	-	-	1.43
	Salemburg	-	-	-	0.00	1.02
	Turkey	-	-	-	0.05	0.36
	Sampson County Total	**4.21**	**0.04**	**0.07**	**101.16**	**840.93**
Planning Area Total		**13.44**	**0.04**	**3.64**	**215.36**	**1534.53**

It is important to note that while FEMA digital flood data is recognized as the best data available for planning purposes, it does not always reflect the most accurate and up-to-date flood risk. Flooding and flood-related losses often do occur outside of delineated special flood hazard areas. The following maps represent the FEMA digital flood data for the planning area and the associated flood risk:

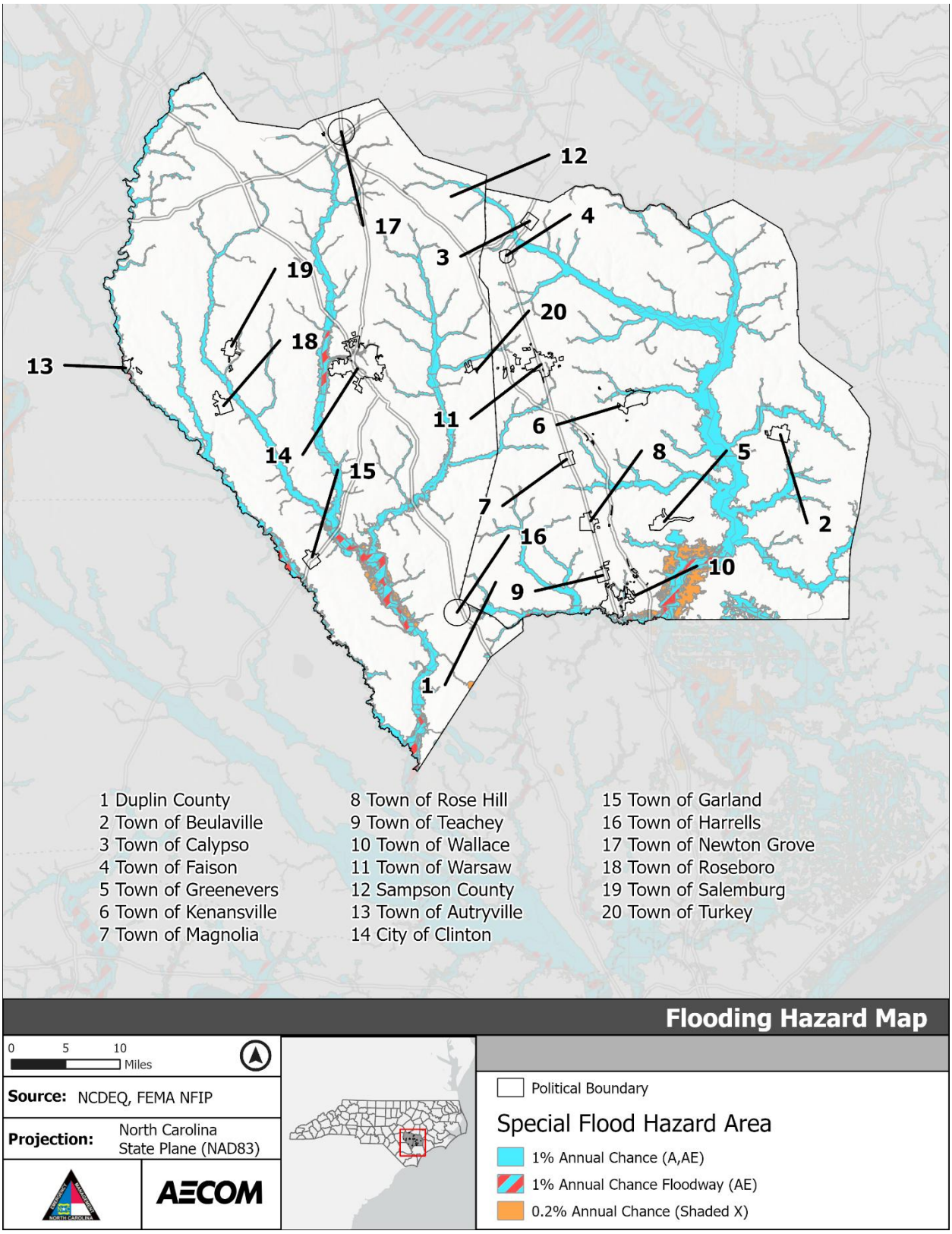


***Figure 5-87**: Sampson Duplin Flooding Hazard Map - Regional*

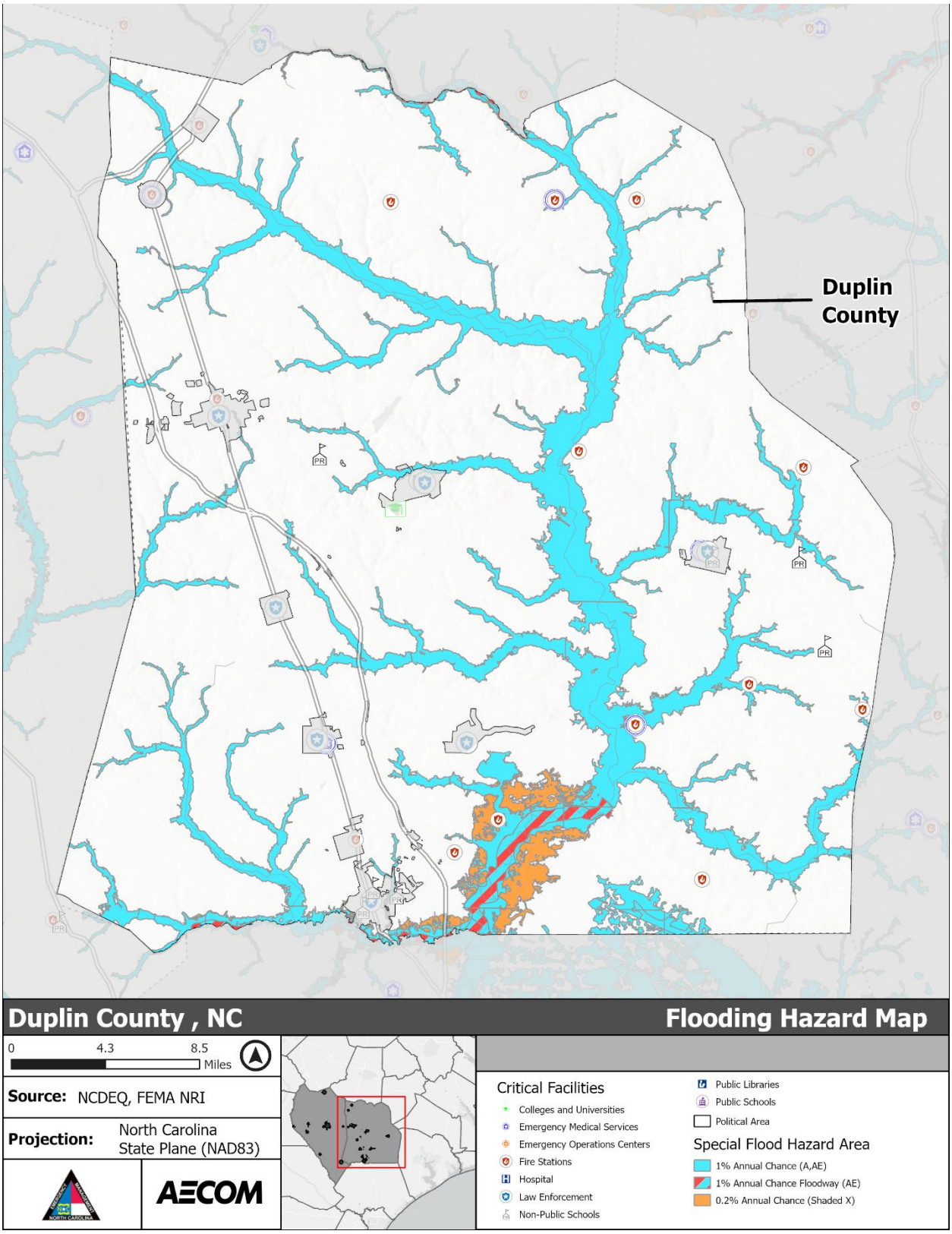


***Figure 5-88**: Duplin County Flooding Hazard Map*

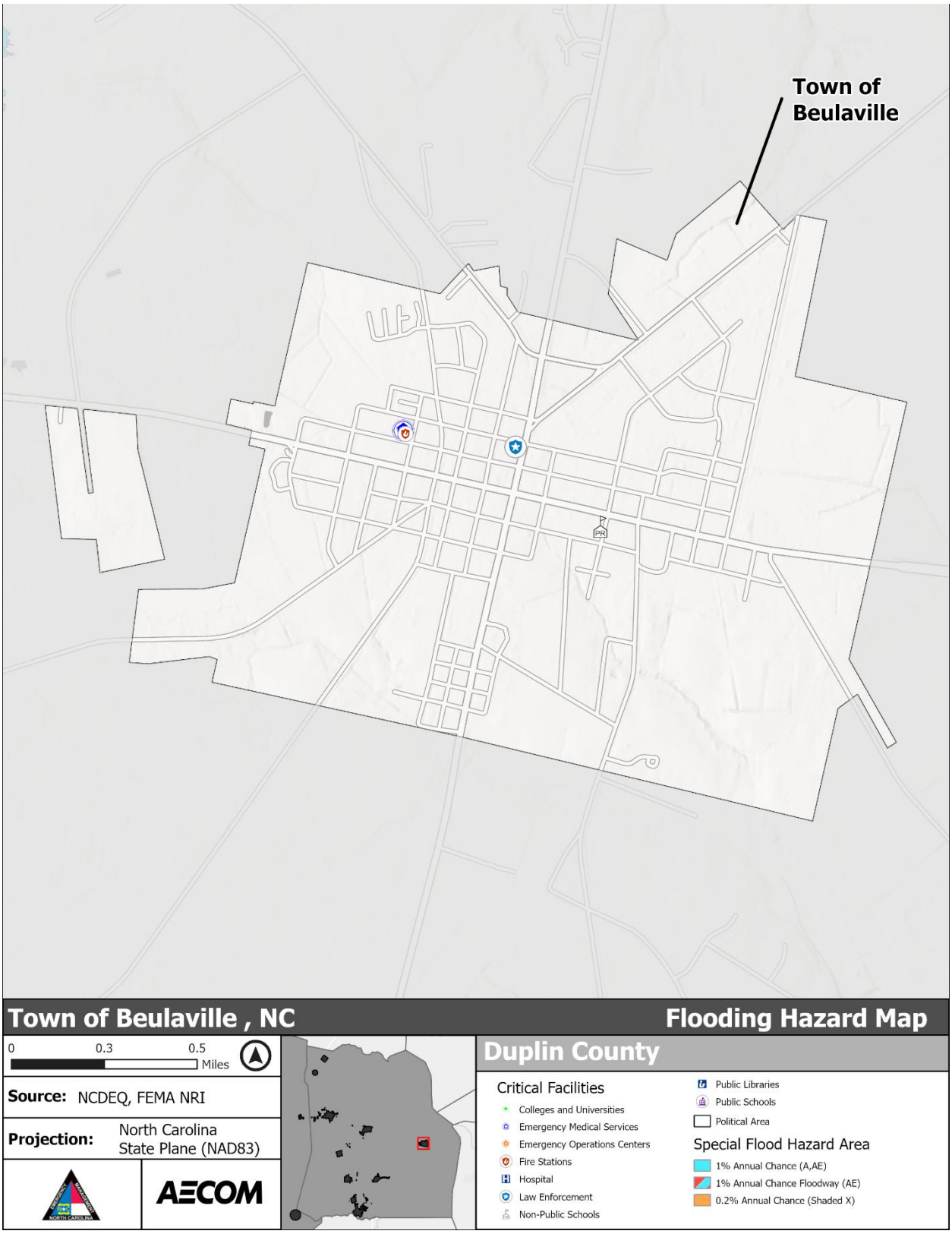


***Figure 5-89**: Town of Beulaville Flooding Hazard Map*

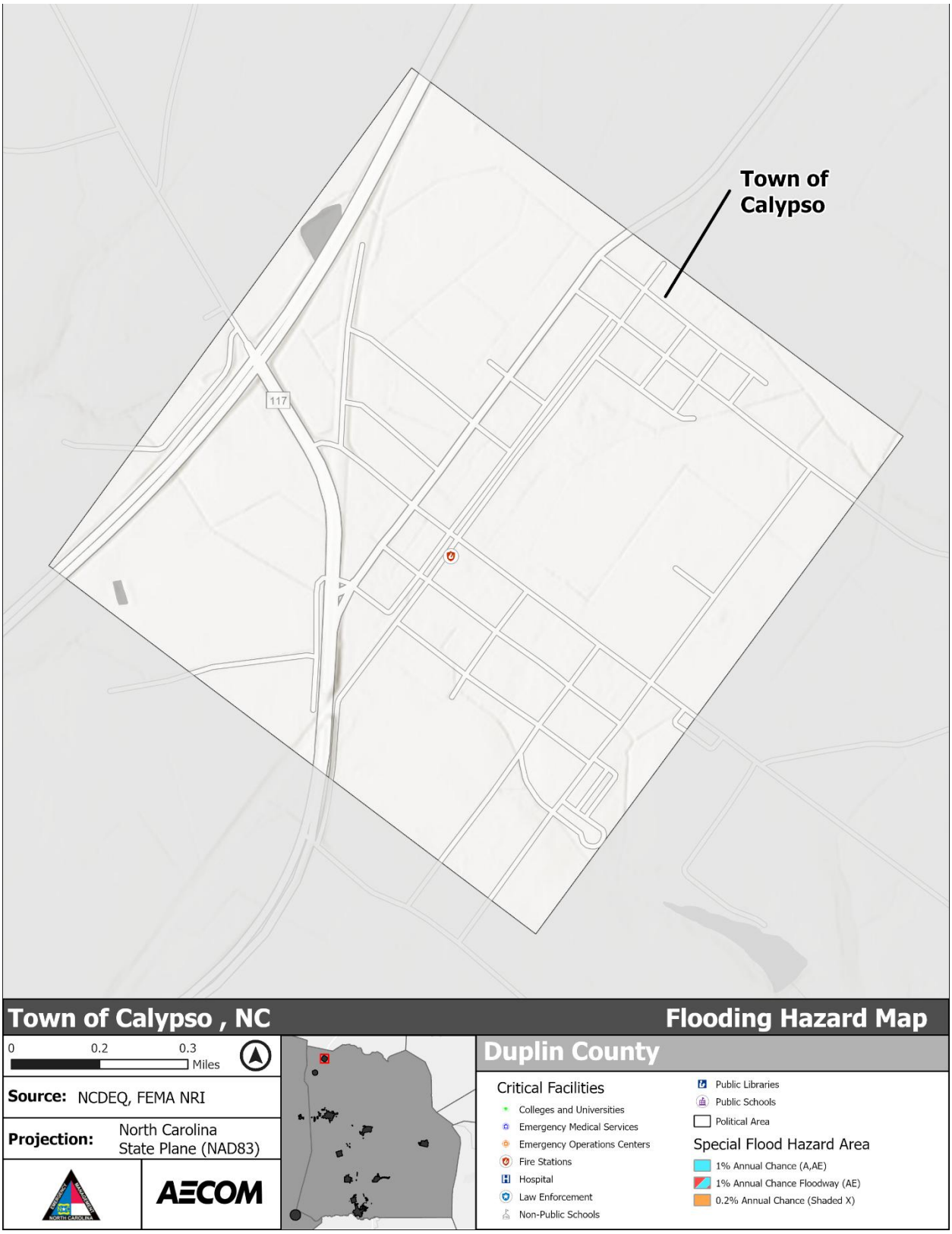


***Figure 5-90**: Town of Calypso Flooding Hazard Map*

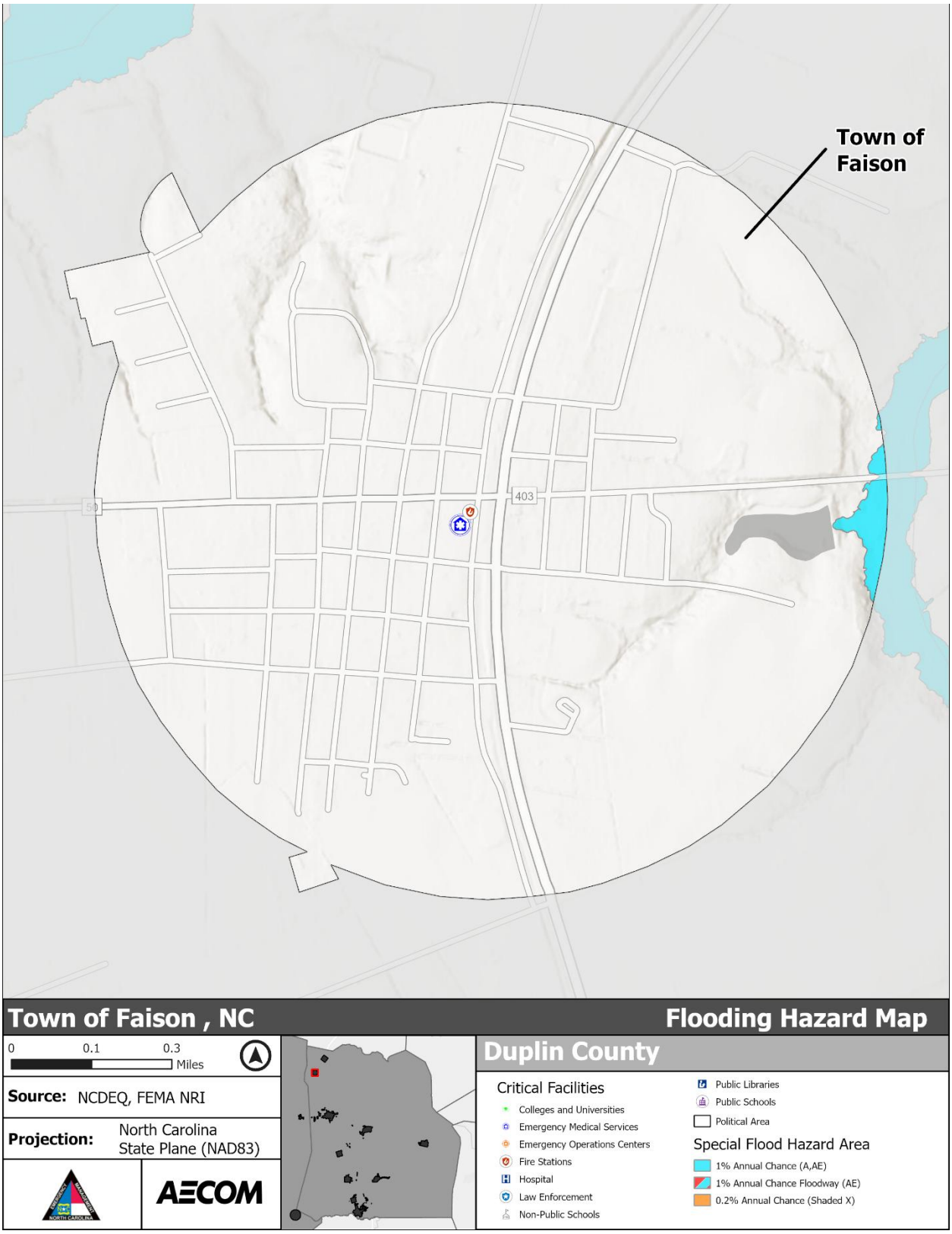


***Figure 5-91**: Town of Faison Flooding Hazard Map*

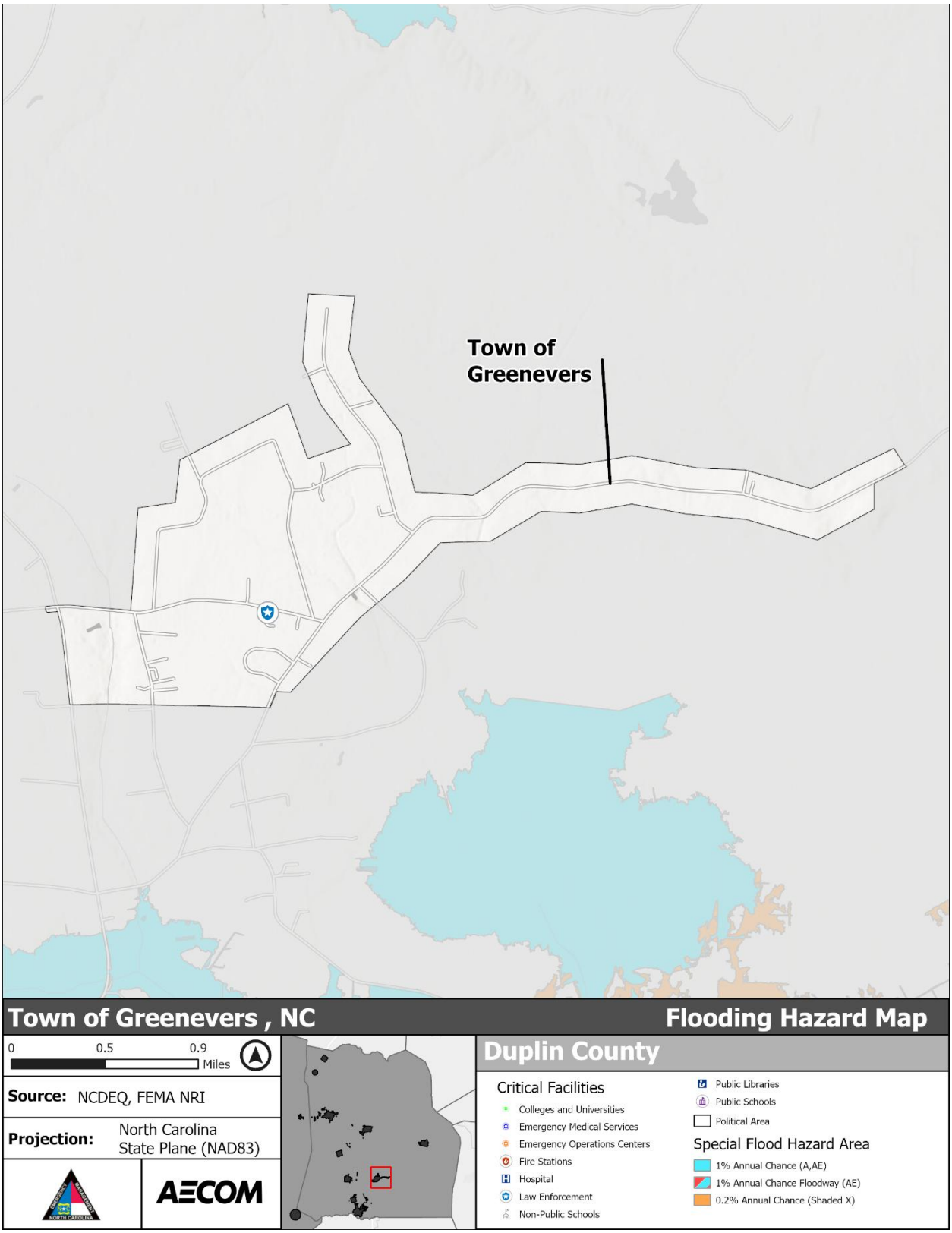


***Figure 5-92**: Town of Greenevers Flooding Hazard Map*

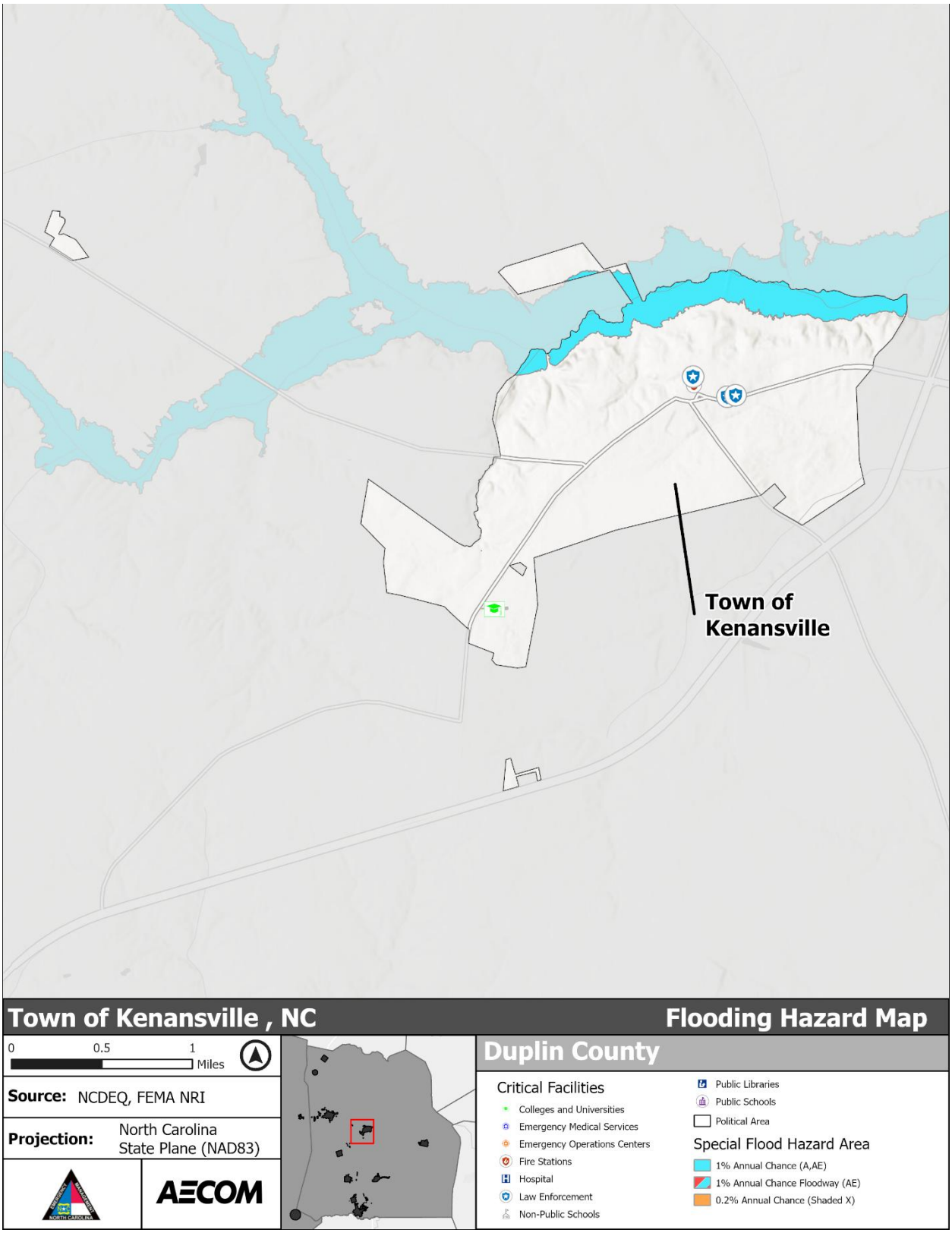


***Figure 5-93**: Town of Kenansville Flooding Hazard Map*

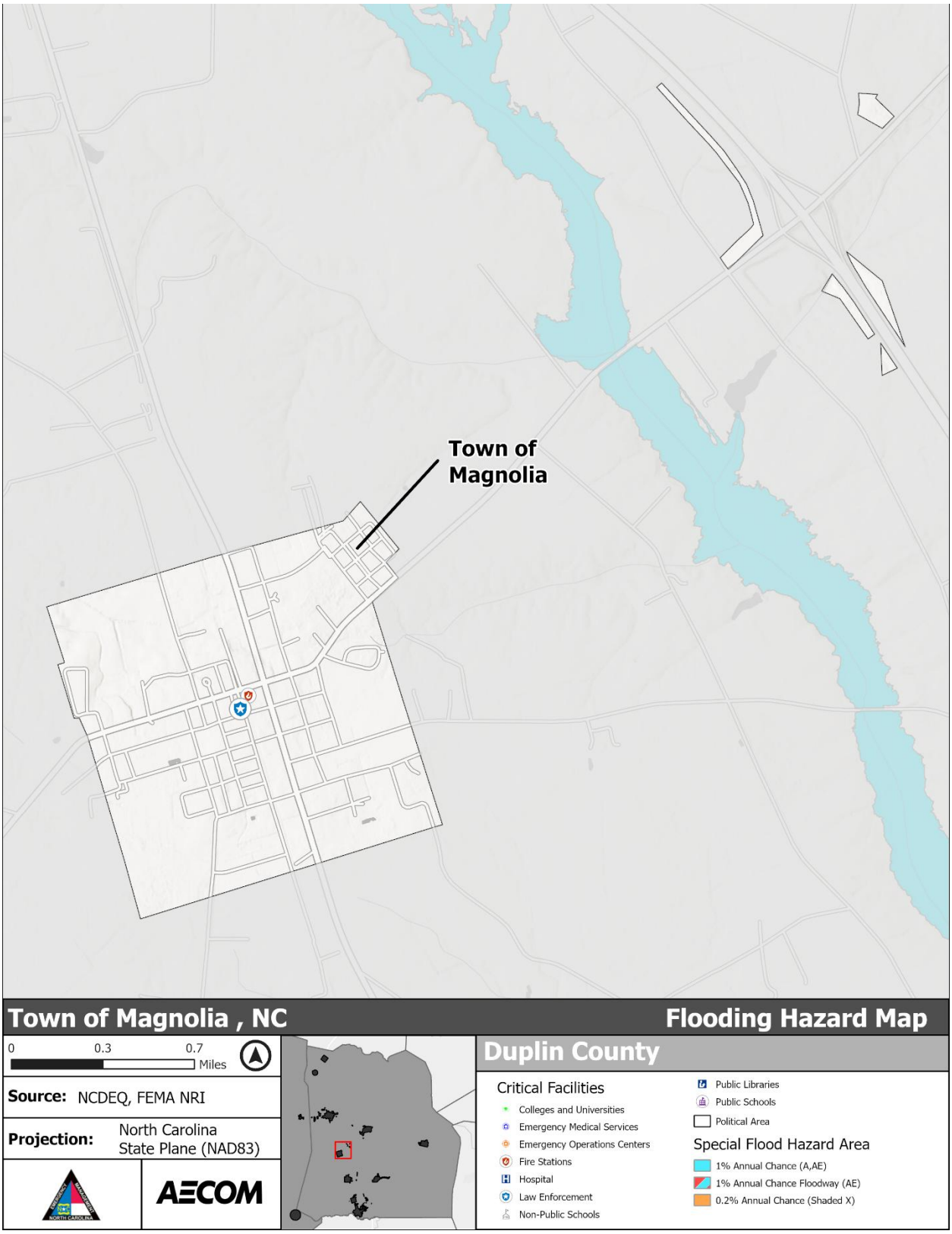


***Figure 5-94**: Town of Magnolia Flooding Hazard Map*

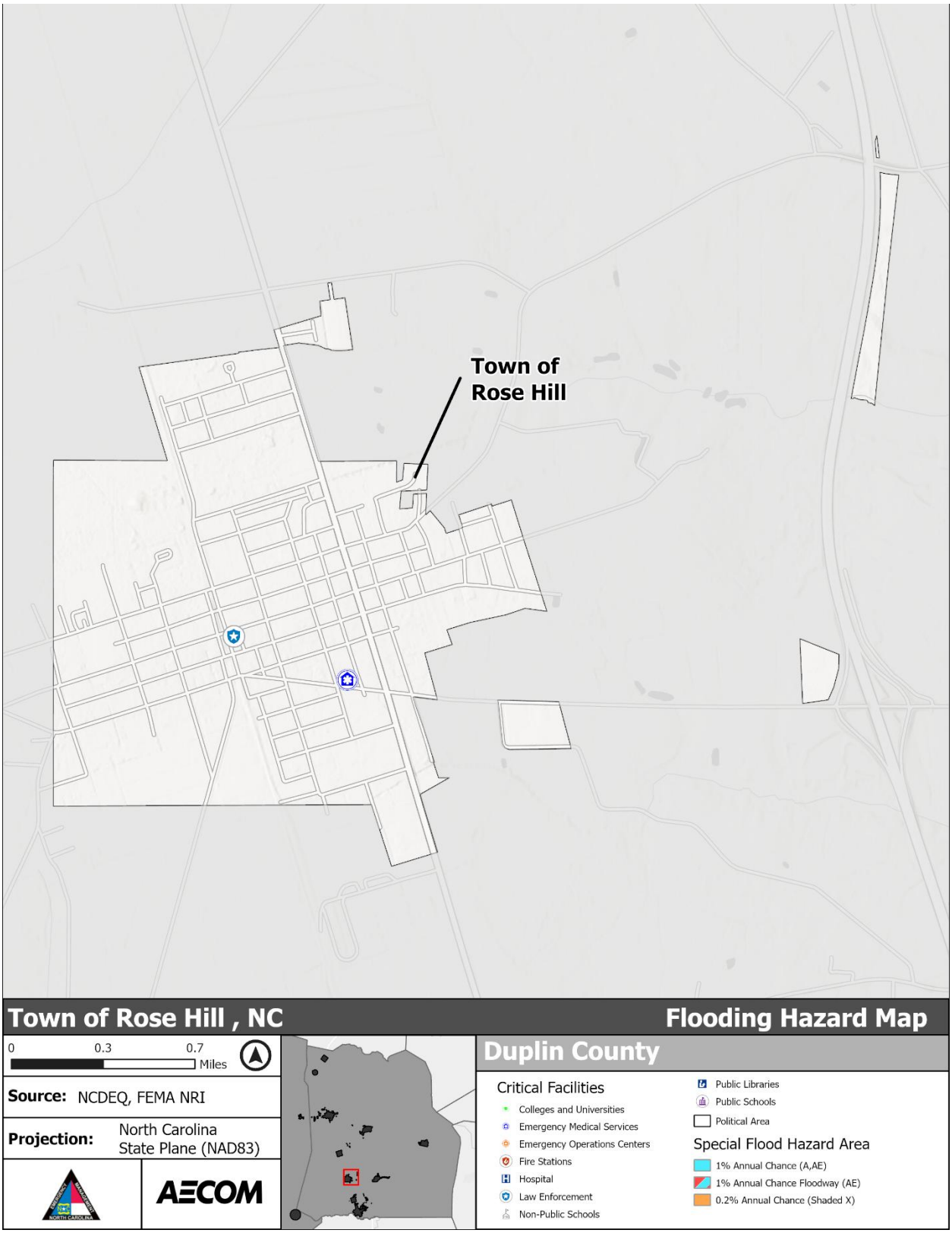


***Figure 5-95**: Town of Rose Hill Flooding Hazard Map*

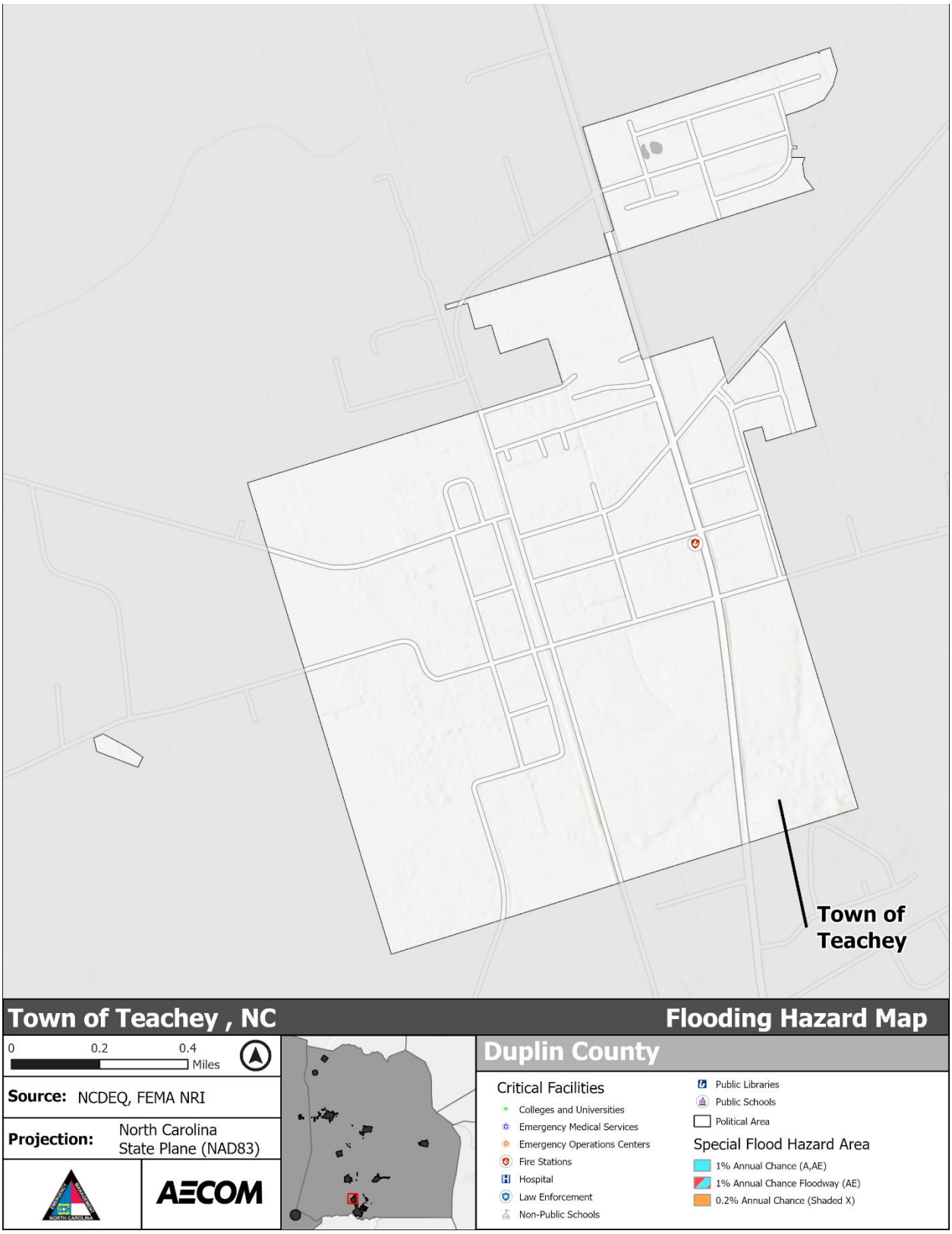


***Figure 5-96**: Town of Teachey Flooding Hazard Map*

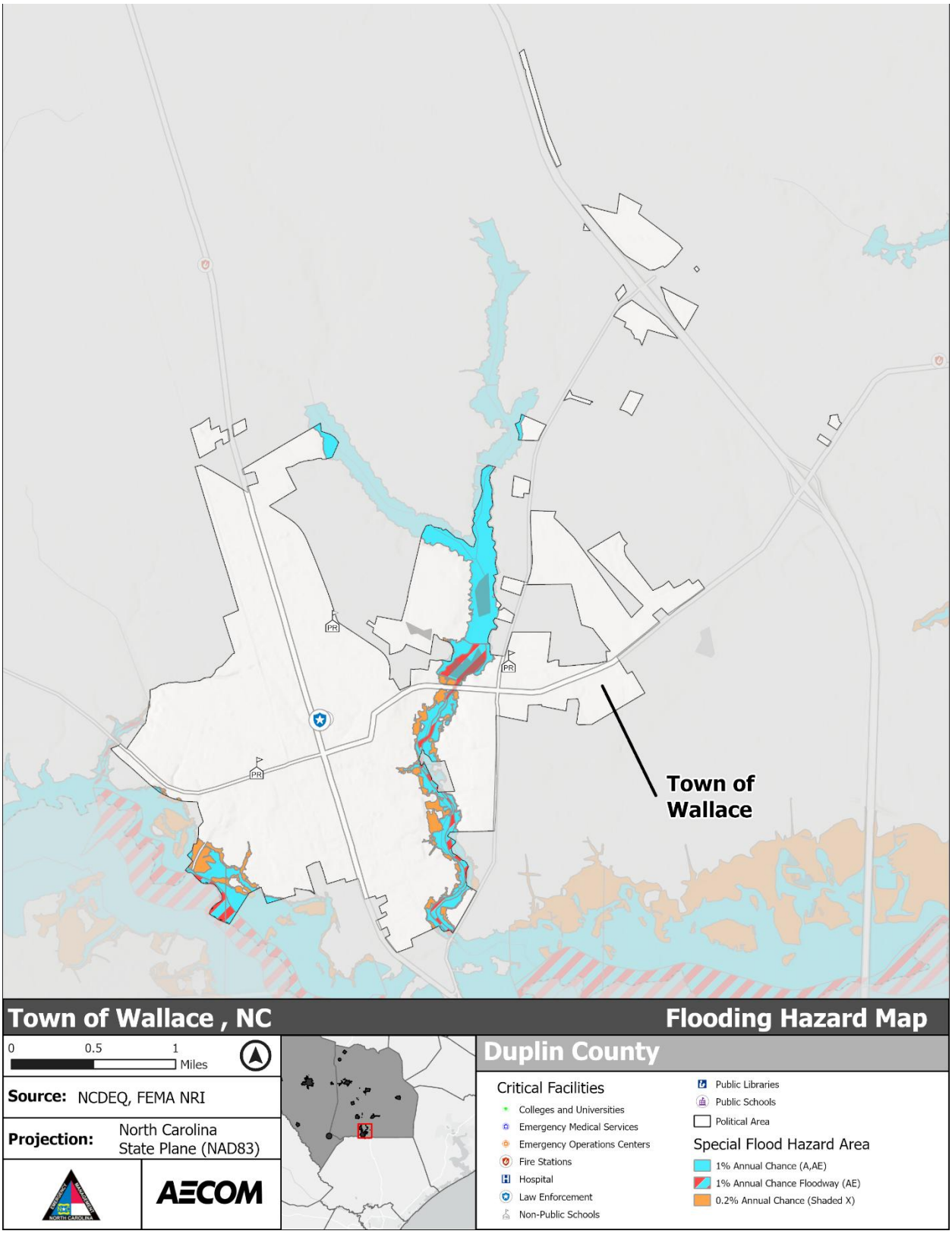


***Figure 5-97**: Town of Wallace Flooding Hazard Map*

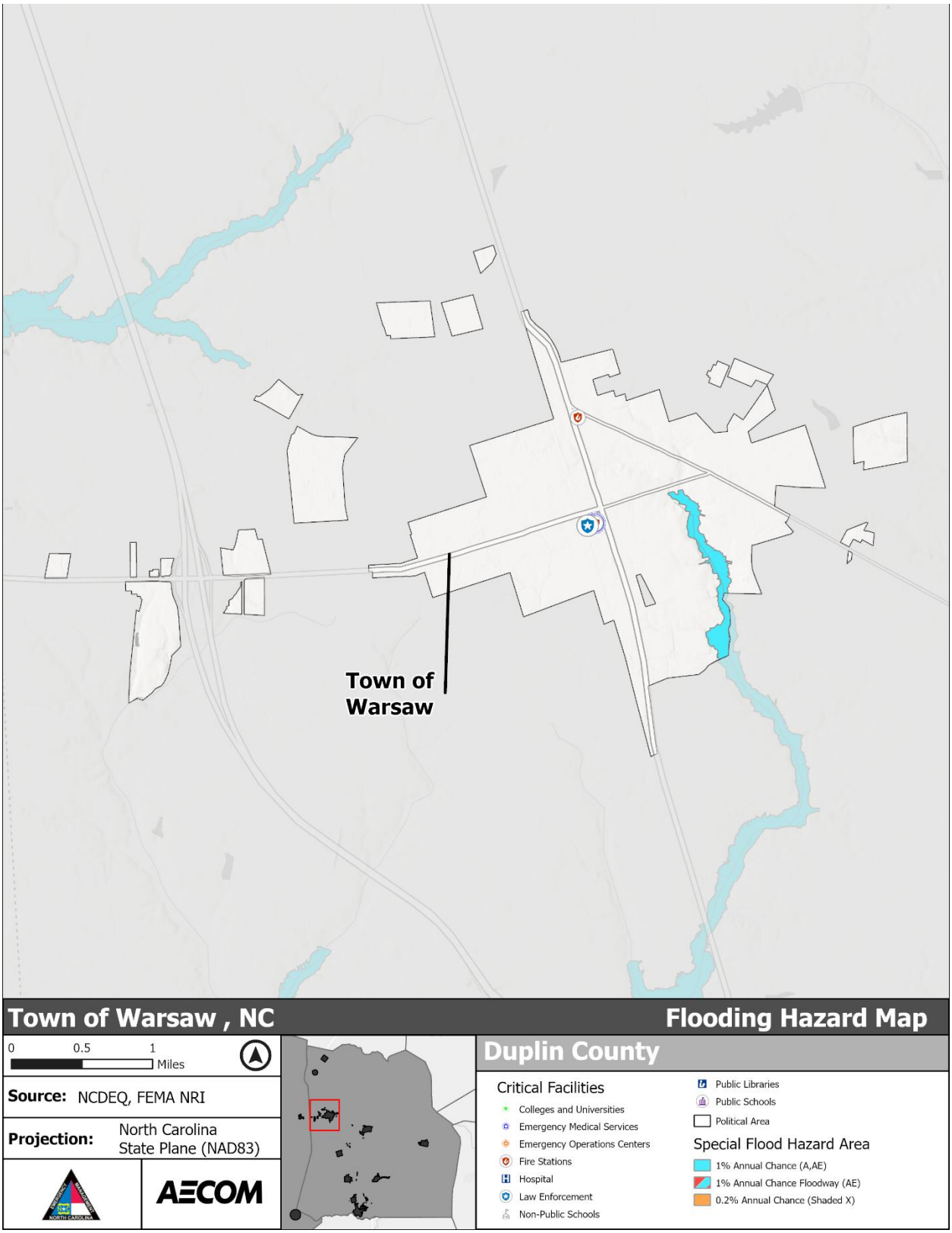


***Figure 5-98**: Town of Warsaw Flooding Hazard Map*

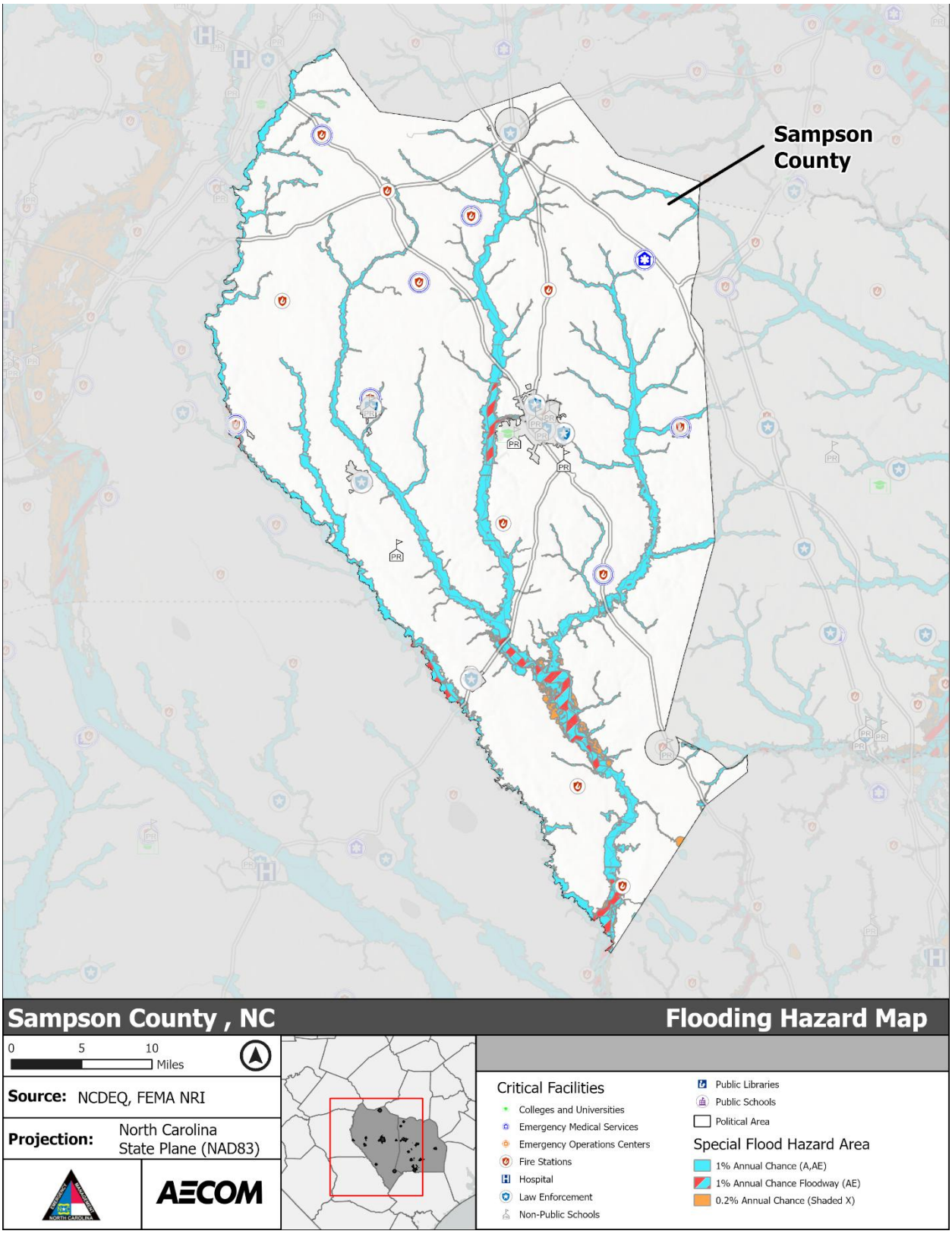


***Figure 5-99**: Sampson County Flooding Hazard Map*

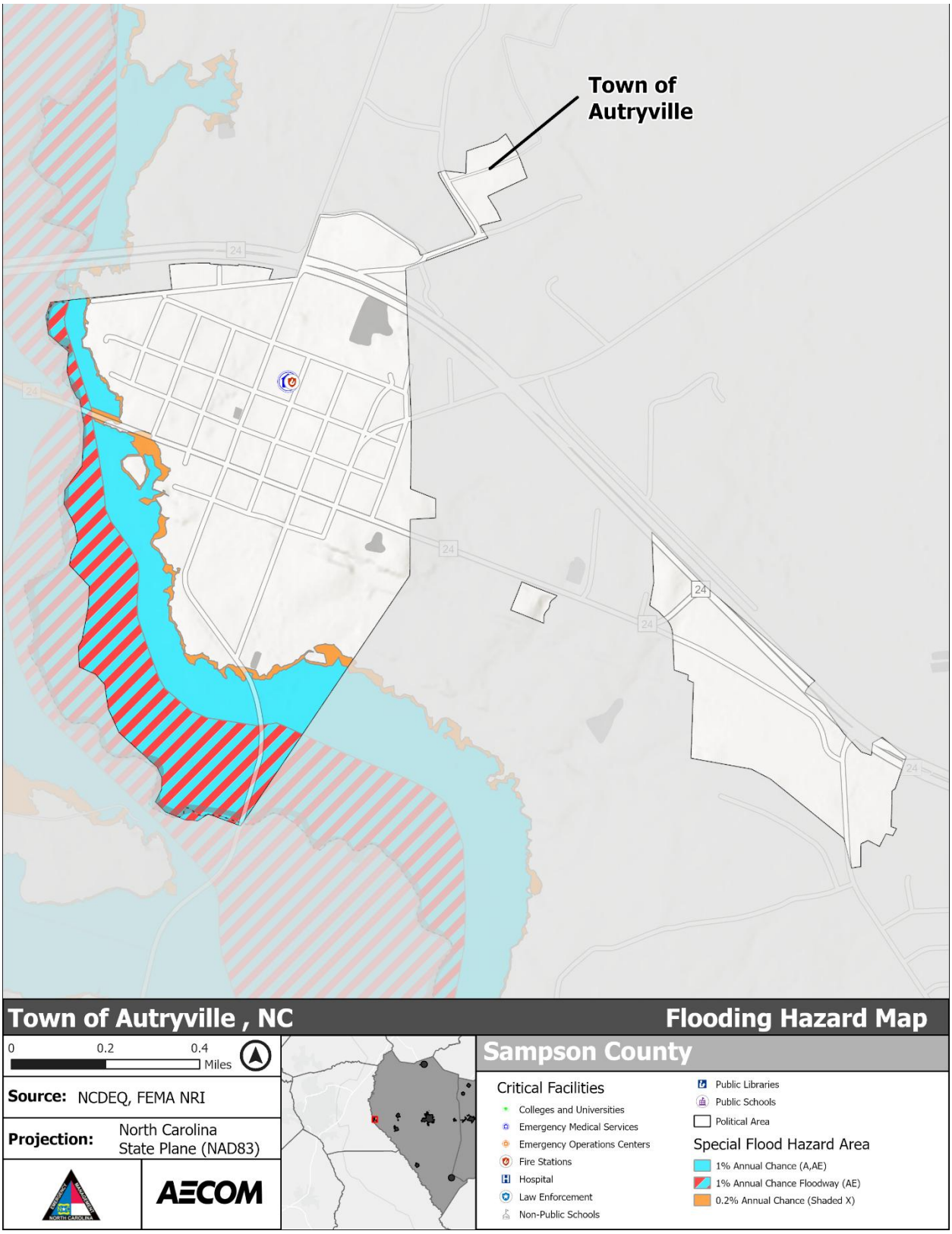


***Figure 5-100**: Town of Autryville Flooding Hazard Map*

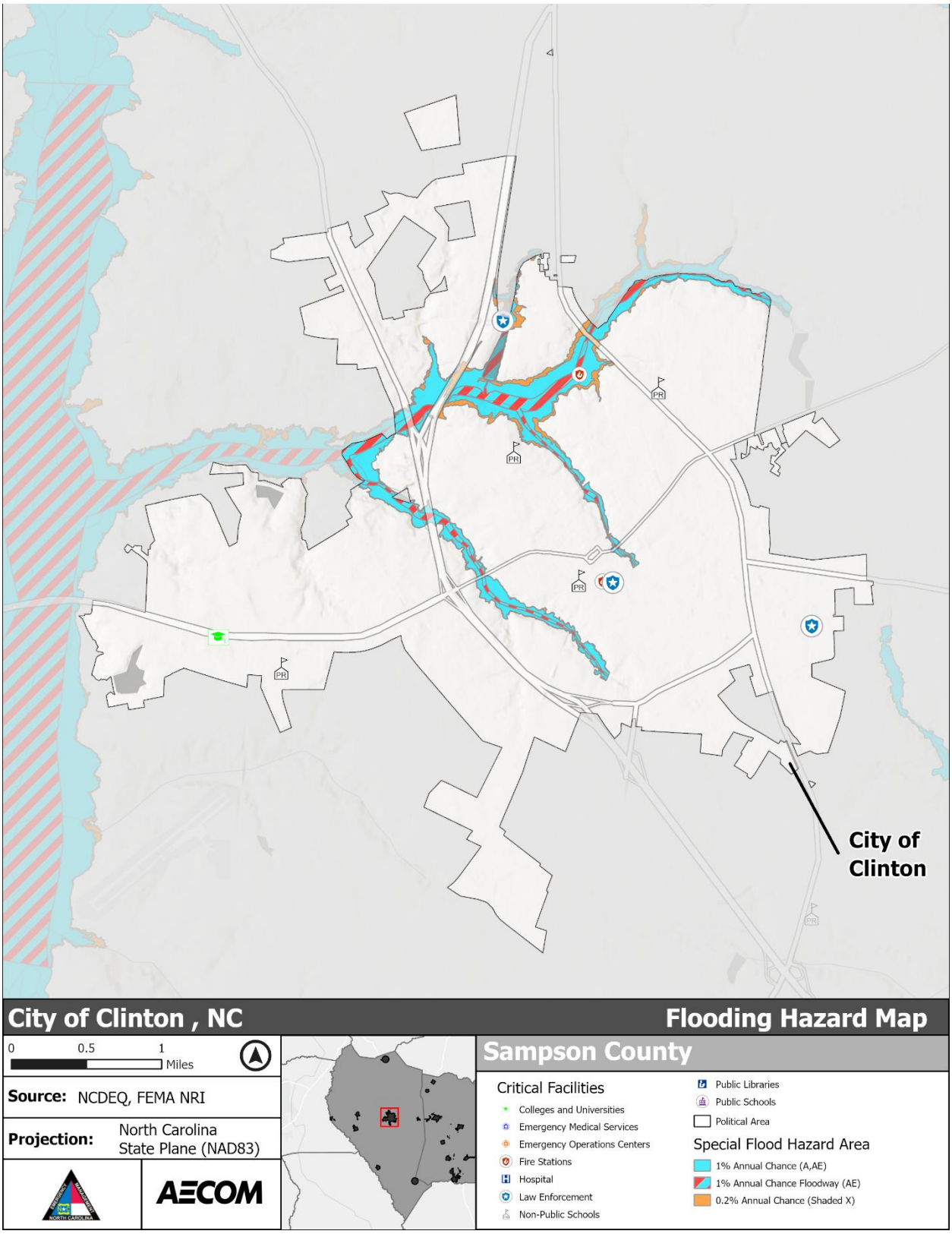


***Figure 5-101**: City of Clinton Flooding Hazard Map*

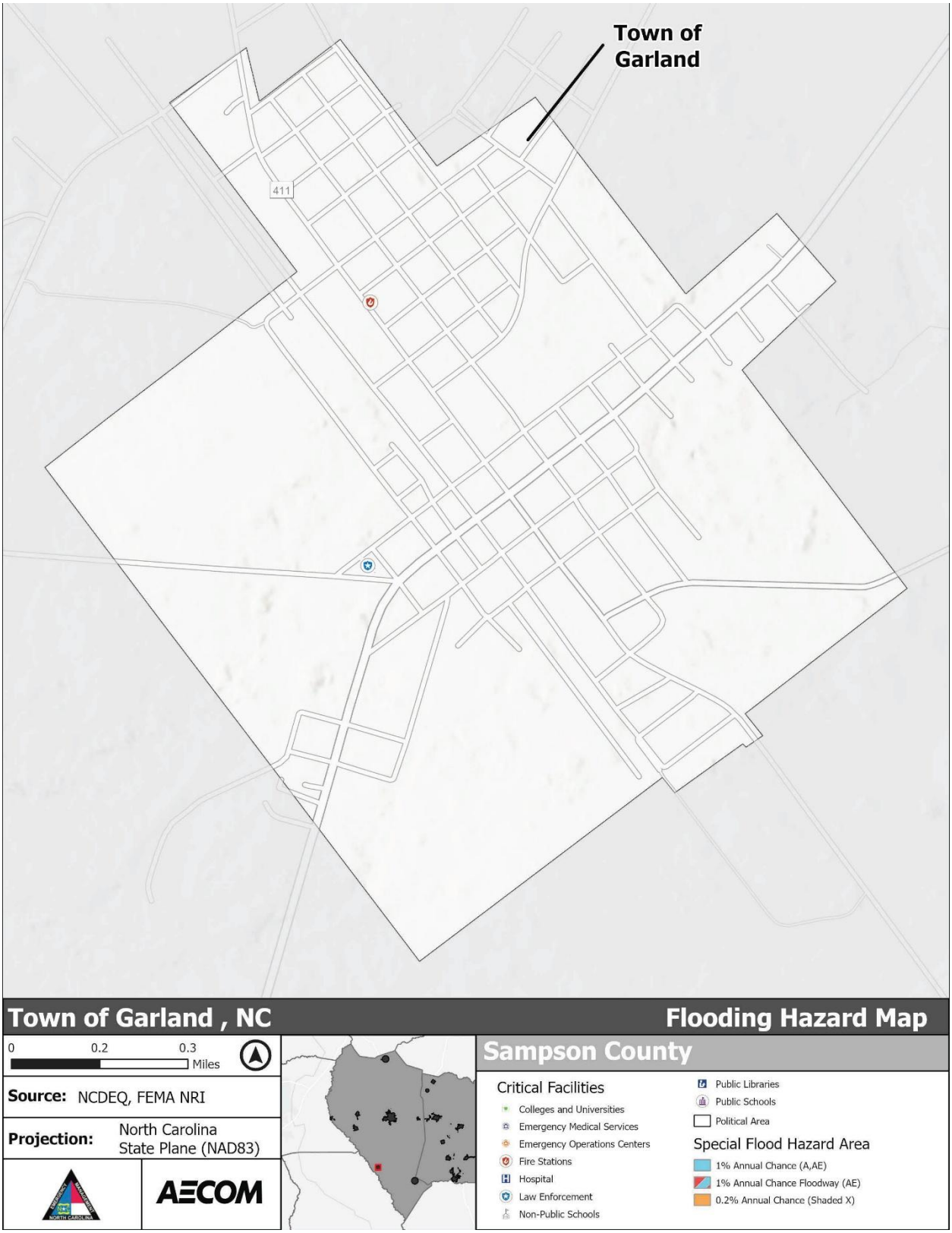


***Figure 5-102**: Town of Garland Flooding Hazard Map*

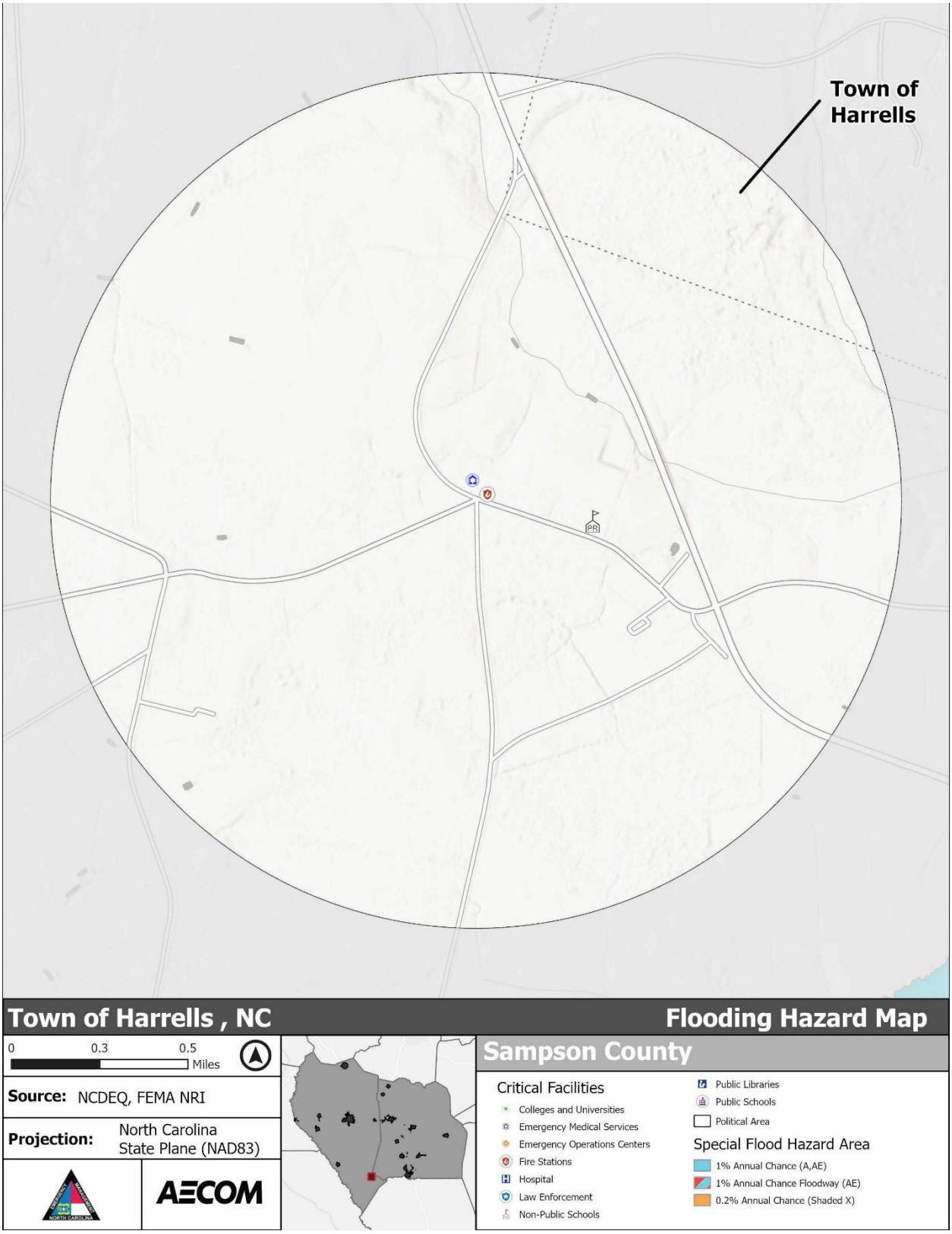


***Figure 5-103**: Town of Harrells Flooding Hazard Map*

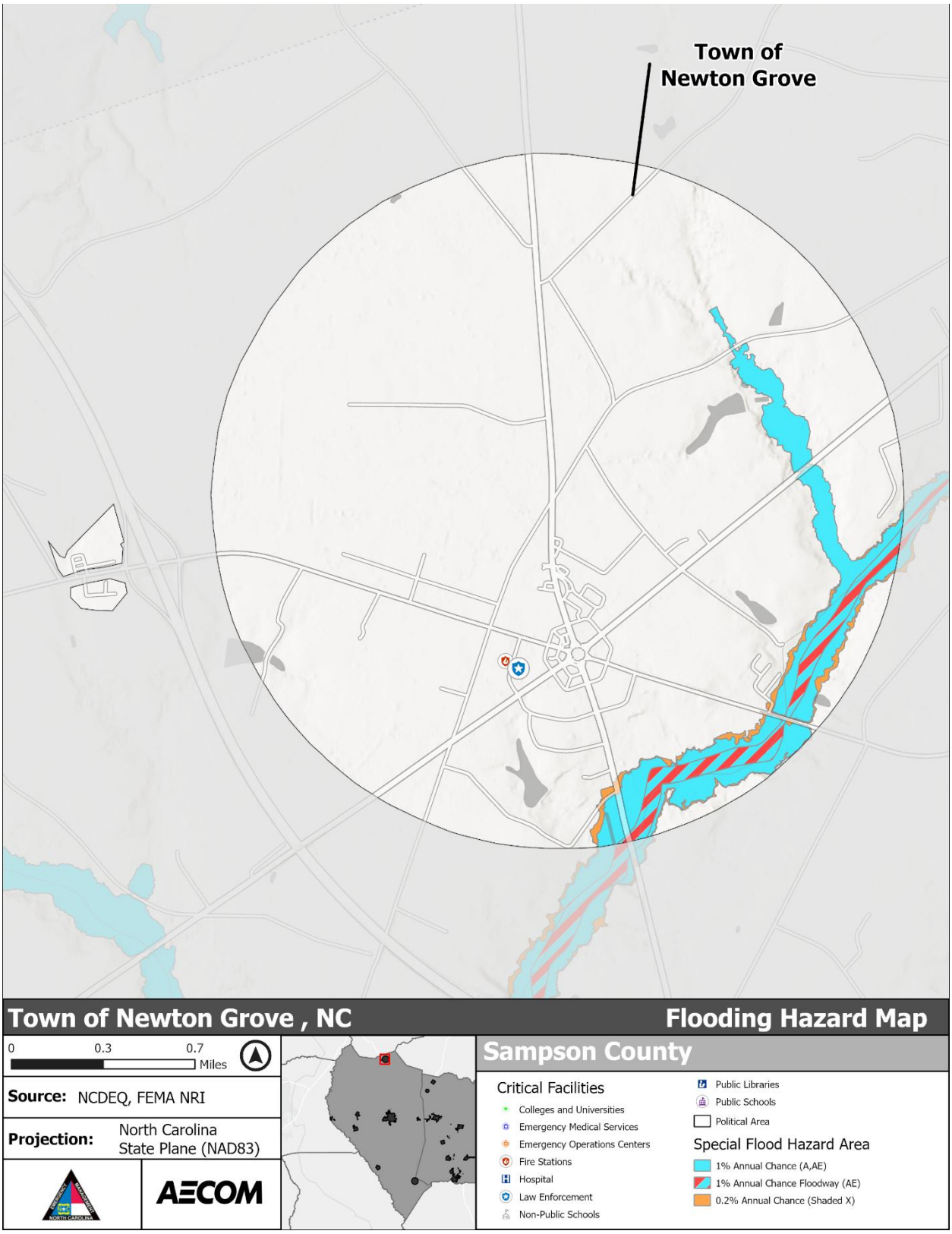
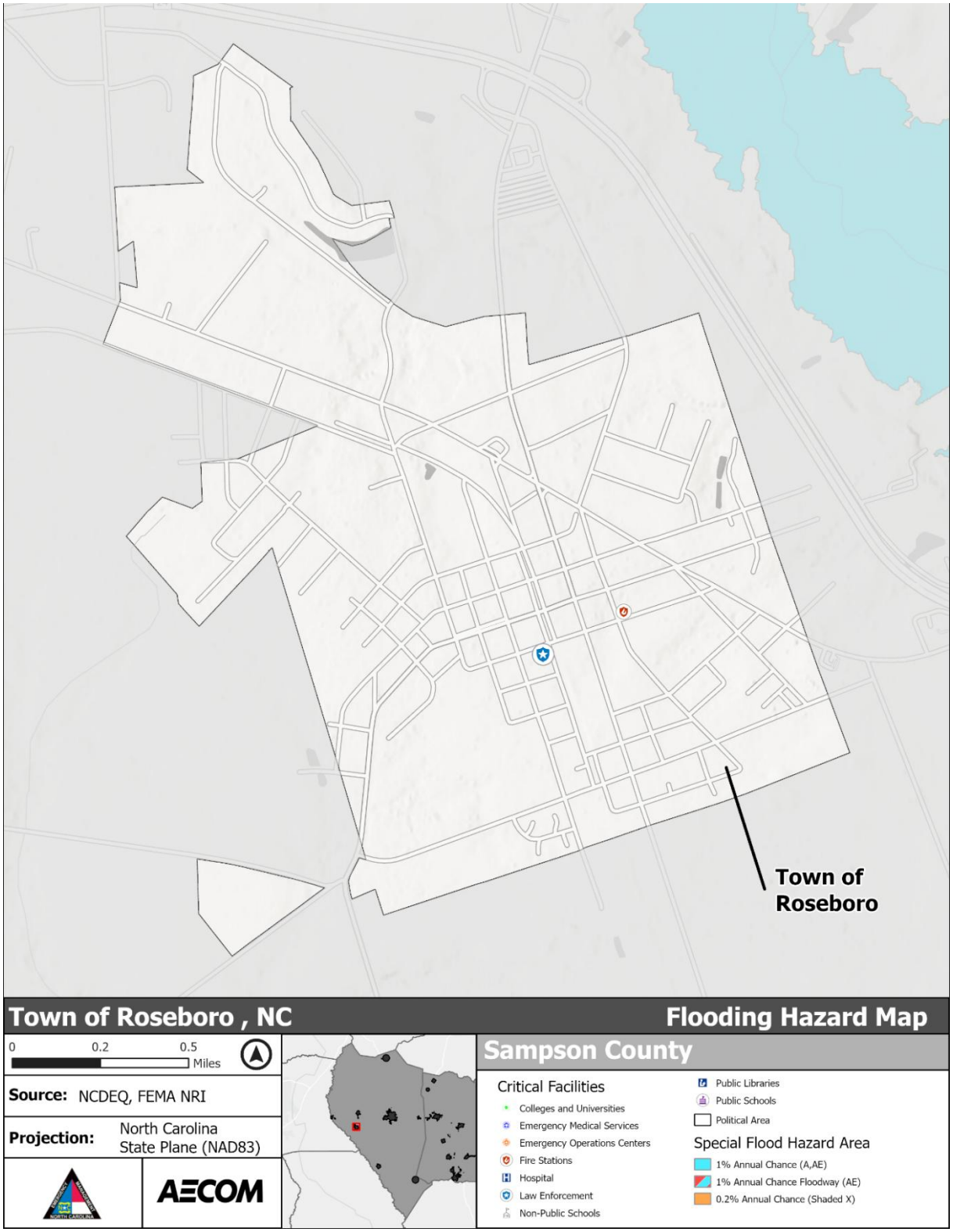


***Figure 5-104**: Town of Newton Grove Flooding Hazard Map*



*A new fire department is under construction, but will not be open until January 2026

***Figure 5-105**: Town of Roseboro Flooding Hazard Map*

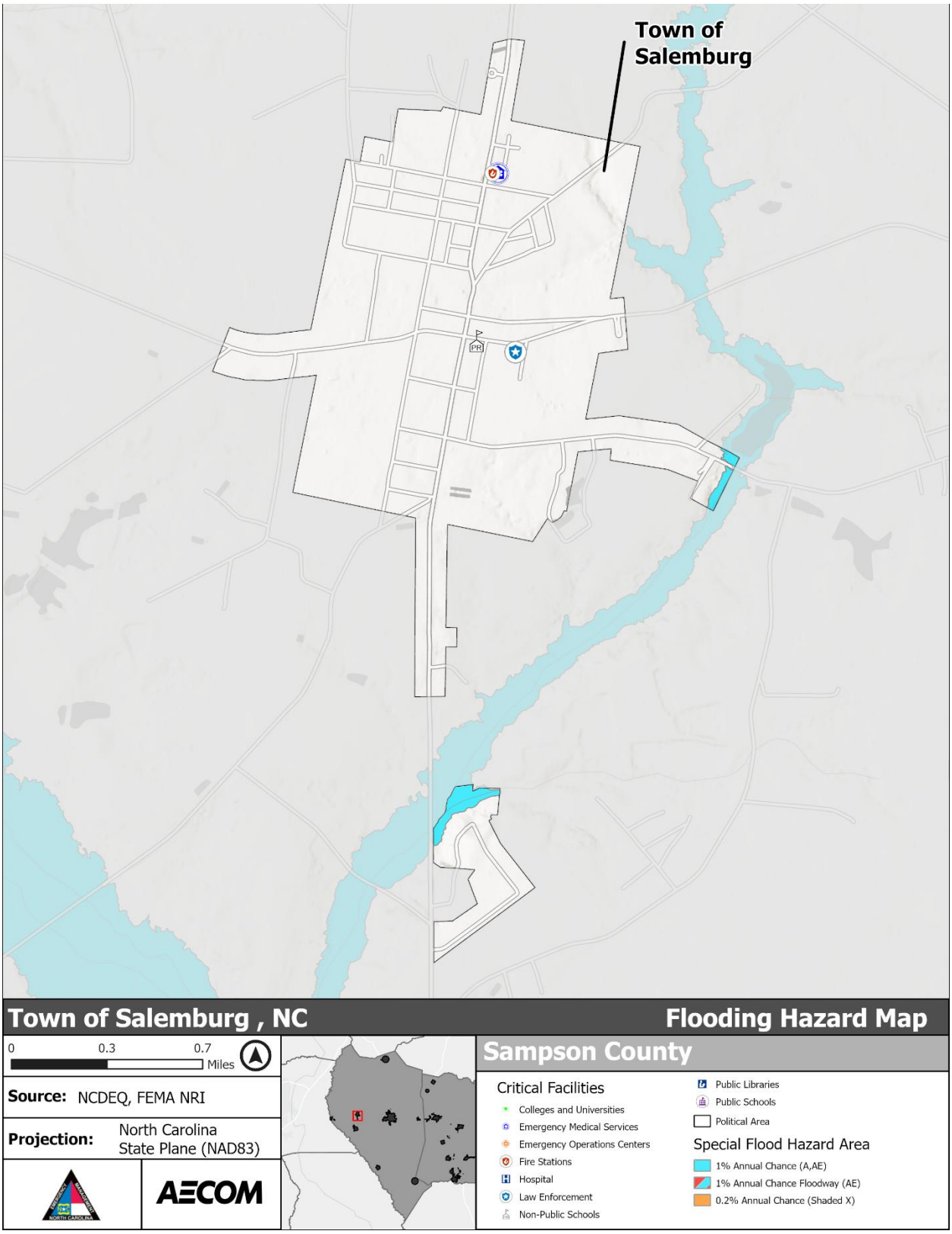


***Figure 5-106**: Town of Salemburg Flooding Hazard Map*

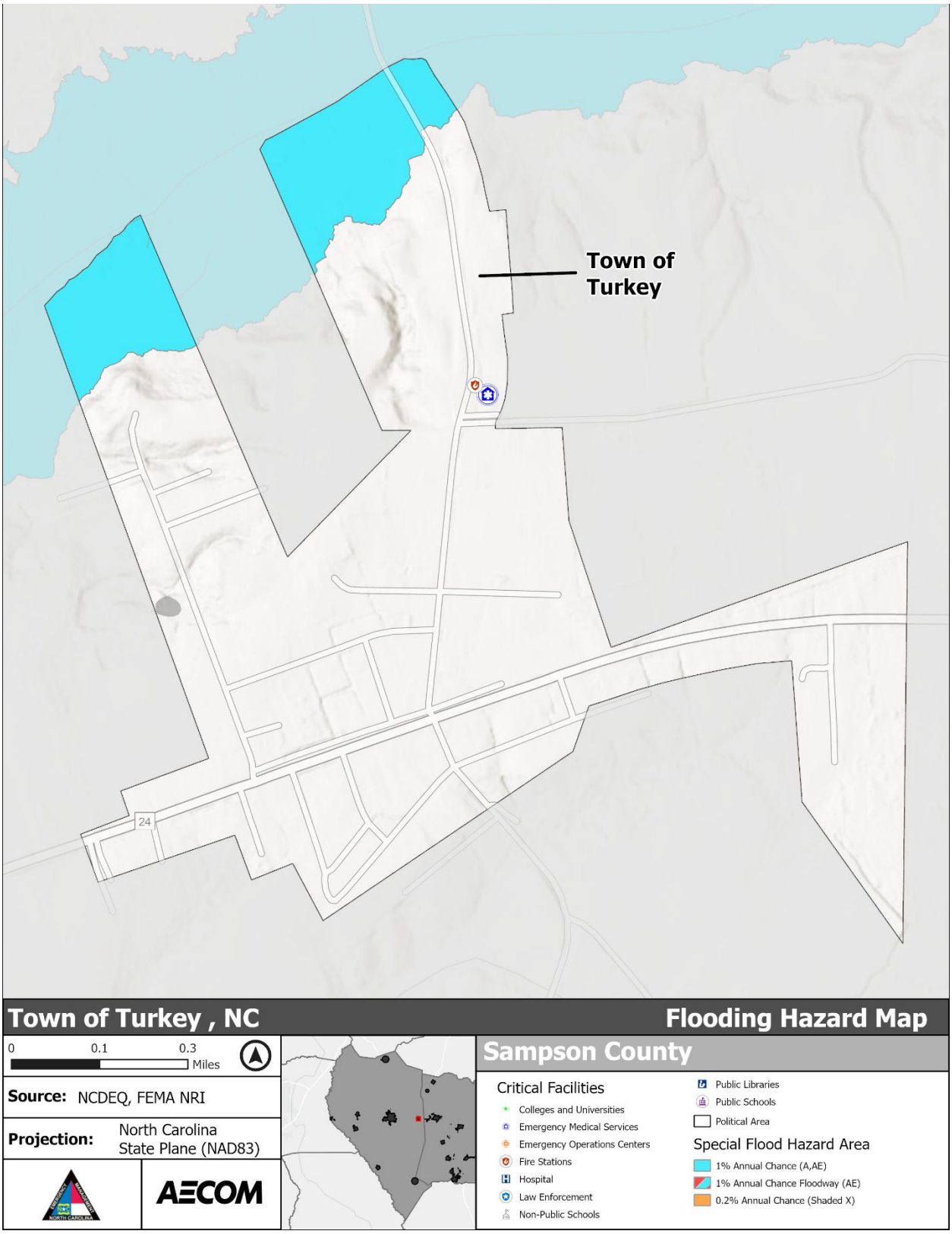


***Figure 5-107**: Town of Turkey Flooding Hazard Map*

5.7.3 Extent

Table 5-31 provides peak river stage data from USGS, showing the highest recorded peak river stage for all jurisdictions.

Table 5-31: Peak Streamflow in the Planning Area from the USGS[62]

County	River	Jurisdiction	USGS Gage Number	HUC	Drainage Area (Square Miles)	Date Of Peak	Gage Height (Ft)	Stream Flow (Cfs)
Sampson	Little Coharie Creek	Roseboro	2106000	3030006	92.80	1924	11.6	--
Sampson	Black River	Tomahawk	2106500	3030006	676	8/2/1960	44.48	7510
Duplin	Nahunga Creek	Warsaw	210782005	3030007	8.3	9/14/1984	94.68	577
Duplin	Herrings Marsh Run	Summerlins Crossroads	210783230	3030007	2.25	9/16/1999	6.76	997
Duplin	Herrings Marsh Run Tributary Near Summerlins Crossroads	Summerlins Crossroads	210783240	3030007	1.49	9/16/1999	7.34	933
Duplin	Herrings Marsh Run Tributary	Red Hill	210783273	3030007	1.14	10/8/1996	6.11	103
Duplin	Herrings Marsh Run Below SR1306	Red Hill	210783276	3030007	9.11	9/16/1999	13.35	1400
Duplin	Grove Creek	Kenansville	210789100	3030007	22.6	6/8/1983	69.25	1880
Duplin	Limestone Creek	Hadley	210797940	3030007	1.61	8/20/1986	4.12	54.8
Duplin	Northwest Cape Fear River	Chinquapin	2108000	3030007	599	9/17/2018	25.77	41300
Duplin	Little Rockfish Creek	Wallace	2108548	3030007	7.8	8/18/1992	8.38	385

5.7.4 Past Occurrences

The following historical occurrences, ranging from 2010 to 2025, have been identified based on the National Climatic Data Center (NCDC) Storm Events database (Table 5-32). It should be noted that only those historical occurrences listed in the NCDC database are shown here and that other, unrecorded, or unreported events may have occurred within the planning area during this timeframe.

[62] US Geological Survey. (n.d.). USGS surface water for North Carolina: Peak streamflow [Dataset]. Retrieved August 22, 2025, from https://nwis.waterdata.usgs.gov/usa/nwis/peak

Table 5-32: Historical Occurrences of River Flooding (2010 to 2025)[63]

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
Duplin	Kenansville Airport	9/29/2010	Flood	$100,000	$1,000,000	Several days of heavy rain led to widespread flooding across Duplin County. With many roads flooded and a few impassable. The flooding damaged many acres of crops.	A stalled front across eastern North Carolina, combined with a deep southerly flow of very moist air, led to several days of torrential rain from September 27th through the 30th. The remnants of Tropical Storm Nicole also lifted north along the coast during the afternoon and evening of September 30th, dropping very heavy rain. Rainfall totals over the region ranged from 6 to 8 inches over the Outer Banks to 12 to 20 inches over the mainland areas. This very heavy rain led to significant flooding across most of the region, especially in low-lying areas and along small streams. There were also reports of strong winds along the coast during the afternoon and evening of September 30th as the remnants of Nicole lifted north across the area. Five people died in Washington County as a direct result of the flooding on the 30th. One tornado was reported during the late evening of September 29th just southwest of Plymouth. Total damage from flooding across the area was estimated at 72.3 million dollars, with 69.6 million due to agricultural losses.
Duplin	Magnolia	8/6/2011	Flood	$0	$0	Law enforcement reported one vehicle stranded in two to three feet of water across Highway 117 in Magnolia.	A warm front lifted north across Eastern North Carolina on August 6th, 2011. Several showers and thunderstorms occurred during the afternoon, with some slow-moving and training cells across Duplin and Onslow counties. These storms produced minor flooding.
Sampson	Clement	8/2/2013	Flash Flood	$0	$0	One foot of water was reported over Maxwell Road and Welcome School Road.	A weak frontal zone stalled across the southeastern portions of central North Carolina. Numerous Showers and thunderstorms formed and trained along the weak frontal zone across northern

[63] National Center for Environmental Information [NCEI]. (n.d.-a). Storm Events Database (By National Oceanic and Atmospheric Administration [NOAA]). National Center for Environmental Information. https://www.ncdc.noaa.gov/stormevents/

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
							Cumberland and northern Sampson counties, with ample moisture and instability. This produced localized flash flooding across rural northern portions of Sampson County.
Sampson	Salemburg	9/8/2014	Flash Flood	$0	$0	High water signs had to be deployed on a couple of roads in western Sampson County, including Bearskin Road at Zoar Church Road and Maxwell Road at Welcome School Road.	Deep tropical moisture was in place across the region as a slow-moving low-pressure system tracked northeast across eastern North Carolina. A large swath of 5 to 8 inches of rain fell across the eastern Piedmont and coastal plain counties of North Carolina throughout the day and into the overnight hours. This heavy rainfall resulted in minor flooding and closed numerous roads across the area. The most severe flooding occurred in Warren County, where as much as 9 inches fell that leading to the collapse of two roads and resulting in minor injuries.
Duplin	Hallsville	9/12/2014	Flood	$0	$0	Heavy rain west of Beulaville produced flooding along Blizzardtown and Hallsville roads.	Numerous showers and scattered thunderstorms along a slow-moving cold front crossed eastern North Carolina during the afternoon and evening of September 12th, 2014. Very heavy downpours led to several reports of flooding in the southern parts of the region.
Sampson	Highsmiths	8/6/2015	Flash Flood	$0	$0	Flooding was reported at several locations along Highway 24 between Roseboro and the county landfill. Several places were impassible.	Numerous storms developed when a potent shortwave interacted with a moisture-rich environment during peak heating. One storm produced widespread wind damage in Randolph County, knocking down numerous trees. In addition, isolated flash flooding occurred in a couple of locations.
Sampson	Garland	10/8/2016	Flash Flood	$0	$0	Torrential rainfall of 10 to 14 inches caused widespread flash flooding across the county. The heavy rains caused flash flooding on several creeks. Numerous	Hurricane Matthew skirted by the North Carolina coast on October 8, 2016, dropping torrential rainfall of 8 to 15 inches and producing wind gusts of 50 to 70 mph across Central and Eastern North Carolina. The large swath of 8 to 15 inches of rain across

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
						roads were closed due to flooding. Numerous homes and businesses were flooded, and water rescues were conducted after people were trapped in homes and vehicles. A 30-year-old Garland man died when his vehicle hydroplaned and struck a tree near N.C. 411.	Eastern and Central North Carolina caused devastating, life-threatening flash flooding, which evolved into major, record-setting river flooding along portions of the Neuse, Cape Fear, and Tar River basins. Matthew's inland flood waters resulted in 11 direct fatalities within the WFO RAH CWA, approximately $686 million in property damage to flooded homes and businesses, and $150 million in crop damage. Countless roads and highways were underwater, and numerous roads were washed out, including sections of Interstates 95 and 40. Besides the 11 direct fatalities, at least three indirect fatalities also occurred. In addition, the associated strong wind gusts of 50 to 70 mph resulted in 1 fatality, when a tree fell onto a moving vehicle. Finally, the EF-1 tornado in Wayne County caused $75,000 in property damage.
Duplin	Faison	10/8/2016	Flash Flood	$0	$0	Highway 403 east of Faison was washed out by severe flooding.	
Duplin	West	10/8/2016	Flash Flood	$0	$0	Severe flooding has damaged Abner Phillips Road near Warsaw.	
Duplin	Faison	10/8/2016	Flash Flood	$0	$0	Emmett Jackson Road was washed out due to Severe flooding north of Faison.	
Duplin	Scott	10/8/2016	Flash Flood	$0	$0	White Flash Road was washed out by severe flooding west of Albertson.	
Sampson	Newton Grove	10/9/2016	Flood	$4,100,000	$25,000,000	Torrential rainfall of 10 to 14 inches caused widespread flash flooding across the county. Additional rainfall upstream caused record major flooding along the Black River near Tomahawk. Flooding damaged approximately 657 structures throughout the county, resulting in $4.1 million in property damage and at least $25 million in crop damage. Numerous roads throughout the county were flooded. U.S. 701 was flooded going into both Newton Grove and Garland, and N.C. 24 was flooded between Turkey and Clinton. N.C. 24 was closed on	

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
						the county line in Autryville, with water flowing over the bridge. Bonnetsville Road, between Salemburg and The Avenue, was washed out. Washed-out areas were also on Edmond Matthis Road, Bass Lake Road, Mount Moriah Church Road, Five Bridge Road, Fleet Cooper Road, and numerous others. Numerous homes and businesses were flooded, and water rescues were conducted after people were trapped in homes and vehicles.	
Duplin	Mt Olive	10/9/2016	Flash Flood	$0	$0	Highway 55 was washed out by severe flooding near Mount Olive.	
Duplin	Warsaw	4/24/2017	Flood	$0	$0	High water was reported on several roads near Warsaw.	A strong coastal low-pressure system moved ashore over Eastern North Carolina during the early morning hours of April 25th. This storm produced strong, gusty winds and triggered several flash flood events and significant river flooding. Winds gusted to over 50 mph on the Outer Banks.
Duplin	Beautancus	4/24/2017	Flood	$0	$0	Several inches of water were reported on Highway 403 south of Mount Olive.	
Duplin	Faison	4/24/2017	Flash Flood	$0	$0	High water was reported on Warren Road near Faison. The road is closed.	
Duplin	Warsaw	4/24/2017	Flash Flood	$0	$0	Seymore Blackmore Road is flooded and closed north of Warsaw.	
Sampson	Parkersburg	9/14/2018	Flash Flood	$0	$0	Torrential rainfall of 15 to 20 inches caused widespread flash flooding across the county. The heavy rains caused flash flooding on several creeks. At least 81 roads in the county were covered by high water, with several washing out. Numerous homes and businesses were also	A ridge of high pressure over eastern North America stalled Florence's forward motion a few miles off the southeast North Carolina coast on September 13th. Hurricane Florence made landfall near Wrightsville Beach early on Saturday, September 15th, and weakened further as it moved slowly inland. Despite making landfall as a weakened Category 1 hurricane, Florence still produced 40 to 70 mph wind gusts, enough wind

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
						flooded. Sampson County emergency officials report that they were conducting multiple water rescues for swift water and that resources were becoming overwhelmed.	speed to uproot trees and cause widespread power outages throughout the Carolinas. As the storm moved inland, from September 15 to 17, heavy rain of 10 to 25 inches caused widespread inland flooding, inundating cities such as Fayetteville, Smithfield, Goldsboro, Durham, and Chapel Hill, and causing major river flooding on main-stem rivers such as the Neuse, Cape Fear, and Little River. Most major roads and highways in the area experienced flooding, with large stretches of I-40 and I-95 remaining impassable for days after the storm. The storm also spawned tornadoes across its path. There were three direct and six indirect deaths attributed to the storm within the WFO RAH CWA.
Duplin	Maready	9/14/2018	Flash Flood	$0	$0	Duplin County EMA reported numerous road closures throughout the county at 1353 LST on the 14th. The town of Kenansville experienced an overflow and failure at its wastewater treatment plant at 0353 LST on the 15th. The city of Kinston was being turned into an island at 19:08 LST on the 14th. Lenoir County performed multiple water rescues throughout the county.	Hurricane Florence was a long-lived Cape Verde hurricane and the wettest tropical cyclone on record in the Carolinas. The sixth named storm, third hurricane, and the first major hurricane of the 2018 Atlantic hurricane season, Florence originated from a strong tropical wave that emerged off the west coast of Africa on August 30, 2018. Florence became a tropical depression near Cape Verde on August 31 and progressed west-northwest, becoming a Tropical Storm on September 1. Florence strengthened rapidly on September 5th, becoming a Category 4 storm on the Saffir-Simpson wind scale with maximum sustained winds of 130 mph. Florence weakened to a tropical storm by September 7, but the system regained hurricane strength on September 9 and major hurricane status with winds of 140 mph on September 10. However, increasing wind shear gradually weakened the storm's winds over the next few days. However, the storm's wind field continued to grow. By the evening of September 13, Florence had been downgraded to a Category 1 hurricane. Hurricane Florence made landfall near Wrightsville

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
							Beach early on Saturday, September 15th, and weakened further as it slowly moved inland. 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 include a record-breaking storm surge of 9 to 13 feet and widespread, devastating rainfall of 20 to 30 inches, locally up to 36 inches, which produced catastrophic and life-threatening flooding. The hardest hit areas included New Bern, Newport, Belhaven, Oriental, North Topsail Beach, and Jacksonville, along with Downeast Carteret County, or basically south of a line from Kinston to Cedar Island. A storm total rainfall of 34.00 inches was reported in Swansboro, while the NWS office in Newport recorded 25.20 inches. Wind gusts of 106 mph were reported at Cape Lookout, with 105 mph at Fort Macon.
Duplin	Kornegay	9/14/2018	Flood	$0	$0	A 65-year-old male drowned in a motor vehicle on NC-111 in Goshen Swamp. The local fire department was performing active water rescues; two were saved, and one resulted in fatality.	A ridge of high pressure over eastern North America stalled Florence's forward motion a few miles off the southeast North Carolina coast on September 13th. Hurricane Florence made landfall near Wrightsville Beach early on Saturday, September 15, and weakened further as it moved slowly inland. Despite making landfall as a weakened Category 1 hurricane, Florence still produced 40 to 70 mph wind gusts, enough wind speed to uproot trees and cause widespread power outages throughout the Carolinas. As the storm moved inland, from September 15 to 17, heavy rain of 10 to 25 inches caused widespread inland flooding, inundating cities such as Fayetteville, Smithfield, Goldsboro, Durham, and Chapel Hill, and causing major river flooding on main-stem rivers such as the Neuse, Cape Fear, and Little
Duplin	Warsaw	9/15/2018	Flash Flood	$0	$0	Warsaw FD reported 20 inches of rainfall at 0500 LST on the 15th. Duplin County experienced catastrophic flash flooding, with numerous rescues and emergency evacuations in place as of 0651 LST. Flash flooding has combined with river flooding and land locked all fire departments and rescue teams,	

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
						with multiple water rescues still being reported as of 0815 LST. At 1136 LST, around 110 roads were washed out by flash flooding, and inland river flooding prevented evacuation travel.	River. Most major roads and highways in the area experienced some flooding, with large stretches of I-40 and I-95 remaining impassable for days after the storm had passed. The storm also spawned tornadoes in several places along its path. There were three direct and six indirect deaths attributed to the storm within the WFO RAH CWA.
Duplin	Sarecta	9/15/2018	Flood	$0	$0	A 79-year-old female drowned in a motor vehicle on North Williams Road. A single person occupied the vehicle.	
Duplin	Wilmar	9/15/2018	Flood	$0	$0	An 81-year-old male drowned in a motor vehicle on Bowden Road, right along the Duplin/Sampson County line. A single person occupied the vehicle.	
Duplin	Kenansville Arpt	9/15/2018	Flash Flood	$0	$0	Three military vehicles swept off the roadway into fast-moving water along Highway 24 near Dobson Chapel Road in Kenansville. Tulls Mill Road was also closed due to a road washout.	
Duplin	Faison	9/17/2018	Flash Flood	$0	$0	Partial lane washout between US117 and State Route 1332 in Faison.	
Sampson	Ivanhoe	9/17/2018	Flood	$8,180,000	$30,000,000	Torrential rainfall of 15 to 20 inches caused widespread flooding across the county. Additional significant rainfall upstream caused a record-breaking major flooding along the Black River near Tomahawk. Flooding damaged approximately 233 structures throughout the county, destroying 19 and resulting in approximately $8.2 million in property damage and at least $30 million in crop damage.	

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
						Numerous roads throughout the county were flooded.	
Sampson	Clinton Arpt	9/5/2019	Flash Flood	$50,000	$0	Flooding of nearby Beaverdam Branch Creek washed out McArthur Lane at Northeast Blvd.	Hurricane Dorian moved north and northeastward near and along the coast of North Carolina on September 5th and 6th, with Dorian making landfall along the Outer Banks of North Carolina during the morning of September 6th. Meanwhile, heavy rain and strong, damaging winds spread inland and across eastern central North Carolina. Heavy rainfall of 3 to 7 inches produced flash flooding across portions of the Coastal Plain of central North Carolina, generally along and east of the Interstate 95 corridor. Strong damaging winds of 35 to 55 mph spread inland across the Coastal Plain and eastern Sandhills of central North Carolina. This resulted in numerous power outages and trees down in these locations. Several weak tornadoes occurred during the afternoon of September 5th as multiple rain bands shifted eastward and into central North Carolina during peak heating.
Sampson	Bonnetsville	9/5/2019	Flash Flood	$75,000	$0	Flooding of the nearby creek, Moccasin Branch Creek, washed out Bass Lake Road.	
Sampson	Clinton	9/5/2019	Flash Flood	$0	$0	Numerous roads closed due to flooding.	
Sampson	Poplar Grove	9/5/2019	Flash Flood	$0	$0	Multiple areas of I-40 have minor flooding on the Roadway, mainly between exits 359 and 355.	
Sampson	Poplar Grove	5/28/2020	Flash Flood	$0	$0	Flash flooding was reported along Interstate 40 near mile marker 357, where a water rescue occurred.	Multicellular to transient supercell thunderstorms produced strong to isolated damaging wind gusts over the Piedmont and Sandhills. Thunderstorms also anchored along a quasi-stationary outflow boundary over Sampson County and produced significant flooding from Clinton to Turkey.
Sampson	Turkey	5/28/2020	Flash Flood	$5,000,000	$0	Multiple roads were reported washed out across central Sampson County, including near Highway 24 and Summerhill Road, Curtis Ivey Road and Summerhill Road, Six Runs Church Road, and Old Warsaw Road, and the 5000 block of Dave Bright Road.	
Sampson	Moultonville	5/28/2020	Flash Flood	$0	$0	Flash flooding along Reedsford Road resulted in a water rescue.	
Sampson	Elliott	5/29/2020	Flash Flood	$0	$0	Multiple roads were reported flooded southeast of Clinton.	Scattered to numerous showers and thunderstorms during the late morning into the early afternoon developed in a moist and unstable air mass with a

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
							deep plume of tropical moisture flowing into central North Carolina in advance of an approaching mid-level disturbance from the southwest. This resulted in several reports of flash flooding across central North Carolina.
Sampson	Monks Xrds	6/19/2020	Flash Flood	$0	$0	Numerous roads were reported to be closed due to flash flooding in Newton Grove.	Cyclonic, perturbed flow related to a weakening mid- and upper-level low centered over Ohio and Pennsylvania supported the development of numerous, mainly multicell storms that produced sub-severe hail and flash flooding. Storms became anchored or back-built by outflow mergers, leading to flash flooding.
Sampson	Hobbton	6/19/2020	Flash Flood	$0	$0	A water rescue occurred due to flash flooding at 1100 Whit Road.	
Sampson	Monks Xrds	6/19/2020	Flash Flood	$0	$0	A water rescue was reported due to flash flooding on United States Highway 701.	
Sampson	Hobbton	6/19/2020	Flash Flood	$0	$0	A water rescue was reported due to flash flooding on Luke Hobbs Farm Road.	
Sampson	Suttontown	6/19/2020	Flash Flood	$0	$0	A water rescue was reported due to flash flooding on Hollingsworth Road.	
Sampson	Giddensville	6/19/2020	Flash Flood	$0	$0	A water rescue was reported due to flash flooding at Goshen Church Road and Giddensville Road.	
Sampson	Newton Grove	6/19/2020	Flash Flood	$15,000	$0	A residence on Mount Olive Drive had to be evacuated due to flash flooding.	
Duplin	Faison	8/7/2020	Flash Flood	$0	$0	A portion of U.S. Highway 117 just north of Faison was undermined by water.	An area of heavy showers and thunderstorms produced some localized flash flooding around the Faison area during the evening hours.

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
Duplin	Bowdens	8/7/2020	Flash Flood	$0	$0	A portion of Warren Rd was impassable due to 2 to 3 feet of water on the road.	
Duplin	Faison	8/7/2020	Flash Flood	$0	$0	Multiple water rescues were reported on Highway 403.	
Duplin	Faison	11/12/2020	Flash Flood	$0	$0	Several roads in and around Faison were flooded. Numerous fields around town were submerged. Nearby Highways 403 and 50 were flooded.	Heavy rain and resulting flash flooding occurred in the afternoon. The rain was caused by a combination of a slow-moving cold front and moisture associated with Tropical Storm Eta, which would eventually track across the northeastern Gulf of Mexico, northern Florida, and well off the NC coast. While rain began the day before, on November 10th, the heaviest rain fell through the afternoon of November 11th. Storm total rainfall of 3 to 6 inches was common across much of Eastern NC, with 6 to 8 inches falling near Snow Hill, Kinston, and northern Duplin County. Numerous reports of flash flooding occurred around the area. In addition to the heavy rain, during the heavier showers, it was quite breezy, with winds of 35 to 45 MPH common. In exposed areas near or over the water, the wind was stronger, with many places gusting over 50 mph.
Sampson	Ingold	11/12/2020	Flash Flood	$0	$0	Flash flooding was reported along the Garland Highway.	Moisture from Tropical Storm Eta was drawn northward into the Mid-Atlantic during Wednesday, November 11th. Meanwhile, a slow-moving cold front approached the area and moved through central North Carolina on Thursday, resulting in widespread showers and isolated thunderstorms. Rainfall totals were generally in the 4 to 6 inches range, although some spots near Rocky Mount saw close to 10 inches of rain by the time the event drew to a close. This resulted in numerous flooded roads, including one death resulting from the flash flooding. One thunderstorm also caused some localized storm damage in Sampson County.
Sampson	Moultonville	11/12/2020	Flash Flood	$0	$0	Flash flooding was reported near State Route 1924, near Turkey.	

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
Sampson	Autryville	7/19/2021	Flash Flood	$100,000	$0	Heavy rain and flash flooding wash out a portion of a road in Autryville.	A wave of low pressure tracked along a stalled front across portions of the southern Coastal Plain. The combination of daytime heating and the aforementioned frontal forcing and moisture pooling along the front lead to the development of heavy rain and isolated flash flooding in Sampson County.
Duplin	Wallace	7/5/2023	Flash Flood	$0	$0	Multiple reports of vehicles stranded in Wallace were received.	Slow-moving thunderstorms produced very heavy rain and some flash flooding in the Jacksonville area and around Wallace.
Duplin	Kenansville	7/9/2023	Flash Flood	$0	$0	Highway 50 flooded near the intersection of Cool Spring Road. The time was estimated based on radar data.	A wavy frontal boundary sagged slowly south through Eastern North Carolina during the afternoon hours. Scattered to numerous severe thunderstorms developed along and ahead of the front, and moved southeast across much of the region, eventually making it all the way to the coast. The severity of this event made it particularly unique, producing rare hail up to 2 in diameter and wind gusts exceeding 70 mph. Additionally, large hail was observed all the way to the coast. Some instances of flash flooding were reported due to very heavy rainfall.
Sampson	Midway	7/14/2023	Flash Flood	$0	$0	Portions of Straw Pond School Rd near Dairy Rd were closed due to flooding.	A few surface boundaries, from upstream thunderstorms over Virginia and the North Carolina Foothills during the afternoon and evening on the 13th of July, converged upon and focused thunderstorm development over central North Carolina, as they settled generally southward throughout the morning through evening hours on the 14th. Damaging wind gusts and flash flooding resulted from a combination of slow-moving showers and thunderstorms.
Sampson	Midway	7/14/2023	Flash Flood	$0	$0	Portions of the North Salemburg highway near US Highway 421 were closed due to flooding.	
Sampson	Clinton	7/14/2023	Flash Flood	$0	$0	Numerous streets in the town of Clinton were flooded out and impassable, including portions of Underwood St, Butler Ave, and West Faison St.	

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
Sampson	Clement	7/19/2023	Flash Flood	$0	$0	Carroll Store Rd near the Big Swamp stream crossing was closed due to flooding.	An old thunderstorm complex moving across the area from the prior evening of the 18th entered a more favorable environment by midday and developed a tornado that tracked several miles over the northern Coastal Plain of central NC. Numerous reports of damage to trees and structures confirmed the tornado as it moved from near Nashville, North Carolina, to near Battleboro, North Carolina, continuing northeast to Scotland Neck. The Tornado produced EF3 damage, with up to 150 mph. Additionally, a boundary over the Sandhills into the southern Coastal Plain brought several reports of downed trees and power lines, along with isolated flash flooding in Cumberland County.
Duplin	Sutton	8/28/2023	Flash Flood	$0	$0	NCDOT closed NC 50 S between Kenansville Bypass and NC 41 due to flash flooding. Water is between SR1141 Stockinghead Road and SR1961 Hallsville Road.	Slow-moving thunderstorms produced some flash flooding during the morning hours.
Sampson	Harrells	8/31/2023	Flash Flood	$0	$0	A fire marshal reported that Highway 41 was flooded near Clear Run.	Tropical Storm Idalia, which tracked east-northeast off the North Carolina coast, brought several inches of rainfall to central North Carolina. Isolated flash flooding was reported in Sampson County.
Sampson	Harrells	8/31/2023	Flash Flood	$0	$0	A fire marshal reported a flooded roadway near the 900 block of Wildcat Rd.	

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
Duplin	Sutton	8/31/2023	Flash Flood	$0	$0	Fourteen roads were closed throughout Duplin County due to high water covering them.	Idalia developed near the Yucatan Channel on August 27th and meandered around for a couple of days before moving into the Gulf of Mexico on August 29th. Idalia rapidly intensified into a major hurricane before making landfall in the Florida Big Bend area as a Category 3 hurricane with sustained winds near 125 mph. Idalia then continued northeast through the Southeast U.S., eventually moving off the coast of South Carolina on August 31st as a tropical storm. Idalia then turned east and passed just south of Eastern NC before eventually moving on towards Bermuda. Across Eastern NC, the biggest impact from Idalia came from water. Across the northern half of Eastern NC, 2-4 inches of rain were common, with 5-10 inches common across the southern half, closer to Idalia's path. Where the heaviest rain fell, numerous roads were closed due to flash flooding. The heavy rainfall also forced the closure of campgrounds in Dare County. In Onslow County, several roads were washed out and leading to the development of sinkholes. In addition to rainfall, there were also impacts from storm surge. Water levels reached as high as 4 feet above ground level, especially in Carteret County, with impacts focused on Downeast, Great Neck Creek, and Back Creek. Tropical storm-force winds were primarily felt across the southern half of Eastern NC, where gusts peaked in the 40-60 mph range, with a few higher gusts. This caused some tree damage and power outages.

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
Sampson	McLamb Xrds	12/17/2023	Flash Flood	$0	$0	Flooding was reported at the intersection of Roanoke Rd and Wrye Branch Rd. The intersection was blocked off from traffic.	An intense area of low pressure developed in the northeastern Gulf of Mexico and then moved northeast along and near the Carolina coastline before moving off the Virginia Capes and into the western Atlantic. This storm system dumped an average of 2 to 5 inches of rain across central North Carolina over a 12-to-18-hour period, resulting in areas of flash flooding and eventually river flooding. In addition, a burst of strong wind gusts spread across the Sandhills and southern Piedmont, producing an area of wind damage, and an isolated cluster of thunderstorms produced damaging winds in the southern Coastal Plain.
Duplin	Warsaw	12/17/2023	Flash Flood	$0	$0	Car stranded in the water on Sam Miller Road, water rescue ongoing.	A strong Nor'easter brought widespread heavy rainfall, isolated flash flooding, high winds, severe weather, and significant coastal flooding to portions of Eastern North Carolina. A few of the more notable impacts were flash flooding, significant ocean over wash on the Outer Banks, high winds of 60-70 mph, and a low-pressure record for December at Cape Hatteras (984 MB).
Duplin	Warsaw	12/17/2023	Flash Flood	$0	$0	Law enforcement reported a couple of water rescues along Highway 117 between Warsaw and Magnolia.	
Duplin	Faison	12/17/2023	Flash Flood	$0	$0	Water across the road along Highway 50 and Highway 117. Multiple cars stuck in water across the county.	
Duplin	Faison	12/17/2023	Flash Flood	$0	$0	The Faison FD/EMS had 4 water rescues.	
Duplin	Calypso	12/17/2023	Flash Flood	$0	$0	Water across Albritton Road, making it impassable.	
Duplin	Calypso	12/17/2023	Flash Flood	$0	$0	Water across Albritton Road, making it impassable.	
Sampson	Clinton Arpt	7/1/2024	Flash Flood	$0	$0	Water was reported across the roadway along Five Bridge Rd, northwest of Clinton.	A wave of numerous scattered showers and storms developed from the northern Coastal Plain into the eastern Sandhills and southern Coastal Plain late in the evening of June 30th and continued into the morning hours of July 1st. This wave of storms was along a cold front sliding south from the Ohio
Sampson	Salemburg	7/1/2024	Flash Flood	$10,000	$0	Water was reported over the roadway along Bonnetsville Rd near Salemburg. Law	

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
						enforcement reported that a vehicle was stranded in a foot-and-a-half-deep body of water in Bonnetsville.	Valley. Several inches of rain led to flash flooding in Sampson County.
Duplin	Cedar Fork	7/11/2024	Flash Flood	$0	$0	The 911 center reported flooding on Fountaintown Rd.	Slow-moving thunderstorms produced very heavy rain and several areas of flash flooding across Eastern NC.
Sampson	Piney Green	8/8/2024	Flash Flood	$2,000	$0	There was flooding on Maxwell Rd.	Tropical Depression Debby slowly made its way through Florida, off the South Carolina coast, then back inland through the western Piedmont of North Carolina during the evening hours of 8 August 2024. Ahead of the storm, numerous feeder bands brought periods of heavy rain to central North Carolina, resulting in widespread rainfall of 4–6 inches across the western Piedmont, with higher amounts to the east. In addition, numerous tornadoes occurred during this event, including one on 7 August and 6 on 8 August, including a rare EF-3 tropical cyclone tornado.
Sampson	Midway	8/8/2024	Flash Flood	$2,000	$0	Little Coharie Creek flooded portions of Benson Highway near the town of Spiveys Corner.	
Duplin	Beautancus	8/10/2024	Flash Flood	$0	$0	Report of water over roadway along Friendship Church Rd 1200 block, as thunderstorms were moving through the area.	Several episodes of heavy rain led to several instances of flash flooding.
Sampson	Harrells	8/10/2024	Flash Flood	$4,000	$0	Several roads in southern Sampson County were closed due to flash flooding.	A stalled cold front focused showers and thunderstorms over the Sandhills to the Coastal Plain of central North Carolina. Storms over Sampson County caused isolated flash flooding, particularly in the southern half of the county.
Duplin	West	8/30/2024	Flash Flood	$0	$0	Public report of flooding along the interchange of I-40 and the S Kenansville Bypass Rd.	Slow-moving thunderstorms produced very heavy rain and several areas of flash flooding across Eastern NC.
Duplin	West	8/30/2024	Flash Flood	$0	$0	Public report of flooding along I-40 West in Magnolia.	

County	Jurisdiction	Date	Event Type	Property Damage	Crop Damage	Event Narrative	Episode Narrative
Duplin	Kenansville	8/30/2024	Flash Flood	$0	$0	Public report of flooded roadway along I-40 just south of JB Stroud Rd.	
Duplin	Quinns Store	9/16/2024	Flash Flood	$0	$0	The Duplin County 911 Center reported multiple flooded roads.	Tropical moisture surged northwards as a developing area of low pressure (PTC #8) off the coast of the Carolinas began to move inland. Heavy tropical rains associated with the low began on the 16th and continued on the 17th across the Outer Banks.
Sampson	Clinton	9/27/2024	Flash Flood	$0	$0	Several roads were flooded in Clinton.	Hurricane Helene weakened to a strong tropical storm on the morning of 27 September across northeast Georgia. Helene continued to track west and northwest into the Tennessee Valley. Widespread rainfall totals of 2-4 inches of rain fell over central North Carolina, along with wind gusts of 25-45 mph. Additionally, four tornadoes occurred, with the strongest EF3, touching down over Rocky Mount in Nash County.

According to NCDC, 36 recorded instances of River Flooding have affected the planning area from 2005 to 2025, causing an estimated three deaths, $17,638,000 in property damage, and $56,000,000 in crop losses. Table 5-33 provides a summary of this historical information by participating jurisdiction. It is important to note that many of the events attributed to the county are countywide or cover large portions of the county.

***Table 5-33**: Summary of Historical River Flooding Occurrences by Participating Jurisdiction between 2005 and 2025 from the NCEI Storm Events Database*[64]

Jurisdictions	Deaths	Injuries	Property Damage	Crop Damage
Duplin County	**3**	**0**	**$100,000**	**$1,000,000**
Beulaville	0	0	$0	$0
Calypso	0	0	$0	$0
Faison	0	0	$0	$0
Greenevers	0	0	$0	$0
Kenansville	0	0	$100,000	$1,000,000
Magnolia	0	0	$0	$0
Rose Hill	0	0	$0	$0
Teachey	0	0	$0	$0
Wallace	0	0	$0	$0
Warsaw	0	0	$0	$0
Sampson County	**0**	**0**	**$17,538,000**	**$55,000,000**
Autryville	0	0	$100,000	$0
Clinton	0	0	$50,000	$0
Garland	1	0	$0	$0
Harrells	0	0	$4,000	$0
Newton Grove	0	0	$4,115,000	$25,000,000
Roseboro	0	0	$0	$0
Salemburg	0	0	$10,000	$0
Turkey	0	0	$5,000,000	$0
Planning Area Total	**4**	**0**	**$17,638,000**	**$56,000,000**

[64] National Center for Environmental Information [NCEI]. (n.d.-a). Storm Events Database (By National Oceanic and Atmospheric Administration [NOAA]). National Center for Environmental Information. https://www.ncdc.noaa.gov/stormevents/

5.7.5 Repetitive Loss Properties

Many of North Carolina's insured losses have involved repetitive loss properties. The Federal definition of a repetitive loss property is "any insured structure with at least two paid flood insurance losses of more than $1,000 each in any rolling 10-year period since 1978" (FEMA). A repetitive loss property may or may not be currently insured by the NFIP. Properties that have suffered repetitive damage due to flooding are currently limited to residential structures. According to FEMA, the following are definitions of the NFIP and FEMA Severe Repetitive Loss and Repetitive Loss Properties:

- **NFIP Repetitive Loss Structure:** A structure covered under an NFIP flood insurance policy that (1) has incurred flood-related damage on two occasions, in which the cost of repair, on average, equaled or exceeded 25% of the value of the structure at the time of each such flood event; and (2) at the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage. (44 CFR § 77.2(i))
- **NFIP Severe Repetitive Loss Structure:** a structure that is covered under an NFIP flood insurance policy and has incurred flood-related damage (1) for which four or more separate claims have been made under flood insurance coverage, with the amount of each claim (including building and contents payments) exceeding $5,000 and with the cumulative amount of such claims payments exceeding $20,000; or (2) for which at least two separate flood insurance claims payments (building payments only) have been made, with cumulative amount of such claims exceeding the value of the insured structure. (44 CFR § 77.2(j))
- **FMA Repetitive Loss:** An NFIP-insured structure that has incurred flood-related damage on two occasions, in which the cost of repair, on average, equaled or exceeded 25 percent of the value of the structure at the time of each such flood event.
- **FMA Severe Repetitive Loss:** An NFIP-Insured structure that has incurred flood-related damage for which four or more separate claims payments have been made, with the amount of each claim (including building and contents payments) exceeding $5,000, and with the cumulative amount of such claims payments exceeding $20,000; or for which at least two separate claims payments (building payments only) have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the building.

***Table 5-34**: Summary of Residential Repetitive Loss Properties in the Sampson Duplin Region*[65]

Community Name	Occupancy Type	NFIP	FMA	NFIP	FMA	Total Losses
		Repetitive Loss		Severe Repetitive Loss		
Duplin County	**2 to 4 Unit Residential Building**	**1**	**0**	**0**	**0**	**2**

[65] National Flood Insurance Program [NFIP]. (2025). NFIP Multiple Loss Properties [Dataset]. In Federal Emergency Management Administration [FEMA], OpenFEMA Dataset (Version V1). FEMA. https://www.fema.gov/openfema-data-page/nfip-multiple-loss-properties-v1

Community Name	Occupancy Type	NFIP Repetitive Loss	FMA Repetitive Loss	NFIP Severe Repetitive Loss	FMA Severe Repetitive Loss	Total Losses
	Non-residential Building	**5**	**0**	**0**	**0**	**11**
	Non-residential Business	**2**	**0**	**0**	**0**	**6**
	Residential Mobile/ Manufactured Home	**1**	**0**	**0**	**0**	**2**
	Single Family Residence	**32**	**11**	**10**	**12**	**87**
	Single-family Residential Building (Residential Unit within a Multi-unit Building)	**12**	**4**	**1**	**1**	**31**
Beulaville	Single Family Residence	1	0	0	0	2
Calypso	Single-family Residential Building (Residential Unit within a Multi-unit Building)	1	0	0	0	3
Faison	-	-	-	-	-	-
Greenevers	-	-	-	-	-	-
Kenansville	-	-	-	-	-	-
Magnolia	-	-	-	-	-	-
Rose Hill	-	-	-	-	-	-
Teachey	-	-	-	-	-	-
Wallace	Single Family Residence	3	0	0	0	7
	Single-family Residential Building (Residential Unit within a Multi-unit Building)	3	0	0	0	7
Warsaw	Single-family Residential Building (Residential Unit within a Multi-unit Building)	2	0	0	0	4
	Single Family Residence	1	0	1	1	5
Duplin Total		**63**	**15**	**11**	**13**	**164**
Sampson County	**Non-residential Business**	**1**	**0**	**0**	**0**	**2**
	Single Family Residence	**11**	**4**	**0**	**1**	**27**
	Single-family Residential Building (Residential Unit within a Multi-unit Building)	**9**	**4**	**0**	**0**	**20**
Autryville	-	-	-	-	-	-
Clinton	Single Family Residence	0	0	0	1	10
	Single-family Residential Building (Residential Unit within a Multi-unit Building)	1	0	0	0	2
Garland	-	-	-	-	-	-
Harrells	-	-	-	-	-	-
Newton Grove	Non-residential Building	1	0	0	0	2
Roseboro	-	-	-	-	-	-

Community Name	Occupancy Type	NFIP Repetitive Loss	FMA Repetitive Loss	NFIP Severe Repetitive Loss	FMA Severe Repetitive Loss	Total Losses
Salemburg	-	-	-	-	-	-
Turkey	-	-	-	-	-	-
Sampson Total		**23**	**8**	**0**	**2**	**63**
Planning Area Total		**86**	**23**	**11**	**15**	**227**

5.7.6 Probability of Future Occurrences

The NRI calculates the probability and risk of riverine flooding based on the NFIP National Flood Hazard Layer, which depicts the 1% annual chance floodplain. Historical event sources for flooding are the NCDC/NCEI Storm Events Database from 1/1/1996 to 12/31/2019, which includes reported losses, dates of occurrence, and counties of occurrence, to calculate the annualized frequency of Riverine Flooding.

According to the NRI, Duplin County has an annualized frequency of 0.88 river flooding events, and Sampson County has an annualized frequency of 1.07. Duplin County has an EAL total of $365,339 attributed to river flooding, a Relatively Moderate EAL Rating, and a Relatively Moderate Hazard Risk Rating. The jurisdictions with the highest total EAL are Wallace ($104,325), Unincorporated areas ($73,662), and Kenansville ($46,409). The jurisdictions in Duplin County with the highest EAL ratings are Greenevers, Wallace, and Kenansville, which all had an average EAL rating of Relatively High.

***Table 5-35**: NRI annualized frequency, EAL Total, Average EAL, and Average Hazard Risk Index score for River Flooding in the planning area*

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Duplin County	**0.88**	**$365,339.95**	**52.68**	**Relatively Moderate**	**55.49**	**Relatively Moderate**
Beulaville	0.88	$17,482.90	52.11	Relatively Moderate	55.80	Relatively Moderate
Calypso	0.88	$410.57	30.26	Relatively Low	31.96	Relatively Low
Faison	0.88	$410.57	30.26	Relatively Low	31.96	Relatively Low
Greenevers	0.88	$31,606.81	71.45	Relatively High	76.26	Relatively High
Kenansville	0.88	$46,409.68	61.43	Relatively High	64.89	Relatively High

Magnolia	0.88	$44,887.01	59.68	Relatively Moderate	62.75	Relatively High
Rose Hill	0.88	$30,323.87	51.59	Relatively Moderate	54.06	Relatively Moderate
Teachey	0.88	$12,210.49	57.44	Relatively Moderate	63.13	Relatively High
Wallace	0.88	$104,325.83	65.33	Relatively High	68.24	Relatively High
Warsaw	0.88	$3,609.34	34.72	Relatively Low	37.55	Relatively Low
Unincorporated Area	0.88	$73,662.86	49.61	Relatively Moderate	51.55	Relatively Moderate
Sampson County	**1.07**	**$1,416,831**	**77.6**	**Relatively High**	**75.19**	**Relatively High**
Autryville	1.08	$20,111.22	64.72	Relatively High	62.28	Relatively High
Clinton	1.08	$314,409.11	77.47	Relatively High	81.84	Very High
Garland	1.08	$512,735.90	97.16	Very High	98.23	Very High
Harrells	0.98	$83,549.02	74.80	Relatively High	76.79	Relatively High
Newton Grove	1.08	$18,930.88	63.78	Relatively High	66.25	Relatively High
Roseboro	1.08	$19,557.64	64.28	Relatively High	68.16	Relatively High
Salemburg	1.08	$3,102.27	41.35	Relatively Moderate	41.87	Relatively Moderate
Turkey	1.08	$159,023.84	90.73	Very High	92.05	Very High
Unincorporated Area	1.08	$314,919.33	69.99	Relatively High	73.42	Relatively High

5.7.7 Consequence and Impact Analysis

5.7.7.1 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 on the ground that 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 to polluted waters in 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 overload sewer lines, causing backups into low-lying areas and homes. Even when flood waters dilute it, raw sewage can be a breeding ground for bacteria such as E. coli and other disease-causing agents. All jurisdictions in the Region are susceptible to this type of impact.

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 are not properly cleaned can 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 inhaled by occupants. If the City water system loses pressure, a boil order may be issued to protect people and animals from contaminated water.

The third problem is the long-term psychological impact of surviving a flood and seeing one's home damaged and personal belongings destroyed. The cost and labor needed to repair a flood-damaged home put a severe strain on people, especially the unprepared and uninsured. There is also a long-term problem for those who know their homes can flood again. The resulting stress on floodplain residents takes its toll in the form of aggravated physical and mental health problems. Individuals who have limited mobility, who require medical equipment, or who have limited capabilities to prepare for flooding, which includes Individuals with disabilities (14.6% in Sampson County and 17.3% in Duplin County)[66] can be disproportionately impacted by flooding events and are at an increased risk of injury or death.

Technology has become a critical resource for communicating flooding risks, impacts, preparedness information, and safety. Many preparedness resources and alerts are issued online. While it is increasingly common to issue public safety alerts and preparedness information through online resources, many residents lack access to computers. Approximately 11.7% of housing units in Sampson County and 11.9% in Duplin County lack computing devices, further limiting residents' access to public awareness information. Additionally, an estimated 16.9% of households in Sampson County and 20.9% of households in Duplin County do not have an internet subscription, which limits residents' ability to access a wide range of

[66] U.S. Census Bureau, U.S. Department of Commerce. "Disability Characteristics." American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1810, https://data.census.gov/table/ACSST5Y2023.S1810

publicly available preparedness materials online. To prepare residents for hurricane and tropical storm events, it is important that the planning area considers developing a wide range of preparedness and awareness materials to communicate hurricane and tropical storm risk. This includes using various media, such as radio, flyers, and newspapers.

Many emergency alerts are issued through reverse 911 systems and require a telephone service to receive them. However, several household units are estimated not to have telephone service (0.9% of Housing Units in Sampson County and 0.6% in Duplin County), which means these residents may not have access to important, time-sensitive emergency alerts. It is important that residents in the planning area have some method of receiving emergency alerts and preparedness information.

5.7.7.2 Changes in Development

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. Any infrastructure or development may be impacted by flooding. It is important that any new development is designed to reduce flooding impacts and avoid areas with increased flood risk.

5.7.7.3 Economy

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

5.7.7.4 Natural Environment

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

5.7.7.5 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 to the critical facilities themselves, prolonging response time. Flooding may also result in residents being trapped by floodwater, so first responders may be at an increased risk when responding to emergency calls during and after flood events where infrastructure is damaged or roads are damaged.

5.7.7.6 Future Conditions

According to the NCCSR, extreme precipitation is likely to increase inland flooding in NC, and there is high confidence that the frequency and intensity of heavy precipitation will increase.

5.8 SEVERE WEATHER (THUNDERSTORM WIND, LIGHTNING & HAIL)

5.8.1 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 warm, moist air rises, it cools, condenses, and forms cumulonimbus clouds that can reach heights of more 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, thunderstorms most often organize into clusters or lines. Warm, humid conditions are favorable for thunderstorm development. 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 of many severe weather phenomena, posing significant hazards to the population and the 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 Winds 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, as well as 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 that property damage, increased operating costs, production delays, and lost revenue from lightning and its secondary effects exceed $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 them.

Hail

Hail is associated with thunderstorms, which can also bring high winds and tornadoes. 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.

5.8.2 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. Per the National Weather Service Instruction 10-1605, a lightning event is defined as a sudden electrical discharge from a thunderstorm, resulting in a fatality, injury, and/or damage, so each point represented on map for event type “lightning” records the 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.

The following maps represent the NWS Storm Prediction Center (SPC) severe weather event reports, which include hail data from multiple sources, including public submissions, media sources, insurance sources, emergency managers, and trained spotters, and are reviewed, quality-checked, and compiled into the monthly storm data publications. The following represent the reported hail, wind, and lightning events in the planning area between 2010 and 2025, including a heat map showing where severe weather events were reported sparsely or densely.

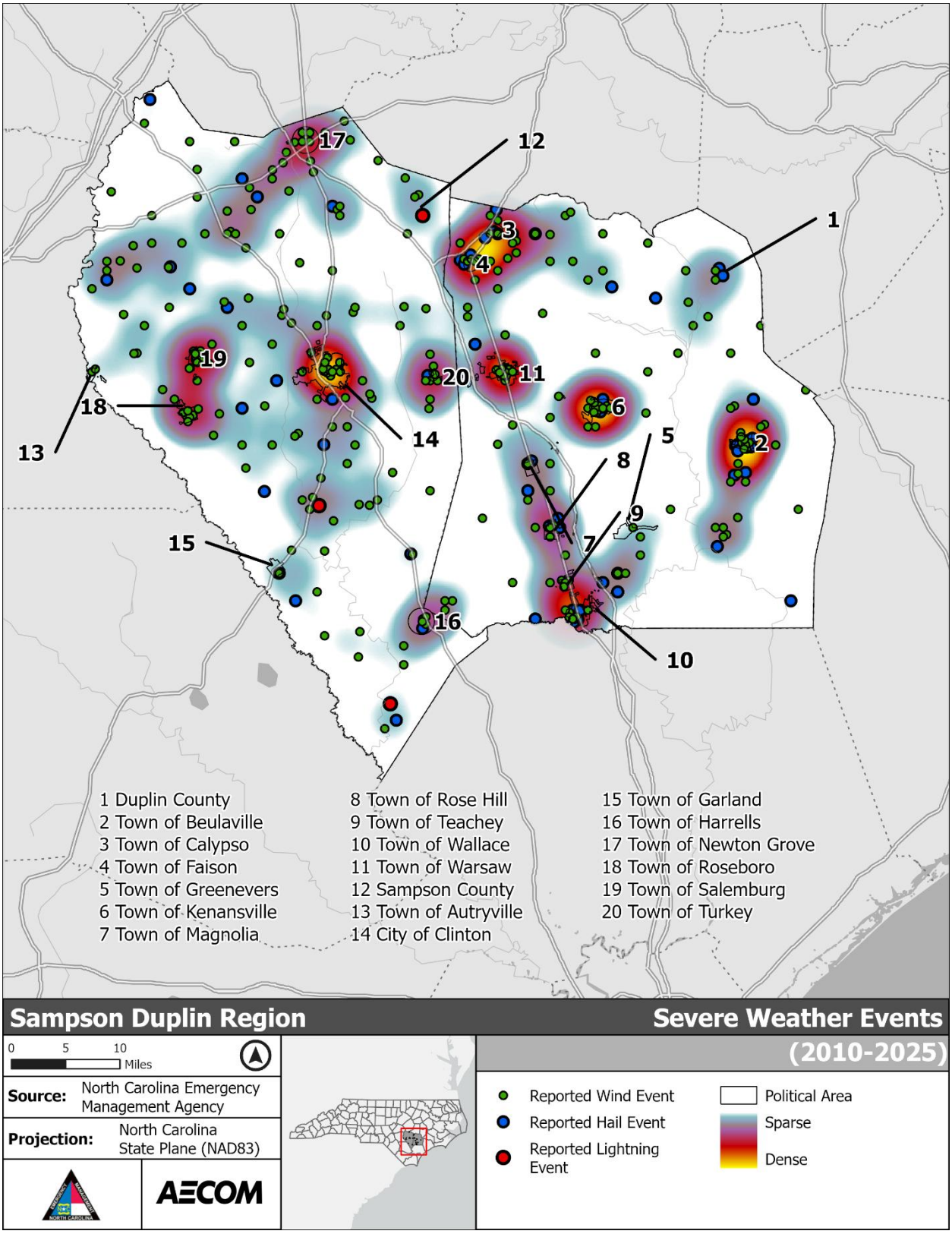


***Figure 5-108**: Sampson Duplin Severe Weather Map - Regional*

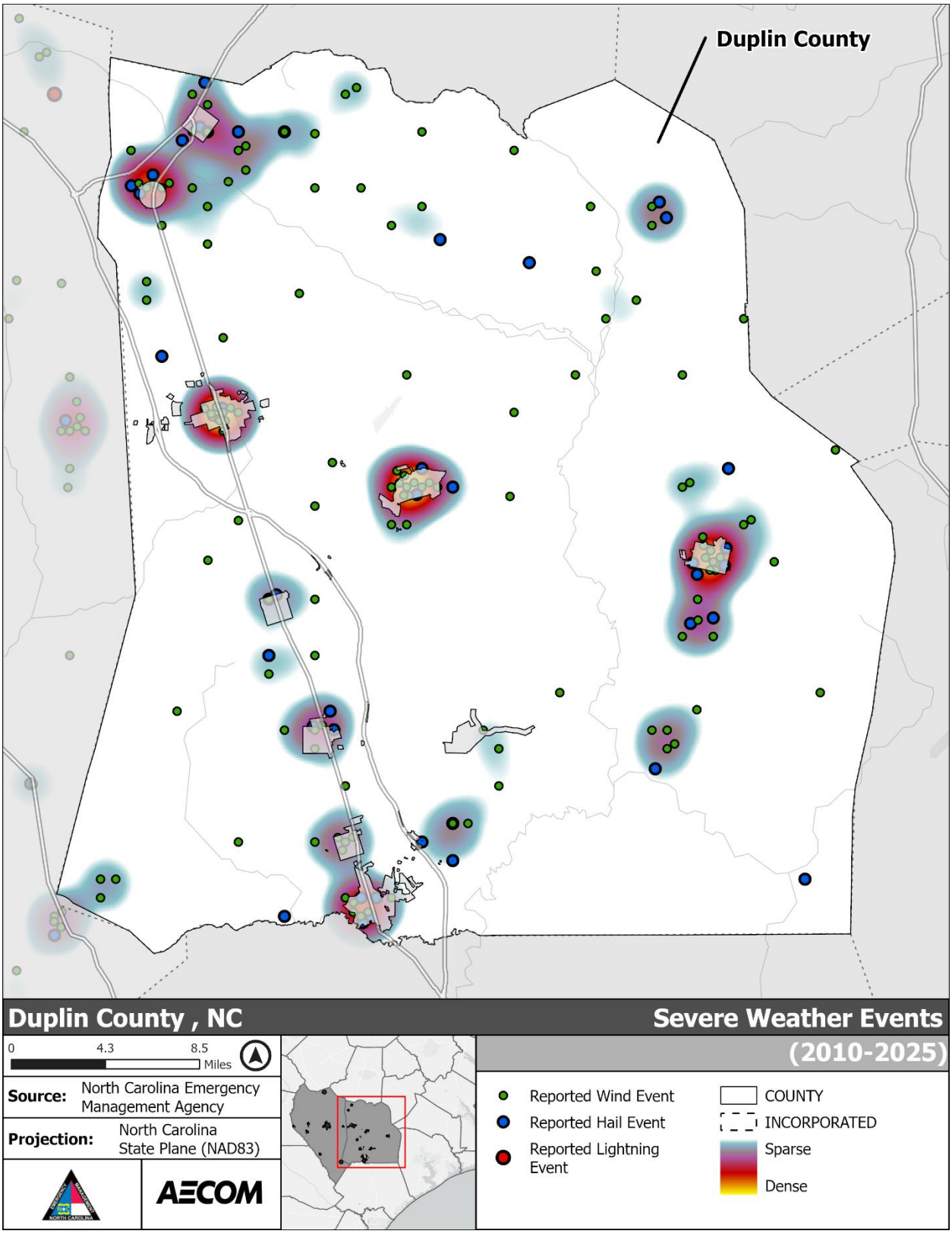


***Figure 5-109**: Duplin County Severe Weather Map*

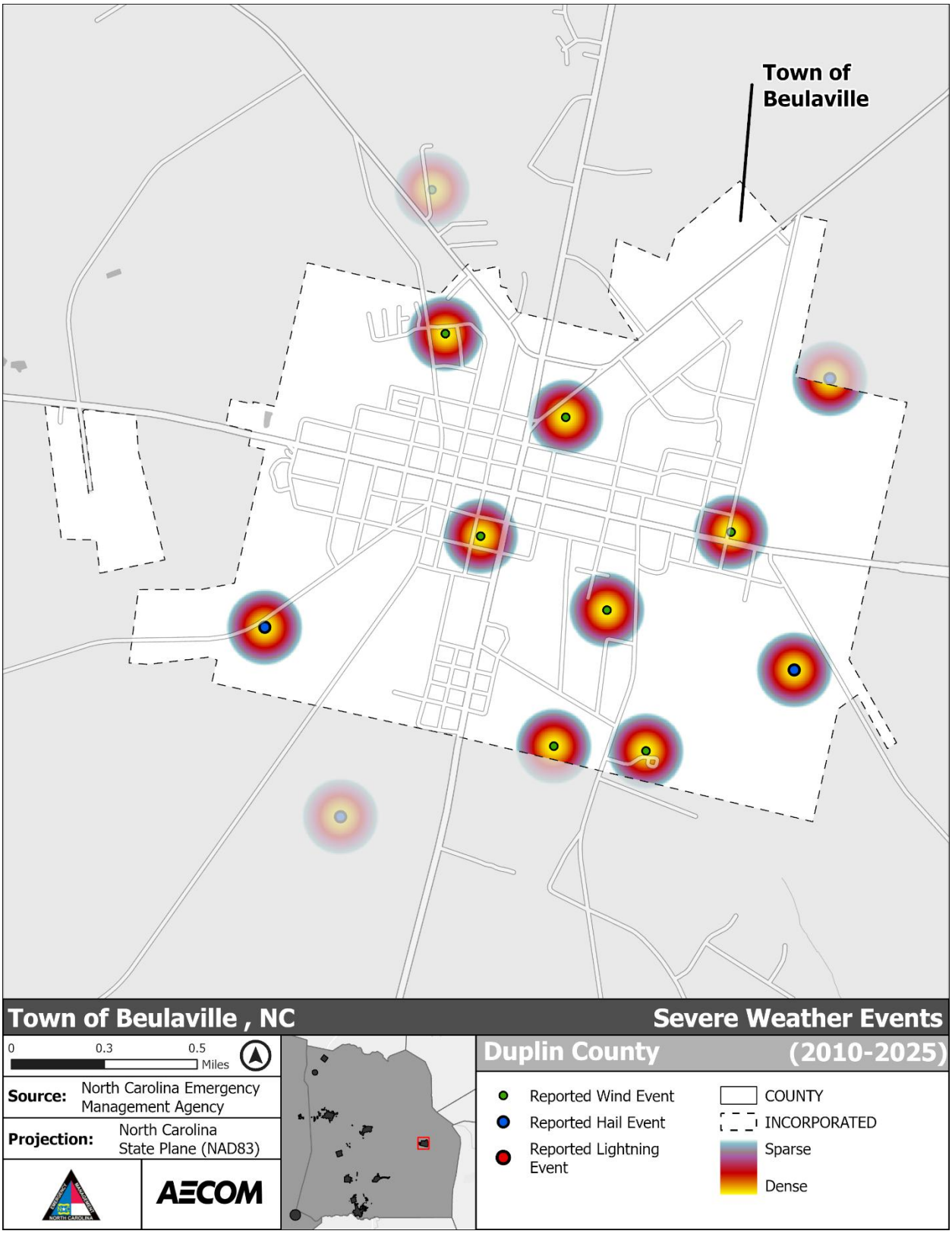


***Figure 5-110**: Town of Beulaville Severe Weather Map*

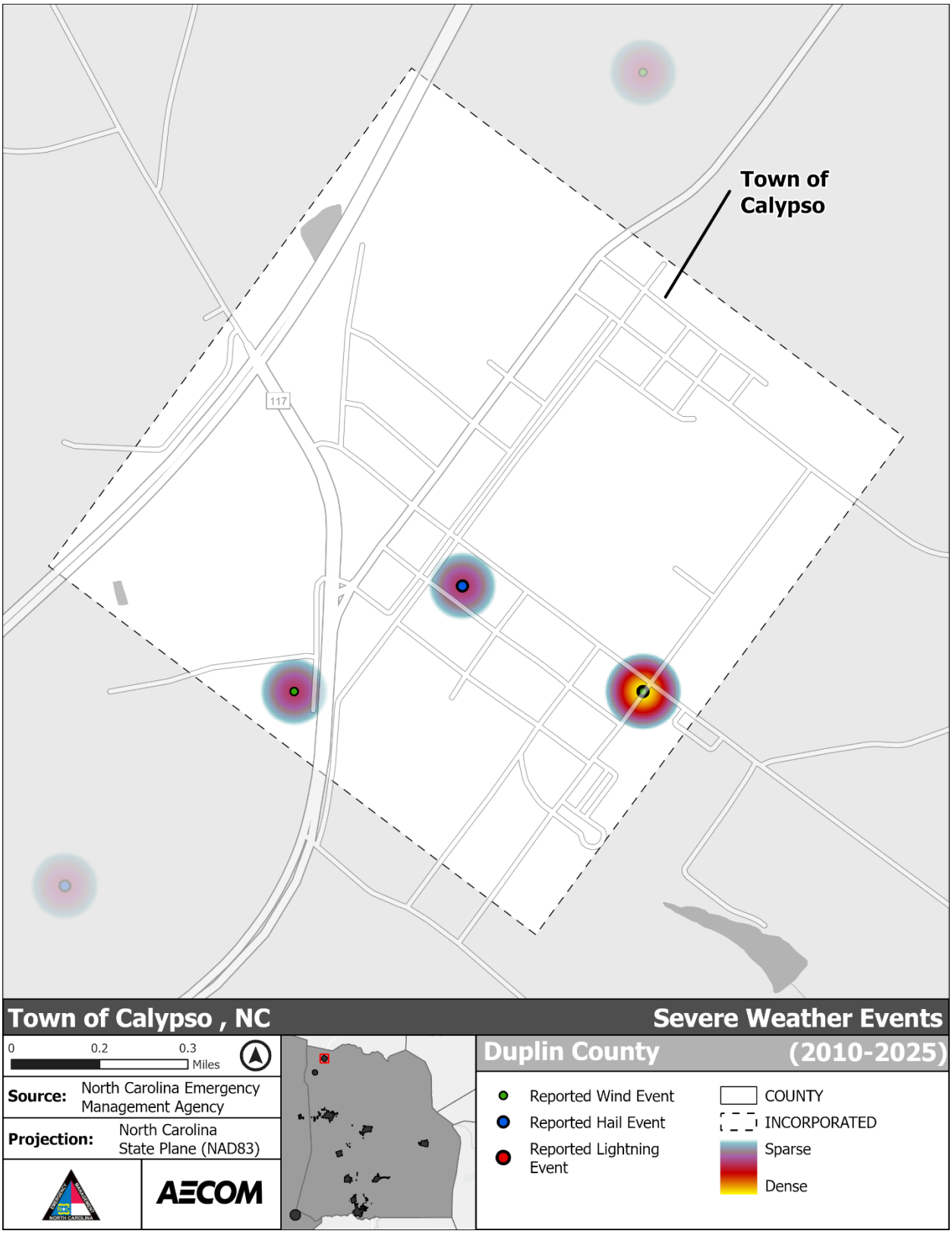


***Figure 5-111**: Town of Calypso Severe Weather Map*

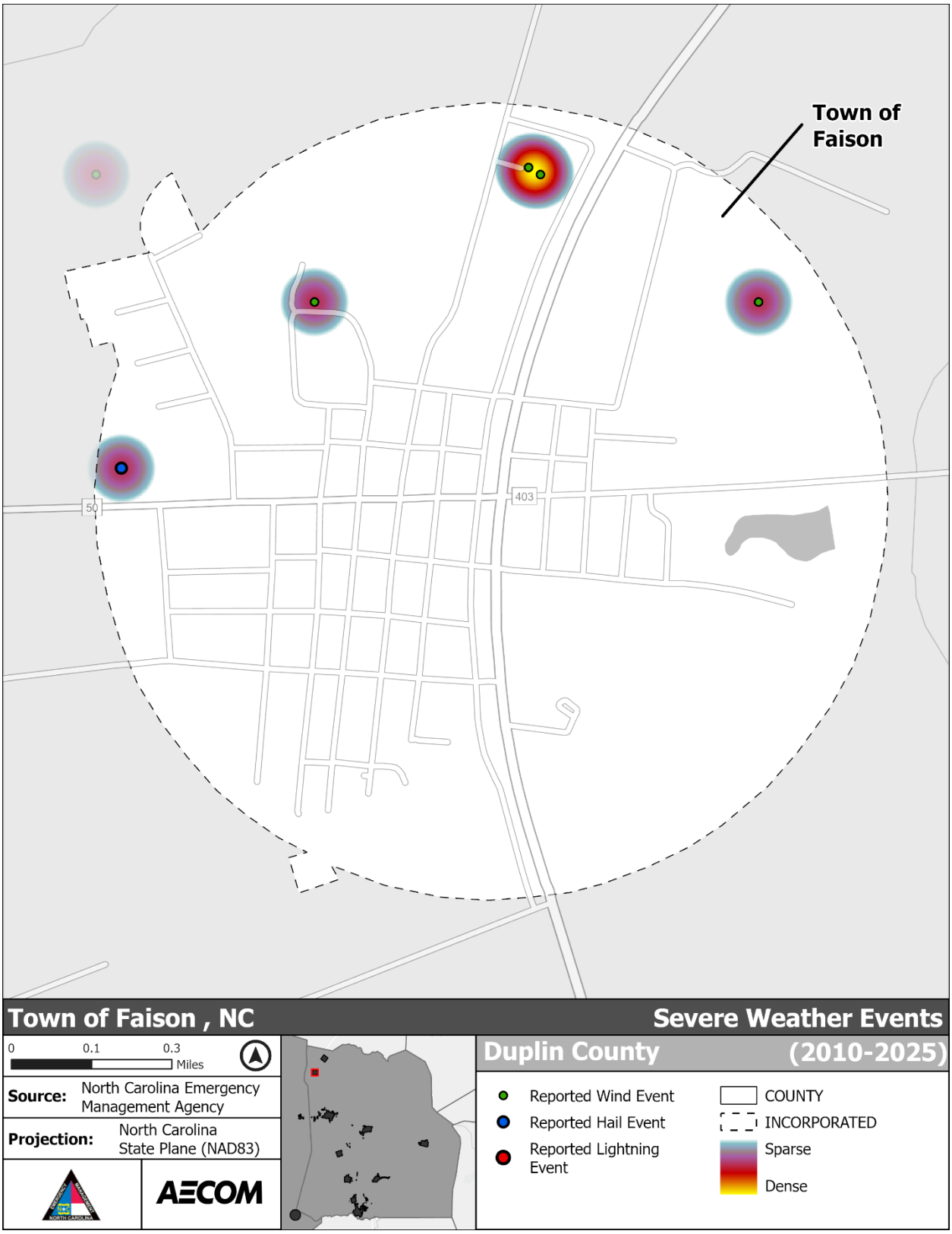


***Figure 5-112**: Town of Faison Severe Weather Map*

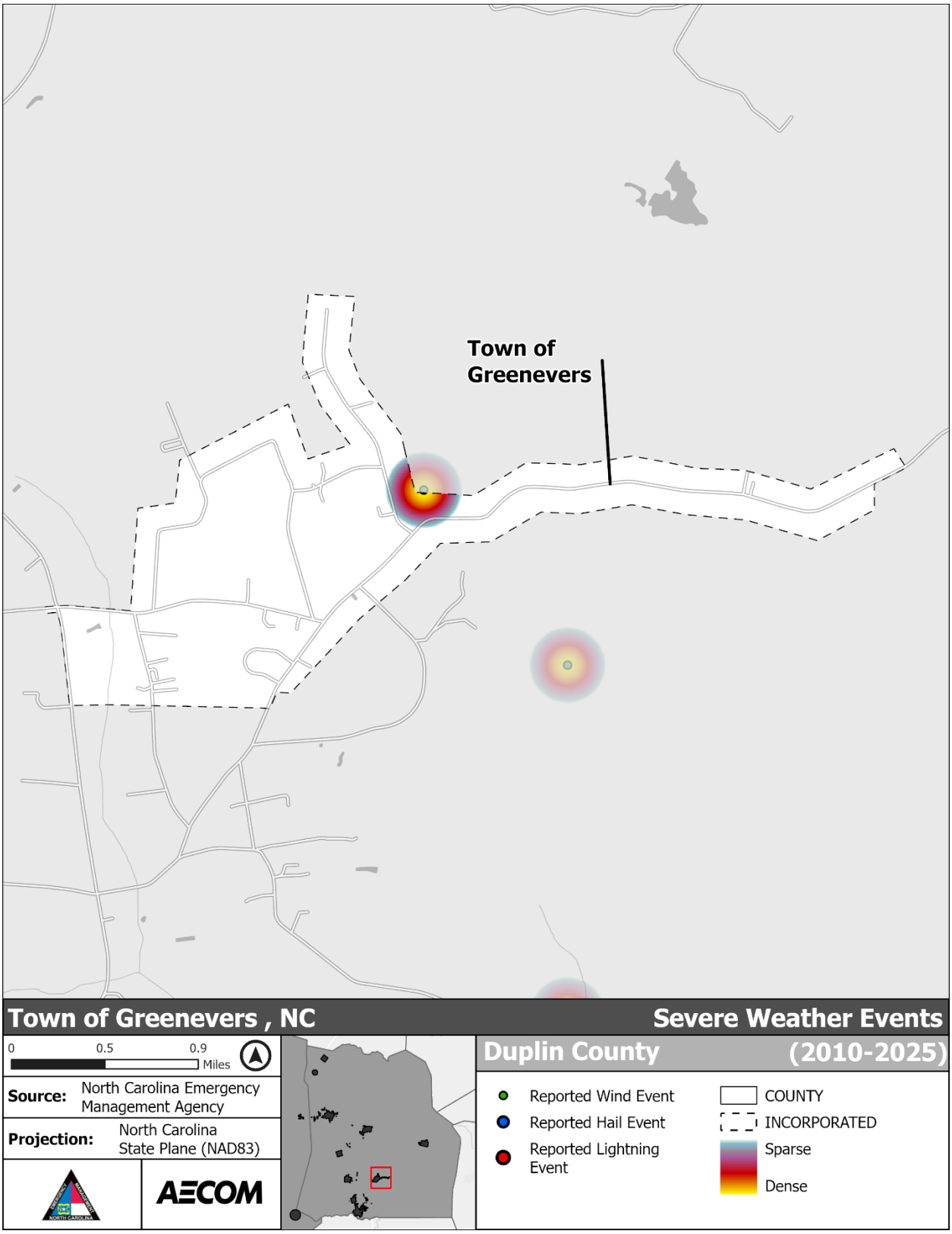


***Figure 5-113**: Town of Greenevers Severe Weather Map*

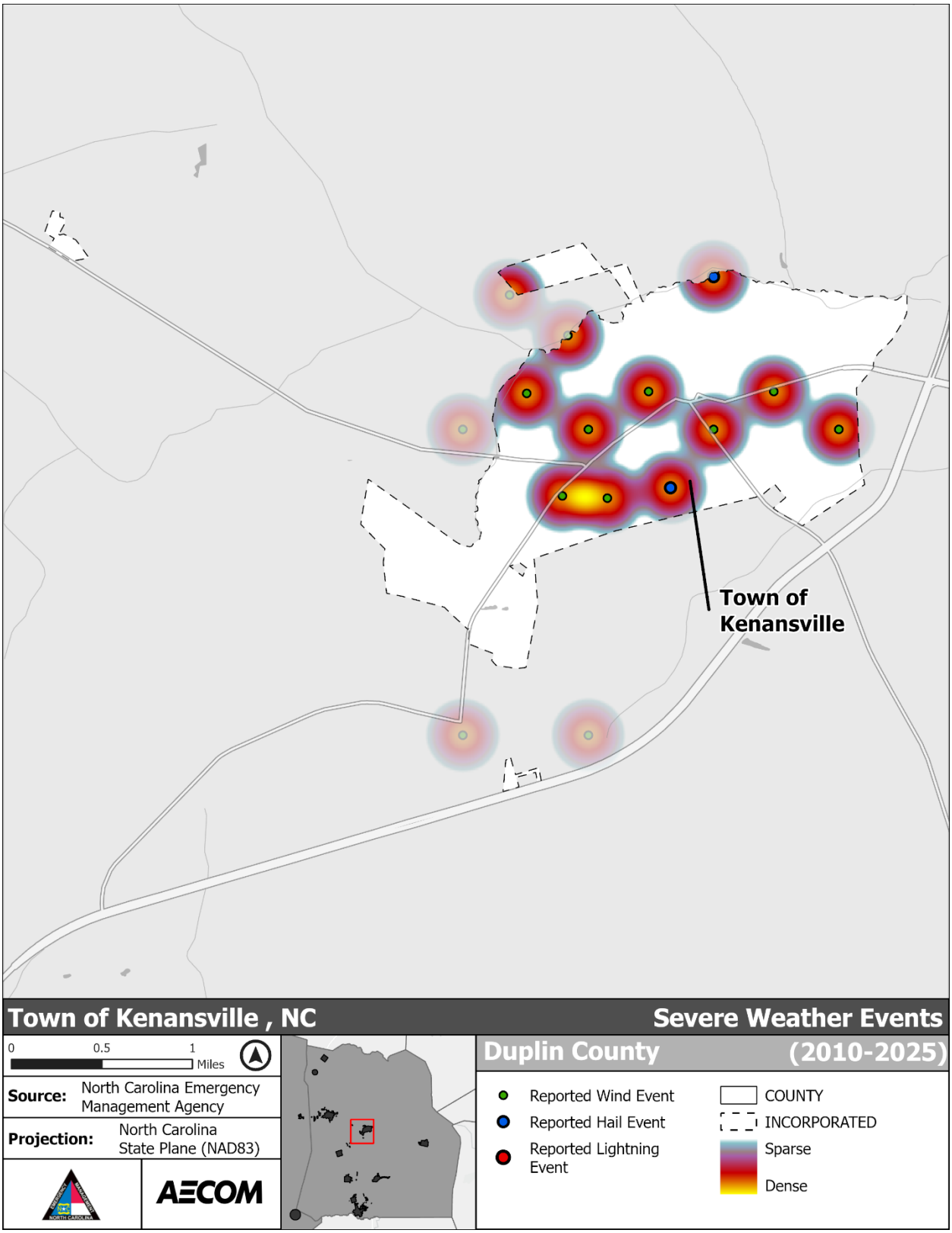


Figure 5-114: Town of Kenansville Severe Weather Map

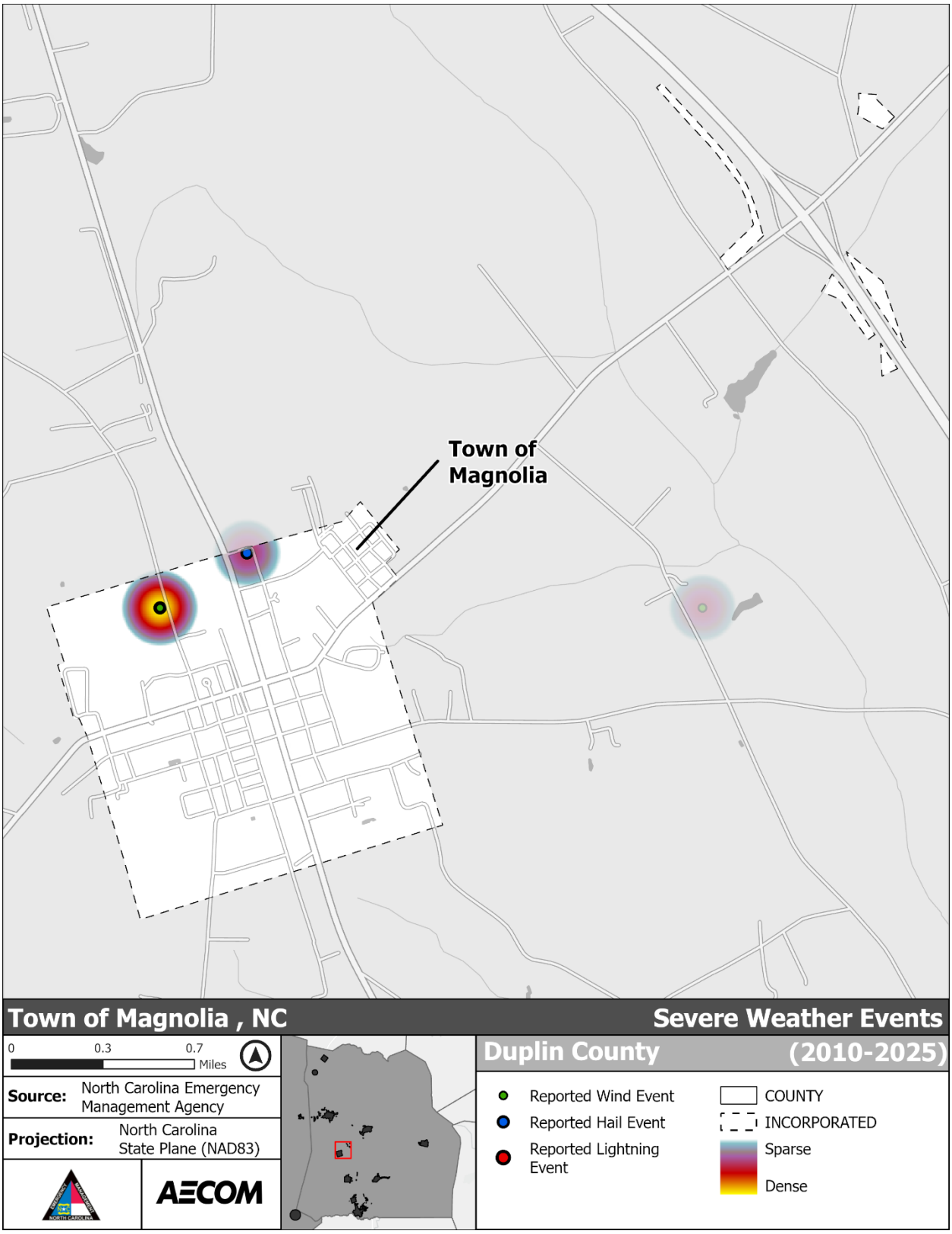


Figure 5-115: Town of Magnolia Severe Weather Map

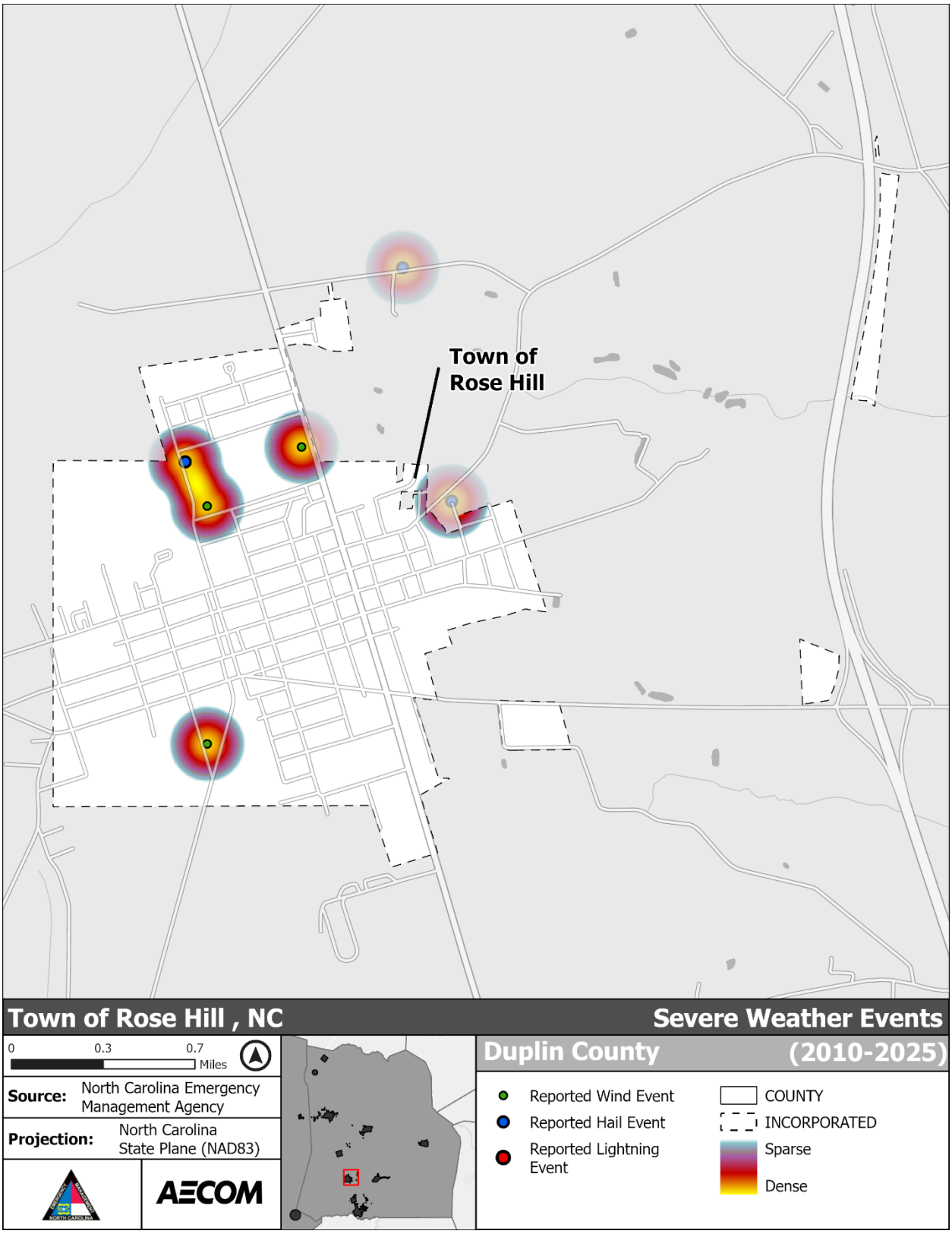


***Figure 5-116**: Town of Rose Hill Severe Weather Map*

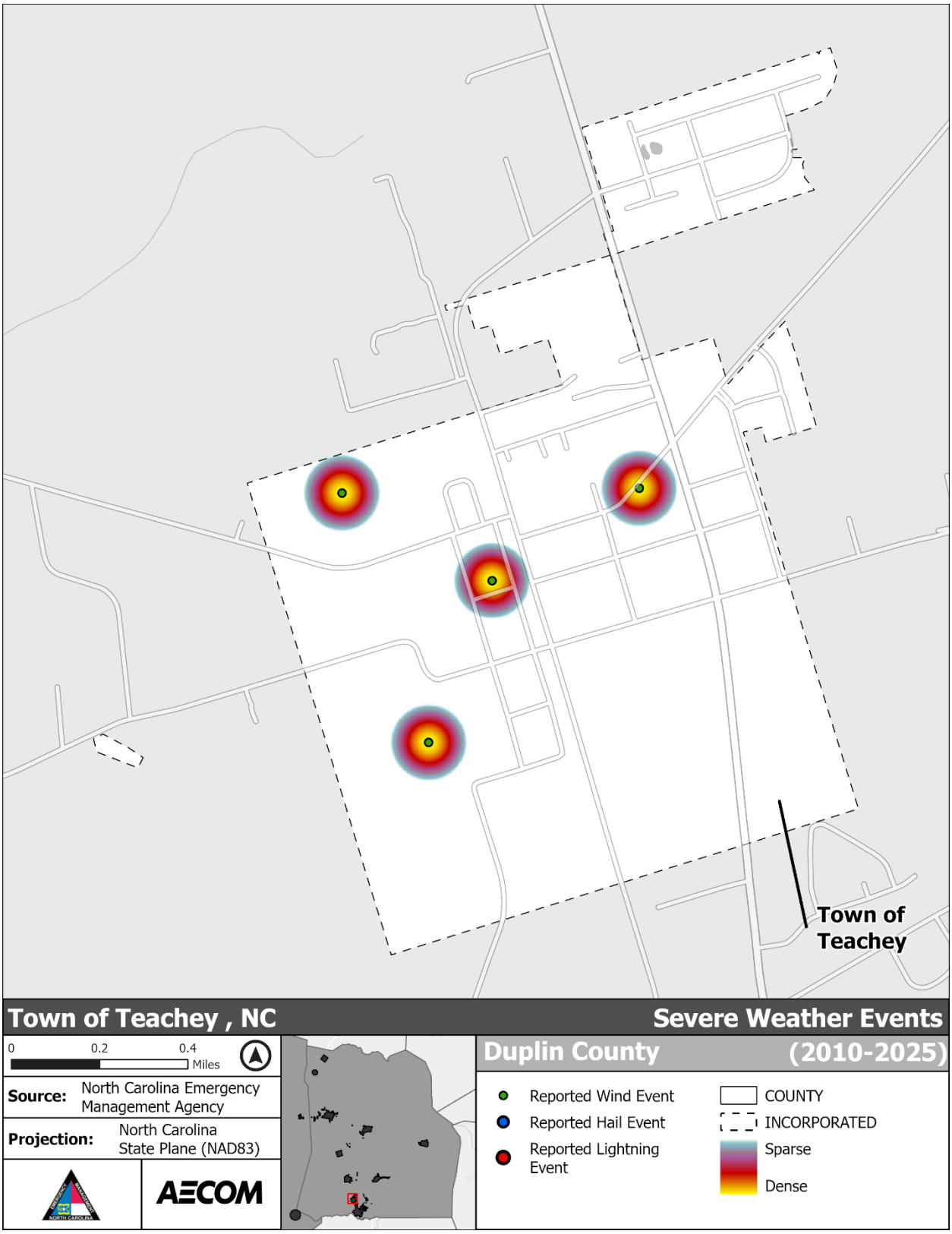


***Figure 5-117**: Town of Teachey Severe Weather Map*

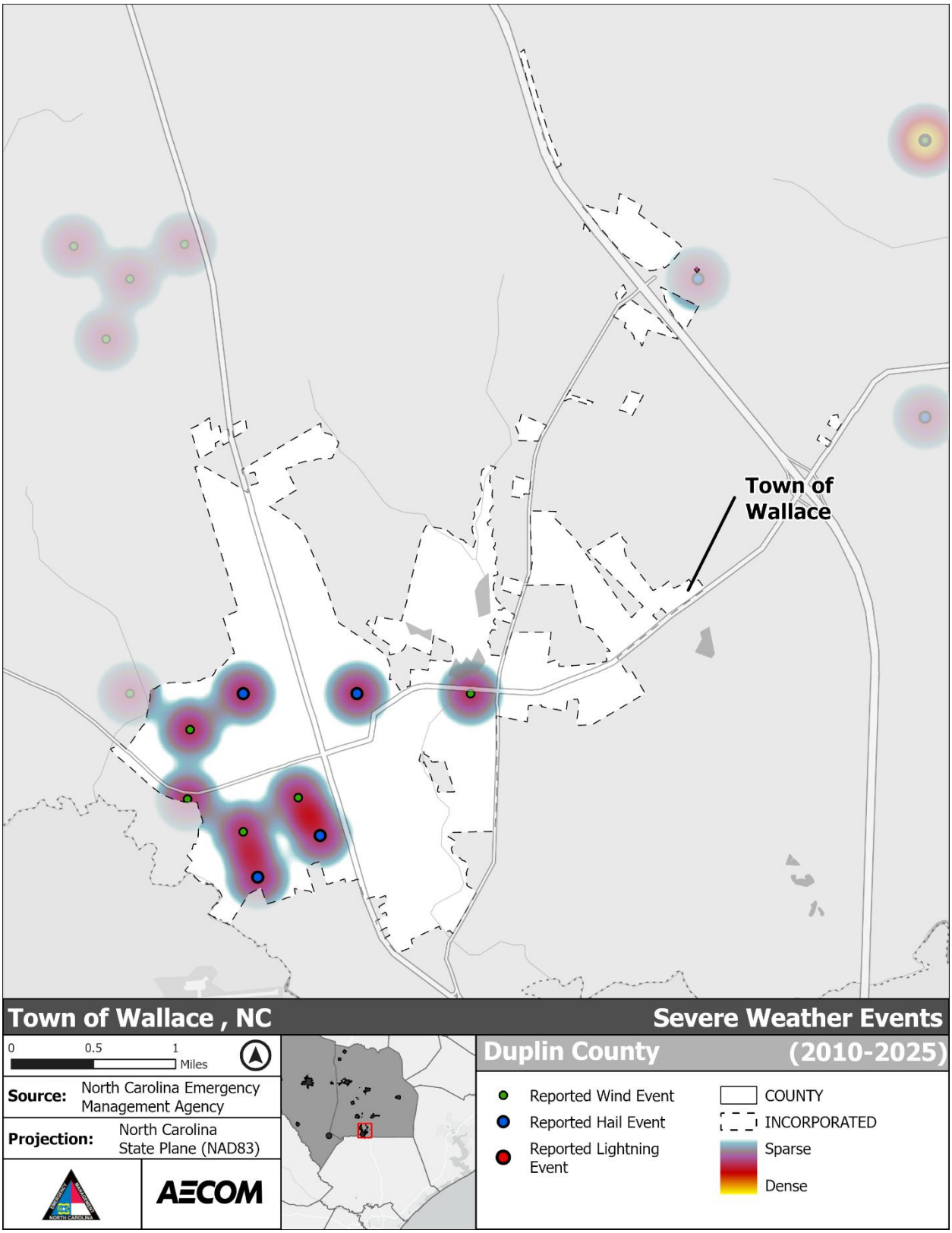


***Figure 5-118**: Town of Wallace Severe Weather Map*

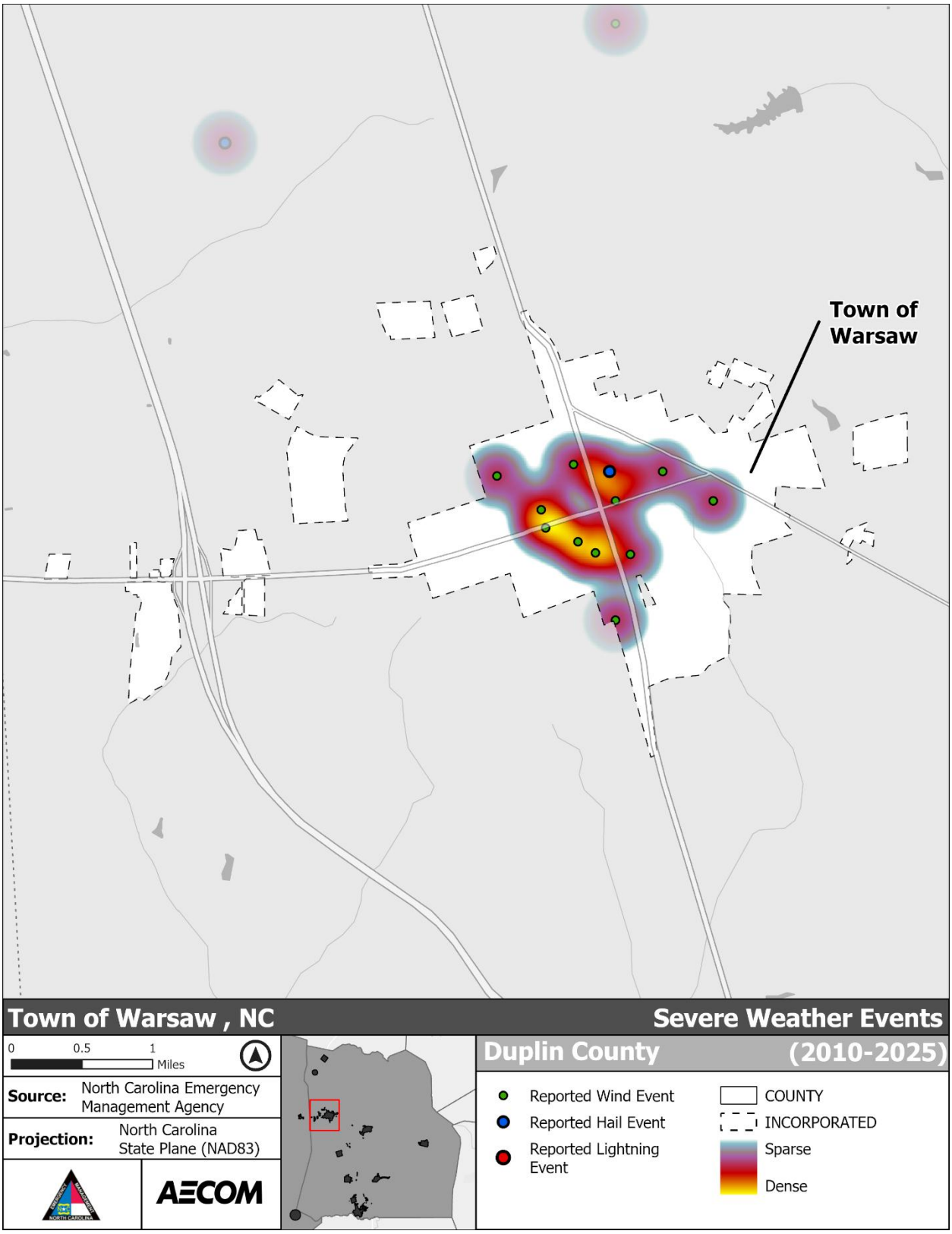


***Figure 5-119**: Town of Warsaw Severe Weather Map*

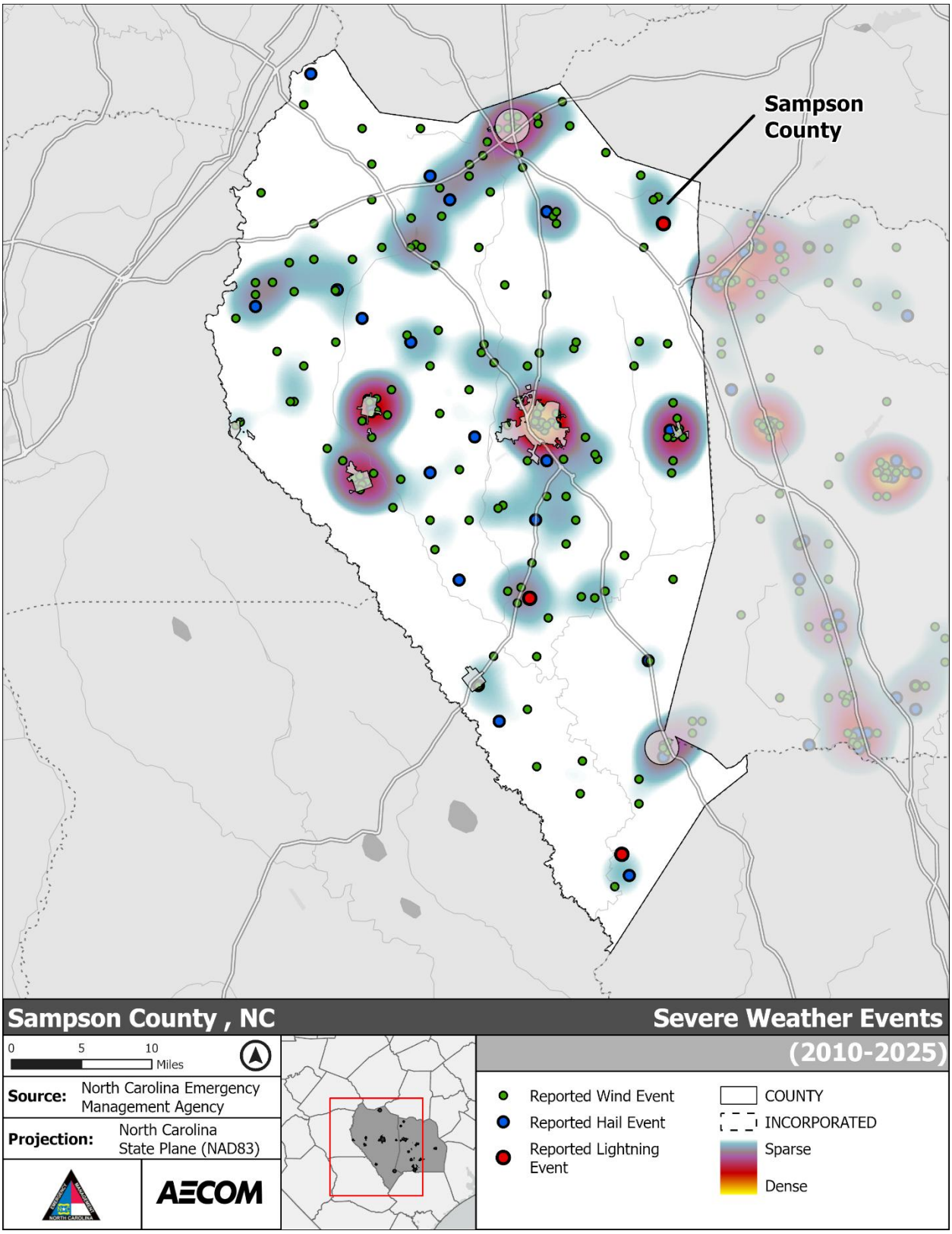


***Figure 5-120**: Sampson County Severe Weather Map*

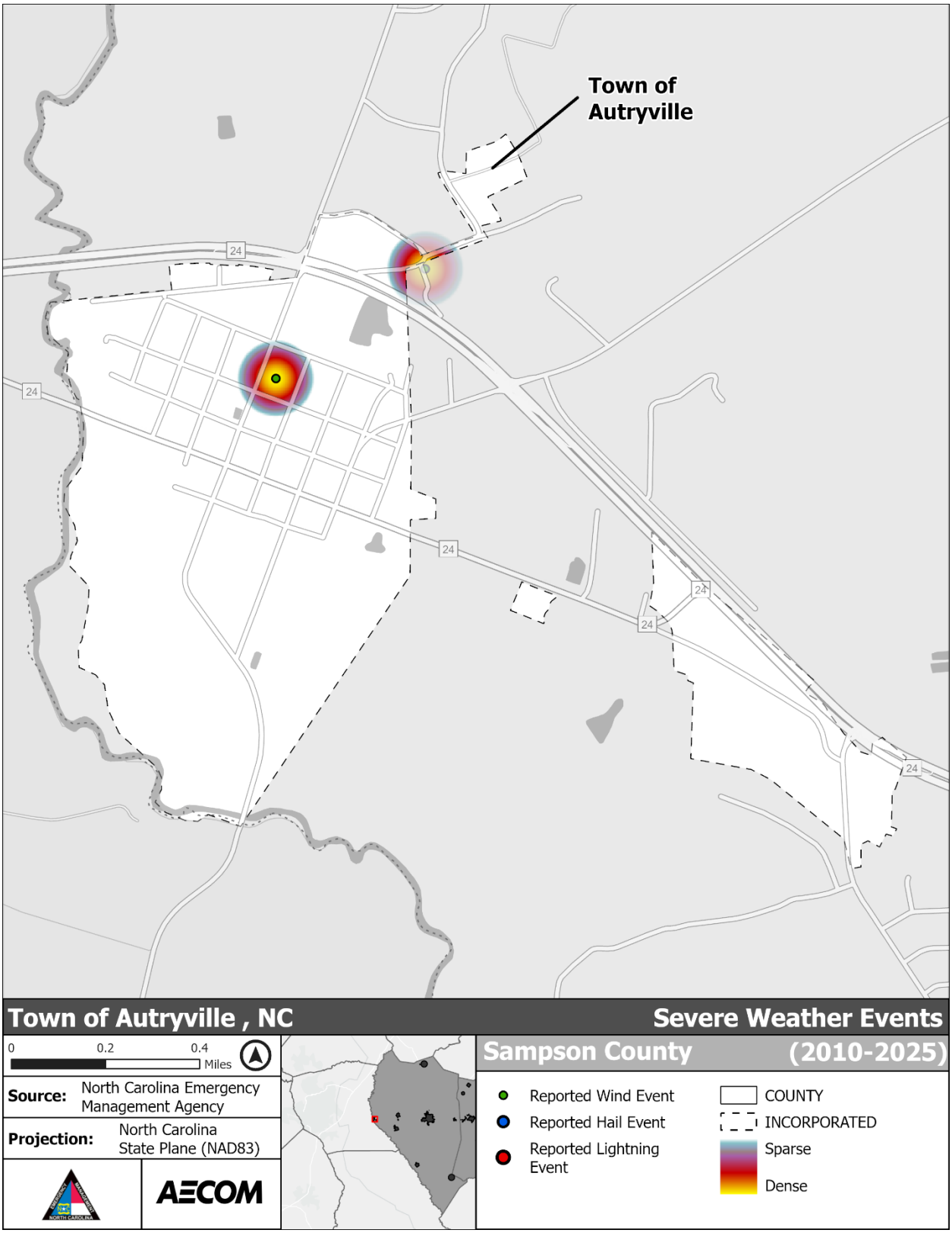


Figure 5-121: Town of Autryville Severe Weather Map

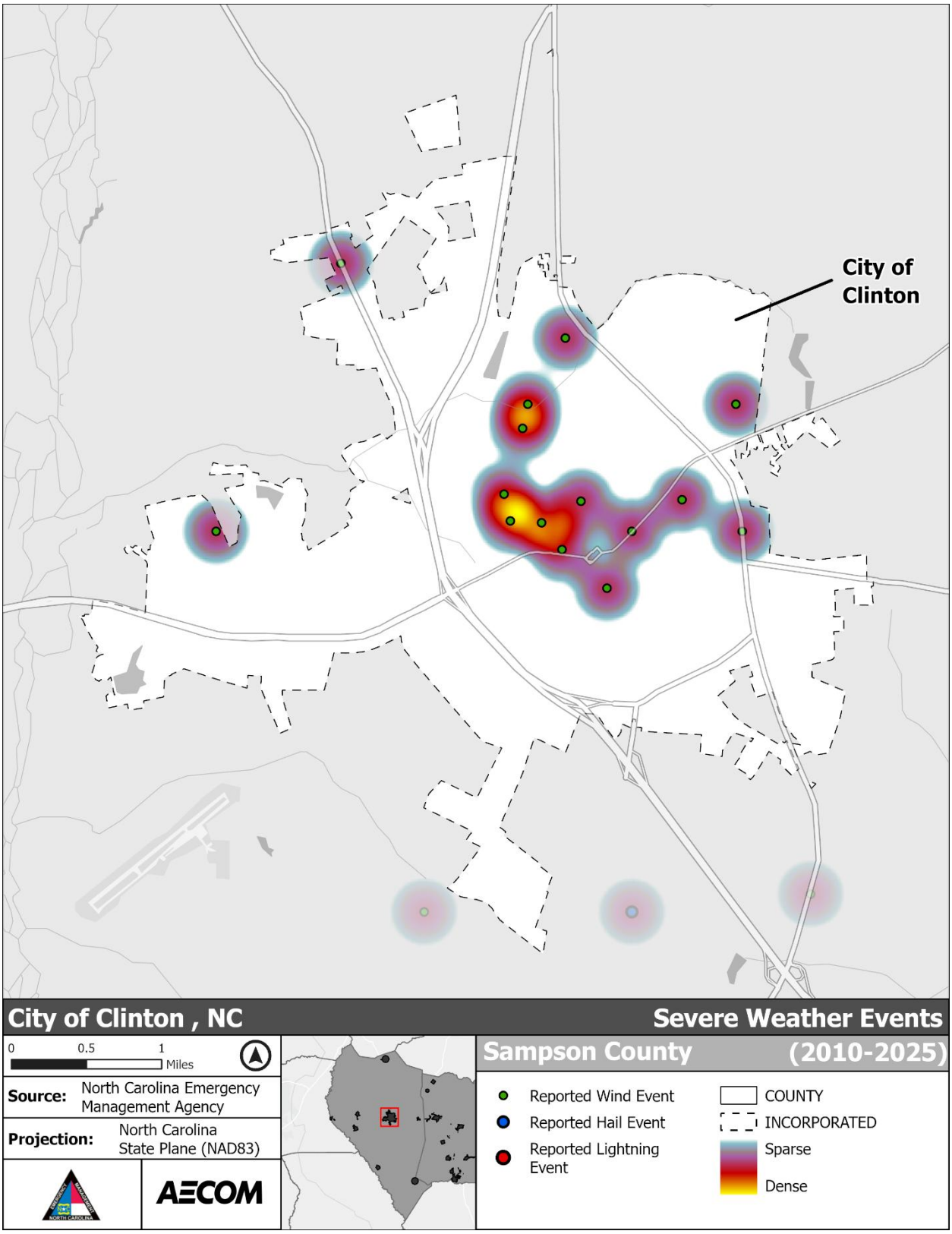


***Figure 5-122**: City of Clinton Severe Weather Map*

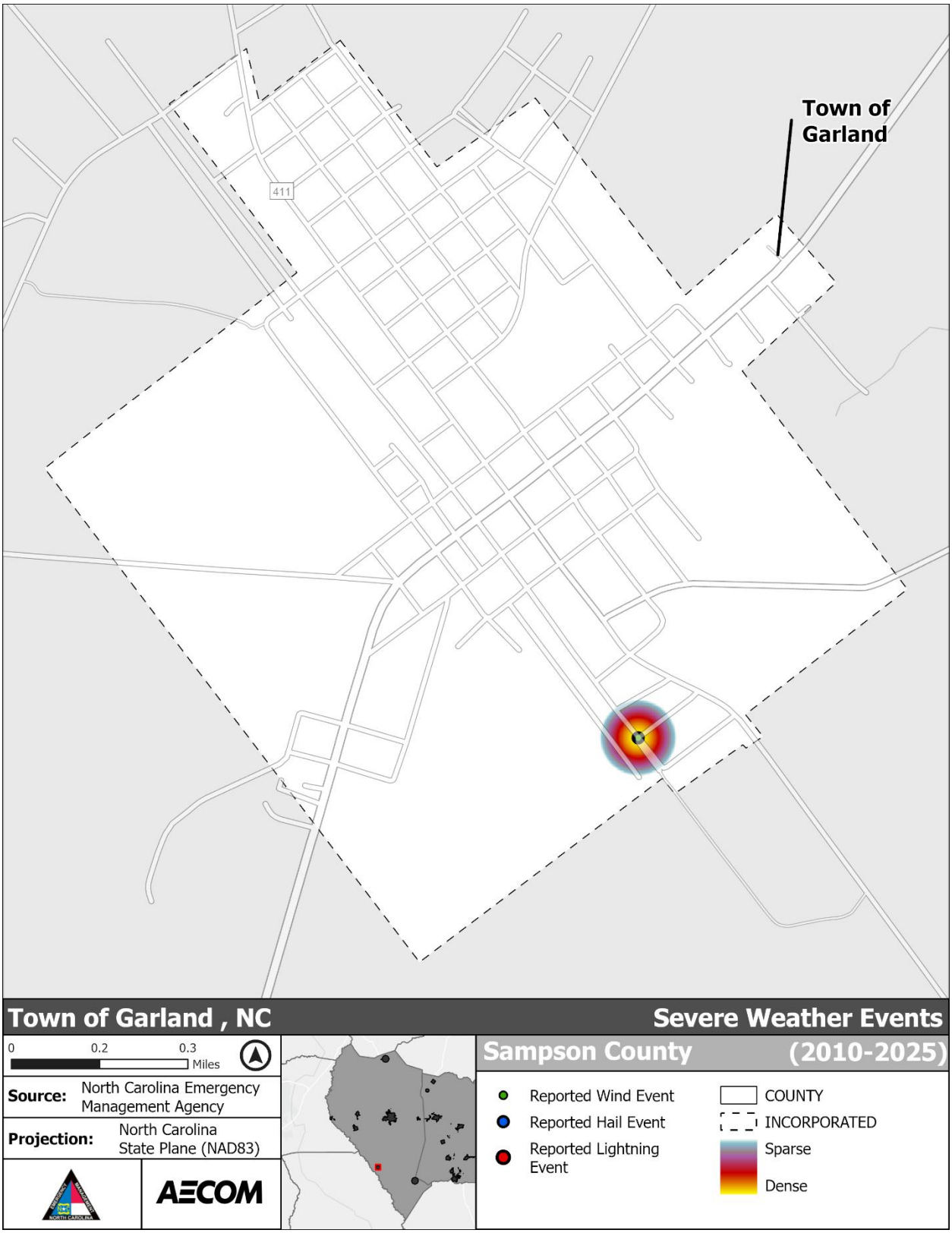


***Figure 5-123**: Town of Garland Severe Weather Map*

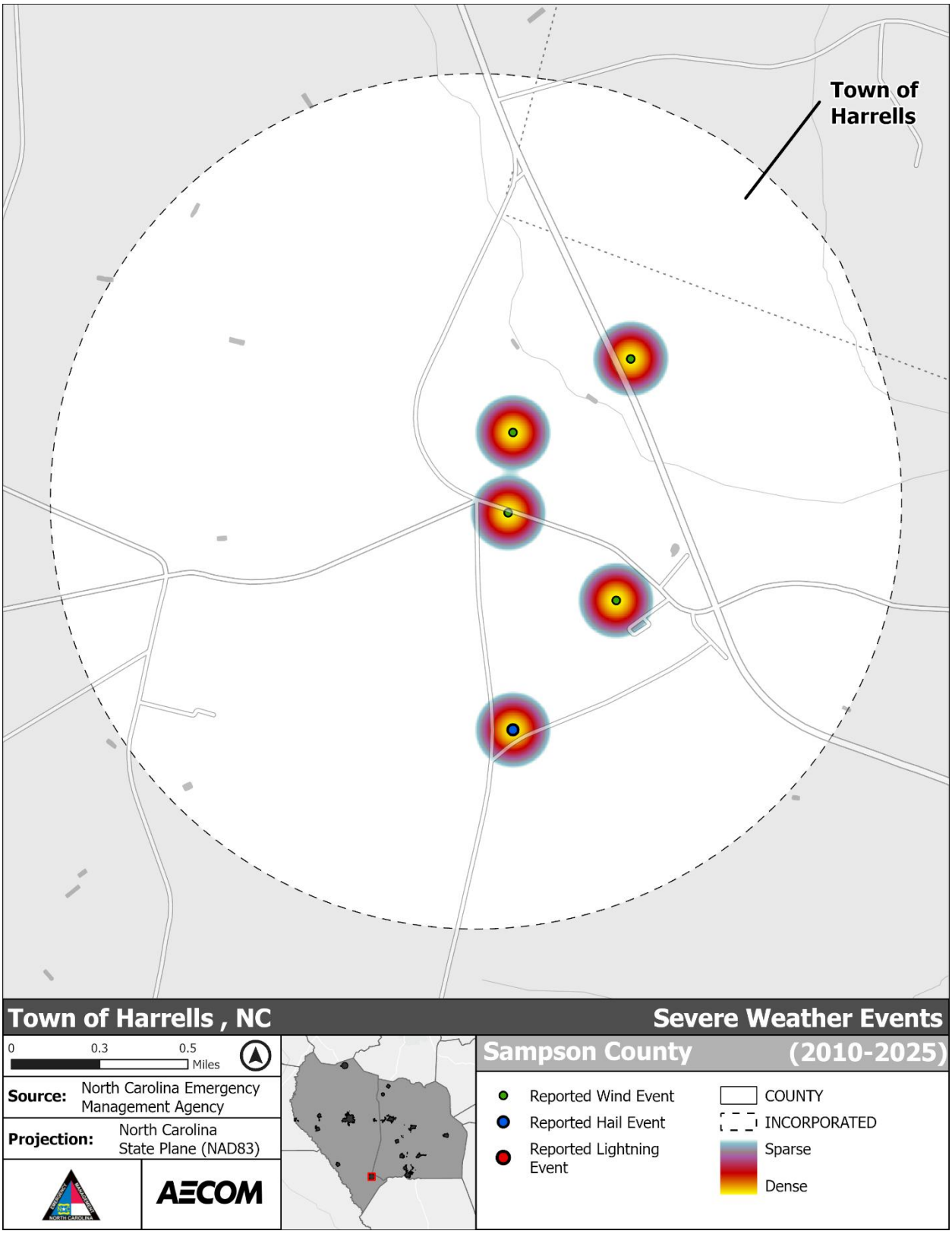


***Figure 5-124**: Town of Harrells Severe Weather Map*

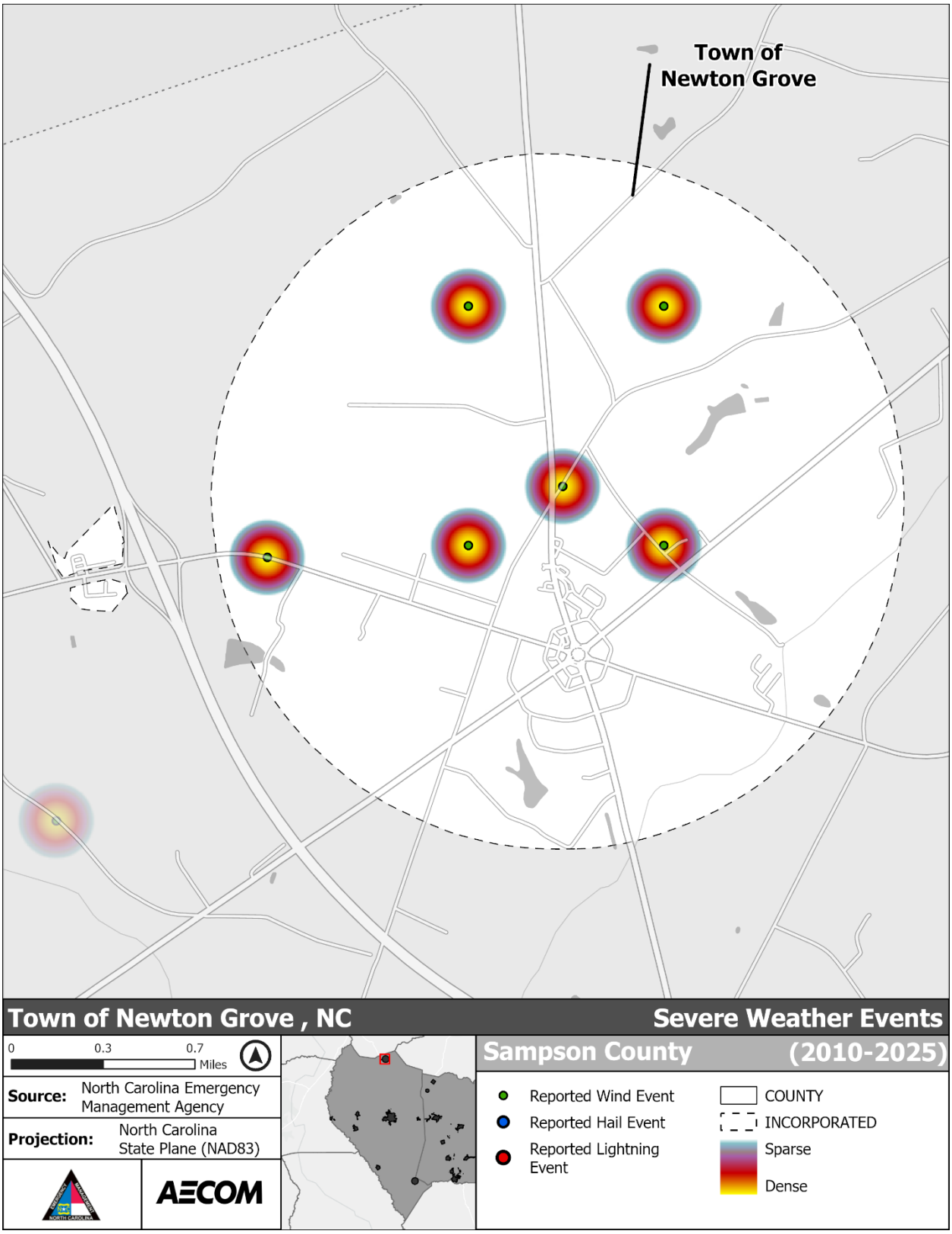


Figure 5-125: Town of Newton Grove Severe Weather Map

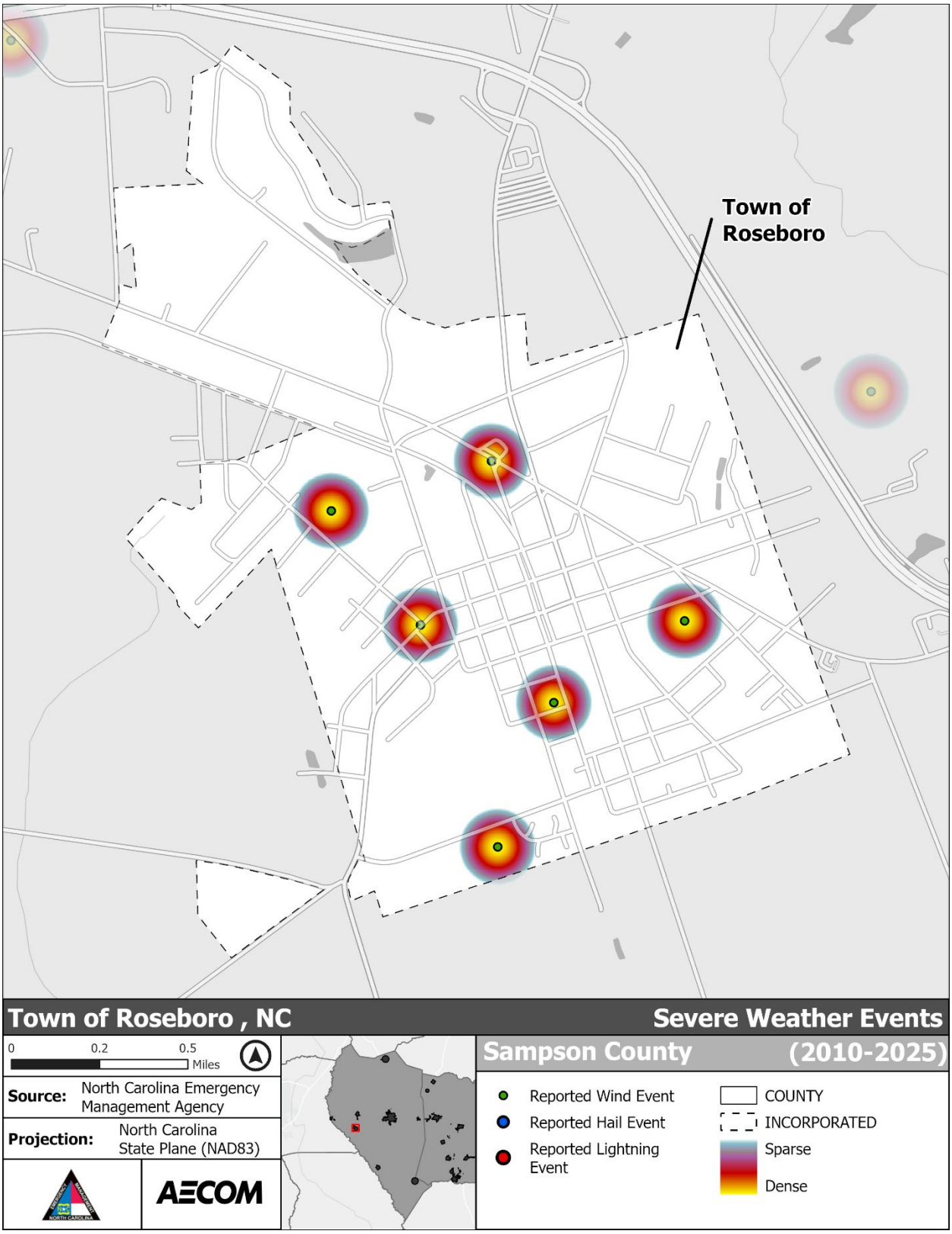


***Figure 5-126**: Town of Roseboro Severe Weather Map*

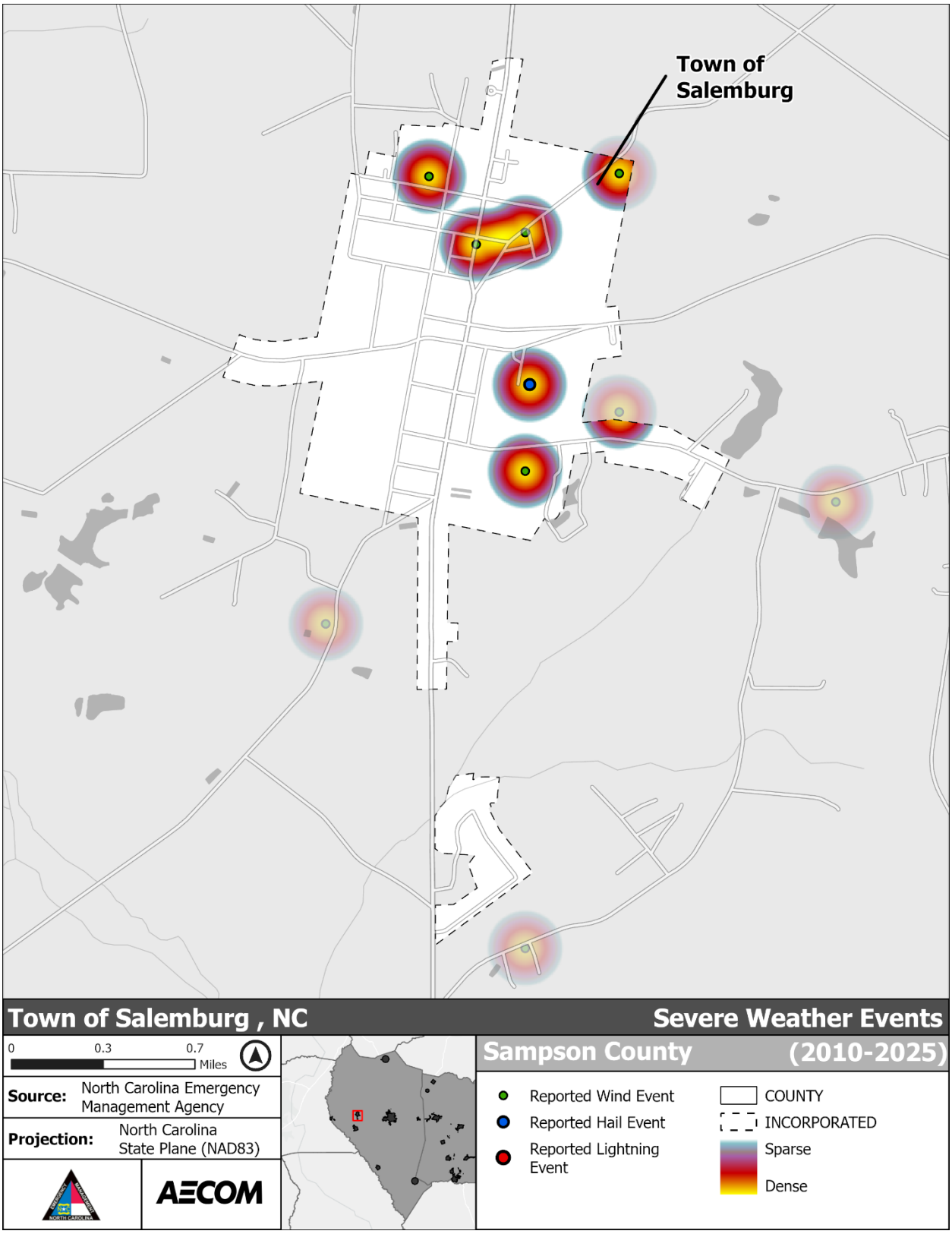


***Figure 5-127**: Town of Salemburg Severe Weather Map*

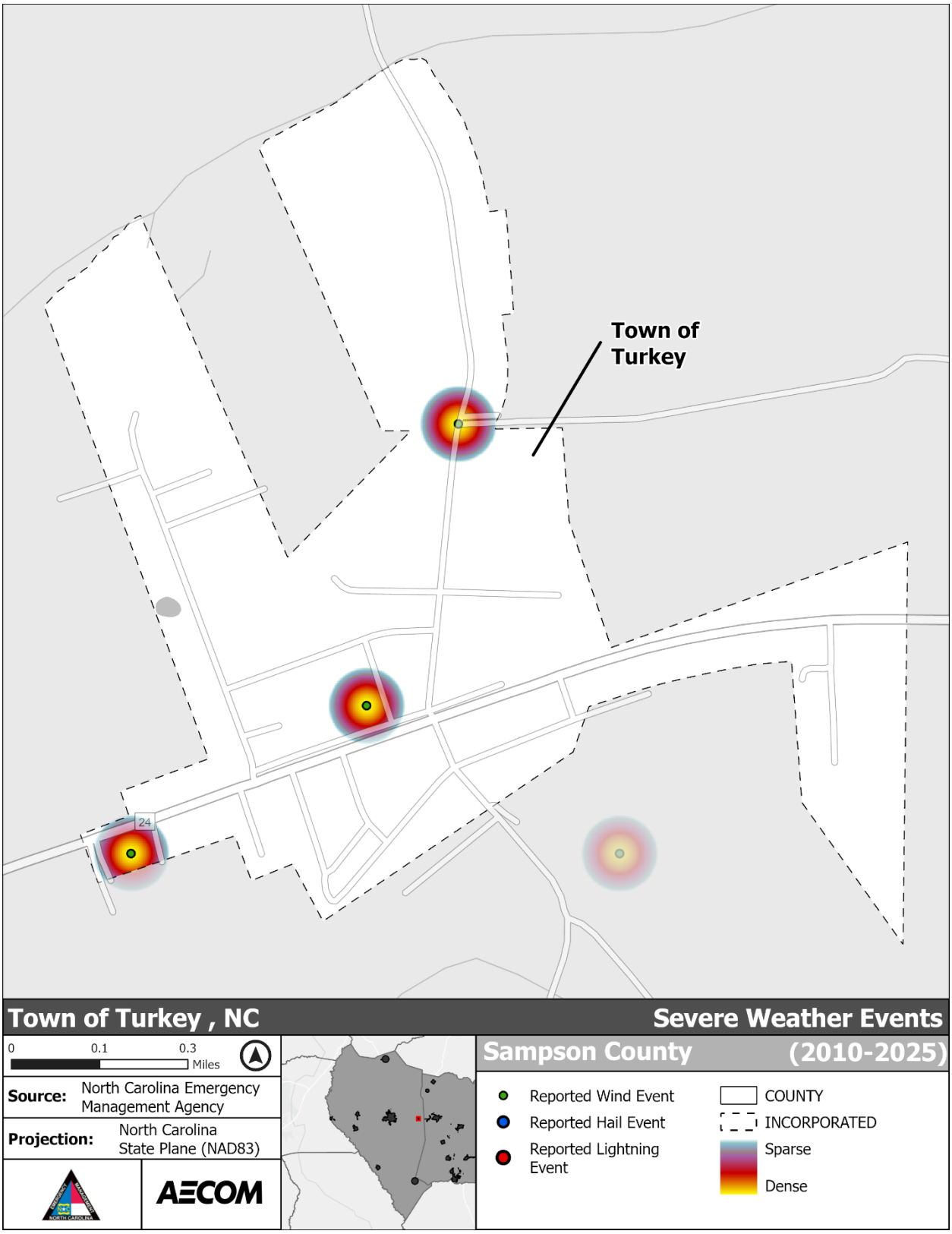


***Figure 5-128**: Town of Turley Severe Weather Map*

5.8.3 Extent

The number of thunder events and the reported wind speeds define the thunderstorm extent. According to the NCEI Storm Events Database, the strongest recorded wind event in Sampson County is 78 mph and 80 mph in Duplin County, and the largest recorded hail size in both counties is 2.75 inches.

***Table 5-36**: Summary of Hail, Heavy Rain, Lightning, Strong Wind, and Thunderstorm Wind Events Reported by the NCEI Storm Events Database*[67]

County	Hail			Heavy Rain			Lightning			Strong Wind			Thunderstorm Wind		
	Events	Deaths	Injuries	Events	Deaths	Injuries	Events	Deaths	Injuries	Events	Deaths	Injuries	Events	Deaths	Injuries
Sampson	80	0	0	2	0	0	0	0	0	6	0	0	105	0	20
Duplin	80	0	0	0	0	0	2	0	0	0	0	0	98	0	3
Total	**160**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**6**	**0**	**0**	**203**	**0**	**23**

***Table 5-37**: Maximum Recorded Wind Speed and Hail Size in the planning area from the NCEI Storm Events Database*[68]

Jurisdiction	Maximum Event Wind Speed (mph)	Maximum Hail Size (in)
Duplin County	**80**	**2.75**
Beulaville	60	1
Calypso	70	1
Faison	70	1.75
Greenevers	52	-
Kenansville	70	1.75
Magnolia	55	0.88
Rose Hill	60	2.75
Teachey	55	-
Wallace	60	1.25
Warsaw	61	0.75
Sampson County	78	2.75
Autryville	60	0.75
Clinton	60	1.75
Garland	50	1.75
Harrells	55	1

[67] National Center for Environmental Information [NCEI]. (n.d.-a). Storm Events Database (By National Oceanic and Atmospheric Administration [NOAA]). National Center for Environmental Information. https://www.ncdc.noaa.gov/stormevents/

[68] National Center for Environmental Information [NCEI]. (n.d.-a). Storm Events Database (By National Oceanic and Atmospheric Administration [NOAA]). National Center for Environmental Information. https://www.ncdc.noaa.gov/stormevents/

Jurisdiction	Maximum Event Wind Speed (mph)	Maximum Hail Size (in)
Newton Grove	50	1.75
Roseboro	50	0.88
Salemburg	50	1.75
Turkey	50	0.75

*Some wind speeds may be estimated

5.8.4 Past Occurrences

Table 5-38 shows the total damage, property, and crop damage reported by the NCEI Storm Events Database in the planning area. It also presents details for severe weather events reported by the NCEI Storm Events Database since 1966 for the Region. The NCEI has recorded over 500 events in the planning area that have caused one death, 27 injuries, and over $7,711,000 in damage.

***Table 5-38**: Total damages reported by the NCEI for Hail, Heavy Rain, Lightning, Strong Wind, and Thunderstorms since 1966 (includes property damage includes property and crop damage reported by the NCEI)*

Jurisdiction	Damage Reported				
	Hail	Heavy Rain	Lightning	Strong Wind	Thunderstorm Wind
Duplin County	**$25,000**	**$0**	**$0**	**$0**	**$1,032,000**
Beulaville	$0	$0	$0	$0	$7,000
Calypso	$0	$0	$0	$0	$515,000
Faison	$0	$0	$0	$0	$10,000
Greenevers	$0	$0	$0	$0	$0
Kenansville	$0	$0	$0	$0	$30,000
Magnolia	$0	$0	$0	$0	$0
Rose Hill	$20,000	$0	$0	$0	$4,000
Teachey	$0	$0	$0	$0	$0
Wallace	$0	$0	$0	$0	$0
Warsaw	$5,000	$0	$0	$0	$40,000
Unincorporated Area	$0	$0	$0	$0	$426,000
Sampson County	**$48,000**	**$0**	**$618,000**	$1,215,000	**$5,829,000**
Autryville	$0	$0	$0	$0	$30,000
Clinton	$20,000	$0	$8,000	$0	$139,000
Garland	$0	$0	$0	$0	$0
Harrells	$0	$0	$0	$0	$11,000
Newton Grove	$0	$0	$0	$0	$23,000
Roseboro	$0	$0	$0	$0	$31,000
Salemburg	$0	$0	$0	$0	$311,500
Turkey	$0	$0	$0	$0	$23,500
Unincorporated Area	$2,003,000	$0	$475,000	$72,000	$5,260,000

***Table 5-39**: 10 events with the highest damage reported in the planning area in the NCEI Storm Events Database reported after 2015*[69]

County	Jurisdiction	Date	Magnitude	Damages	Injuries	Episode Narrative	Event Narrative
Sampson	Autryville	4/30/2023	50	$30,000	0	A roof was partially peeled off in Autryville.	A sub-1000 millibar surface low tracked through NC during the early afternoon hours. Showers and thunderstorms developed along a retreating warm front, causing numerous reports of downed trees and wind damage. Some parts of Wilson County sustained significant tree damage as the storms moved through the area.
	Clinton			$15,000	0	Fourteen trees were reported down across northern Sampson County.	
	Unincorporated Area			$0	0	One tree was reported down in the 500 block of Dobbersville Road.	
Sampson	Roseboro	5/22/2020	50	$15,000	0	Thirteen trees were reported down across Sampson County, mainly between Clinton and Roseboro.	A bowing line segment moved eastward across southern portions of central North Carolina during the late afternoon into the evening. These storms produced widespread wind damage, including trees on homes and damage to structures. A line of thunderstorms moved into the southern Coastal Plains during the early evening hours. There was a report of some damaging winds associated with this line of thunderstorms.
	Salemburg			$2,000	0	A tin roof was peeled off a carport.	
Duplin	Warsaw			$0	0	Numerous trees were blown down in the Warsaw area.	
Sampson	Unincorporated Area	4/13/2020	50	$20,000	0	Numerous trees and power lines were reported down across the county.	Multiple clusters of strong to severe storms moved across central North Carolina in advance of a strong cold front during the morning hours. The storms caused numerous reports of wind damage, including multiple measured wind gusts in excess of 58 miles per hour. Some of the trees fell on homes, causing significant damage and one fatality in Davidson County. Three tornadoes touched down during the early morning hours, resulting in numerous trees snapped and uprooted,
Duplin	Warsaw			$0	0	Trees were blown down in Warsaw.	
	Unincorporated Area				0	Roof damage to a house was reported at a home near Faison.	

[69] National Center for Environmental Information [NCEI]. (n.d.-a). Storm Events Database (By National Oceanic and Atmospheric Administration [NOAA]). National Center for Environmental Information. https://www.ncdc.noaa.gov/stormevents/

County	Jurisdiction	Date	Magnitude	Damages	Injuries	Episode Narrative	Event Narrative
					0	A tree was reported blown down on Highway 41 West near the Jones and Duplin County line. The time was estimated based on radar data.	and structural damage. A line of strong to severe thunderstorms with embedded tornadoes swept through Eastern North Carolina during the morning hours between sunrise and noon. Widespread reports of wind damage, including tornadoes, were observed. Six total tornadoes occurred, 5 EF0s, and 1 EF1.
	Kenansville				0	Trees were blown down around Kenansville.	
Sampson	Unincorporated Area	2/7/2020	45	$50,000	0	Numerous trees and power lines were reported down across the county.	A rapidly strengthening area of low pressure tracked northeastward across the middle Atlantic states as a trailing cold front swept eastward across central NC during the morning. Behind the front, very strong southwesterly winds overspread the region, causing power outages and damage across central North Carolina.
Sampson	Unincorporated Area	1/13/2020	74	$275,000	0	Damage in the form of snapped and uprooted trees to the west of Union Intermediate School structure, along with the more significant roof uplift and partial outer wall collapse of the school's gymnasium, occurred in a clear fan-like fashion. Three students were treated for minor injuries and transported to the hospital. A tree fell on a house on McPhail Road.	A cluster of fast-moving showers and storms tracked across the far eastern Sandhills and southern Coastal Plain of central North Carolina during the early to mid-afternoon in a highly sheared, but weak instability environment. The cluster of storms became strong enough to produce some localized wind damage, including some significant wind damage to Union Intermediate Elementary School in Sampson County. A potent shortwave disturbance aloft and associated cold front allowed for the development of a damaging line of showers and storms. The prefrontal line moved across the area during the late evening and into the early morning hours, producing lots of wind damage.

County	Jurisdiction	Date	Magnitude	Damages	Injuries	Episode Narrative	Event Narrative
Sampson	Unincorporated Area	5/31/2017	50	$20,000	0	Numerous trees and several power lines were blown down along a swath from the 6000 block of Maxwell Road, north of Autryville, to the intersection of Keener Road and Hobbton Highway, near Hobbton.	Scattered thunderstorms developed during the afternoon along two differential heating boundaries and under the influence of a weak surface trough, marginal instability, and moderate shear. One area of storms moved into the region from the Foothills, and the other developed along the sea breeze over the Sandhills and Coastal Plain. A few of the storms became severe, producing damaging winds and quarter-sized hail. Severe thunderstorms produced wind damage during the afternoon.
	Turkey			$3,000	0	One tree and a couple of power lines were blown down along a swath just east of Turkey.	
Duplin	Kenansville			$0	0	Trees were blown down.	
	Warsaw				0	Trees were blown down.	
Duplin	Unincorporated Area	5/29/2017	80	$0	0	A severe thunderstorm produced a macroburst near Faison, causing widespread tree damage and some scattered structure damage stretching from around 2 miles southeast of Faison to nearly 6 miles southeast of Faison. Light structure damage and uprooted trees were observed on McNeil Road. Further southeast, multiple outbuildings on Taylor Town Road were significantly damaged. A few hog houses also sustained roof damage farther down the road. On Friendship Church Road, substantial damage was observed at a residence where a pine tree fell on a home. Multiple trees were also snapped or uprooted farther to the southeast on Friendship Church Road. The damaging	A severe thunderstorm produced a macroburst near Faison, causing widespread tree damage and some scattered structural damage stretching from around 2 miles southeast of Faison to nearly 6 miles southeast of Faison. Light structure damage and uprooted trees were observed on McNeil Road. Further southeast, multiple outbuildings on Taylor Town Road were significantly damaged. A few hog houses also sustained roof damage farther down the road. On Friendship Church Road, substantial damage was observed at a residence where a pine tree fell on a home. Multiple trees were also snapped or uprooted farther to the southeast on Friendship Church Road. The damaging winds were estimated at 90 to 100 mph, with a width of about 1 mile and a length of about 4 miles.

County	Jurisdiction	Date	Magnitude	Damages	Injuries	Episode Narrative	Event Narrative
						winds were estimated at 90 to 100 mph, with a width of about 1 mile and a length of about 4 miles.	
Sampson	Unincorporated Area		78	$3,500,000	12	A large, 5-mile north-to-south swath of straight-line wind damage occurred across northern Sampson County, North Carolina. All observed damage was consistently west-to-east oriented, unambiguously indicating that it resulted from straight-line winds. At approximately 10:40 PM EDT, a macroburst occurred northeast of Salemburg, destroying numerous turkey houses near the intersection of Tyndall Bridge Road and High House Road east of Highway 242. Tin roofs of the turkey houses were scattered downwind, and approximately 16,000 turkeys were killed. Winds near the center of this damage were estimated at 80-90 mph. Damaging winds progressed eastward toward and beyond U.S. 421, with a continued 5-mile north to south swath of winds in excess of 70 mph. Several structures and trees were damaged or destroyed in this corridor. A mobile home resting on cinder blocks was rolled off its foundation and	A cluster of storms tracked across portions of Sampson County late during the evening, producing widespread damage. Numerous homes and buildings were damaged, and widespread power outages occurred. Monetary damages were estimated.

County	Jurisdiction	Date	Magnitude	Damages	Injuries	Episode Narrative	Event Narrative
						onto a car on U.S. 421 near Woodside Lane. Another significant damage point, potentially associated with a second macroburst or microburst, was found near Basstown Road between Highway 421 and U.S. 701. Here, several trees were snapped halfway up their trunks, and hundreds of trees were down or damaged. Winds were estimated at 80-90 mph, surrounded by a large area of 70-80 mph winds. Wind damage continued eastward over U.S. 701, including a tree that fell on a car and trapped two occupants. Damaging winds continued across I-40 before exiting Sampson County into Duplin County at approximately 11:19 PM EDT. There were no fatalities, but 12 injuries were reported. Monetary damages were estimated. One tree was reported down near Tomahawk Highway at 8340. One tree was reported down at 5600 Tomahawk Highway.	
	Harrells			$1,000	0	Power lines were reported down along Belvin Maynard Road. One tree was reported down near the intersection of Ivanhoe Road and Wildcat Road.	

County	Jurisdiction	Date	Magnitude	Damages	Injuries	Episode Narrative	Event Narrative
Sampson	Unincorporated Area	2/24/2016	50	$20,000	0	A barn was destroyed by thunderstorm wind gusts at 700 Suttontown Road in Hobbton.	A few rounds of thunderstorms moved through Central North Carolina in association with a strong low-pressure system moving northeastward from the Lower Mississippi River Valley into the Tennessee Valley and Ohio Valley. The resultant highly sheared environment over the coastal plain early in the day and increasing instability across Central North Carolina during the afternoon resulted in numerous severe thunderstorms and a few tornadoes.

5.8.5 Probability of Future Occurrences

The NRI reports hazard risk for hail, lightning, and strong winds to represent severe weather. The NRI uses National Weather Service Storm Prediction Center (SPC) severe weather event reports, which include hail data from sources such as public submissions, media, insurance, emergency managers, and trained spotters. These reports are reviewed, quality-checked, and compiled into the monthly storm data publications. These reports may include the latitude and longitude of hail events, location, date, time, size, and damage estimates. However, there could be underreporting in rural areas with fewer observers, missing reports of hail events, changes in data collection practices, which could impact data consistency; imprecise location data that may not reflect the full range of hail impacts; and hail size and damage estimates that may be incomplete or underreported. There may be duplicate or inconsistent reports that affect data consistency.

In Duplin County, hail is expected to have a Relatively Moderate EAL Rating and Hazard Risk Rating, an EAL of $84,041, and 4.01 events annually. The jurisdictions with the highest EAL totals are Unincorporated census tracts ($37,245), Magnolia ($17,328), and Kenansville ($12,155). In Sampson County, the Hail EAL Score and Hazard Risk Score are Relatively High, the EAL is $245,570, and is expected to experience 4.57 events annually. The jurisdictions with the highest total EAL of overlapping census tracts are Unincorporated Areas ($133,690), Clinton ($41,032), and Garland ($30,912).

***Table 5-40**: NRI Hail Annualized Frequency, EAL Total, EAL Score, and Hazard Risk Index Score*

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Duplin County	**4.01**	**$84,041**	**49.50**	**Relatively Moderate**	**53.23**	**Relatively Moderate**
Beulaville	4.03	$5,528	57.18	Relatively Moderate	60.27	Relatively High
Calypso	4.95	$2,922	59.12	Relatively Moderate	64.73	Relatively High
Faison	4.95	$2,922	59.12	Relatively Moderate	64.73	Relatively High
Greenevers	3.36	$1,693	50.92	Relatively Moderate	55.50	Relatively Moderate
Kenansville	4.00	$12,155	68.02	Relatively High	70.45	Relatively High
Magnolia	4.06	$17,328	71.98	Relatively High	74.16	Relatively High

Rose Hill	3.63	$4,214	54.01	Relatively Moderate	58.43	Relatively Moderate
Teachey	3.36	$1,283	46.59	Relatively Moderate	51.79	Relatively Moderate
Wallace	3.36	$4,986	45.88	Relatively Moderate	48.61	Relatively Moderate
Warsaw	4.90	$6,522	60.51	Relatively High	66.00	Relatively High
Unincorporated Area	4.08	$37,245	64.00	Relatively High	65.41	Relatively High
Sampson County	**4.57**	**$245,570**	**71.03**	**Relatively High**	**75.95**	**Relatively High**
Autryville	4.34	$5,536	67.00	Relatively High	64.12	Relatively High
Clinton	4.84	$41,032	64.26	Relatively High	68.25	Relatively High
Garland	4.13	$30,912	85.19	Very High	88.95	Very High
Harrells	4.00	$9,366	63.16	Relatively High	64.51	Relatively High
Newton Grove	4.95	$2,254	55.37	Relatively Moderate	56.80	Relatively Moderate
Roseboro	4.38	$5,563	67.07	Relatively High	69.14	Relatively High
Salemburg	4.95	$2,076	54.11	Relatively Moderate	53.88	Relatively Moderate
Turkey	4.80	$17,624	80.10	Very High	81.74	Very High
Unincorporated Area	4.61	$133,690	76.41	Relatively High	78.23	Relatively High

The NRI uses NCEI cloud-to-ground lightning strike data in time-period aggregation tiles of 4km by 4km, which summarize lightning strikes for each hour, day, month, or year. The NRI uses annual lightning strikes to develop annualized frequencies at the census tract level from 1991 to 2012. These lightning strike reports are from the National Lightning Detection Network, which is operated by Vaisala and uses a network of ground sensors to detect and locate cloud-to-ground lightning strikes in the U.S. In areas with low sensor coverage, lightning strikes may be underreported, thereby affecting reporting accuracy. Annualized summaries may also reduce the ability to understand seasonal trends or variability in lightning strikes.

Lightning has an annualized frequency of 59.12 in Duplin County and 63.52 in Sampson County. Sampson County has an EAL of $99,813, and Duplin has an EAL of $141,222 attributed to lightning. Sampson County has a Relatively Moderate EAL Rating and Hazard Risk Rating, whereas Duplin County has a Relatively High EAL Rating and Hazard Risk Rating associated with lighting. The jurisdictions in Sampson County with the highest EAL are Unincorporated Areas ($44,993), Clinton ($31,222), and Harrells ($10,137). The jurisdictions in Duplin County with the highest EAL are Unincorporated Areas ($37,089), Wallace ($30,845), and Beulaville ($17,053).

***Table 5-41**: NRI Lightning Average Annualized Frequency, EAL, EAL Score, and Hazard Risk Rating*

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Duplin County	**59.12**	**$141,222**	**64.58**	**Relatively High**	**70.33**	**Relatively High**
Beulaville	61.92	$17,053	61.95	Relatively High	69.92	Relatively High
Calypso	54.45	$5,659	50.10	Relatively Moderate	65.39	Relatively High
Faison	54.45	$5,659	50.10	Relatively Moderate	65.39	Relatively High
Greenevers	59.45	$4,826	45.70	Relatively Moderate	56.02	Relatively Moderate
Kenansville	55.37	$14,355	57.12	Relatively Moderate	65.66	Relatively High
Magnolia	62.86	$15,712	59.86	Relatively Moderate	67.68	Relatively High
Rose Hill	69.27	$14,597	57.40	Relatively Moderate	67.63	Relatively High
Teachey	65.91	$9,344	65.34	Relatively High	75.88	Relatively High
Wallace	65.93	$30,845	58.05	Relatively Moderate	63.74	Relatively High
Warsaw	53.24	$13,308	54.70	Relatively Moderate	70.10	Relatively High
Unincorporated Area	52.7	$37,089	47.02	Relatively Moderate	52.10	Relatively Moderate
Sampson County	**63.52**	**$99,813**	**53.57**	**Relatively Moderate**	**61.84**	**Relatively Moderate**
Autryville	60.24	$2,510	30.65	Relatively Low	27.20	Relatively Low
Clinton	58.94	$31,222	51.40	Relatively Moderate	62.76	Relatively High
Garland	68.64	$6,136	52.45	Relatively Moderate	67.94	Relatively High

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Harrells	79.68	$10,137	46.54	Relatively Moderate	51.42	Relatively Moderate
Newton Grove	62.16	$1,918	25.75	Relatively Low	28.32	Relatively Low
Roseboro	62.87	$4,745	45.28	Relatively Moderate	52.65	Relatively Moderate
Salemburg	61.01	$1,884	25.47	Relatively Low	25.98	Relatively Low
Turkey	52.27	$2,582	31.15	Relatively Low	36.41	Relatively Low
Unincorporated Area	64.73	$44,993	48.66	Relatively Moderate	56.24	Relatively Moderate

The NRI defines a strong wind event as damaging winds that often originate from thunderstorms that are classified as exceeding 58mph. The NRI uses the NWS Storm Prediction Center strong wind reports from event reports compiled by the NWS and archived in the Storm Data archives to populate the Severe Weather Database with data from 1968 to 2019. Wind speeds or sustained wind speeds may not be exact, and the method of wind speed measurement was recorded only from 2006 onward in the dataset. Wind speeds below 58 mph (50.4 knots) were excluded from annualized frequency calculations. The coordinates of the strong wind events were buffered by 80km to estimate the general area where strong winds may have occurred. The areas of impact with an 80km buffer were then used to calculate the annualized frequency at the census block level. Wind speed measurements were inconsistently recorded until 2006, and many are estimated rather than measured. Additionally, only events above 58mph were excluded, so the full record of damaging wind events may not be included. There may also be misrepresentation of the impacts of strong winds in vulnerable areas with sparsely distributed populations.

According to the NRI, Duplin County has a 1.76 and Sampson County has a 2.08 annualized frequency of strong wind occurrence. Sampson County has a significantly higher EAL ($1,214,747) than Duplin County ($391,471). The jurisdictions in Sampson County with the highest EAL are Unincorporated Areas ($583,566), Clinton ($262,417), and Garland ($157,821). The jurisdictions in Duplin County with the highest EAL are Unincorporated Areas ($105,822), Wallace ($76,710), and Warsaw ($45,649).

***Table 5-42**: NRI Strong Wind Average Annualized Frequency, EAL, EAL Score, and Hazard Risk Rating*

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Duplin County	**1.76**	**$391,472**	**56.95**	**Relatively Moderate**	**64.37**	**Relatively High**

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Beulaville	1.59	$40,288	67.40	Relatively High	72.73	Relatively High
Calypso	1.89	$19,797	67.37	Relatively High	77.75	Relatively High
Faison	1.89	$19,797	67.37	Relatively High	77.75	Relatively High
Greenevers	1.73	$12,680	56.98	Relatively Moderate	64.26	Relatively High
Kenansville	1.60	$41,137	68.29	Relatively High	73.51	Relatively High
Magnolia	1.92	$44,658	70.03	Relatively High	74.75	Relatively High
Rose Hill	1.96	$37,455	65.67	Relatively High	72.46	Relatively High
Teachey	1.73	$21,653	69.48	Relatively High	76.89	Relatively High
Wallace	1.73	$76,710	65.59	Relatively High	69.14	Relatively High
Warsaw	1.88	$45,649	70.41	Relatively High	80.53	Very High
Unincorporated Area	1.67	$105,822	60.17	Relatively High	63.37	Relatively High
Sampson County	**2.08**	**$1,214,747**	**86.41**	**Very High**	**91.09**	**Very High**
Autryville	2.19	$32,802	78.52	Relatively High	73.75	Relatively High
Clinton	1.96	$262,417	80.43	Very High	85.31	Very High
Garland	2.40	$157,821	97.37	Very High	99.09	Very High
Harrells	2.29	$58,911	72.59	Relatively High	75.07	Relatively High
Newton Grove	1.89	$13,720	58.79	Relatively Moderate	61.40	Relatively High
Roseboro	2.24	$44,217	84.08	Very High	87.46	Very High
Salemburg	1.90	$13,112	57.74	Relatively Moderate	57.83	Relatively Moderate
Turkey	1.98	$63,482	89.38	Very High	91.76	Very High
Unincorporated Area	1.97	$583,566	87.08	Very High	89.16	Very High

5.8.6 Consequence and Impact Analysis

5.8.6.1 People

Thunderstorms are generally associated with hazards such as high wind, lightning, and hail. High winds can cause trees to fall, potentially resulting in injuries or death, and lightning can cause house fires and serious injury. Severe weather can also impact the planning area because of power outages, blocked roads, damaging property, and damaging infrastructure. Residents who have a disability (14.6% in Sampson County and 17.3% in Duplin County) or an independent living difficulty (7.1% in Sampson County and 8.4% in Duplin County) may require assistance in the event of severe weather, especially for those residents who have limited mobility or those who rely on electricity to power medical devices.[70]

Critical emergency alerts are often transmitted via radio, reverse 911, or text message. Residents in the planning area that lack telephone service (0.9% of Housing Units in Sampson County and 0.6% of Housing Units in Duplin County), don't have a computing device (11.7% of housing units in Sampson County and 11.9% in Duplin County), or who do not have an internet subscription (16.9% of households in Sampson County and 20.9% of households in Duplin County) may have a limited capacity to receive information over telephone, the internet, or essential emergency alerts, review preparedness and response information.

Hail can cause injury as well as severe property damage to homes and automobiles. All jurisdictions in the Region are vulnerable to this impact. Hail may also pose a risk to the health and safety of residents in the planning area, which can range from minor injuries to severe and potentially fatal head trauma. Lightning can have a significant impact on humans if directly struck, which includes series brain injury, burns, cardiovascular damage, nervous system damage, and death.

5.8.6.2 Change in Development or Housing Characteristics

Thunderstorms can cause damage to commercial buildings and homes due to strong winds, lightning strikes, and hail. Heavy rains associated with thunderstorm events may also lead to flash flooding, which can damage roads and bridges. Residents who live in Boats, RVs, or Vans (0.2% in Sampson County and 0% in Duplin County) and who live in mobile homes (34% in Sampson County and 31.5% in Duplin County) may experience disproportionate damage to their housing unit in the event of severe weather. The expanding infrastructure in the planning area should be developed to be resilient to frequent severe weather impacts and be designed to avoid frequent storm disruptions.

5.8.6.3 Economy

Economic damage includes property damage from wind, lightning, and hail, as well as intangibles such as business interruption and additional living expenses. In Duplin County, the towns of Beulaville and Rose Hill are most vulnerable to crop damage from hail.

[70] U.S. Census Bureau, U.S. Department of Commerce. "Disability Characteristics." American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1810, https://data.census.gov/table/ACSST5Y2023.S1810

5.8.6.4 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 brushfires, which then spread quickly due to the storm's fast winds. High winds can also damage crops and trees. Flooding can kill animals and cause soil erosion.

5.8.6.5 First Responders

First responders can be impacted in the same way as the public. Downed trees, power lines, and flood waters may prevent access to areas in need, which prolongs response time. Severe weather events can result in power outages, downed trees and power lines, and flash flooding, all of which may impact access to critical facilities, emergency equipment, and residents who require emergency response.

5.8.6.6 Future Conditions

According to the NCCR,[71] the frequency and severity of thunderstorms in NC are likely to increase due to climate change impacts. This includes increases in frequent extreme precipitation and flooding in the planning area.

[71] North Carolina Institute for Climate Studies [NCICS]. (2020). North Carolina Climate Science Report. NCICS. Retrieved January 29, 2025, from https://ncics.org/wp-content/uploads/2020/10/NC_Climate_Science_Report_FullReport_Final_revised_September2020.pdf

5.9 TORNADO

5.9.1 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 mid-path or even backtracked.

Tornadoes are commonly produced by landfalling 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 National Hurricane Center (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.

Before 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 5-43 shows the wind speeds associated with the enhanced Fujita scale ratings and the damage that could result at different levels of intensity.

***Table 5-43**: The Fujita Scale (Effective Prior to 2005)*

F-SCALE NUMBER	INTENSITY	WIND SPEED (MPH)	TYPE OF DAMAGE DONE
F0	Gale Tornado	40–72	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages to sign boards.
F1	Moderate Tornado	73–112	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
F2	Significant Tornado	113–157	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
F3	Severe Tornado	158–206	Roofs and some walls were torn off well-constructed houses; trains overturned; most trees in forest uprooted.

F-SCALE NUMBER	INTENSITY	WIND SPEED (MPH)	TYPE OF DAMAGE DONE
F4	Devastating Tornado	207–260	Well-constructed houses leveled; structures with weak foundations blown some distance; cars thrown, and large missiles generated.
F5	Incredible Tornado	261–318	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel re-enforced concrete structures badly damaged.
F6	Inconceivable Tornado	319–379	These winds are very unlikely. The small area of damage they might produce would probably not be recognizable along with the mess produced by F4 and F5 wind that would surround the F6 winds. Missiles, such as cars and refrigerators, would do serious secondary damage that could not be directly identified as F6 damage. If this level is ever achieved, evidence for it might only be found in some manner of ground swirl pattern, for it may never be identifiable through engineering studies.

Source: National Weather Service

***Table 5-44**: The Enhanced Fujita Scale (Effective 2005 and Later)*

EF-SCALE NUMBER	INTENSITY PHRASE	3 SECOND GUST (MPH)	TYPE OF DAMAGE DONE
EF0	Gale	65–85	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages to sign boards.
EF1	Moderate	86–110	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.
EF2	Significant	111–135	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
EF3	Severe	136–165	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.
EF4	Devastating	166–200	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown, and large missiles generated.
EF5	Incredible	Over 200	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel re-enforced concrete structures badly damaged.

Source: National Weather Service

5.9.2 Location and Spatial Extent

Although tornadoes can occur in most locations, most tornado activity in the United States occurs in the Midwest and Southeast. There is no specific season for tornadoes; however, most

occur from early spring to mid-summer (February–June). Figure 5-129 shows tornado activity in the United States based on the number of recorded tornadoes per 1,000 square miles.

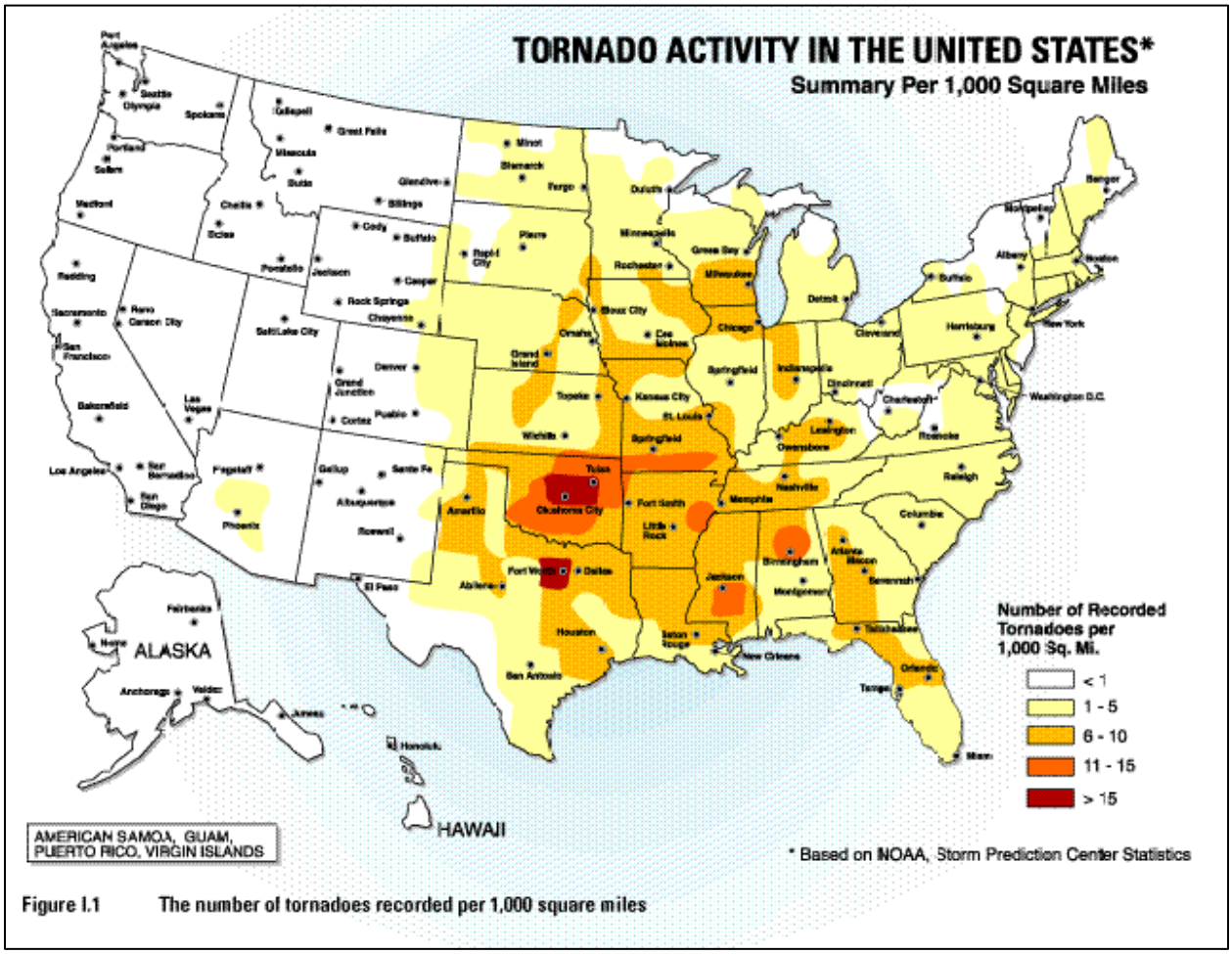


***Figure 5-129**: Tornado Activity in the United States*

Tornadoes occur throughout North Carolina, and thus in the Region. Tornadoes typically impact a relatively small area, but damage may be extensive. Event locations are entirely 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.

To demonstrate the location and spatial extent of tornado hazards in the planning area, the following maps utilize the NRI EAL data and the NOAA SPC Tornado Tracks dataset.[72] The NOAA and SPC Tornado Tracks dataset displays the path and magnitude of reported tornadoes in the US, Puerto Rico, and the U.S. Virgin Islands between 1950 and 2024. The NRI EAL for tornadoes is also included in the maps below, using the economic losses reported by the NWS

[72] Storm Prediction Center [SPC] & National Oceanic and Atmospheric Administration [NOAA]. (n.d.). Tornado Tracks [Dataset]. In Federal Emergency Management Administration [FEMA], FEMA Geospatial Resource Center. FEMA. https://gis-fema.hub.arcgis.com/datasets/fedmaps::tornado-tracks-1/about

SPC Severe Weather Database[73] to evaluate tornado risk in the planning area. The period of record for the EAL data set is from 1950 to 2019. All EF-2, 3, 4, and 5 tornadoes were recorded before 1986, and EF-0, EF-1, and EF-2 tornadoes were recorded from 1986 to 2019.

[73] Storm Prediction Center [SPC], National Weather Service [NWS]. (2021). Severe Weather Database files, Tornado, 1950-2021 [online dataset]. Retrieved from http://www.spc.noaa.gov/wcm/.

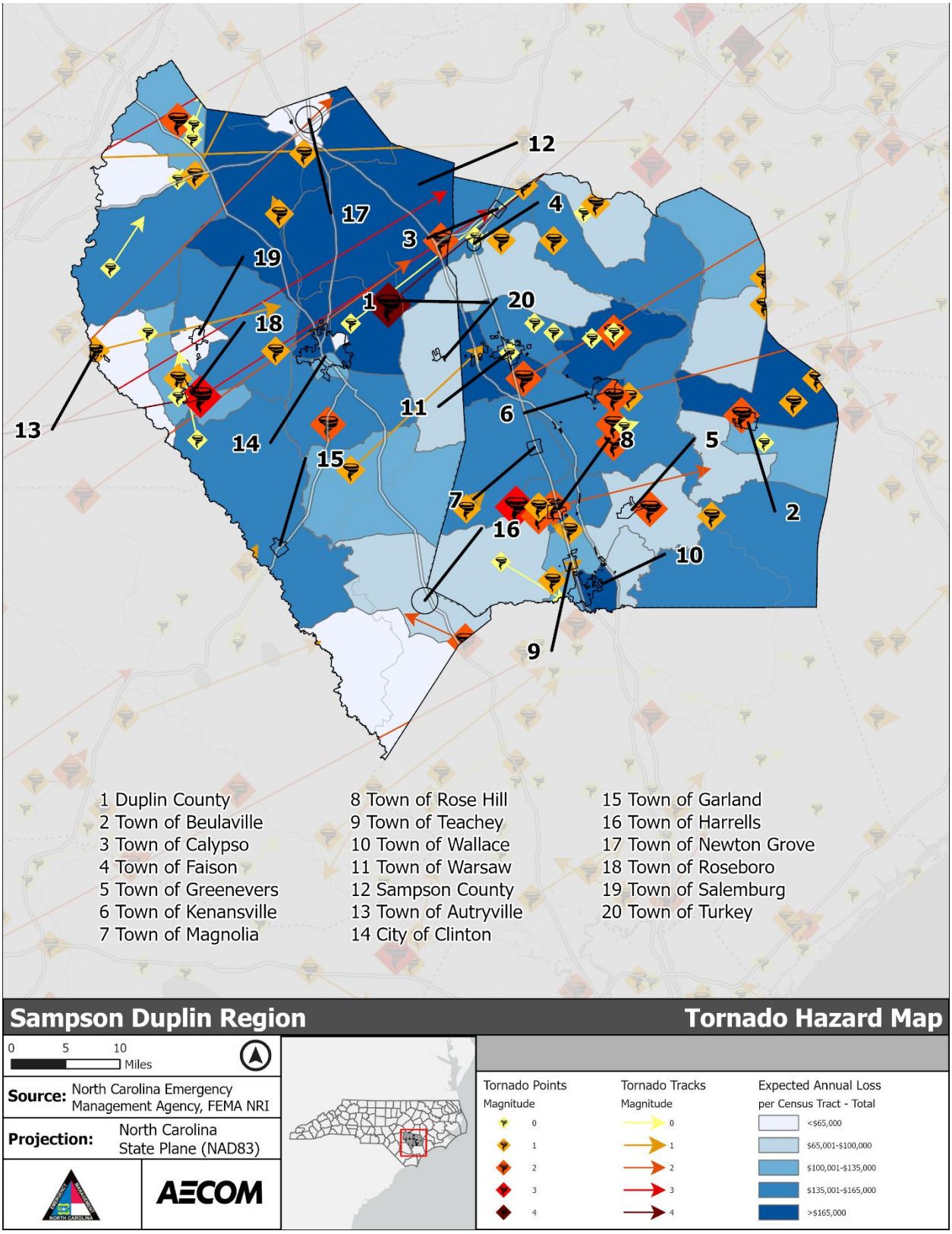


***Figure 5-130**: Sampson Duplin Regional Tornado Hazard Map*

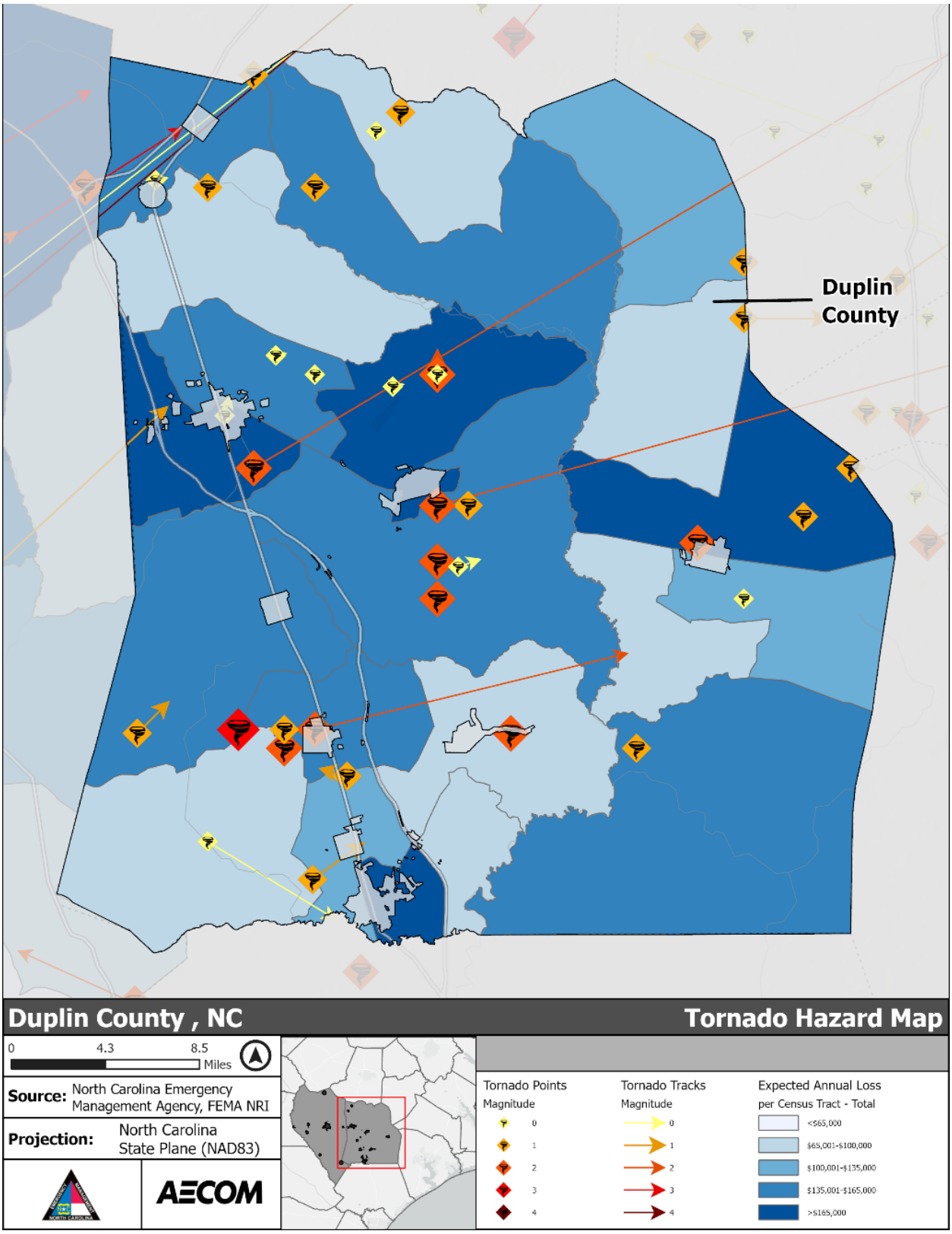


***Figure 5-131**: Duplin County Tornado Hazard Map*

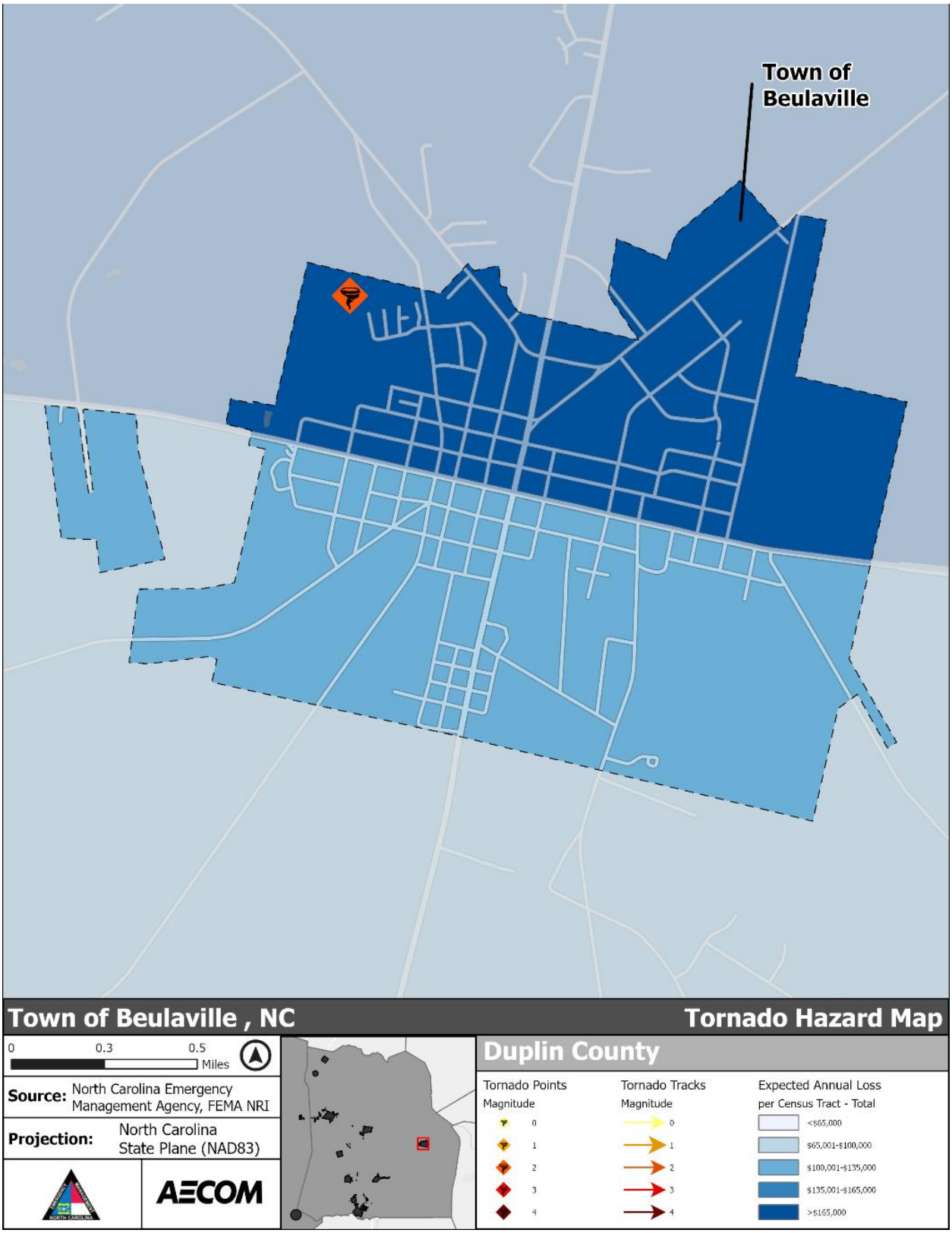


***Figure 5-132**: Town of Beulaville Tornado Hazard Map*

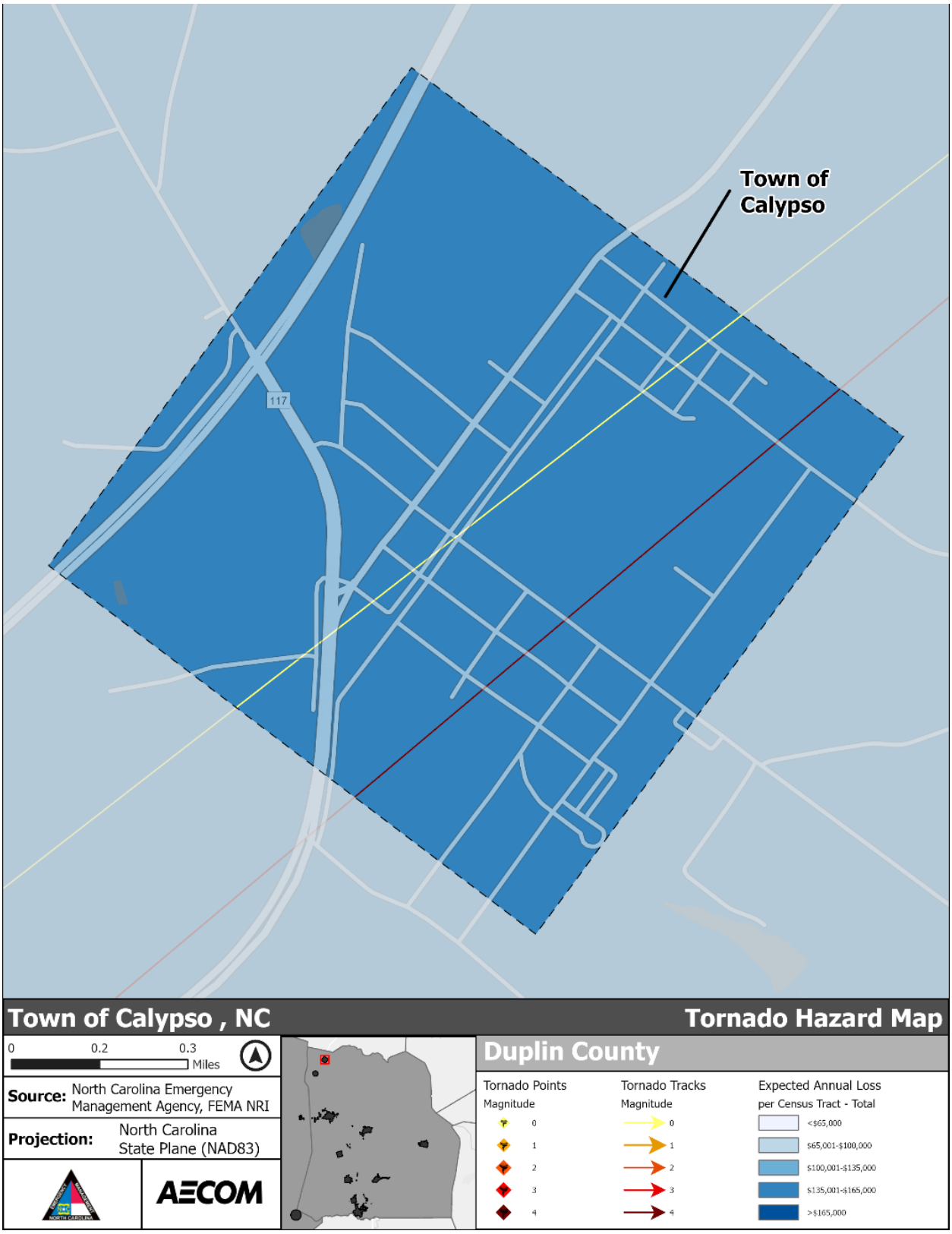


***Figure 5-133**: Town of Calypso Tornado Hazard Map*

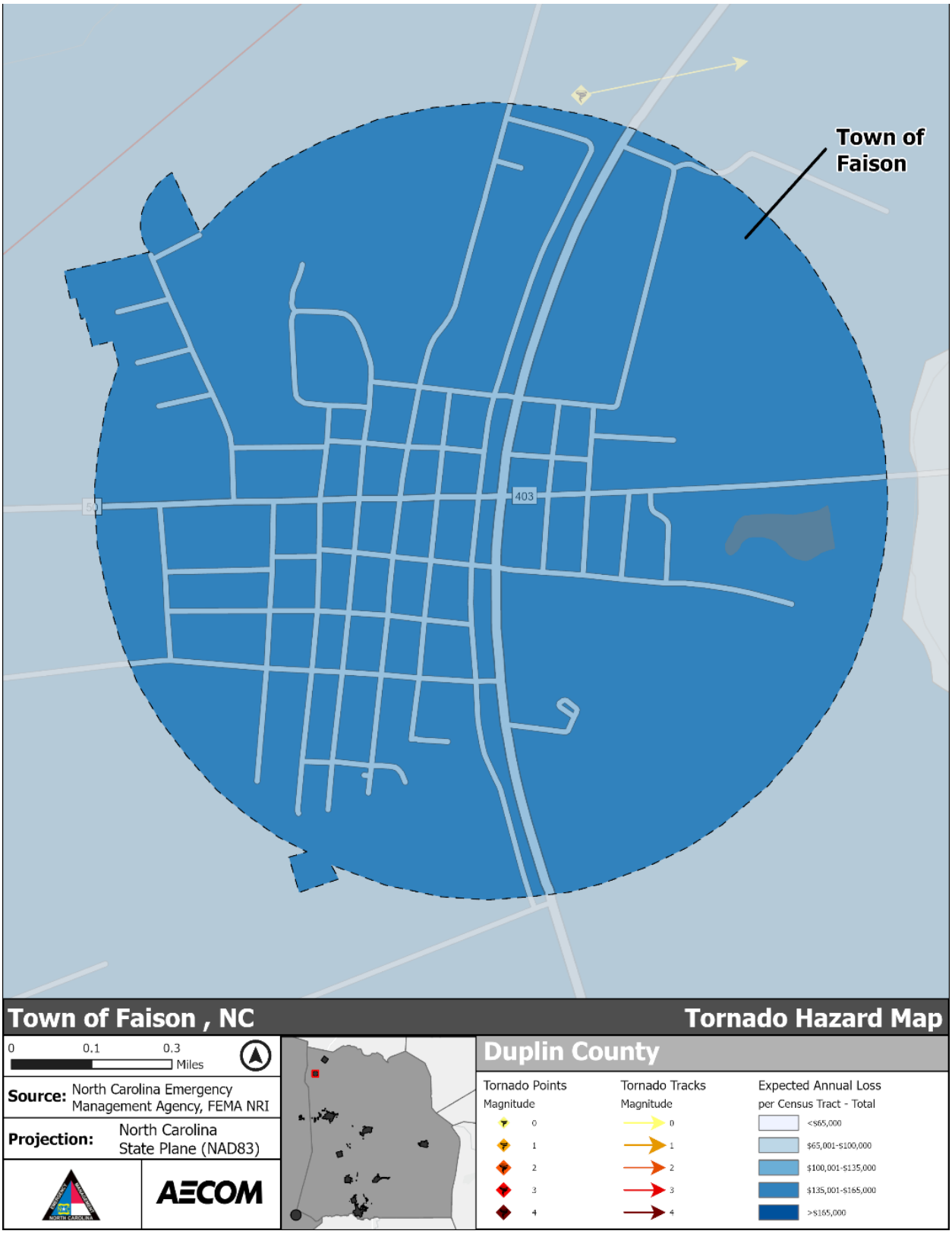


***Figure 5-134**: Town of Faison Tornado Hazard Map*

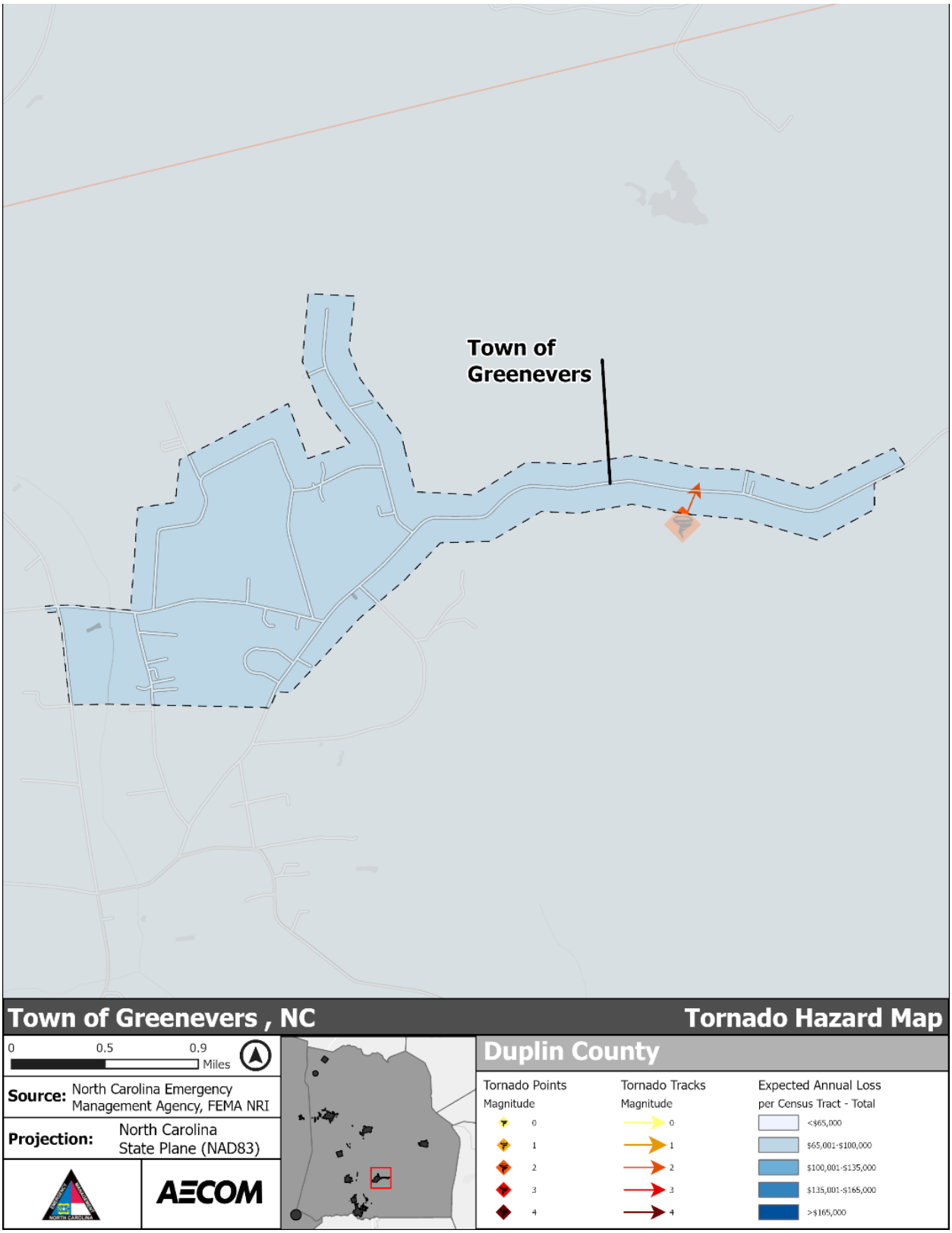


***Figure 5-135**: Town of Greenevers Tornado Hazard Map*

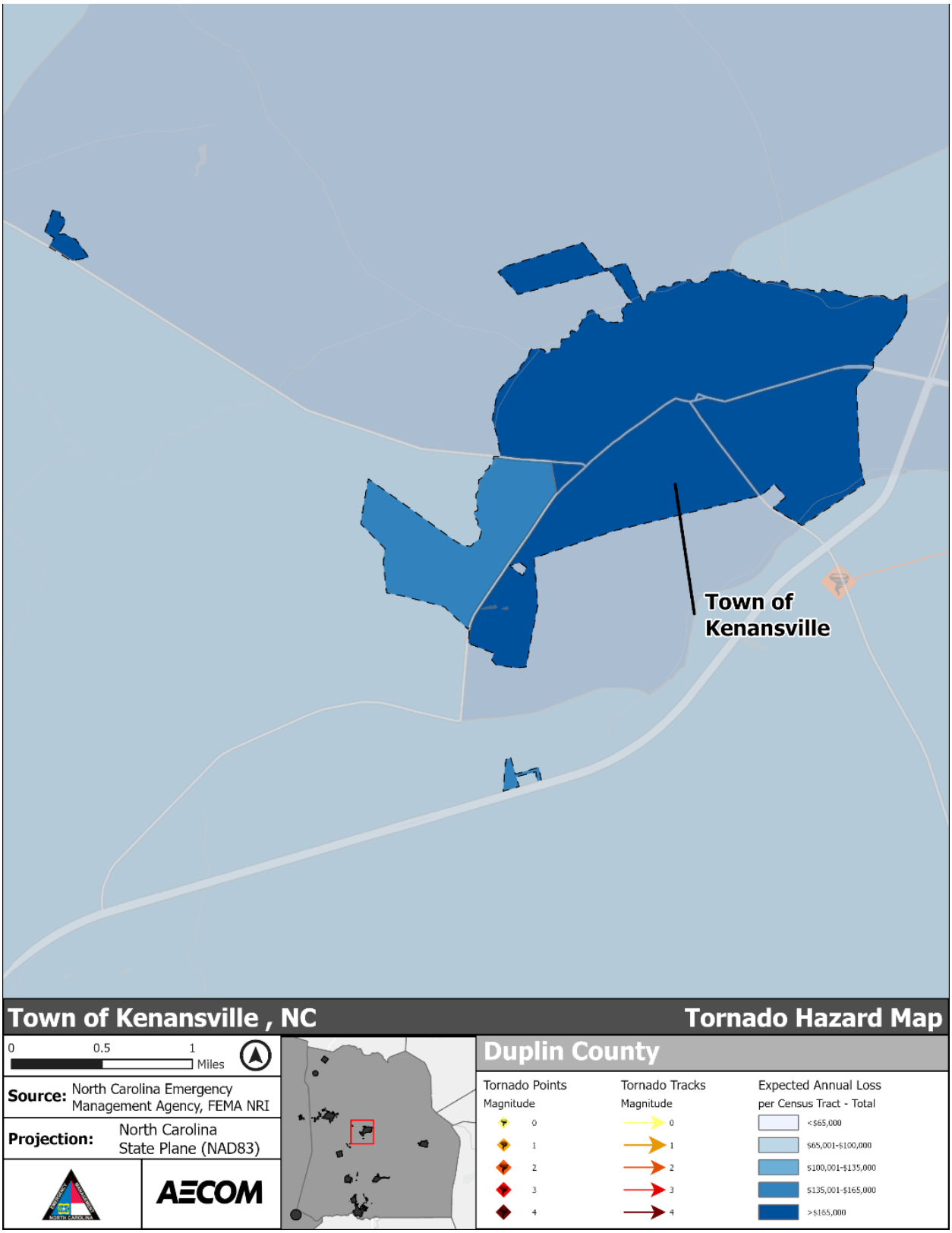


***Figure 5-136**: Town of Kenansville Tornado Hazard Map*

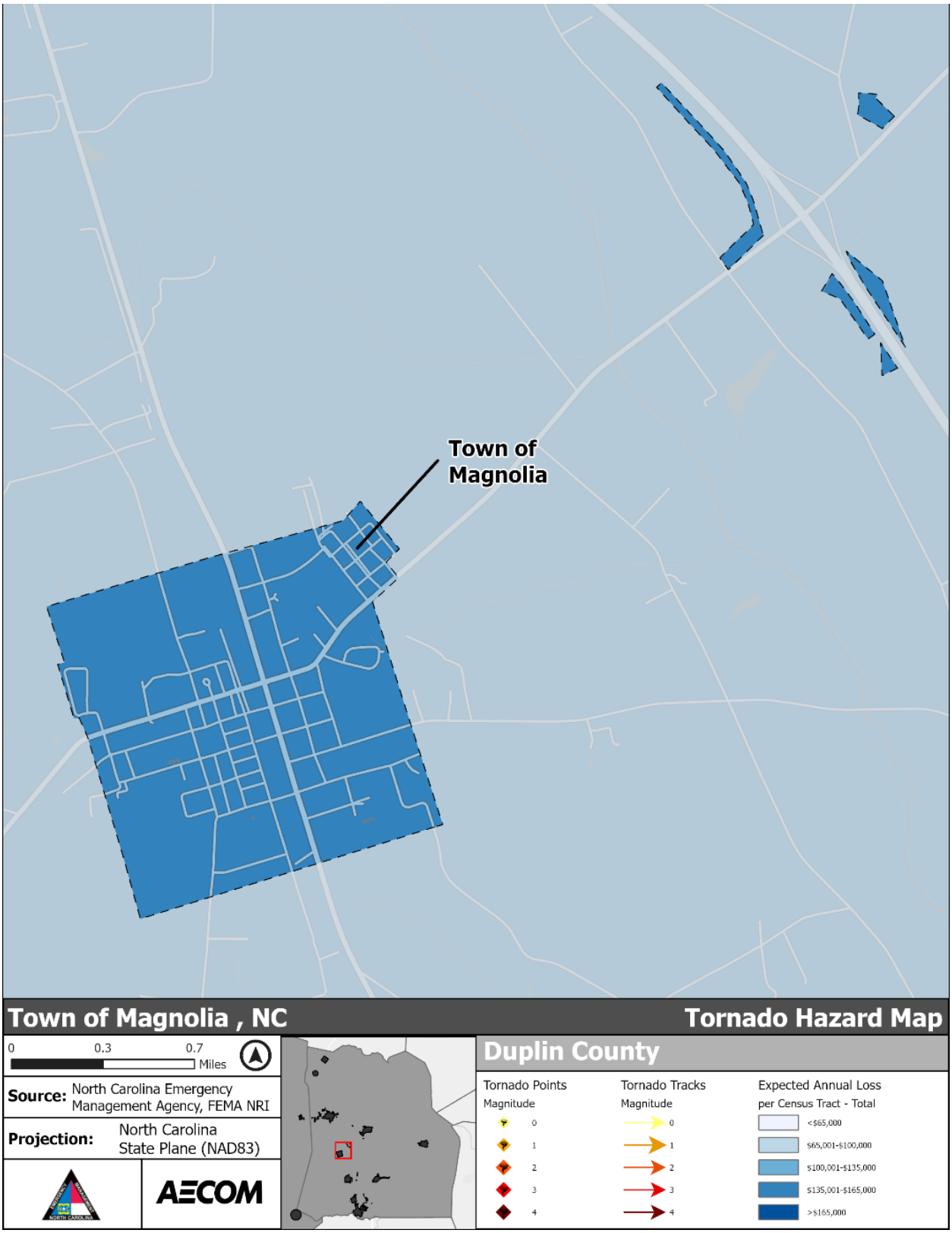


Figure 5-137: Town of Magnolia Tornado Hazard Map

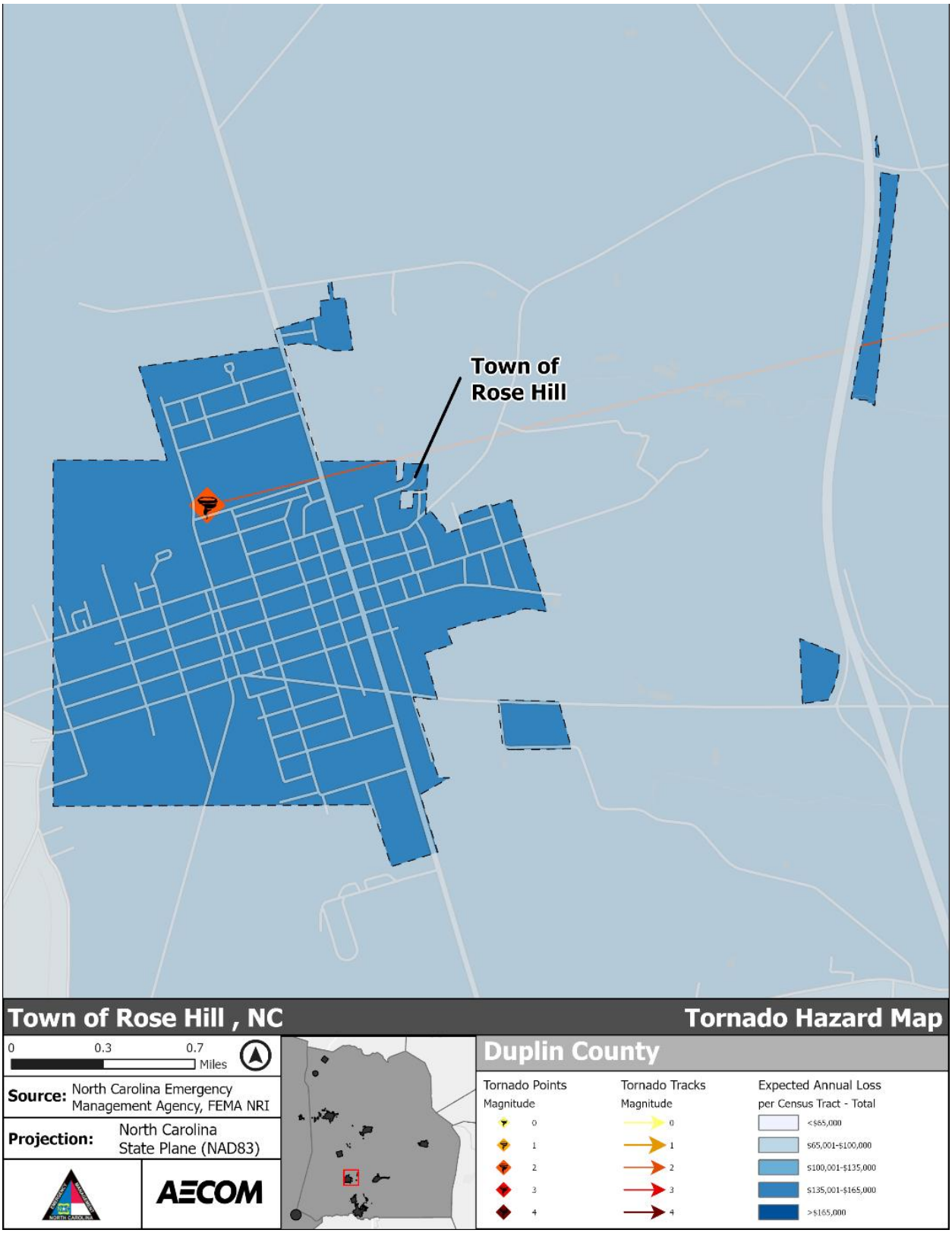


***Figure 5-138**: Town of Rose Hill Tornado Hazard Map*

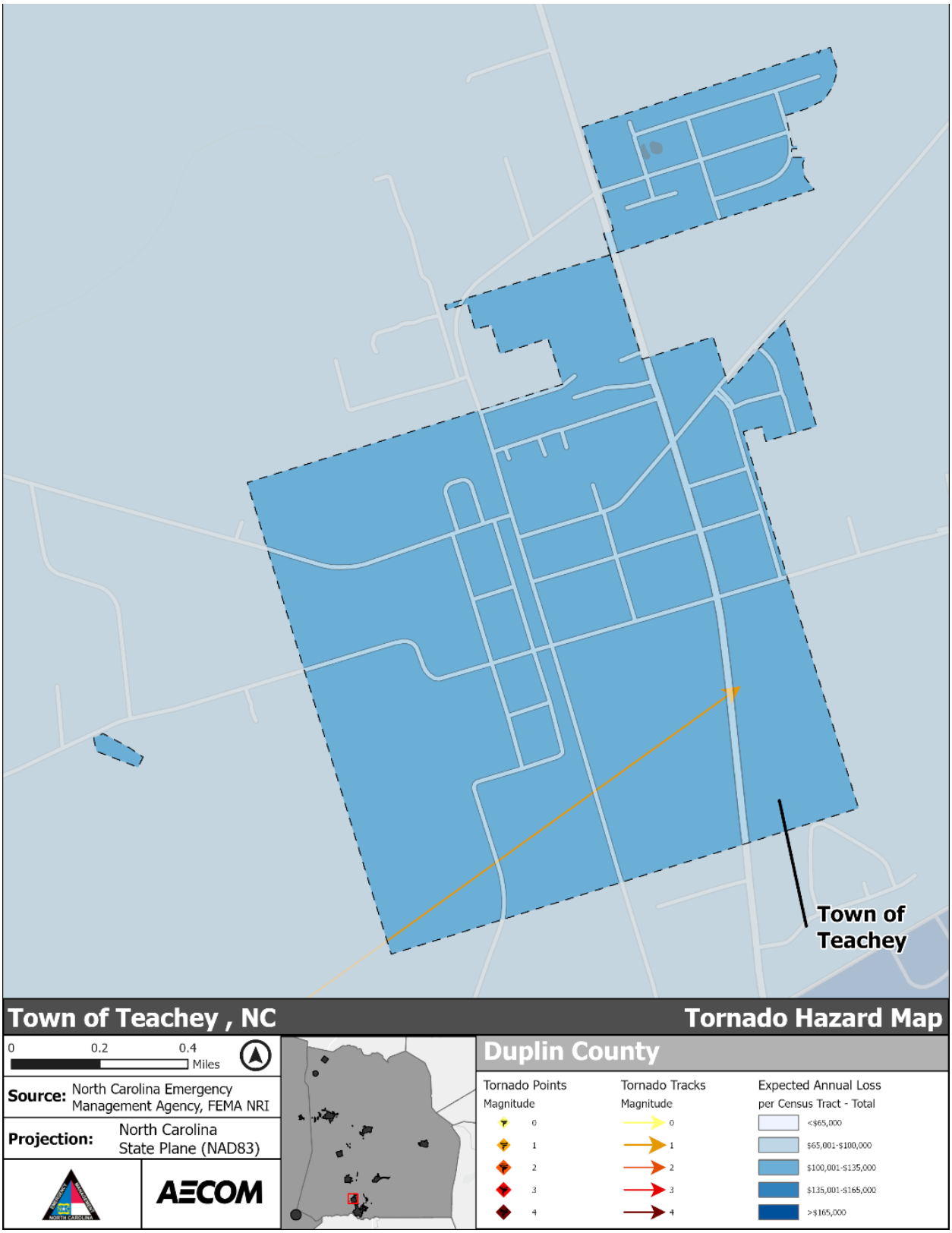


***Figure 5-139**: Town of Teachy Tornado Hazard Map*

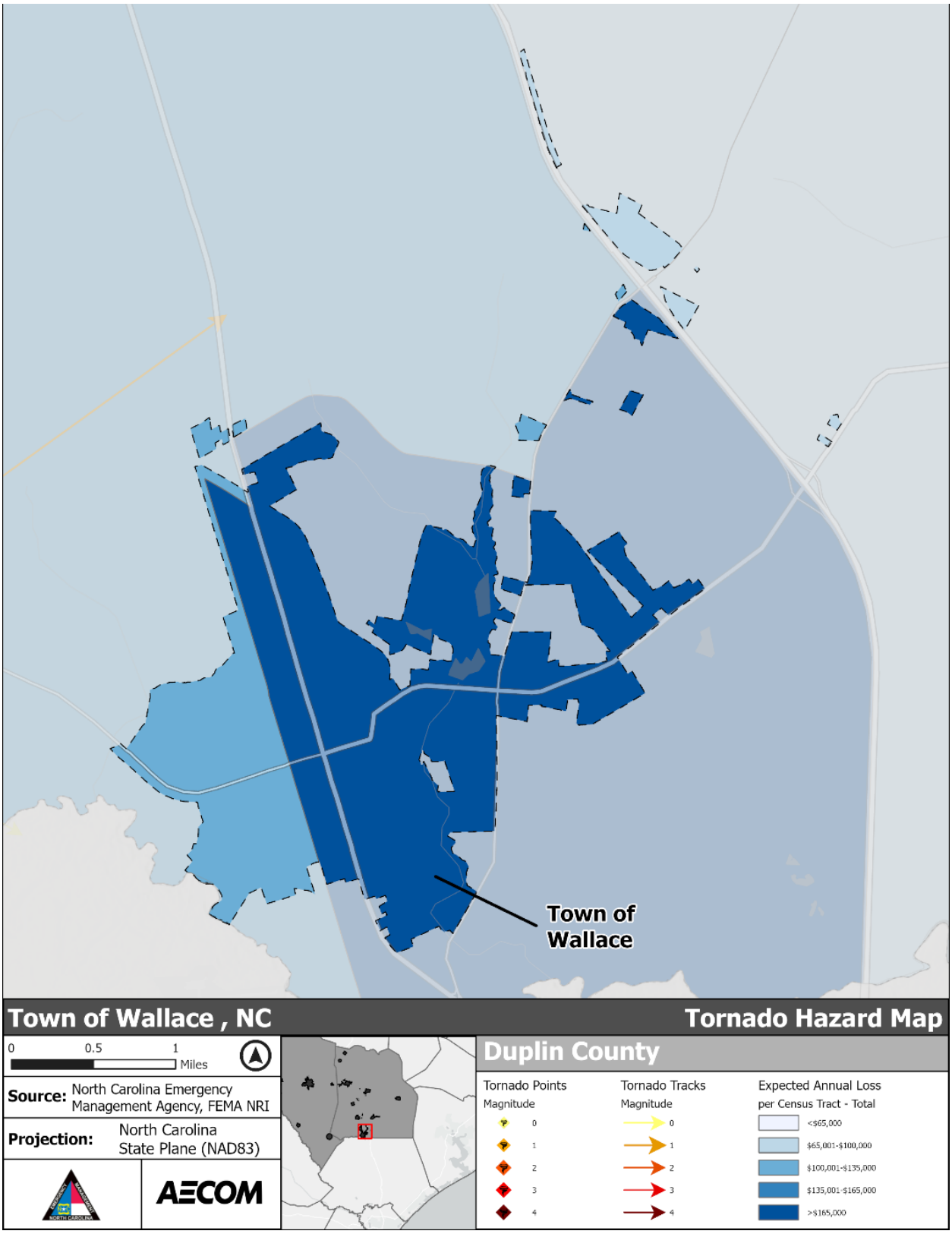


***Figure 5-140**: Town of Wallace Tornado Hazard Map*

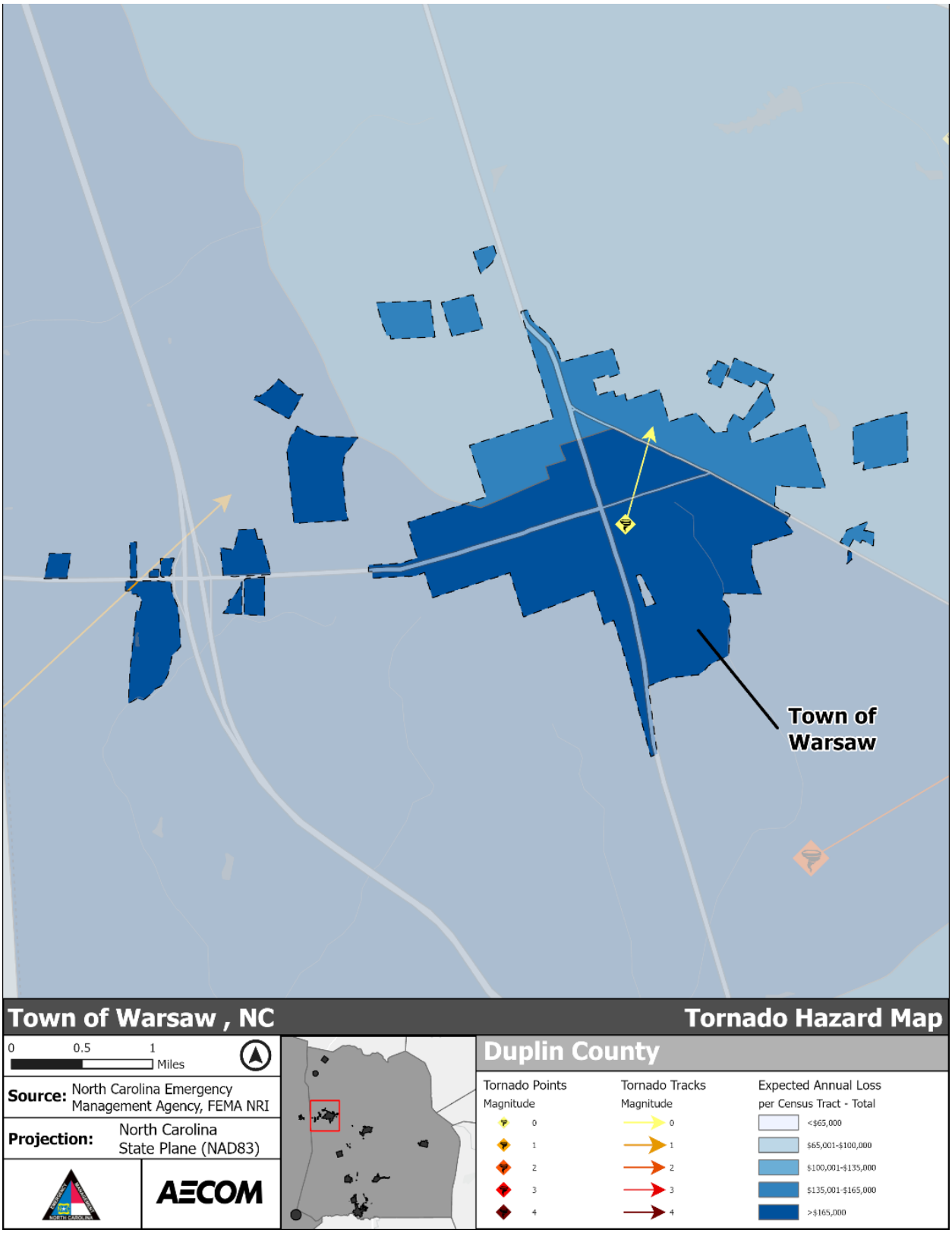


***Figure 5-141**: Town of Warsaw Tornado Hazard Map*

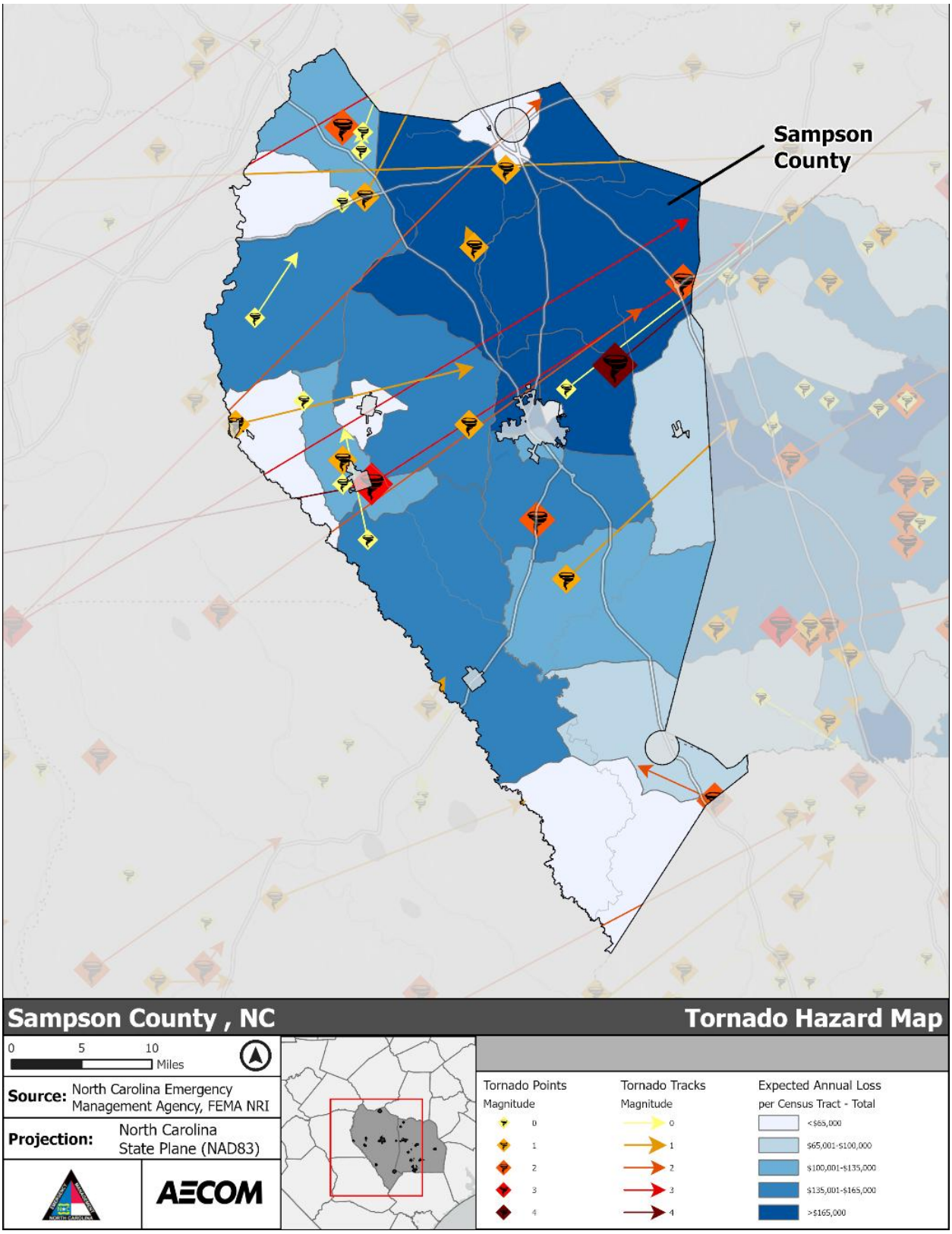


***Figure 5-142**: Sampson County Tornado Hazard Areas*

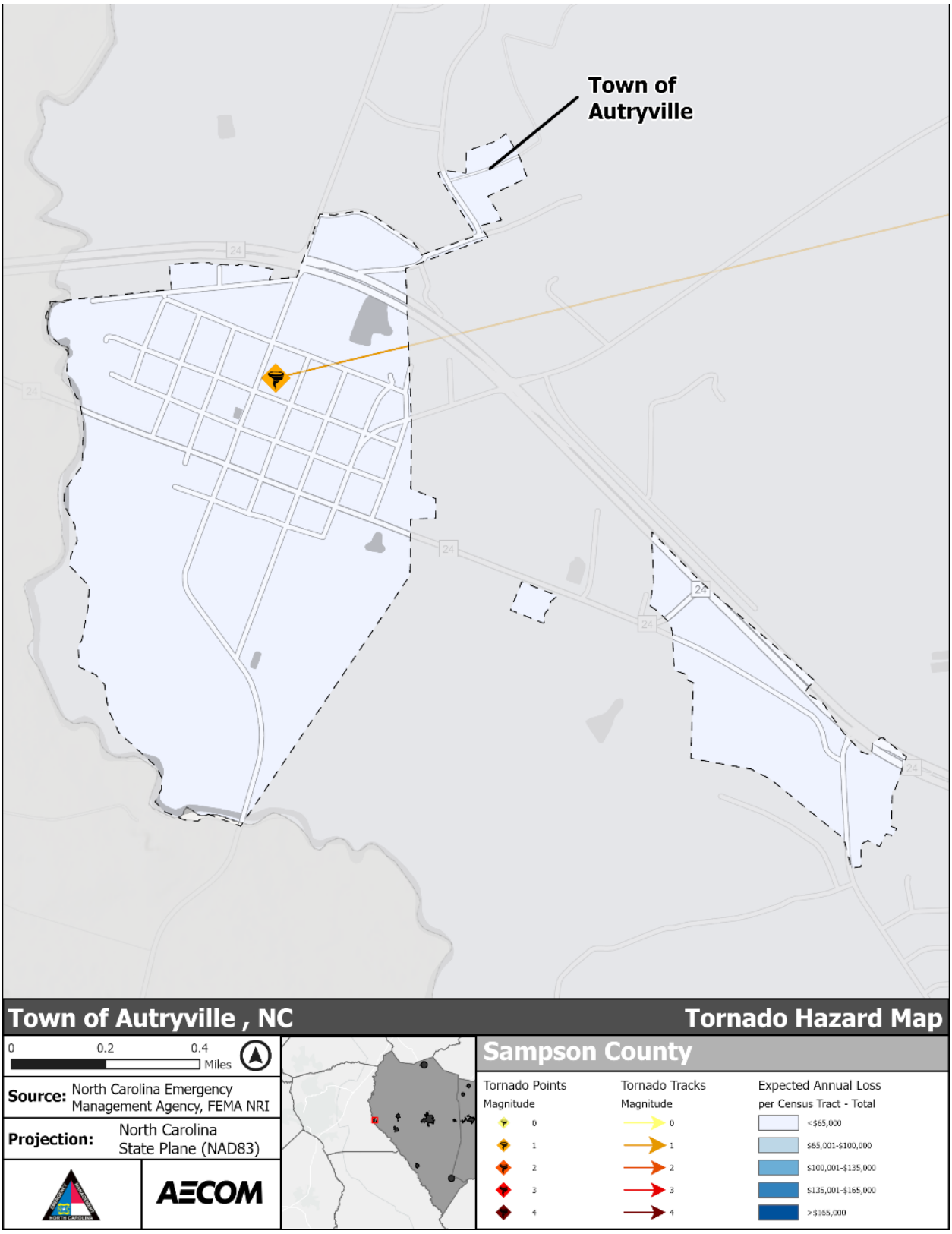


***Figure 5-143**: Town of Autryville Tornado Hazard Map*

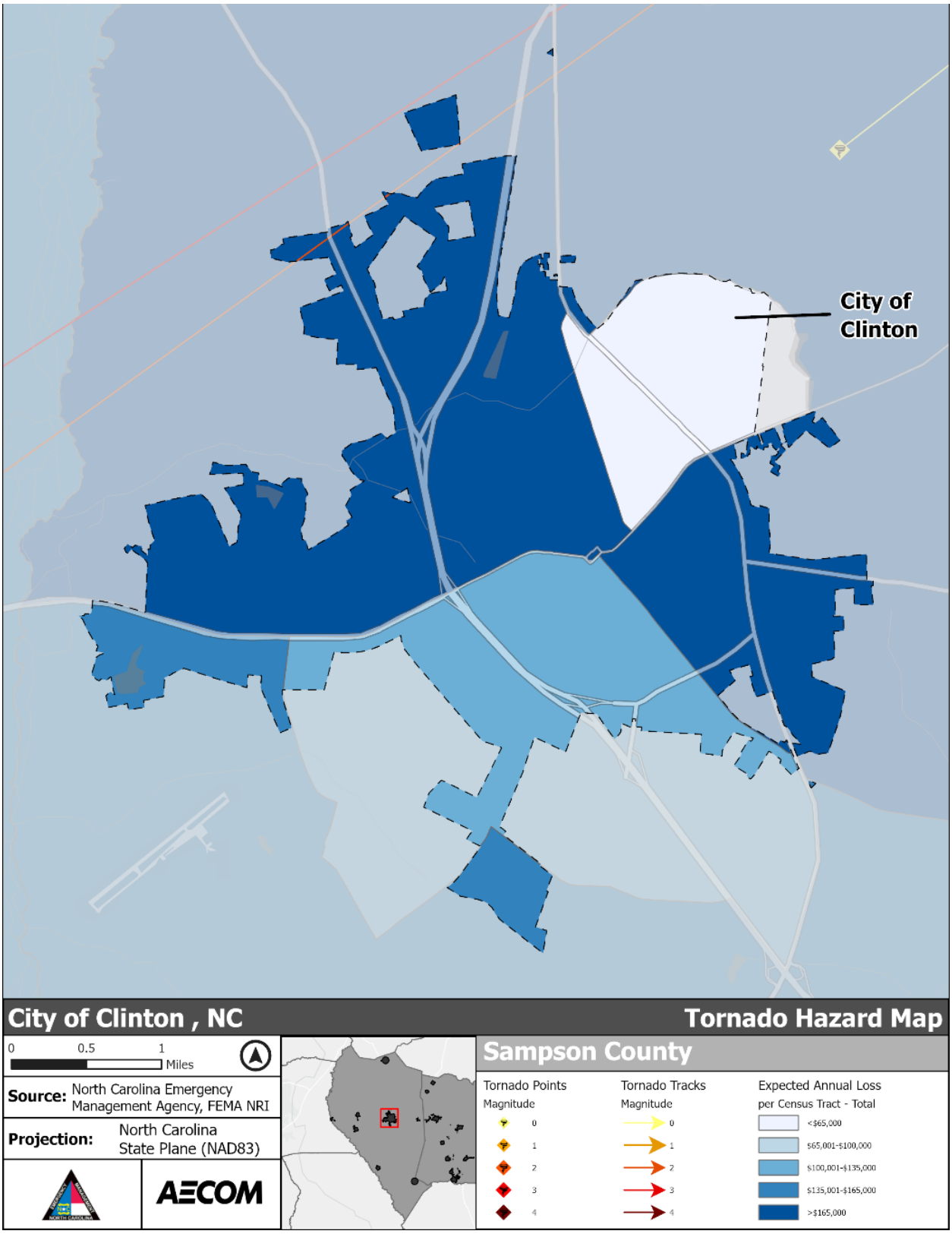


***Figure 5-144**: City of Clinton Tornado Hazard Map*

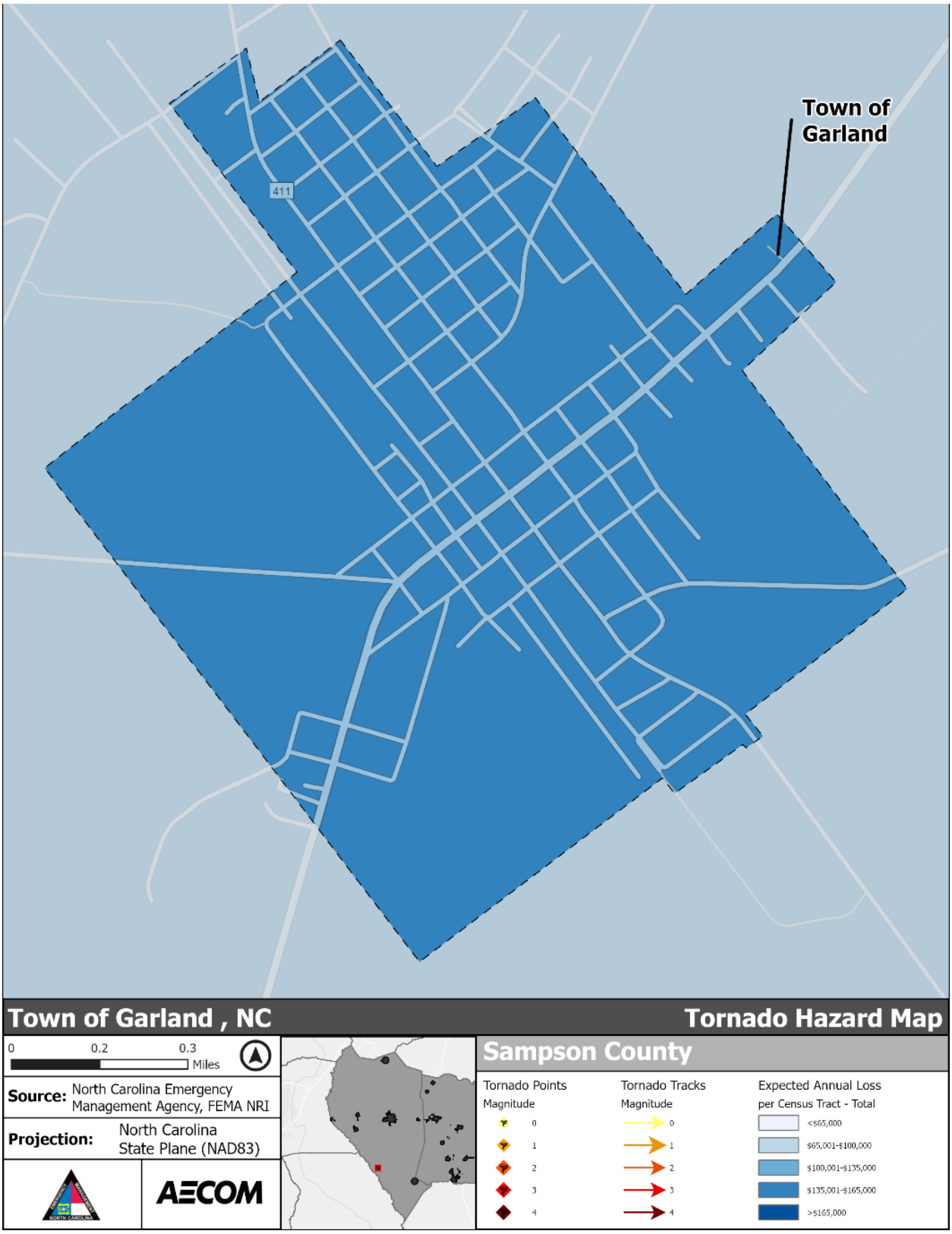


***Figure 5-145**: Town of Garland Tornado Hazard Map*

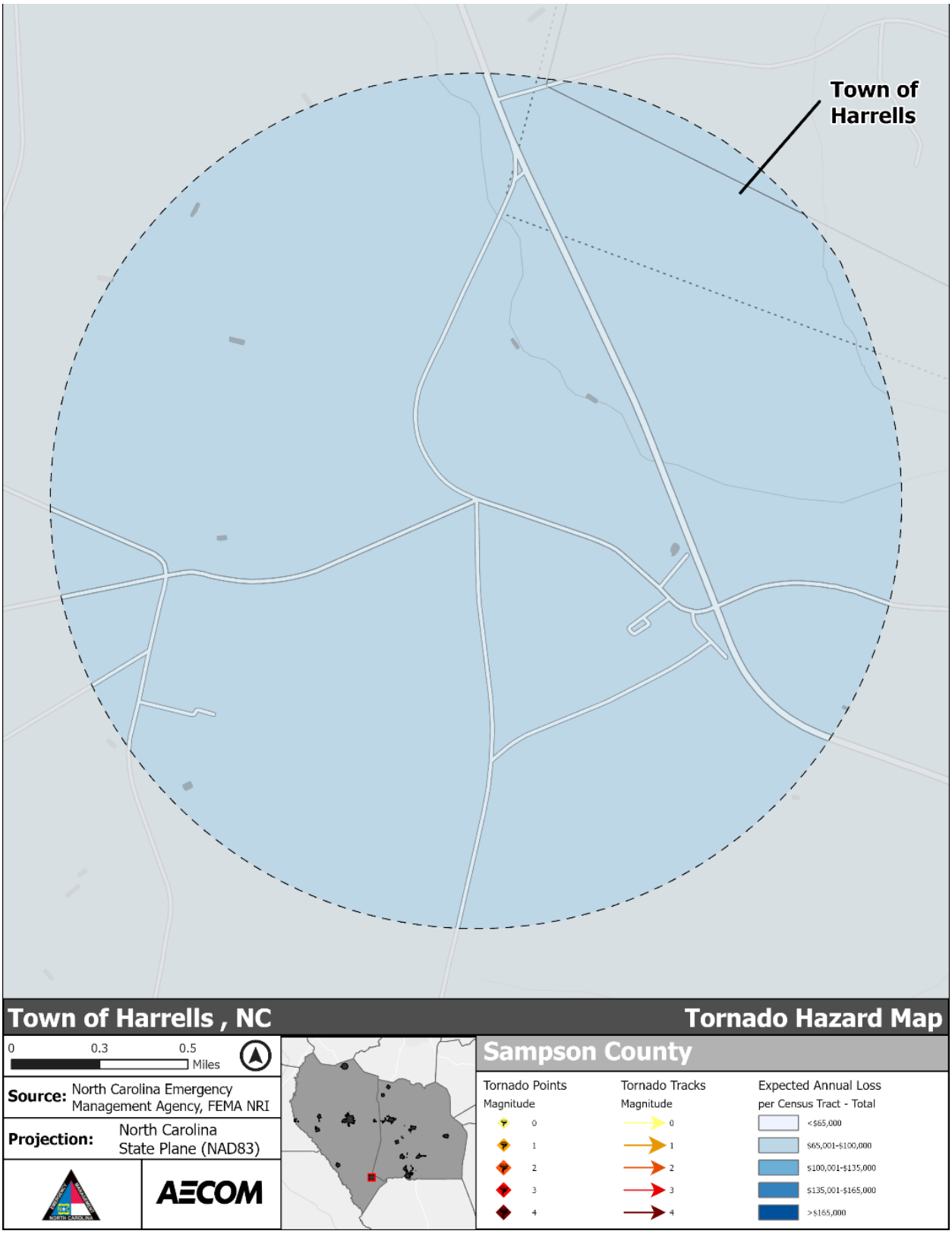


***Figure 5-146**: Town of Harrells Tornado Hazard Map*

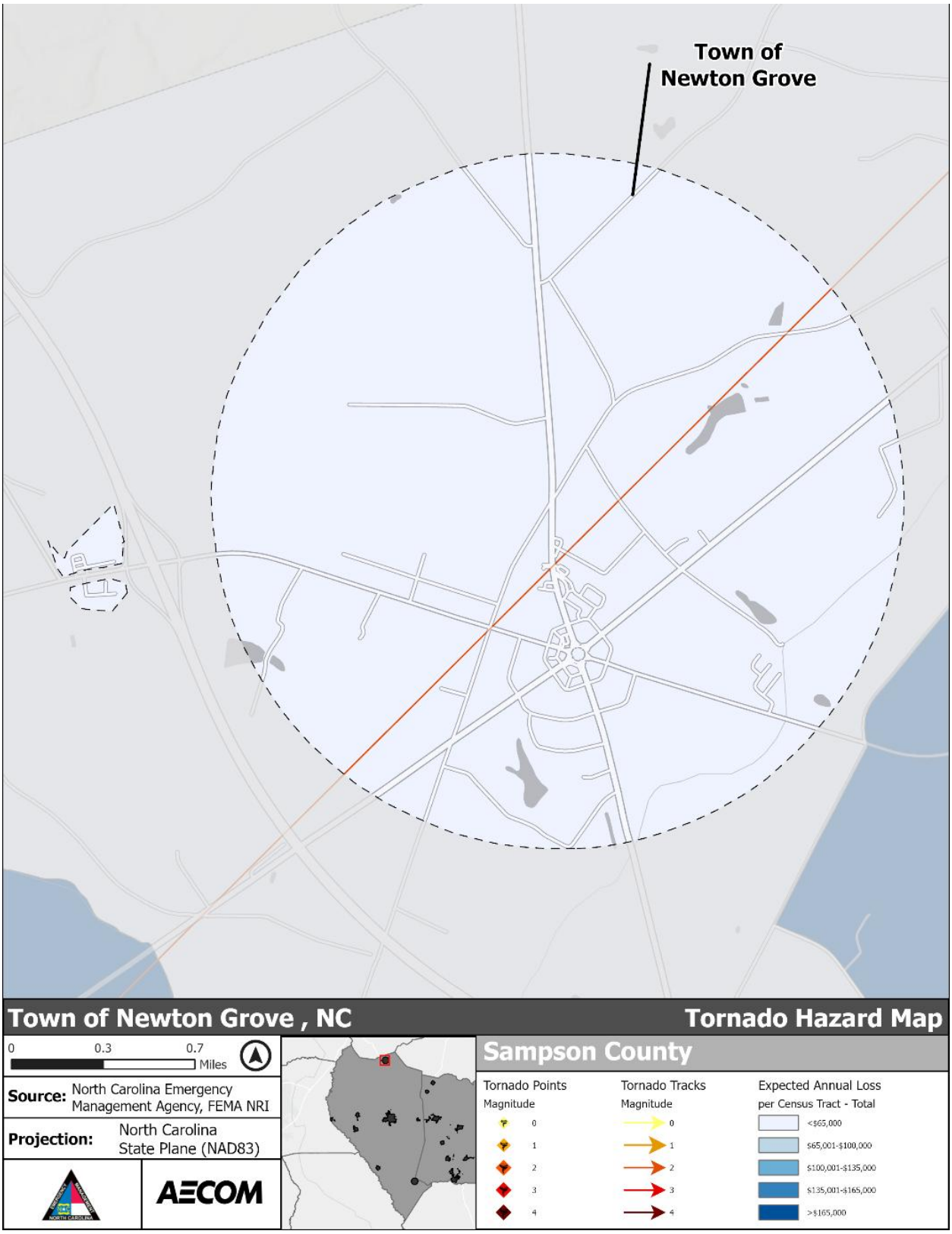


***Figure 5-147**: Town of Newton Grove Tornado Hazard Map*

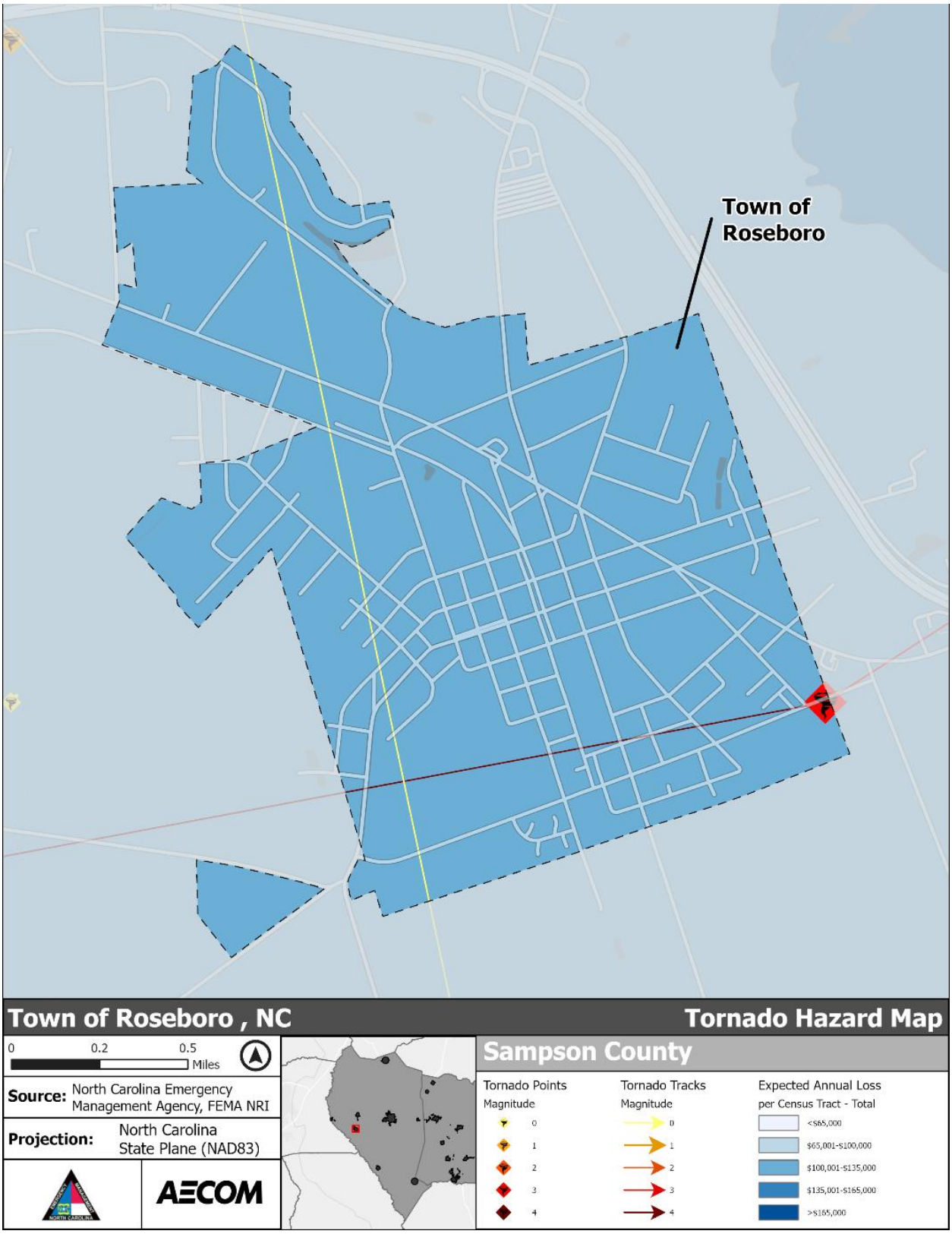


***Figure 5-148**: Town of Roseboro Tornado Hazard Map*

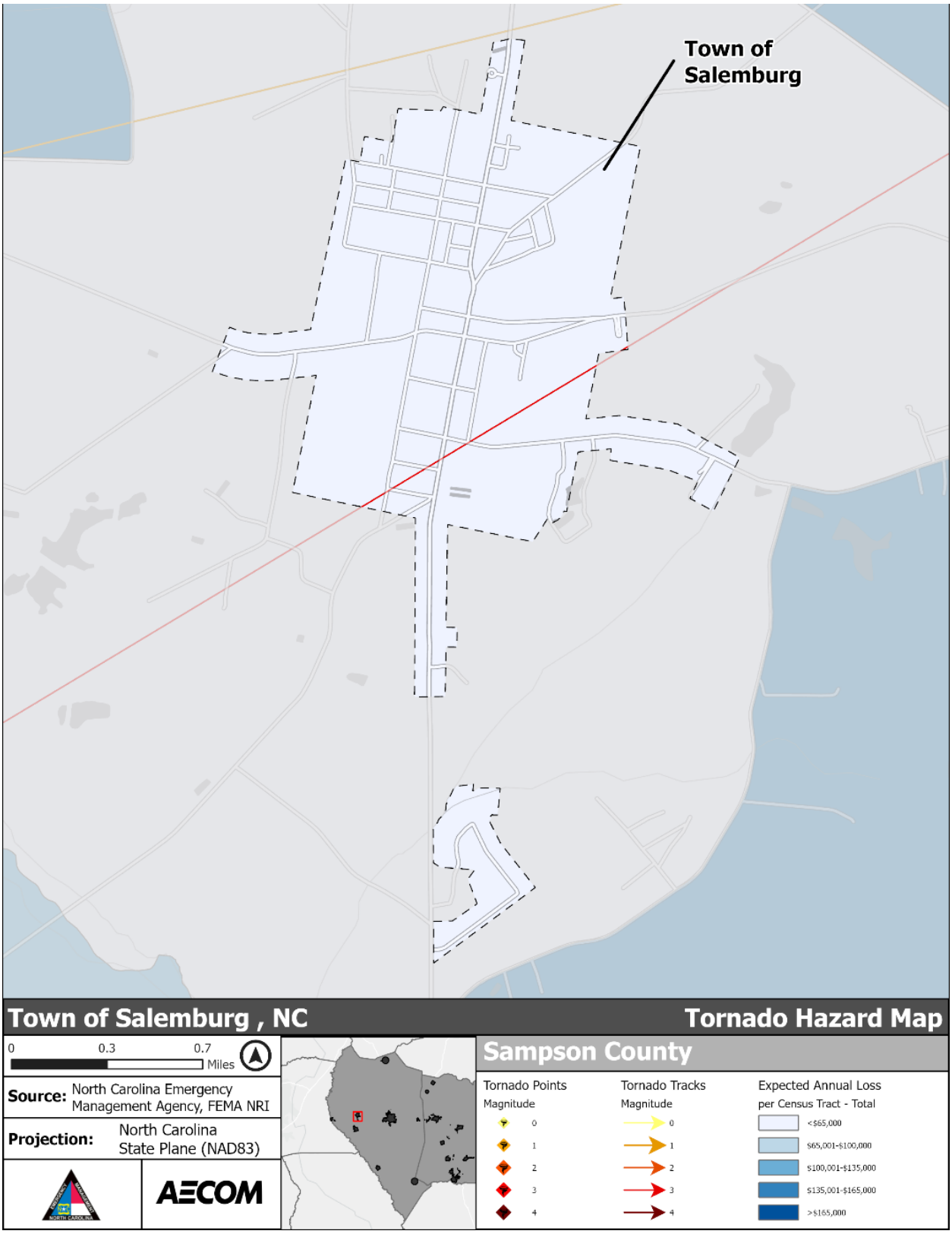


***Figure 5-149**: Town of Salemburg Tornado Hazard Map*

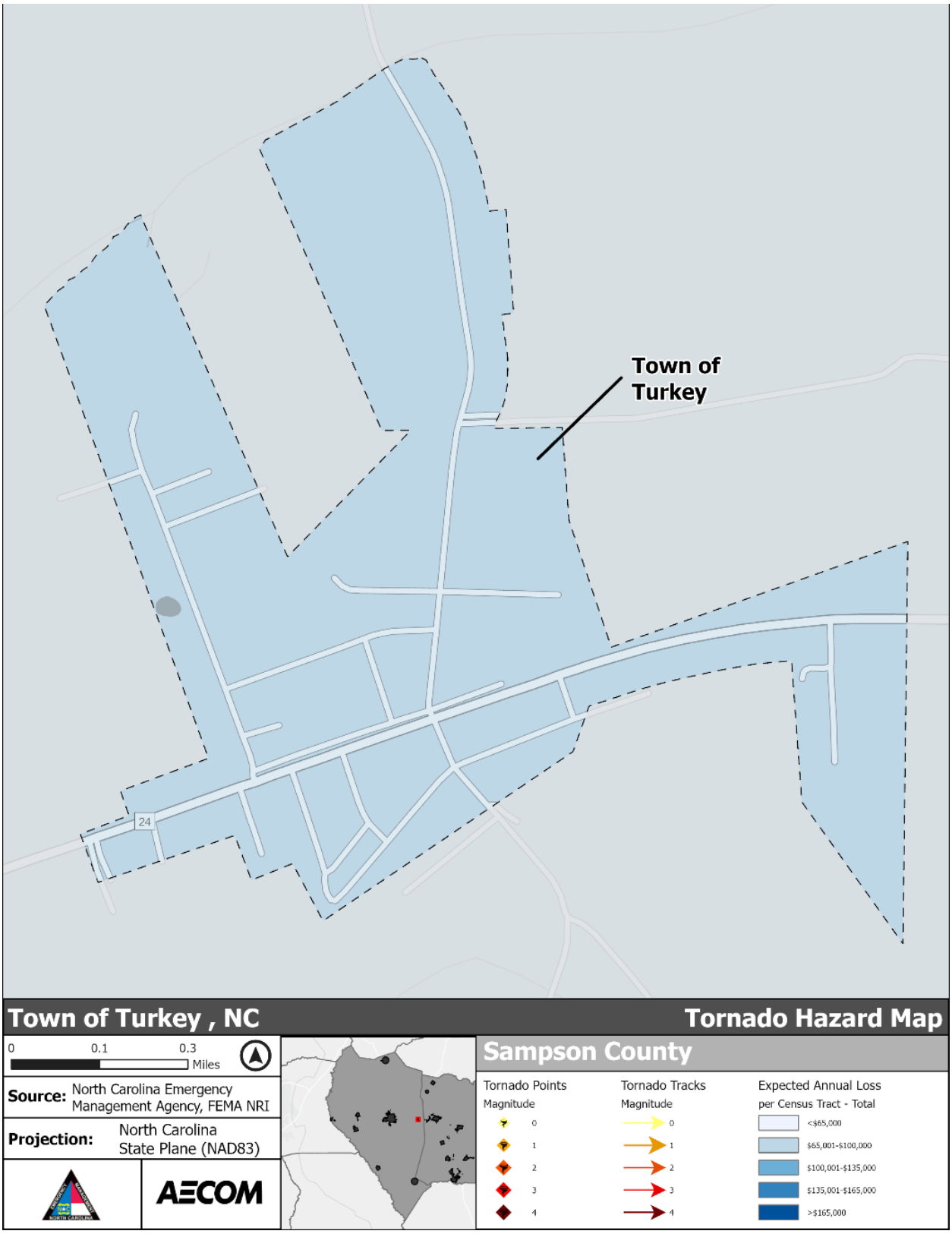


***Figure 5-150**: Town of Turkey Tornado Hazard Map*

5.9.3 Extent

Tornado hazard extent is measured by tornado occurrences in the US, provided by the Fujita/Enhanced Fujita Scale. Table 5-45 provides the highest recorded events in the jurisdictions (except Garland, Harrells, Newton Grove, Roseboro, Salemburg, Turkey, Beulaville, Calypso, Greenevers, Teachey, and Wallace, which haven't experienced tornadoes in their jurisdictions) in the Region below. It should be noted that jurisdictions can be affected by these events even though they are not depicted in the table.

***Table 5-45**: Tornado Hazard Events*

Jurisdiction	Date of Event	Magnitude
Sampson		
Unincorporated	4/8/1957, 3/28/1984	F4
Autryville	5/23/2017	EF1
Clinton	1/7/1995	F1
Garland	-	-
Harrells	-	-
Newton Grove	-	-
Roseboro	-	-
Salemburg	-	-
Turkey	-	-
Duplin		
Unincorporated	3/28/1984	F4
Beulaville	-	-
Calypso	-	-
Faison	4/16/2011	EF0
Greenevers	-	-
Kenansville	4/15/1996, 4/15/1999	F2
Magnolia	4/15/1996	F1
Rose Hill	7/3/2014	EF1
Teachey	-	-
Wallace	-	-
Warsaw	5/5/2009, 2/24/2016	EF0

5.9.4 Past Occurrences

Table 5-46 provides a summary of this historical information by participating jurisdiction. It is important to note that many of the events attributed to the county are countywide or cover large portions of the county. The individual counts by jurisdiction are for those events that are only attributed to that one jurisdiction.

Five notable tornado events that occurred in the planning area are summarized below:

3/28/1984 Tornado Outbreak:

- NCEI Storm Events Database Reported Damage[74]: $75,000,000
  - **Injuries**: 180 (140 in Sampson County and 40 in Duplin County)
  - **Deaths**: 10 (Sampson County)
- SPC Total Tornado Damage[75]: $7,000,000 for both tornadoes
  - **Injuries**: 250
  - **Deaths**: 15

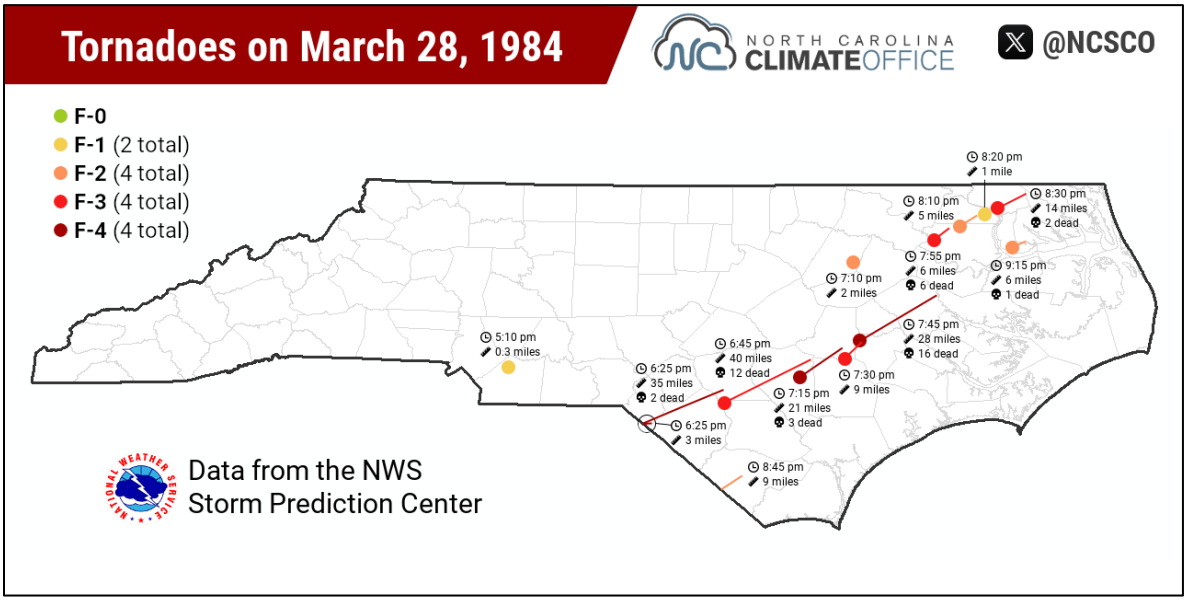


Figure 5-151: Tornado outbreak on March 28, 1984, map of tornado distribution and paths from the NC State Climate Office[76]

[74] National Center for Environmental Information [NCEI]. (n.d.-a). Storm Events Database (By National Oceanic and Atmospheric Administration [NOAA]). National Center for Environmental Information. https://www.ncdc.noaa.gov/stormevents/

[75] Storm Prediction Center. (2025). Tornado Tracks (By National Oceanic and Atmospheric Administration [NOAA]) [Dataset]. https://www.arcgis.com/home/item.html?id=e75412d18bdc469dbf89bf7e929475cc

[76] March Mayhem: Remembering the 1984 tornadoes, forty years later – North Carolina State Climate Office. (2024, March 28). https://climate.ncsu.edu/blog/2024/03/march-mayhem-remembering-the-1984-tornadoes-forty-years-later/

Two tornadoes passed through the planning area on March 28, 1984: an F3 and an F4. According to the NC State Climate Office blog summarizing the 1984 tornado outbreak,[77] a deepening area of low pressure moved from the west, with the pressure of a Category 2 hurricane recorded. A warm front extended from the low-pressure center in eastern NC, separating a humid air mass from the southeast in the 70-80s and cold air from the northwest in the 20-30s. A counterclockwise circulation around the low-pressure center brought high wind speeds provided the conditions for tornadoes and supercell thunderstorms. Fourteen tornadoes were recorded in NC as part of the weather system. The total property damage in NC was reported at $578 million, with 57 fatalities and over 800 injuries.



***Figure 5-152**: Photo of a family home destroyed in Roseboro after March 28, 1984, tornado outbreak from the NCSU Climate Office[78]*

[77] March Mayhem: Remembering the 1984 tornadoes, forty years later – North Carolina State Climate Office. (2024, March 28). https://climate.ncsu.edu/blog/2024/03/march-mayhem-remembering-the-1984-tornadoes-forty-years-later/
[78] March Mayhem: Remembering the 1984 tornadoes, forty years later – North Carolina State Climate Office. (2024, March 28). https://climate.ncsu.edu/blog/2024/03/march-mayhem-remembering-the-1984-tornadoes-forty-years-later/

April 16, 2011 Tornado:

- NCEI Storm Events Database Reported Damage[79]: $10,000,000
  - **Injuries**: 9
- SPC Total Tornado Damage[80]: $11,500,000
  - **Deaths**: 3
  - **Injuries**: 13

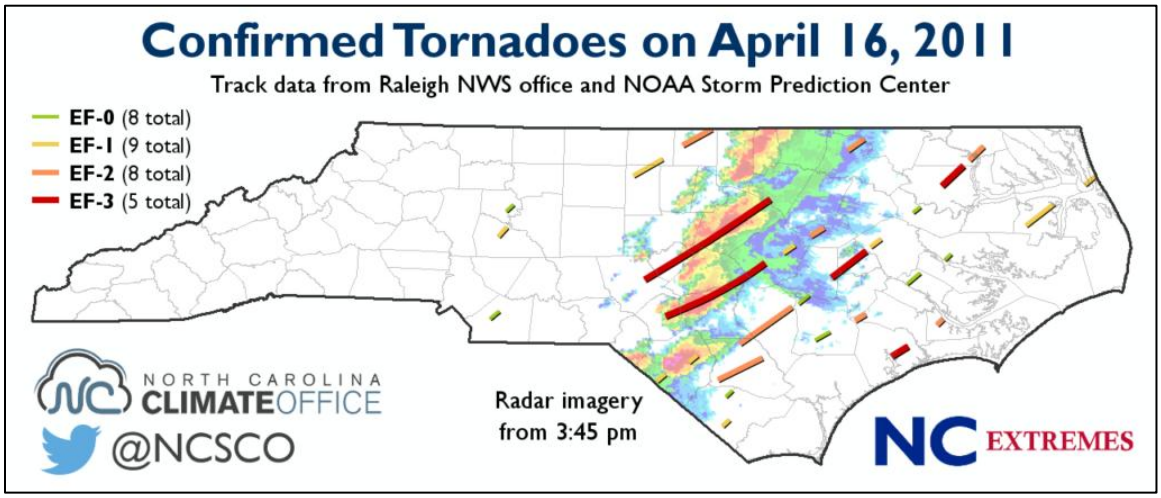


Figure 5-153: Confirmed Tornado Map on April 16, 2011, from the NC State Climate Office[81]

According to the NCEI Storm Events Database, the April 2011 tornado outbreak was one of the largest ever observed in NC. The outbreak was fueled by powerful supercell thunderstorms developing ahead of a cold front, and an EF2 tornado was reported in Sampson County's Highsmith, and an EF0 tornado in Duplin County. According to the NC Climate Office blog summary of the April 2011 tornado outbreak,[82] there were 32 tornadoes confirmed across NC, which caused $328 million of property damage, 304 injuries, and 24 deaths.

[79] National Center for Environmental Information [NCEI]. (n.d.-a). Storm Events Database (By National Oceanic and Atmospheric Administration [NOAA]). National Center for Environmental Information. https://www.ncdc.noaa.gov/stormevents/

[80] Storm Prediction Center. (2025). Tornado Tracks (By National Oceanic and Atmospheric Administration [NOAA]) [Dataset]. https://www.arcgis.com/home/item.html?id=e75412d18bdc469dbf89bf7e929475cc

[81] North Carolina State Climate Office. (2015, April 16). NC Extremes: April 2011 Tornado outbreak One for the records – North Carolina State Climate Office (By North Carolina State University). https://climate.ncsu.edu/blog/2015/04/nc-extremes-april-2011-tornado-outbreak-one-for-the-records/

[82] NC Extremes: April 2011 Tornado outbreak One for the records – North Carolina State Climate Office. (2015, April 16). https://climate.ncsu.edu/blog/2015/04/nc-extremes-april-2011-tornado-outbreak-one-for-the-records/



Figure 5-154: Tornado Damage in Clinton, Sampson County, April 2011 from WRAL News[83]

April 15, 1999 Tornado:

- NCEI Storm Events Database Reported Damage[84]: $4 Million
  - **Injuries**: 11
- SPC Total Tornado Damage[85]: $6 Million
  - **Injuries**: 21

According to the NWS summary of April 15, 1999, tornado events,[86] a supercell of thunderstorms produced several tornadoes and measured wind gusts up to 165mph. The storm formed in northeastern Georgia before moving through South Carolina, where moisture intensified it, and then moved out of South Carolina as a heavy-precipitation supercell. A multi-vortex, F2 tornado touched down in Duplin County, half a mile south of Kenansville, which was tracked through Pink Hill and Beulaville before entering Jones County. The tornado traveled almost 30 miles and had a width of between half and one mile, with winds up to 165mph observed. There were hundreds of trees knocked down, 30 homes destroyed, and 60 homes that suffered major damage. There were 21 injuries reported by the SPC, 11 injuries reported in Duplin County by the NCEI Storm Events Database, $4 million in damages in Duplin County, and a total of $6 million in damages attributed to the tornado in its path.

[83] WRAL. (2022, April 16). 2011: Tornado damage in Clinton Sampson Co. WRAL.com. https://www.wral.com/weather/image/20238775/

[84] National Center for Environmental Information [NCEI]. (n.d.-a). Storm Events Database (By National Oceanic and Atmospheric Administration [NOAA]). National Center for Environmental Information. https://www.ncdc.noaa.gov/stormevents/

[85] Storm Prediction Center. (2025). Tornado Tracks (By National Oceanic and Atmospheric Administration [NOAA]) [Dataset]. https://www.arcgis.com/home/item.html?id=e75412d18bdc469dbf89bf7e929475cc

[86] NOAA's National Weather Service. (n.d.). April 15, 1999, Eastern North Carolina Tornadocane. https://www.weather.gov/mhx/Apr151999EventReview

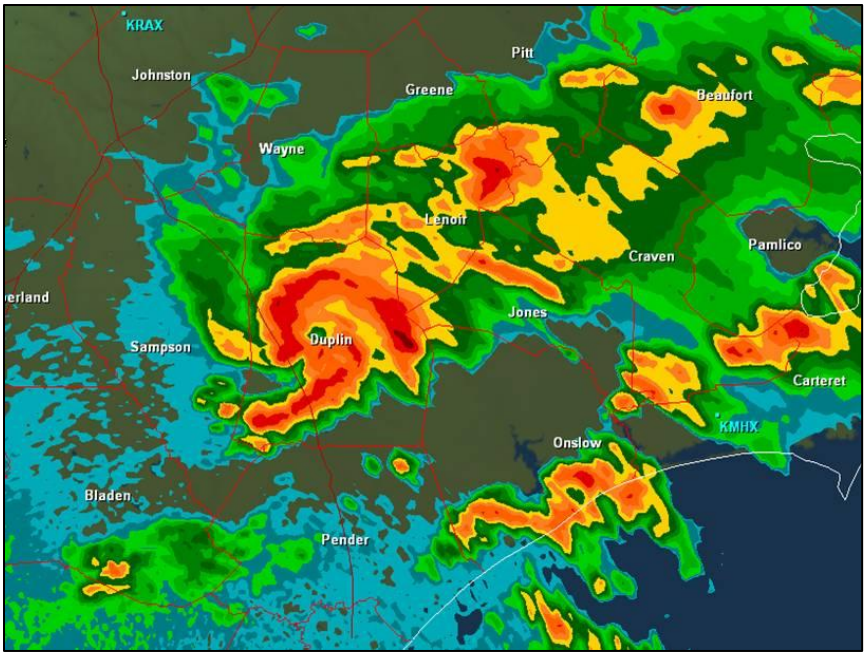


***Figure 5-155**: Storm supercell around 10:19 pm on April 15, 1999, associated with the tornado events in the planning area from the NWS*[87]

May 23, 2017 Tornado:

- NCEI Storm Events Database Reported Damage[88]: $1.5 Million

An EF1 tornado touched down west of Highway 24 in Western Autryville before damaging trees, taking the roof off a mobile home, and destroying a mobile home. The tornado severely damaged the Autryville Volunteer Fire Department (Figure 5-156), leaving 2 of the fire engines and one fire truck covered in debris. A large portion of the roof was ripped off, and one of the garage doors blew in. The tornado went on to damage several homes near Tanner Lane before touching down near McGee Church Road, destroying a vacant turkey house, snapping numerous trees, and snapping power poles.

[87] NOAA's National Weather Service. (n.d.). April 15, 1999, Eastern North Carolina Tornadocane. https://www.weather.gov/mhx/Apr151999EventReview

[88] National Center for Environmental Information [NCEI]. (n.d.-a). Storm Events Database (By National Oceanic and Atmospheric Administration [NOAA]). National Center for Environmental Information. https://www.ncdc.noaa.gov/stormevents/



***Figure 5-156**: Damage to a fire station in Autryville from May 23, 2017, tornado from the Sampson Independent*[89]



***Figure 5-157**: Damage in Autryville from May 23, 2017, tornado*[90]

August 7, 2024 Tornado:

- NCEI Storm Events Database Reported Damage[91]: $5,000,000

An EF-0 tornado was reported in Sampson County along Willard Road. Multiple tree limbs were found snapped, and the tornado continued on US-421, reaching EF-1 strength. It caused minor roof damage to a residence, snapped trees, traveled through a thick canopy, and reemerged, crossing Wildcat Road and Bland School Road, where it strengthened to an EF-2. The tornado

[89] Independent, S. (2017, December 30). 2017 brought ups, downs | Sampson Independent. Sampson Independent. https://www.clintonnc.com/news/local-news-1/26455/2017-brought-ups-downs

[90] Staff, T. (2017, May 30). More than a dozen injured in second wave of storms in North Carolina. TIME. https://time.com/4797578/north-carolina-storms-sampson-county-injuries/

[91] National Center for Environmental Information [NCEI]. (n.d.-a). Storm Events Database (By National Oceanic and Atmospheric Administration [NOAA]). National Center for Environmental Information. https://www.ncdc.noaa.gov/stormevents/

caused significant damage to multiple well-constructed residences, snapped thick 1-2ft branches from a hardwood tree, and a second house suffered damage when multiple windows were blown out, initiating half of the well-attached roof to be ripped off and displaced in a nearby field behind the residence. The tornado continued for another half a mile and lifted off before reaching Belvin Maynard Road. This tornado was associated with weather brought into the area by Tropical Storm Debby, which resulted in heavy rain throughout central NC and the Western Piedmont Region.



***Figure 5-158**: EF-2 Tornado Damage on Sampson County home on August 7, 2024*[92]



***Figure 5-159**: Tornado damage on Bland School Road in Harrells on August 8, 2024*[93]

[92] Anderson, A. (2024, August 10). CBS17.com. CBS17.com. https://www.cbs17.com/news/local-news/sampson-county-tornado-confirmed-as-ef-2-by-nws/

[93] Reports, S., & Reports, S. (2025, April 16). Debby leaves trail of destruction across North Carolina. Carolina Public Press. https://carolinapublicpress.org/64921/debby-leaves-trail-of-destruction-across-north-carolina/

Table 5-46: Tornado events in the planning area from the NCEI Storm Events Database[94]

County	Location	Date	F-Scale Mag.	Deaths	Injuries	Property Damage	Crop Damage	Event Narrative
Duplin	-	4/8/1957	F3	0	29	$250,000	$0	--
Sampson			F4	4	32	$250,000	$0	
Duplin	-	2/18/1960	F1	0	0	$250,000	$0	
Sampson	-	5/8/1960	F1	0	0	$25,000	$0	
Sampson	-	9/11/1960	F2	0	8	$25,000	$0	
Duplin	-	6/21/1961	F2	0	0	$250,000	$0	
Sampson	-	4/8/1962	F0	0	0	$250,000	$0	
Duplin	-	7/15/1965	F2	0	0	$25,000	$0	
Sampson	-	4/18/1969	F3	0	0	$25,000	$0	
Duplin			F3	0	1	$25,000	$0	
Sampson	-	2/22/1971	F3	0	0	$250	$0	
Duplin	-	6/1/1974	F2	0	1	$2,500,000	$0	
			F2	0	0	$250,000	$0	
Duplin	-	3/14/1975	F2	0	0	$250,000	$0	
Duplin	-	3/24/1975	F1	0	0	$25,000	$0	

[94] National Center for Environmental Information [NCEI]. (n.d.-a). Storm Events Database (By National Oceanic and Atmospheric Administration [NOAA]). National Center for Environmental Information. https://www.ncdc.noaa.gov/stormevents/

County	Location	Date	F-Scale Mag.	Deaths	Injuries	Property Damage	Crop Damage	Event Narrative
Duplin	-	9/8/1975	F1	0	0	$25,000	$0	
Duplin	-	6/2/1976	F2	0	0	$2,500	$0	
Duplin	-	4/19/1978	F2	0	0	$250,000	$0	
Sampson	-	7/10/1980	F1	0	0	$2,500	$0	
Sampson	-	8/1/1980	F0	0	0	$250	$0	
Duplin	-	6/5/1982	F1	0	0	$25,000	$0	
Sampson	-	3/28/1984	F3	10	90	$25,000,000	$0	
			F4	0	50	$25,000,000	$0	
Duplin			F4	0	40	$25,000,000	$0	
Duplin	-	8/18/1985	F1	0	0	$25,000	$0	
Sampson	Near Clinton	1/7/1995	F1	0	13	$475,000	$0	Ten structures were destroyed, 30 damaged, and one turkey house was destroyed.
Duplin	Magnolia	4/15/1996	F1	0	0	$30,000	$0	A tornado touched down 3 miles south of Magnolia on Highway 117, destroying 2 vacant hog houses. Debris was lifted 200 feet in the air. Eyewitnesses reported a multiple-vortex tornado.

County	Location	Date	F-Scale Mag.	Deaths	Injuries	Property Damage	Crop Damage	Event Narrative
Duplin	Kenansville	4/15/1996	F2	0	0	$450,000	$0	Eyewitnesses saw a tornado as it destroyed 3 hog houses on NC11 south of Kenansville. Travelled NE, downing trees which blocked the highway and struck another hog farm about a mile away, destroying 4 hog buildings.
			F2	0	3	$70,000	$0	A tornado on Williamson Road ripped the roof off one trailer and destroyed another. Three people were slightly injured.
			F2	0	0	$200,000	$0	Three turkey barns were destroyed, and the roof of a vacant house was partially blown off on NC50. Thousands of baby turkeys were killed.
			F1	0	0	$75,000	$0	A brief touchdown on Paul Ed Dail Road destroyed the roofs on 2 homes and damaged a third.
			F2	0	0	$0	$0	A tornado destroyed 2 hog houses and damaged a third along Highway 903.
Sampson	Spiveys Corner	9/16/1996	F2	0	0	$200,000	$0	The tornado first touched down about 5 miles southwest of the community of Spivey. A tin roof on a farmhouse was peeled back, and two chimneys were toppled. Two farm sheds were destroyed on the same property. The tornado crossed Williams Lake Road, where a mobile home was destroyed, with debris strewn 100 yards to the northeast across an open field and into a wooded area. The storm continued northeast and destroyed four turkey houses, and a wooded area was reduced to splinters.
Duplin	Beautancus	9/16/1996	F1	0	0	$40,000	$0	--

County	Location	Date	F-Scale Mag.	Deaths	Injuries	Property Damage	Crop Damage	Event Narrative
Duplin	Potters Hill	8/26/1998	F1	0	0	$85,000	$0	The storm continued moving northeast, crossed Ottis Tew Road, and struck a wooden house. A large portion of the roof was deposited on the east side of the home. Another portion of the roof was deposited in a tree on the northeast side of the house. Splintered pieces of wood from the house and tree branches were driven into the ground. Windows on the south side of the house were broken. The southeast corner of the home had indentations caused by flying debris. Trees in the yard were twisted, uprooted, and stripped of their limbs. Tin from the turkey houses and outbuildings was wrapped around trees."
Duplin	Kenansville	4/15/1999	F2	0	11	$4,000,000	$0	Two mobile homes were destroyed, and one house was damaged by a tornado in Beautancus—intermittent path length of 2 miles.
Duplin	Kenansville	5/21/2000	F0	0	0	$0	$0	Another brief touchdown destroyed the Fire Hall in Potters Hill on NC Highway 41. Some nearby homes also sustained minor damage. The tornado ripped the fire department bay off its foundation and moved it a few inches. The strong winds also battered the meeting hall's walls, leaving them warped and leaning.
Duplin	Beulaville	7/23/2006	F0	0	0	$15,000	$0	On the night of April 15, 1999, several tornadoes touched down. One multi-vortex tornado touched down in Duplin County about a half mile south of Kenansville. The tornado tracked east northeast between Pink Hill and Beulaville and just to the north of Potters Hill before entering Jones County. Once in Jones County, the tornado passed just north of Hargetts crossroads and traced north of Route 41, ending near the intersection of Routes 58 and 41. The tornado track covered nearly 30 miles and ranged between a half mile to around one mile wide. An unconfirmed wind report of 165 mph was measured near Trenton. In total, hundreds of trees were knocked down, over 30 homes were destroyed, 60 homes suffered major damage, and a significant number of livestock were killed.

County	Location	Date	F-Scale Mag.	Deaths	Injuries	Property Damage	Crop Damage	Event Narrative
Duplin	Beautancus	7/17/2007	EF0	0	0	$0	$0	Numerous trees and power lines were blown down.
		7/17/2007	EF0	0	0	$0	$0	A weak tornado briefly touched down, destroying a chicken house.
Sampson	Clement	11/15/2008	EF0	0	0	$25,000	$0	Law Enforcement reported a brief tornado south of Beautancus. No damage was reported—scattered thunderstorms developed along the sea breeze during the afternoon hours across eastern North Carolina.
Sampson	Mingo	3/27/2009	EF0	0	0	$5,000	$15,000	The Fire Department reported a brief tornado northeast of Beautancus along Highway 403. No damage was reported—scattered thunderstorms developed along the sea breeze during the afternoon hours across eastern North Carolina.
	Spiveys Corner	3/27/2009	EF0	0	0	$0	$50,000	Numerous trees were uprooted and snapped along the storm's path. The most significant damage was concentrated at a home along Maxwell Road, where trees were snapped in half and a carport was blown down and twisted into trees. Two mini-supercells tracked northeast along a warm front during the early morning hours of the 15th. The two supercells spawned several tornadoes in Sampson, Johnston, and Wilson counties, two of which resulted in two fatalities.

County	Location	Date	F-Scale Mag.	Deaths	Injuries	Property Damage	Crop Damage	Event Narrative	
Duplin	Warsaw	5/5/2009	EF0	0	0	$10,000	$0	The tornado touched down in a field between Highway 13 and Casper Road. A barn on Casper Road had its roof torn off. The tornado also sheared off numerous trees. About thirty to forty percent of the trees were snapped or uprooted in the area.	Low-topped tornadic supercells developed along a stationary front located across the coastal plain region of North Carolina. The storms intensified as a shortwave trough moved northeast across the area, producing EF-1 damage in Cumberland County.
	Kenansville Airport		EF0	0	0	$0	$0	Five houses on OBJ Road sustained minor damage, ranging from shingle damage and damaged garage doors to blown-out windows.	
Sampson	Highsmiths	4/16/2011	EF2	0	9	$10,000,000	$0	The Fire Department reported a brief tornado touchdown northeast of Warsaw. One structure had minor damage along Revelle Road.	Scattered thunderstorms developed along a stalled frontal boundary across eastern North Carolina during the afternoon of May 5th, 2009. A few of the storms became severe producing isolated tornadoes.
Duplin	Faison	4/16/2011	EF0	0	0	$0	$0	The public reported a brief tornado touchdown just north of the Kenansville airstrip. No damage reported.	
	Kenansville	4/16/2011	EF0	0	0	$0	$0	The tornado exited Cumberland County and moved into Sampson County, just southwest of Roseboro. The tornado tracked northeast along NC Highway 24, between Roseboro and Clinton. Cyclic damage between EF1 to EF2 was	A strong storm system that had a history of producing deadly tornadoes across Oklahoma and the deep south on the 14th and

County	Location	Date	F-Scale Mag.	Deaths	Injuries	Property Damage	Crop Damage	Event Narrative	
								observed with the most extensive damage observed between Bonnetsville Road and Clinton, including Bass Lake Road and Dixie Road. The tornado continued northeast, crossing Highways 421 and 701 on the north side of Clinton. A roof was completely blown off a home on Isaac Weeks Road. As the tornado moved farther northeast, the tornado was mostly of Ef1 strength damage to homes were minor, with outbuildings and power poles bent or blown down. The tornado weakened and quickly lifted in the vicinity of Highway 403 and East Darden Road, with minor roof damage to a home. In total, there were 85 to 90 residential structures damaged, with 25 destroyed; and 13 businesses damaged, with 3 destroyed.	15th weakened as it crossed the southern Appalachians during the early morning hours of the 16th. A squall line descended the Blue Ridge by the late morning hours, and rapidly intensified |as it moved east into the central Piedmont of North Carolina, with four long live tornadic supercells evolving from the linear convective segment. These tornadic supercells went on to produce 9 tornadoes in the Raleigh CWA, including 2 EF3s, and 4 EF2s. The tornadoes left 8 dead with approximately 275 injuries.
Duplin	Concord	4/28/2011	EF1	0	0	$10,000	$0	Brief tornado touchdown just north of Faison. Two trees blown down onto Highway 117.One of the largest tornado outbreaks ever observed across eastern North Carolina occurred during the afternoon and evening of April 16th, 2011. Several powerful super-cell thunderstorms developed ahead of an approaching cold front. Conditions ahead of the front were favorable for tornadoes with a moderately unstable atmosphere combined with strong winds that veered with height. Altogether 12 tornadoes were reported across the Newport/Morehead City County warning area. These tornadoes combined to produce over	

County	Location	Date	F-Scale Mag.	Deaths	Injuries	Property Damage	Crop Damage	Event Narrative
								40 million dollars in damage. There were numerous injuries, but no fatalities were reported. In addition to the tornadoes there were several reports of damaging winds and large hail.
Sampson	Herring	4/29/2014	EF1	0	0	$355,000	$0	Tornado touched down about 6 miles south of Kenansville. The tornado had winds estimated to 75 mph as it crossed Highway 50 with damage to trees noted. One of the largest tornado outbreaks ever observed across eastern North Carolina occurred during the afternoon and evening of April 16th, 2011. Several powerful super-cell thunderstorms developed ahead of an approaching cold front. Conditions ahead of the front were favorable for tornadoes with a moderately unstable atmosphere combined with strong winds that veered with height. Altogether 12 tornadoes were reported across the Newport/Morehead City County warning area. These tornadoes combined to produce over 40 million dollars in damage. There were numerous injuries, but no fatalities were reported. In addition to the tornadoes there were several reports of damaging winds and large hail.
Duplin	Rose Hill	7/3/2014	EF1	0	0	$150,000	$0	A tornado developed along Highway 903 about 6.5 miles west of Rose Hill. The tornado did damage to numerous trees near Highway 903. The tornado then tracked northeast and crossed Halls Pond Road and was estimated to be at EF1 intensity with winds around 95 mph. A portion of a hog farm was destroyed with debris scattered for several hundred yards. The tornado then lifted northeast and dissipated into a wooded area. A strong cold front approached eastern North Carolina during the afternoon and evening of April 28th. Scattered thunderstorms developed in the warm and unstable air ahead of the front during the afternoon. Some of these storms became severe and produced large hail, damaging winds, and a few tornadoes.
Duplin	Charity	9/8/2014	EF2	0	1	$200,000	$0	This short track tornado was on the ground for a very short time, but during this time it completely leveled a hog house and snapped and downed numerous trees. Another nearby home experienced roof damage. The extent of damage to the hog house suggests maximum wind speeds of 95-100 mph. Thunderstorms developed during the

County	Location	Date	F-Scale Mag.	Deaths	Injuries	Property Damage	Crop Damage	Event Narrative
								afternoon just north and south of a well-defined warm front bisecting central North Carolina. Three weak short-lived tornadoes developed along the warm front across eastern North Carolina. Training thunderstorms also resulted in some flash flooding.
Duplin	Warsaw	2/24/2016	EF0	0	0	$5,000	$0	A tornado developed along a rain band associated with Hurricane Arthur across southern Duplin County. The tornado touched down south of Rosemary Road and east of Highway 117 where tree damage was observed. The tornado tracked west-northwest across Pool Road and Highway 117 before lifting near Rosemary Road just south of Rose Hill. The tornado had a path length of around 3/4 of a mile and was estimated to be about 200 yards wide. The tornado was determined to be an EF1 with winds around 100 mph. Several trees were snapped or uprooted, and two homes had significant damage with the roof blown off one. There were no injuries or fatalities associated with this tornado. Hurricane Arthur is the earliest hurricane to hit North Carolina in a season since records began in 1851. The storm intensified, and by late on the evening of July 3, the system attained its peak winds of 100 mph as a Category 2 hurricane on the Saffir-Simpson hurricane wind scale. Arthur made landfall at 11:15 pm EDT July 3, over Shackleford Banks, between Cape Lookout and Beaufort, and intensified slightly further. The minimum official pressure of 974.9 millibars or 28.79 inches/mercury was measured on 04/0812 UTC at the Oregon Inlet tide gauge, ORIN7. Highest official winds were registered at Cape Lookout C-MAN station, CLKN7, where maximum sustained winds of 67 knots or 77 mph were recorded at 04/0300 UTC. Peak wind gusts of 88 knots or 101 mph were recorded there as well on 04/0230 UTC. Widespread power outages were reported throughout coastal eastern North Carolina. Official storm surge flooding from 4 to 5 feet above MLLW was observed over the central and northern Outer Banks with portions of NC Highway 12 and U.S. Highway 64 closed in Dare County. The highest official surge, 4.5 feet MLLW, was reported at Oregon Inlet at 04/1024 UTC. Storm surge value was measured at

County	Location	Date	F-Scale Mag.	Deaths	Injuries	Property Damage	Crop Damage	Event Narrative
								7.21 ft MSL by an NWS damage survey team at Rodanthe on Outer Banks Dare County. Arthur produced two destructive EF1 tornadoes, during the evening on July 3rd, which caused an estimated 176 thousand dollars in property damage. Storm surge and hurricane force winds caused an estimated 2.17 million dollars in damage in Dare County, 1.5 million due to storm surge flooding, and 0.67 million dollars in estimated damages due to wind. Damages elsewhere were minimal and not reported. Storm total rainfall averaged between 1.3 to 7.21 inches, highest among the Dare Co. Outer Banks. Heavy rainfall resulted in minor freshwater flooding across the Eastern NC inland Coastal Plains counties and coastal counties from Carteret County on the southern coast through Dare County on the Outer Banks. There were no reported injuries or fatalities.
	Beautancus	2/24/2016	EF1	0	0	$100,000	$0	A short lived EF2 tornado with winds estimated around 115 mph touched down near Greenevers in Duplin County. The tornado began about 350 yards south of Pasture Branch Road and lifted as it passed just north of the road. Three structures were heavily damaged or destroyed including one single family home and two manufactured homes. several cars at the residences were also moved or flipped. One minor injury was reported in the single-family home. Numerous showers and isolated thunderstorms moved northeast along a stall front across eastern North Carolina on September 8th, 2014. One of the storms produced a brief EF2 tornado in Duplin County.
Sampson	Autryville	5/23/2017	EF1	0	1	$1,500,000	$0	An NWS survey team found extensive tree damage across portions of the Warsaw area indicating an EF-0 tornado with 80 mph winds. The combination of strong wind shear, moderate instability and deep moisture led to several lines of severe thunderstorms and two tornadoes across eastern NC during the early afternoon of February 24, 2016. This was part of a much larger storm system which produced severe thunderstorms and tornadoes along the Gulf Coast on the previous afternoon and evening. While no deaths or injuries were

County	Location	Date	F-Scale Mag.	Deaths	Injuries	Property Damage	Crop Damage	Event Narrative
								reported in eastern North Carolina, 3 fatalities occurred in southeast Virginia during the late afternoon.
Sampson	Highsmiths	9/16/2018	EF0	0	0	$250,000	$0	An NWS Storm survey team assessed an EF1 tornado with 8 power poles snapped and a roof blow off a single wide mobile home on Garner Chapel Road about 8 miles east of Calypso. The combination of strong wind shear, moderate instability and deep moisture led to several lines of severe thunderstorms and two tornadoes across eastern NC during the early afternoon of February 24, 2016. This was part of a much larger storm system which produced severe thunderstorms and tornadoes along the Gulf Coast on the previous afternoon and evening. While no deaths or injuries were reported in eastern North Carolina, 3 fatalities occurred in southeast Virginia during the late afternoon.
Sampson	Midway	4/19/2019	EF1	0	0	$650,000	$0	At approximately 4:38 PM EDT, a tornado touched down just west of |highway 24 on the west side of Autryville, where it produced tree |damage as well as destroying one mobile home and taking the roof off |of another near Mills Street and East Clinton Street. The tornado then briefly lifted before descending again near the Autryville Volunteer Fire Department, which was severely damaged as the garage doors |blew in, and ripped a large portion of roof off. Two of their fire engines and one fire truck were covered in rubble. The tornado lifted then touched down again on the northeast side of Autryville, near Johnson Tanner Lane, where several homes were damaged. The tornado lifted again, doing little additional damage until touching down again near McGee Church Road, where it destroyed a vacant turkey house and snapped numerous trees and power poles. It then dissipated at approximately 5:17 PM EDT. There were no fatalities and only one minor injury reported. A significant impulse ejected northeast, moving atop a quasi-stationary wavy frontal zone that extended from the Deep South into the Carolinas. A surface wave and a 40 to 50 kt low-level jet accompanied the impulse. A low-topped supercell developed along the surface wave and produced an EF-1 tornado in Sampson County. The

County	Location	Date	F-Scale Mag.	Deaths	Injuries	Property Damage	Crop Damage	Event Narrative
								EF-1 tornado produced non-continuous damage along a 13-mile path from Autryville to just NE of Salemburg.
Duplin	Teachey	6/2/2021	EF1	0	0	$0	$0	A tornado associated with tropical cyclone Florence touched down during the early morning of September 17th, just southeast of Roseboro. This tornado continued on the ground for roughly 13 |minutes mostly impacting trees, farm buildings, and eventually a car dealership within the city of Roseboro. The storm continued to |weaken as it pushed northwest, crossing highway 24, and continuing to produce intermittent tree damage prior to lifting southwest of Salemburg. Property damages were estimated. A ridge of high pressure over eastern North America stalled Florence's forward motion a few miles off the southeast North Carolina coast on September 13th. Hurricane Florence made landfall near Wrightsville Beach early on Saturday September 15th and weakened further as it moved slowly inland. Despite making landfall as a weakened Category 1 hurricane, Florence still produced 40 to 70 mph wind gusts, enough wind speed to uproot trees and cause widespread power outages throughout the Carolinas. As the storm moved inland, from September 15 to 17, heavy rain of 10 to 25 inches caused widespread inland flooding, inundating cities such as Fayetteville, Smithfield, Goldsboro, Durham, and Chapel Hill, and causing major river flooding on main-stem rivers such as the Neuse, Cape Fear, and Little River. Most major roads and highways in the area experienced some flooding, with large stretches of I-40 and I-95 remaining impassable for days after the storm had passed. The storm also spawned tornadoes in several places along its path. There were 3 direct and 6 indirect deaths attributed to the storm with the WFO RAH CWA.
Sampson	Monks Crossroads	1/3/2022	EF1	0	0	$1,500,000	$0	A tornado touched down in the Spiveys Corner area of northwest Sampson County. Damage there consisted of numerous snapped and uprooted trees, downed power poles and power lines, tossed outdoor furniture, and minor damage to the roof of at least one home. A group of four abandoned chicken houses were destroyed.

County	Location	Date	F-Scale Mag.	Deaths	Injuries	Property Damage	Crop Damage	Event Narrative
								A deepening upper-level trough, which featured a strong polar jet ejecting northeast atop an eastward advancing cold front, brought severe thunderstorms that produced|7 tornadoes and widespread damaging straight-line winds across central NC. The strongest tornado of the day in North Carolina formed in southwestern Orange County and reached EF-2 strength as it neared Hillsborough. Along its path, estimated at 12 miles long and a maximum of 600 yards wide, the roof and exterior walls of one home were reported as completely destroyed.
Duplin	Petersburg Crossing	4/22/2023	EF1	0	0	$0	$0	An EF-1 tornado touched down 1.8 miles SW of the town of Teachey, NC over a small farm. A metal shed was destroyed before lofting and destroying an unanchored trailer. Parts of metal roofs of multiple small farm outbuildings were also peeled or torn off. One metal roof landed on an unoccupied vehicle. The tornado then crossed over Cornwallis Rd where it snapped the trunks of three large pine trees and toppled an unanchored shed. The tornado proceeded 1 mile or so over a field into an |inaccessible wooded area, potentially lifting, before dropping over the town of Teachey, |knocking down multiple trees before lifting over Ramsey St. Local emergency |management received multiple reports of this tornado being sighted in town. The combination of a warm front and sea breeze moving across Eastern North Carolina led to numerous showers along with a few thunderstorms on the afternoon of June 2nd. One thunderstorm produced an EF1 tornado in Duplin County.
Sampson	Newtons Crossroads	8/7/2024	EF2	0	0	$500,000	$0	An EF-1 tornado briefly touched down around 2 miles south-southwest of Newton Grove. It was the ground for less than one minute before dissipating. The tornado resulted in substantial roof and structural damage to two hog barns. A strong upper-level low moved from the Midwest into the Mid Atlantic from January 2nd into the 3rd. Strong storms to isolated severe storms preceded the arrival of the low along with a broad area of 2 to 4 inches of rain along United States Highway 1 corridor, producing flooding around the Triangle region of central North Carolina. Strong sustained gradient winds were felt over much of

County	Location	Date	F-Scale Mag.	Deaths	Injuries	Property Damage	Crop Damage	Event Narrative
								the area, with numerous gusts of 35 to 50 miles per hour. As the low moved through the area, rain mixed with and changed to snow with several inches of snow reported across portions of the northwest and far northern Piedmont.
Sampson	Garland	9/27/2024	EF1	0	0	$50,000	$0	The tornado touched down at a residence along Lester Houston Road just to the east of Beulaville. The tornado first snapped several large trees, then tore off at least half the shingles of a garage behind the residence. Shingle damage was found on both the north and south side of the garage, which is a strong indication of circulation. A large garage bay door was also blown in, and the east side of the garage had the frame removed from the foundation. The strongest winds were estimated to be around 90 mph. Several weak brief tornadoes touched down during the evening hours as a cold front and trough of low pressure moved through Eastern NC.

Table 5-47: Summary of Historical Tornado Occurrences by Participating Jurisdictions from the NCEI Storm Events Database[95]

Jurisdiction	Number of Occurrences	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Duplin County (Unincorporated Area)	**34**	**0**	**86**	**$34,412,500**	**$0**
Beulaville	1	0	0	$15,000	$0
Calypso	-	-	-	-	-
Faison	1	0	0	$0	$0
Greenevers	-	-	-	-	-
Kenansville	9	0	14	$4,795,000	$0
Magnolia	1	0	0	$30,000	$0
Teachey	1	0	0	$0	$0
Rose Hill	1	0	0	$150,000	$0
Warsaw	2	0	0	$15,000	$0
Subtotal Duplin	**50**	**0**	**100**	**$39,417,500**	**$0**
Sampson County (Unincorporated Area)	**20**	**14**	**189**	**$64,063,000**	**$65,000**
Autryville	1	0	1	$1,500,000	$0
Clinton	1	0	13	$475,000	$0
Garland	1	0	0	$50,000	$0
Harrells	-	-	-	-	-
Newton Grove	-	-	-	-	-
Roseboro	-	-	-	-	-
Salemburg	-	-	-	-	-
Turkey	-	-	-	-	-
Subtotal Sampson	**23**	**14**	**203**	**$66,088,000**	**$65,000**
TOTAL PLAN	**73**	**14**	**303**	**$105,505,500**	**$65,000**

[95] National Center for Environmental Information [NCEI]. (n.d.-a). Storm Events Database (By National Oceanic and Atmospheric Administration [NOAA]). National Center for Environmental Information. https://www.ncdc.noaa.gov/stormevents/

5.9.5 Probability of Future Occurrences

The NRI uses the NWS SPC Severe Weather Database to evaluate the risk of tornadoes in the planning area. The period of record of the data set is from 1950 to 2019, with EF-2, 3, 4, and 5 tornadoes recorded before 1986 and 1986 to 2019 recorded all EF tornadoes, including EF-0 and EF-1. Duplin County has an annualized frequency of 0.63, a total EAL of $2,742,528, an Average EAL rating of Relatively High, and an Average Hazard Risk Rating of Very High. Sampson County has an annualized frequency of 0.70, an EAL of $2,302,962, a Relatively High EAL rating, and a Relatively High Hazard Risk Rating.

***Table 5-48**: NRI Tornado Annualized Frequency, EAL Total, Average EAL Score, and Average Hazard Risk Index Score*

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Duplin County	**0.63**	**$2,742,528**	**77.36**	**Relatively High**	**81.71**	**Very High**
Beulaville	0.03	$313,712	72.02	Relatively High	78.26	Relatively High
Calypso	0.02	$149,828	71.12	Relatively High	83.33	Very High
Faison	0.02	$149,828	71.12	Relatively High	83.33	Very High
Greenevers	0.03	$74,711	56.60	Relatively Moderate	62.89	Relatively High
Kenansville	0.05	$327,323	73.30	Relatively High	79.79	Relatively High
Magnolia	0.06	$296,605	70.87	Relatively High	77.11	Relatively High
Rose Hill	0.03	$226,699	64.48	Relatively High	72.34	Relatively High
Teachey	0.01	$131,418	68.02	Relatively High	76.83	Relatively High
Wallace	0.01	$481,403	65.46	Relatively High	69.91	Relatively High
Warsaw	0.02	$345,610	74.52	Relatively High	86.55	Very High
Unincorporated Area	0.04	$755,963	63.43	Relatively High	67.00	Relatively High
Sampson County	**0.70**	**$2,302,962**	**73.64**	**Relatively High**	**79.22**	**Relatively High**
Autryville	0.02	$53,786	50.51	Relatively Moderate	46.37	Relatively Moderate

Clinton	0.02	$777,889	70.74	Relatively High	79.26	Relatively High
Garland	0.08	$140,151	69.50	Relatively High	81.87	Very High
Harrells	0.04	$165,325	58.45	Relatively Moderate	61.21	Relatively High
Newton Grove	0.01	$44,084	46.99	Relatively Moderate	48.96	Relatively Moderate
Roseboro	0.02	$107,999	63.78	Relatively High	68.74	Relatively High
Salemburg	0.01	$42,785	46.45	Relatively Moderate	46.20	Relatively Moderate
Turkey	0.04	$75,554	56.78	Relatively Moderate	60.82	Relatively High
Unincorporated Area	0.05	$983,405	65.19	Relatively High	70.83	Relatively High

5.9.6 Consequence and Impact Analysis

5.9.6.1 People

The onset of tornado events is rapid, giving those in danger little time to seek shelter. According to NOAA, the current average lead time is 13 minutes. Injury may result from direct tornado impact or from later exposure to debris and entering damaged buildings. A study of injuries after a tornado in Marion, Illinois, found that 50% of tornado-related injuries occurred 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.

According to NOAA and FEMA, 54% of tornado fatalities are in mobile homes, and you are 15 to 20 times more likely to be killed in a mobile home than a traditionally constructed home during a tornado.[96] These housing units are more likely to be significantly damaged by a tornado or tornado debris than traditionally constructed homes due to the lack of anchoring or limited anchoring to a foundation, which makes them more susceptible to being lifted or rolled by strong winds associated with tornadoes. They are also built with lighter materials for mobility, which means they are less able to withstand high winds and generally do not meet the same building codes as traditionally constructed homes. 34% of housing units in Sampson County and 31.5% in Duplin County are mobile homes, and these units are at a disproportionate risk of tornado impact. Individuals in the planning area who live in housing units that may be disproportionately at risk of tornado damage should have a plan to reach a safe location in the event of a tornado.

[96] NOAA's National Weather Service. (n.d.-g). Severe Weather Awareness Week--Mobile Home Safety. https://www.weather.gov/shv/awarenessweek_severe_mobilehomes

The NWS reported an average of 10.52 minutes lead time between 2006 and 2024,[97] which means it is critical that residents in the planning area receive emergency alerts in a timely manner to reach a storm shelter. Residents who do not have access to a vehicle in their planning unit (5.0% of housing units in Sampson County and 5.8% of housing units in Duplin County), residents who have independent living difficulties (7.1% in Sampson County and 8.4% in Duplin County), and residents with disabilities (14.6% in Sampson County and 17.3% in Duplin County) may require assistance to reach a safe space to shelter in the event of tornado.[98] The ability to shelter in a timely manner in the event of a tornado is critical, so it is important that residents in the planning area can receive emergency alerts through reverse 911 systems or the internet. In the planning area, it is estimated that 11.7% of housing units in Sampson County and 11.9% in Duplin County do not have access to a computing device, and 16.9% of households in Sampson County and 20.9% of households in Duplin County.[99]

To prepare residents in the planning area for tornado events, the following mitigation actions should be considered:

- Ensure that residents who require assistance reaching a safe shelter location in the event of a tornado are prioritized by emergency services.
- Ensure that all residents in the planning area have at least one way to receive emergency alerts in the event of severe weather events or tornadoes, including developing plans to shelter in place or to reach an adequate storm shelter.

5.9.6.2 Changes in Development or Housing Characteristics

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 protect against tornadic winds. Given the strength of wind impacts and construction techniques, buildings are vulnerable to direct impact, including potential destruction, from tornadoes and wind-borne debris that tornadoes turn into missiles. Mobile homes are particularly susceptible to damage and fatalities during tornadoes. All jurisdictions in the Region are vulnerable to building damage. Development in the planning area should be designed to reduce tornado impacts and ensure that new housing units aren't disproportionately vulnerable to tornado impacts.

5.9.6.3 Continuity of Operations

A tornado could severely impact the continuity of operations. Personnel or their families may be harmed, limiting their response capability. Critical facilities and resources could also be damaged or destroyed during a tornado.

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[97] National Oceanic and Atmospheric Association [NOAA] & National Weather Service [NWS]. (n.d.). Severe weather warnings for tornadoes: Storm based lead time (minutes) (By U.S. Department of Commerce). Retrieved July 28, 2025, from https://performance.commerce.gov/KPI-NOAA/NOAA-Severe-weather-warnings-for-tornadoes-Storm-b/ysdv-8h2r

[98] U.S. Census Bureau, U.S. Department of Commerce. "Disability Characteristics." American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1810, https://data.census.gov/table/ACSST5Y2023.S1810

[99] U.S. Census Bureau, U.S. Department of Commerce. (n.d.). Selected Housing Characteristics. American Community Survey, ACS 5-Year Estimates Data Profiles, Table DP04. Retrieved June 16, 2025, from https://data.census.gov/table/ACSDP5Y2023.DP04

5.9.7 Extent

The average size of wildfires in the Region is typically small. There were no wildfires reported in the area by the NCEI Storm Events Database or the Interagency Wildfire Perimeter History,[100] but the National Association of State Foresters (NASF) reports that approximately 11,541.5 acres were impacted by wildfire in the planning area between 2001 and 2021. In Sampson County, the average wildfire incident reported between 2001 and 2021 burned 7.29 acres, and in Duplin County, the average wildfire burned 3.41 acres.

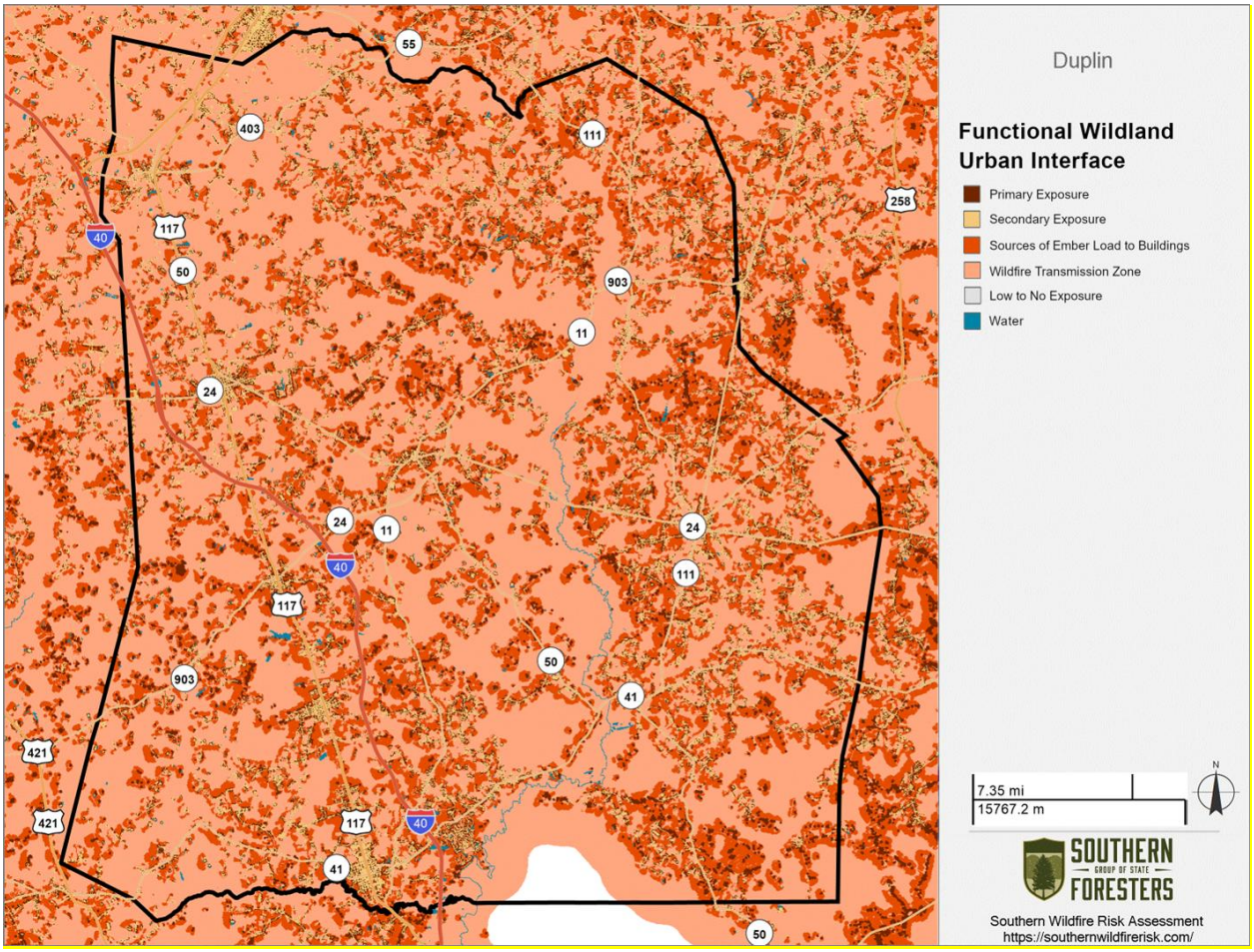


***Figure 5-160**: Duplin County WUI map from the SWRAP[101]*

[100] National Interagency Fire Center. (2022, June 18). National Interagency Fire Center. https://data-nifc.opendata.arcgis.com/datasets/e02b85c0ea784ce7bd8add7ae3d293d0_0/explore

[101] Southern Group of State Foresters [SGSF]. (n.d.). Southern Wildfire Risk Explorer: North Carolina Advanced Viewer [Dataset]. In Southern Wildfire Risk Assessment Portal. SGSF. https://wrap.southernwildfirerisk.com/Map/Pro/#whats-your-risk

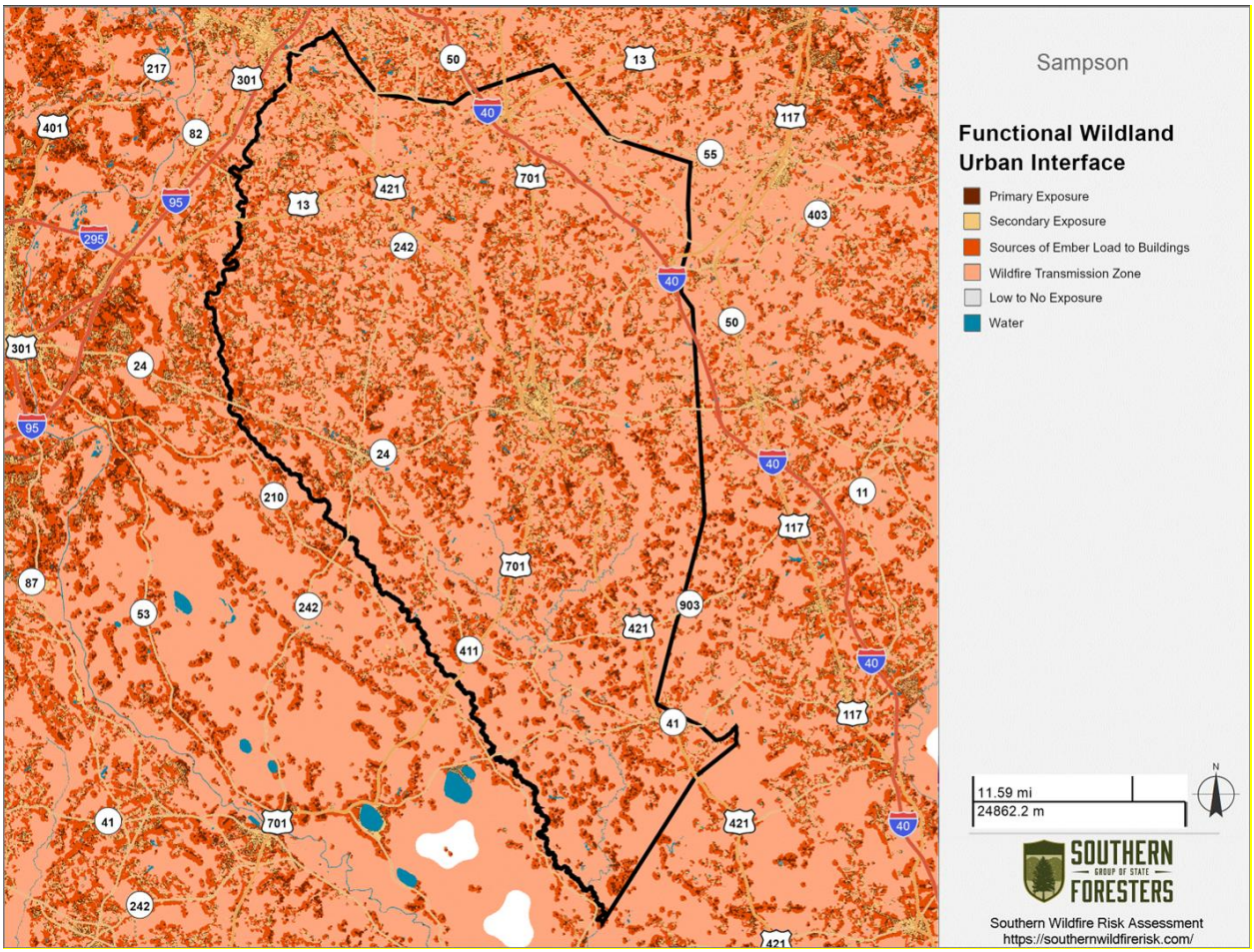


***Figure 5-161**: Sampson County WUI map from the SWRAP*[102]

5.9.7.1 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.

5.9.7.2 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 tornadoes can shred trees and lift grass from the ground.

[102] Southern Group of State Foresters [SGSF]. (n.d.). Southern Wildfire Risk Explorer: North Carolina Advanced Viewer [Dataset]. In Southern Wildfire Risk Assessment Portal. SGSF. https://wrap.southernwildfirerisk.com/Map/Pro/#whats-your-risk

5.9.7.3 First Responders

Due to the rapid onset of tornado events, first responders can be critically affected by direct tornado impacts or injuries sustained during response efforts. Response may be hindered if responders are unable to reach those affected, either because storm conditions persist or because they cannot enter affected areas safely. As mentioned above, a large percentage of tornado-related injuries occur during rescue attempts, cleanup, and other post-tornado activities, including walking through debris and entering damaged buildings.

5.9.7.4 Future Conditions

The increased frequency of severe weather events, such as extreme heat, thunderstorms, and drought, can be attributed to climate change. Some analyses suggest that the proportion of tornadoes in the US generally decreases in the summer, while the proportion in the fall increases, especially in the Southeast.[103] Increases in severe weather events may create conditions favorable to tornado formation; however, the link between tornadoes and climate change is not clearly defined by current climate models.[104]

[103] Moore, T. W. (2017). Annual and seasonal tornado trends in the contiguous United States and its regions. International Journal of Climatology, 38(3), 1582–1594. https://doi.org/10.1002/joc.5285

[104] Center for Climate and Energy Solutions. (2022, July 21). Tornadoes and Climate Change - Center for Climate and Energy Solutions. https://www.c2es.org/content/tornadoes-and-climate-change/

5.10 WILDFIRE

5.10.1 Hazard Description

Wildfires are uncontained fires that spread 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. Three general types of fire spread 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. Both short-term weather conditions and longer-term vegetation conditions control fire intensity. 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.

5.10.2 Location and Spatial Extent

The entire region is at risk of a wildfire occurrence. However, several factors, such as drought or high levels of fuel on the forest floor, may increase the likelihood of wildfire. 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 contain their spread to the built environment, thereby endangering structures and the 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 the area where structures and other human developments meet and intermingle with undeveloped wildland or vegetative fuels. Population growth in the WUI substantially increases wildfire risk.

To identify specific potential wildfire-hazard areas within the planning area, a GIS-based data layer, the Wildland Fire Susceptibility Index (WFSI), was obtained from the North Carolina Division of Forest Resources (NCDFR). The WFSI is a component layer derived from the Southern Wildfire Risk Assessment (SWRA), a multi-year project that assesses and quantifies wildfire risk across 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, across four weather percentile categories into a single measure of wildland fire susceptibility. Due to certain necessary assumptions, primarily fuel

homogeneity, this is not the true probability. But since all areas of the planning area have this value consistently determined, it allows for comparison and ranking of areas by the likelihood of an acre burning. Wildfire can potentially occur anywhere in the region. Table 5-49 below shows areas of the state with a high probability of experiencing wildfire. The Region is located within the highest probability category.

The Wildfire Ignition Density data shown in the figure below indicate the historical locations of wildfires in the Region. Data was collected from the South Wildfire Risk Assessment Portal.[105] The Fire Intensity Scale (FIS) layer was used to develop risk maps. The Fire Intensity Scale is based on the severity of wildfires that would occur if they did, but it does not provide a measure of susceptibility. See Table 5-49 for descriptions of the FIS.

***Table 5-49**: SWRAP Fire Intensity Scale Descriptions and Definitions[106]*

Class	Rating	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 exceed 200 feet in length; expect extreme fire behavior.

The Functional Wildland Urban Interface (WUI) is also used to illustrate the appropriate mitigation actions for each zone. The categories identify which zones buildings are located in and the types of mitigation actions that may reduce wildfire exposure risk. See Table 5-53 for WUI categories, descriptions, and recommended mitigation activities for buildings located in each zone.

[105] Pyrologix. (2023). Characteristic Fire Intensity Scale [Dataset]. In Southern Wildfire Risk Assessment Portal. Southern Wildfire Risk Assessment.
[106] Pyrologix. (2023). Characteristic Fire Intensity Scale [Dataset]. In Southern Wildfire Risk Assessment Portal. Southern Wildfire Risk Assessment.

Table 5-50: WUI Exposure Categories and Descriptions from SWRAP

Category	Definition	Recommended Mitigation Activity
Direct Exposure	The Direct Exposure zone is burnable land cover within 75 m of a structure. Reducing fire intensity and ember production in this zone would reduce the exposure of nearby buildings to heat and embers.	Buildings in this zone also require hardening of the structure to resist ignition.
Indirect Exposure	The Indirect Exposure zone is non-burnable land cover within 1500 m of burnable land cover that is within 75 m of a structure, meaning that embers and home-to-home spread could reach within this zone.	Indirectly exposed structures would benefit from the hardening of the structure to resist ignition from embers and nearby structures, but defensible space is usually not required due to the heavily developed nature of the zone.
Critical Fireshed	The Critical Fireshed is the unpopulated land within about 2.4 km of a group of structures. Fires that originate within or spread to the Critical Fireshed have an immediate threat of reaching the nearby structures.	Fuel treatments that slow fire spread in this zone can reduce risk to these structures.
Sources of Ember Load to Buildings	These are areas of burnable land cover that produces embers capable of reaching nearby buildings. Ember production is a function of fire type and intensity, and ember travel is a function of wind speed and direction.	Fuel treatment in this zone is a priority for reducing ember load to the nearby buildings.
Little to No Exposure	The Little-to-No Exposure zone is non-burnable land that is within 75 m of a structure but greater than 1500 m from a large (500 ha) contiguous block of burnable land cover. Flames—even from home-to-home spread—and embers are unlikely to reach the Little-to-No-Exposure zone, but smoke and evacuations could still impact this area.	

The Functional Wildland Urban Interface (WUI) is a classification of land near buildings into zones that describe the types of mitigation activities that would help prevent wildfire impacts on buildings in those zones. According to SWRAP, Sampson County and Duplin County have similar percentages of WUI land categories in the area. 8% of the area in Sampson County and 8% of the area in Duplin County is categorized as being in a Direct Exposure area where there is burnable land within 75m of a structure. It is recommended that structures within areas of Direct Exposure should be hardened to resist ignition. 7% of the areas in Sampson County and 7% of the areas in Duplin County are within Indirect exposure areas, where non-burnable land cover is within 1500m of burnable land cover and 75m from a structure. Critical Fireshed areas account for 61% of the land in Sampson County and 60% of the land in Duplin County, and fuel treatments to slow fire spread and reduce risk to structures are recommended. Sources of Ember Load to Buildings account for 24% of the land in Sampson County and 25% of the land in Duplin County, and these are where fuel treatment should be prioritized. No area in either Duplin or Sampson County is designated as a Little-to-No-Exposure zone.

Table 5-51: Functional Wildland Urban Interface Acres in each Exposure Category in the Planning Area from SWRAP, with acres and percentage of the total planning area[107]

Functional Wildland Urban Interface (WUI) Category	Sampson		Duplin	
	Acres	Percent	Acres	Percent
Direct Exposure	50,296	8 %	41,839	8 %
Indirect Exposure	41,458	7 %	36,294	7 %
Critical Fireshed	368,447	61 %	312,192	60 %
Sources of Ember Load to Buildings	142,611	24 %	128,575	25 %
Little to No Exposure	0	0 %	0	0 %
Water	3,654	1 %	2,279	0 %
Total	**606,467**	**100 %**	**521,179**	**100 %**

The FIS Class 1 area, which represents 10% of Sampson County and 11% of Duplin County, consists of very low-intensity wildfires that are easily suppressed by firefighters with basic training and non-specialized equipment. Class 0 to Class 1 areas, 45% of Sampson County and 45% of Duplin County, should expect fire behavior that has a low enough intensity to not require specialized equipment or training to suppress. However, the remaining 55% of the planning area in both counties is classified as having fire behavior that potentially requires specialized tools and equipment to suppress.

Any area that is a Class 2 or higher, flames less than 2ft long, and short-range spotting possible, on the FIS scale is susceptible to fires that require protective equipment and specialized tools, with approximately 36% of Sampson County and 36% of Duplin County at a Class 2 or higher FIS category. Class 2 or higher FIS land represents areas where flames are usually less than 2ft long and fires are easy to suppress with basic training and non-specialized equipment.

Areas categorized as Class 3 FIS, with flames up to 9ft in length, are susceptible to fires that are difficult to suppress without aircraft or engine support, increasing the potential to impact property and threaten those in the affected areas. Class 3 FIS areas comprise 15% of Sampson County and 14% of Duplin County. 27% of Sampson County and 30% of Duplin County are classified as FIS Class 3 or higher, meaning that if wildfires were to occur in these areas, flames

[107] Pyrologix. (2023b). Functional Wildland Urban Interface [Dataset]. In Southern Wildfire Risk Assessment Portal, Southern Wildfire Risk Assessment Portal. Southern Wildfire Risk Assessment.

could reach up to 9 feet in length and be difficult to suppress without aircraft or engine support. There is an increased potential for harm or damage to life and property.

Areas categorized as Class 4 FIS, with large flames up to 40ft in length, are not effectively suppressed by indirect methods such as firefighters, engines, or dozers. This represents 7% of Sampson County and 9% of Duplin County. If these areas experience wildfire, significant property damage, and the potential for loss of life and severe injury is likely. There are 914 acres in Sampson County and 3,602 acres in Duplin County that are classified as a 4.5 on the FIS, which is between the Very High and High intensity conditions.

***Table 5-52**: SWRAP Characteristic Fire Intensity Scale (FIS) Ratings for the Planning Area acres and percent of total planning area[108]*

FIS Category	Sampson		Duplin	
	Acres	Percent	Acres	Percent
0	211,881	35 %	179,252	34 %
1	57,827	10 %	59,893	11 %
1.5	122,831	20 %	97,433	19 %
2	34,084	6 %	22,157	4 %
2.5	15,571	3 %	12,853	2 %
3	92,149	15 %	72,003	14 %
3.5	30,275	5 %	30,694	6 %
4	40,934	7 %	47,055	9 %
4.5	914	0 %	3,602	1 %
5	0	0 %	0	0 %
> 5	0	0 %	0	0 %
Total	**606,467**	**100 %**	**524,942**	**100 %**

Several factors, such as drought or high levels of fuel on the forest floor, may increase the likelihood of wildfire. Furthermore, areas in the urban-wildland interface are particularly susceptible to fire hazards, as populations have moved into formerly undeveloped areas. The Fire Occurrence Areas in the figure below indicate the historical locations impacted. Furthermore, areas in the wildland-urban interface are particularly susceptible to fire hazards as populations about formerly undeveloped areas. The Wildfire Ignition Density data shown in the figure below indicate the historical locations of wildfires in the Region. Data was collected from the South Wildfire Risk Assessment Portal.[109] The Fire Intensity Scale (FIS) layer was used to develop the following risk maps, and the FIS is based on the severity wildfire if it occurred, but does not provide a measure of susceptibility.

[108] Pyrologix. (2023). Characteristic Fire Intensity Scale [Dataset]. In Southern Wildfire Risk Assessment Portal. Southern Wildfire Risk Assessment.
[109] Pyrologix. (2023). Characteristic Fire Intensity Scale [Dataset]. In Southern Wildfire Risk Assessment Portal. Southern Wildfire Risk Assessment.

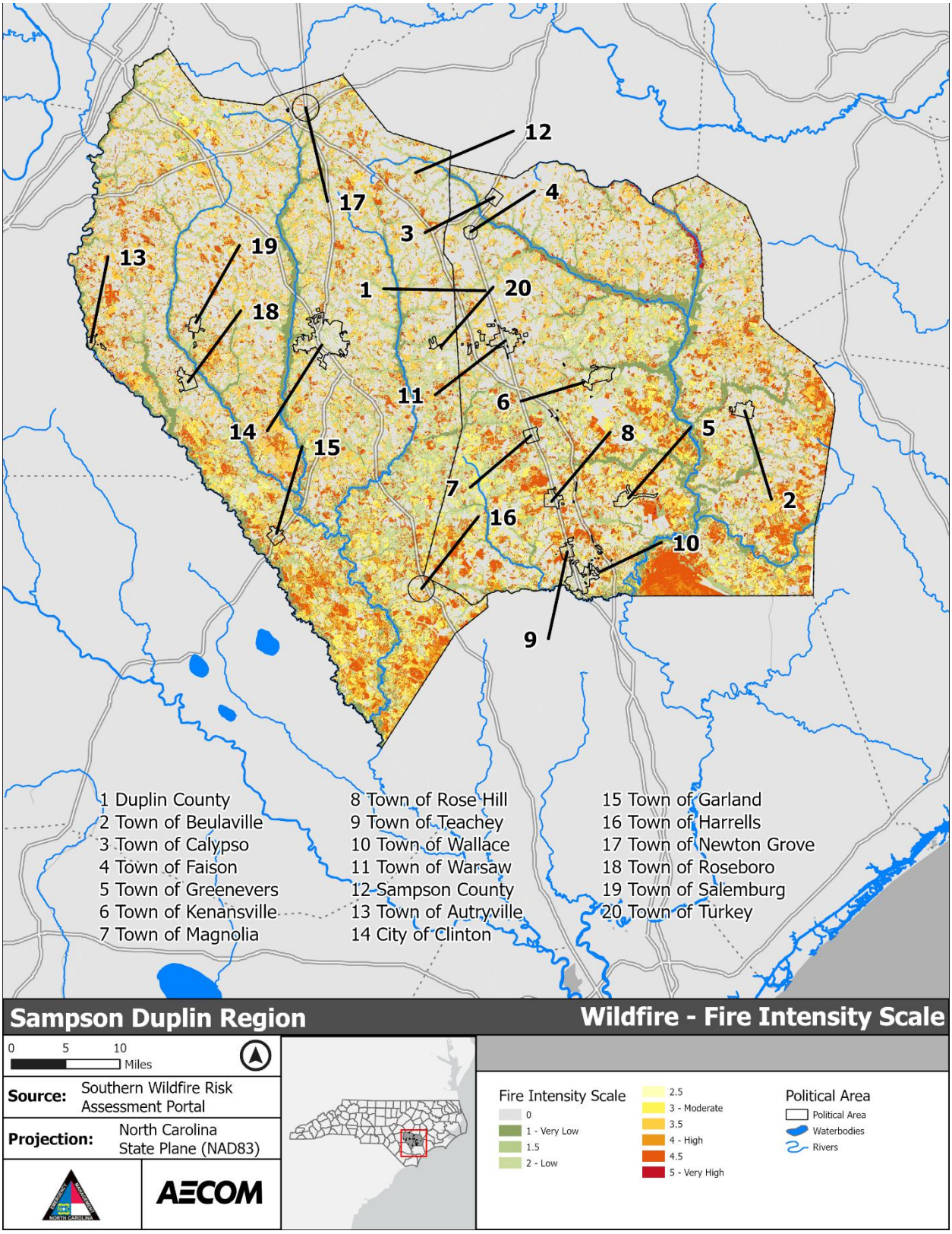


***Figure 5-162**: Sampson Duplin Wildfire Hazard Map - Regional*

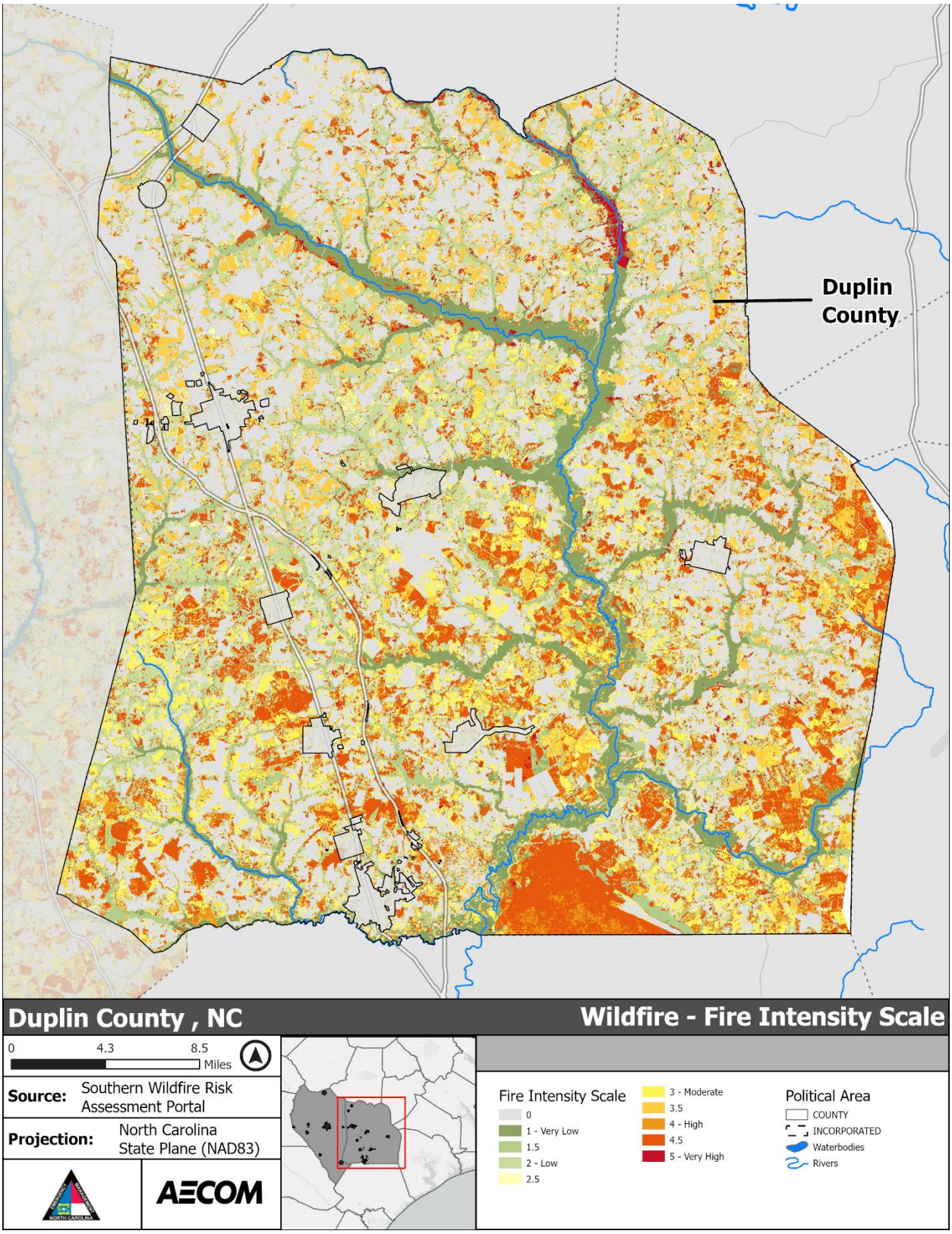


***Figure 5-163**: Duplin County Wildfire Map*

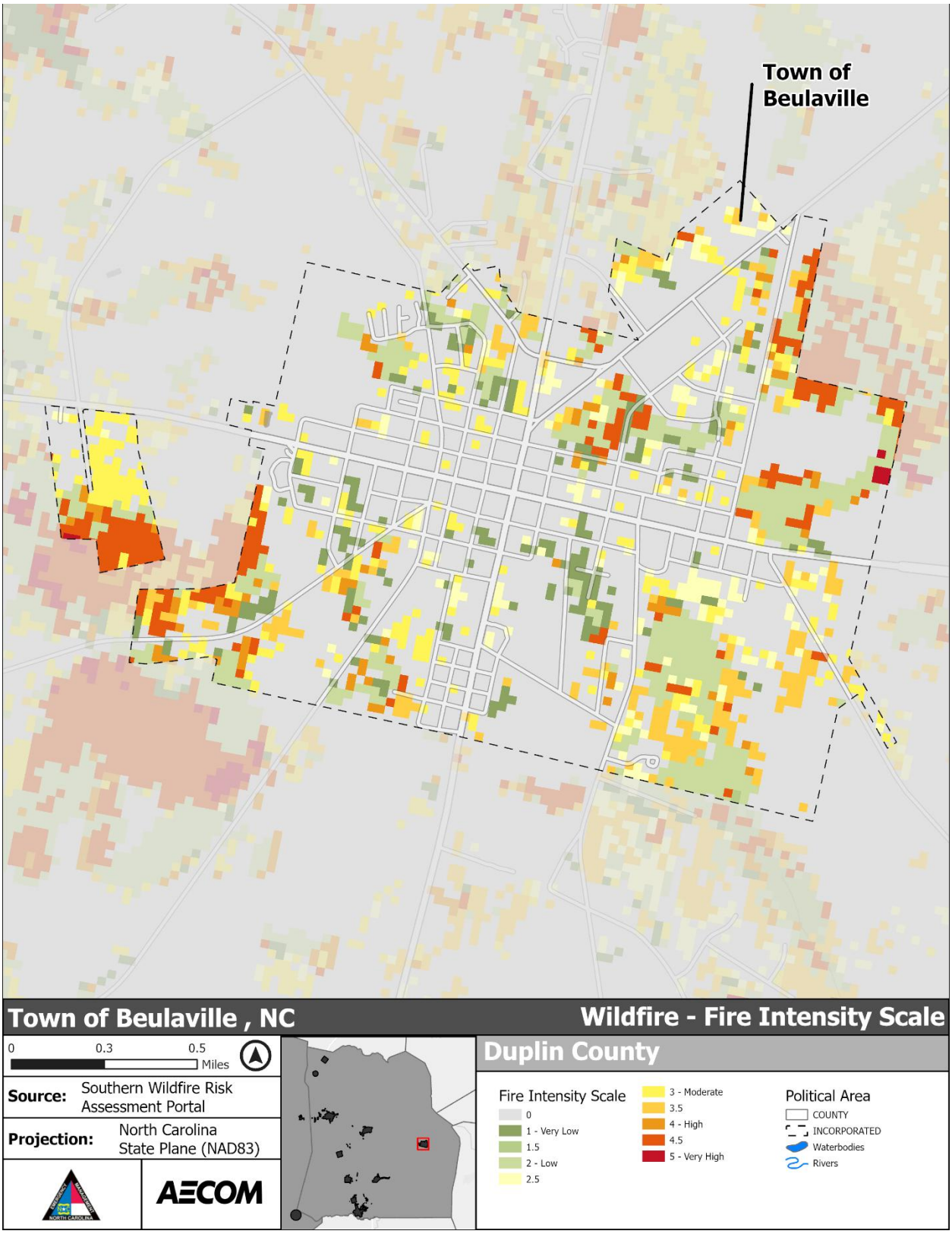


***Figure 5-164**: Town of Beulaville Wildfire Map*

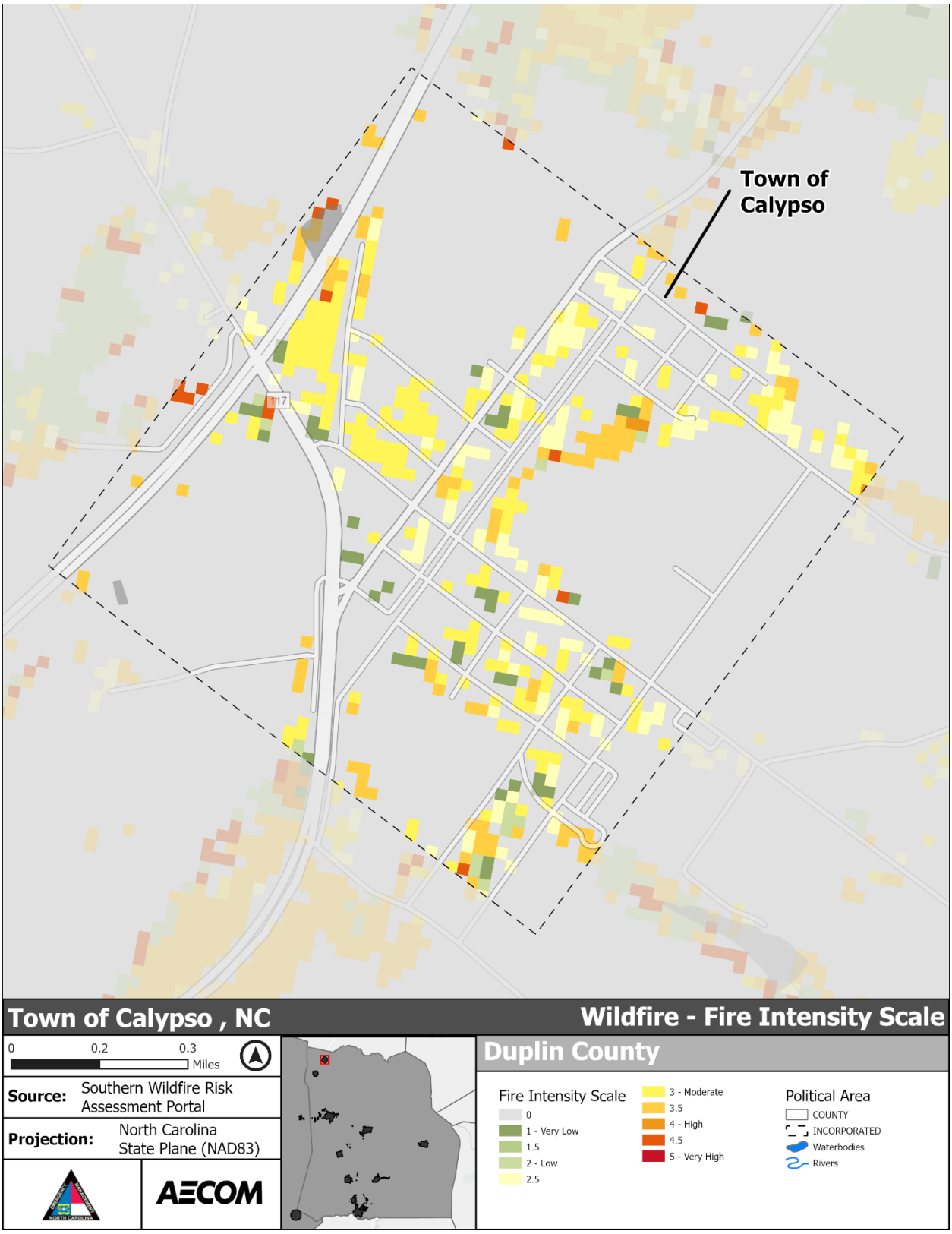


***Figure 5-165**: Town of Calypso Wildfire Map*

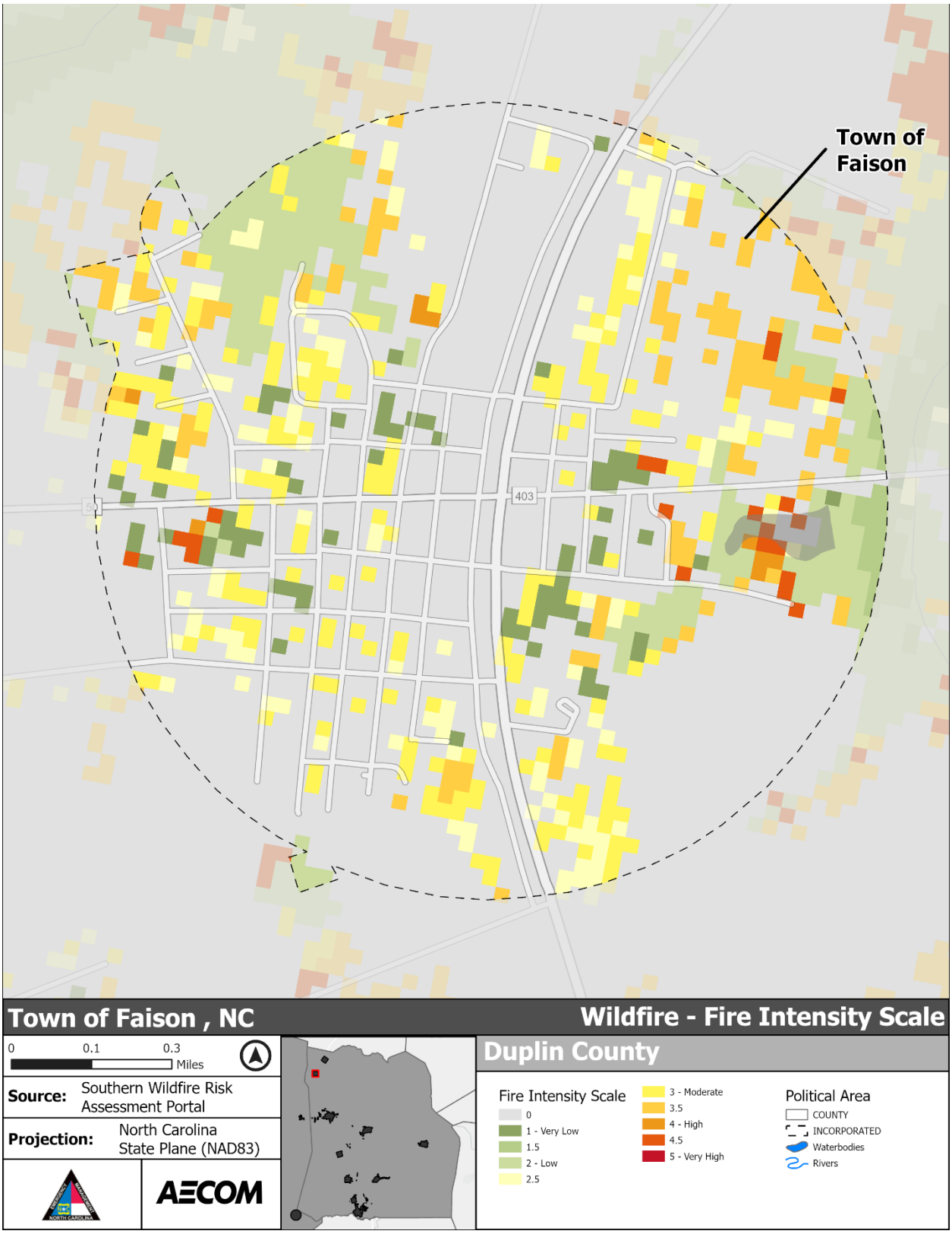


***Figure 5-166**: Town of Faison Wildfire Map*

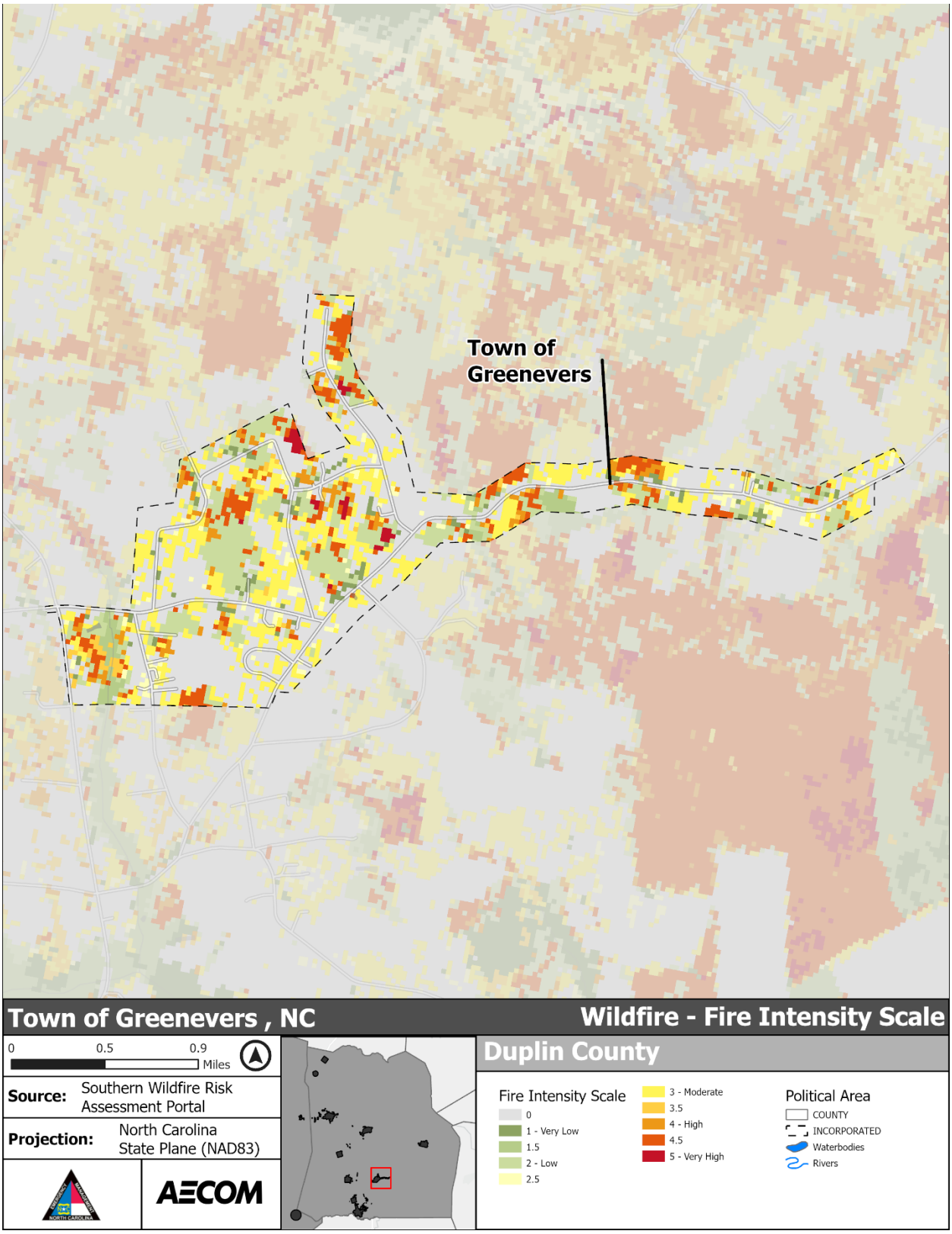


***Figure 5-167**: Town of Greenevers Wildfire Map*

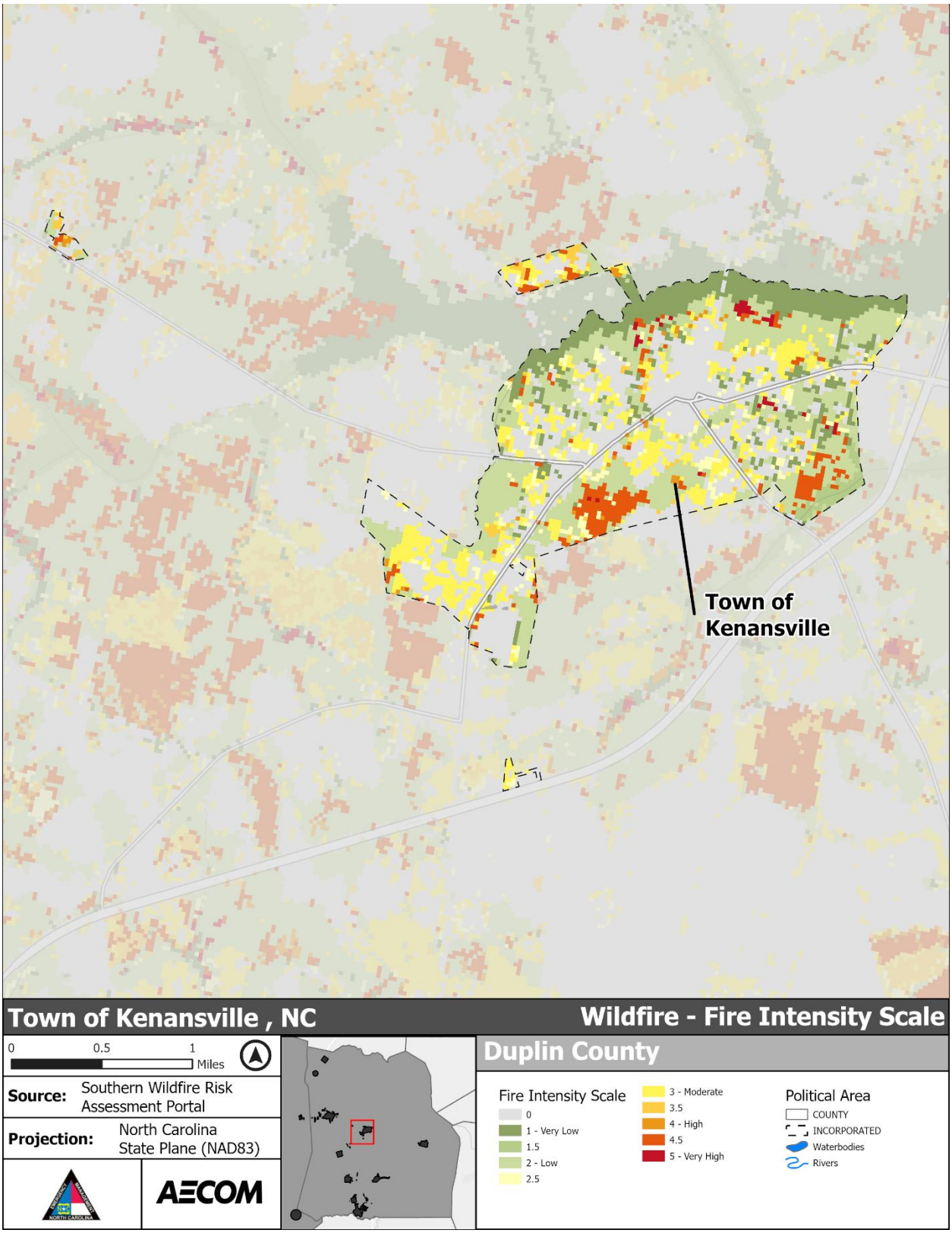


***Figure 5-168**: Town of Kenansville Wildfire Map*

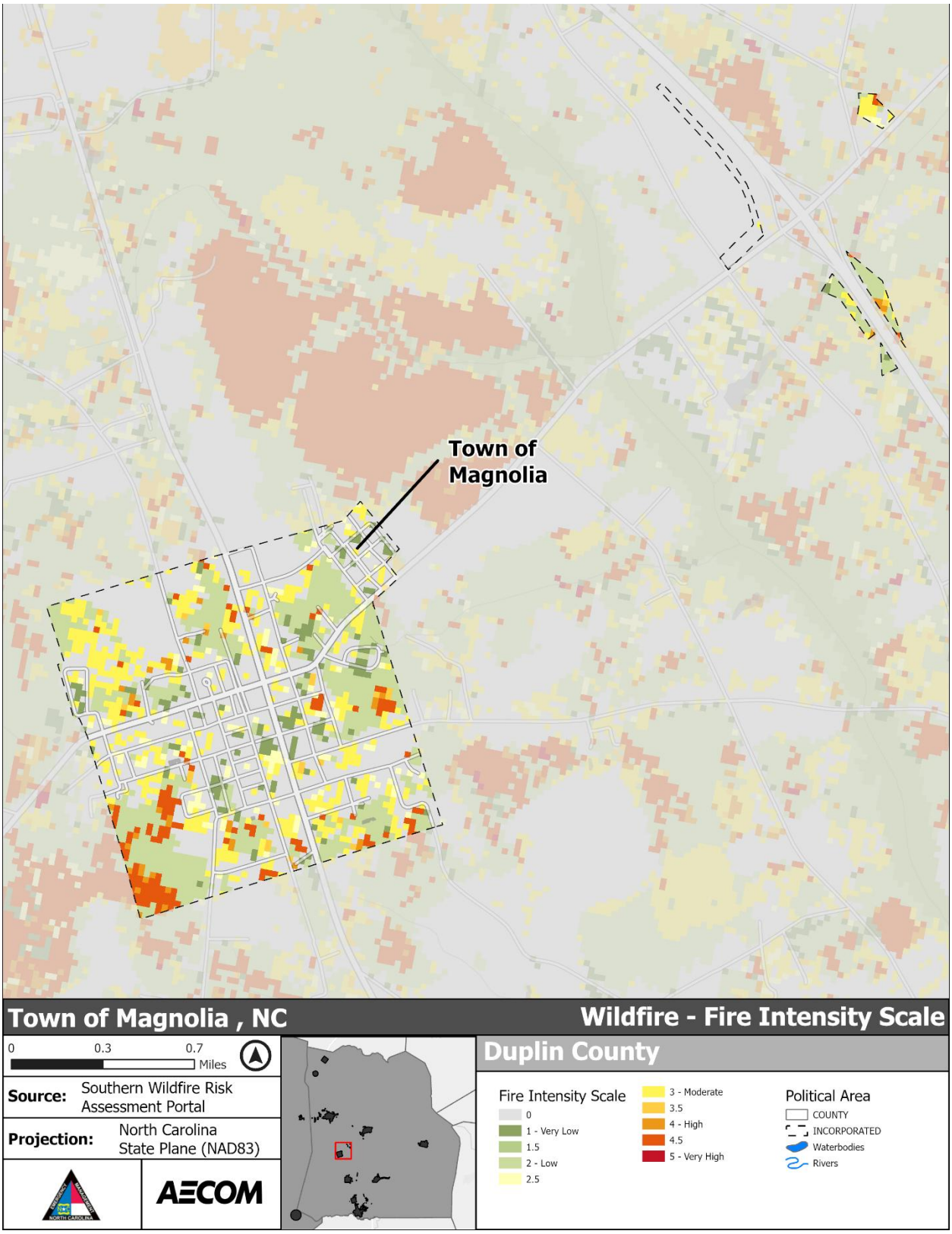


***Figure 5-169**: Town of Magnolia Wildfire Map*

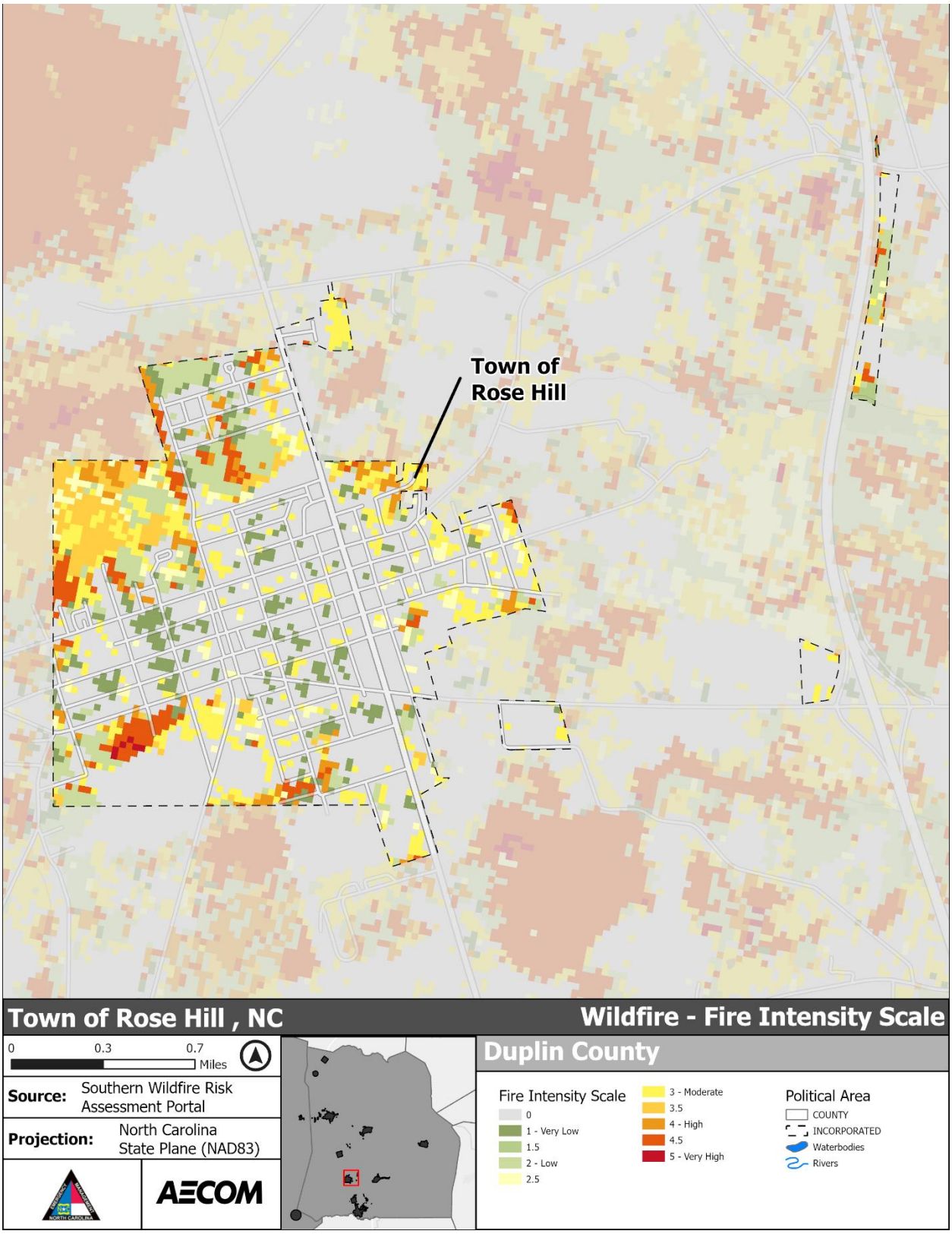


***Figure 5-170**: Town of Rose Hill Wildfire Map*

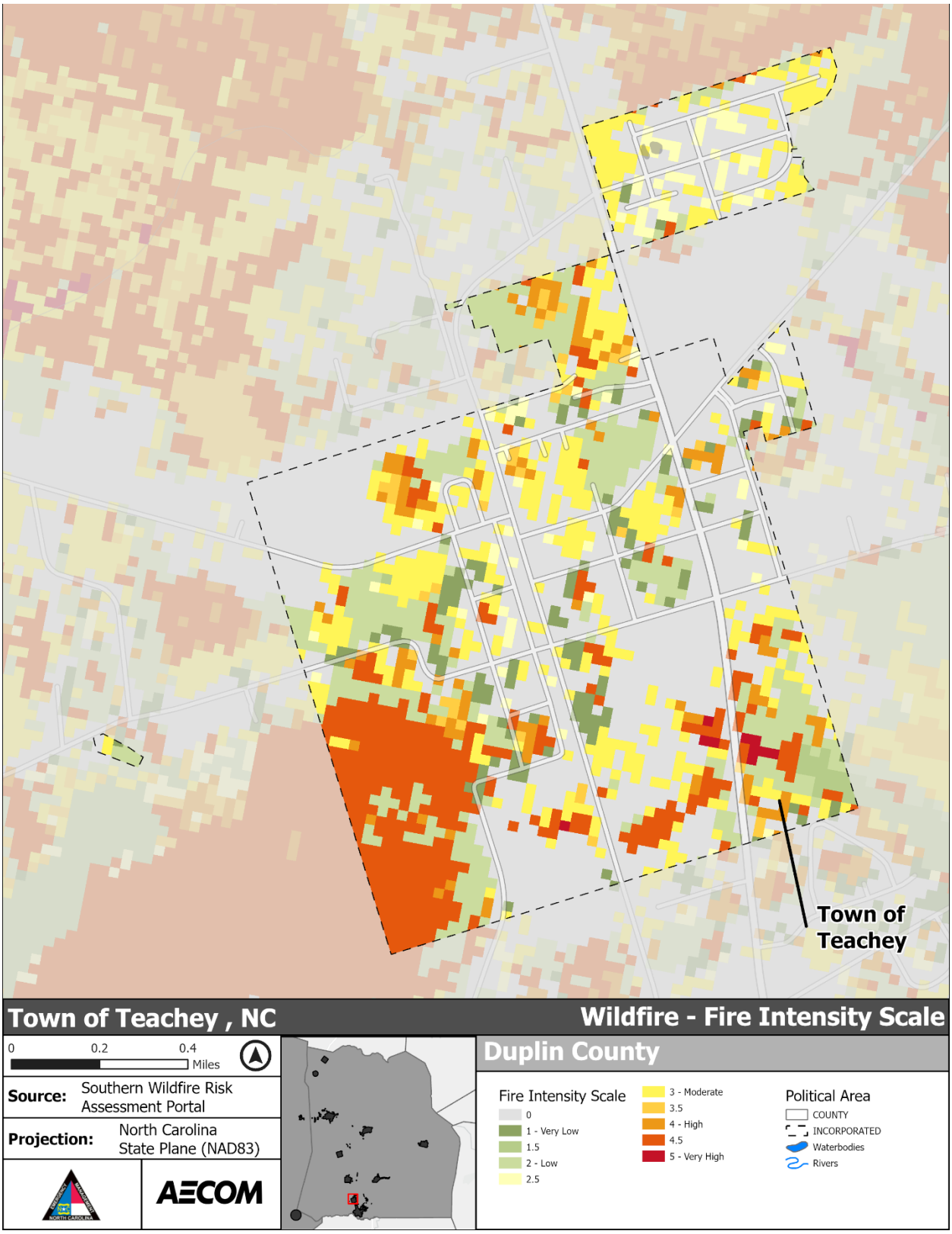


***Figure 5-171**: Town of Teachey Wildfire Map*

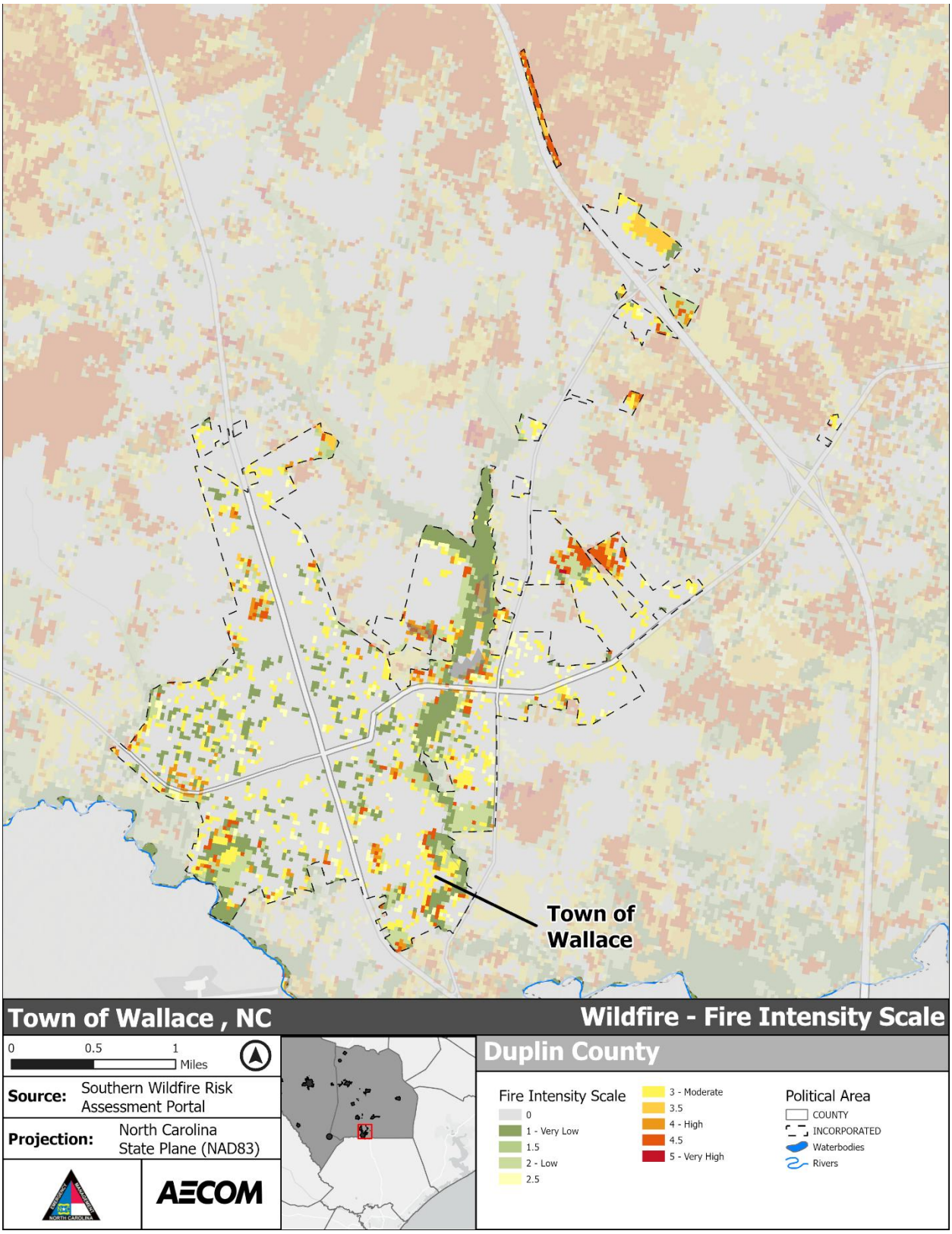


***Figure 5-172**: Town of Wallace Wildfire Map*

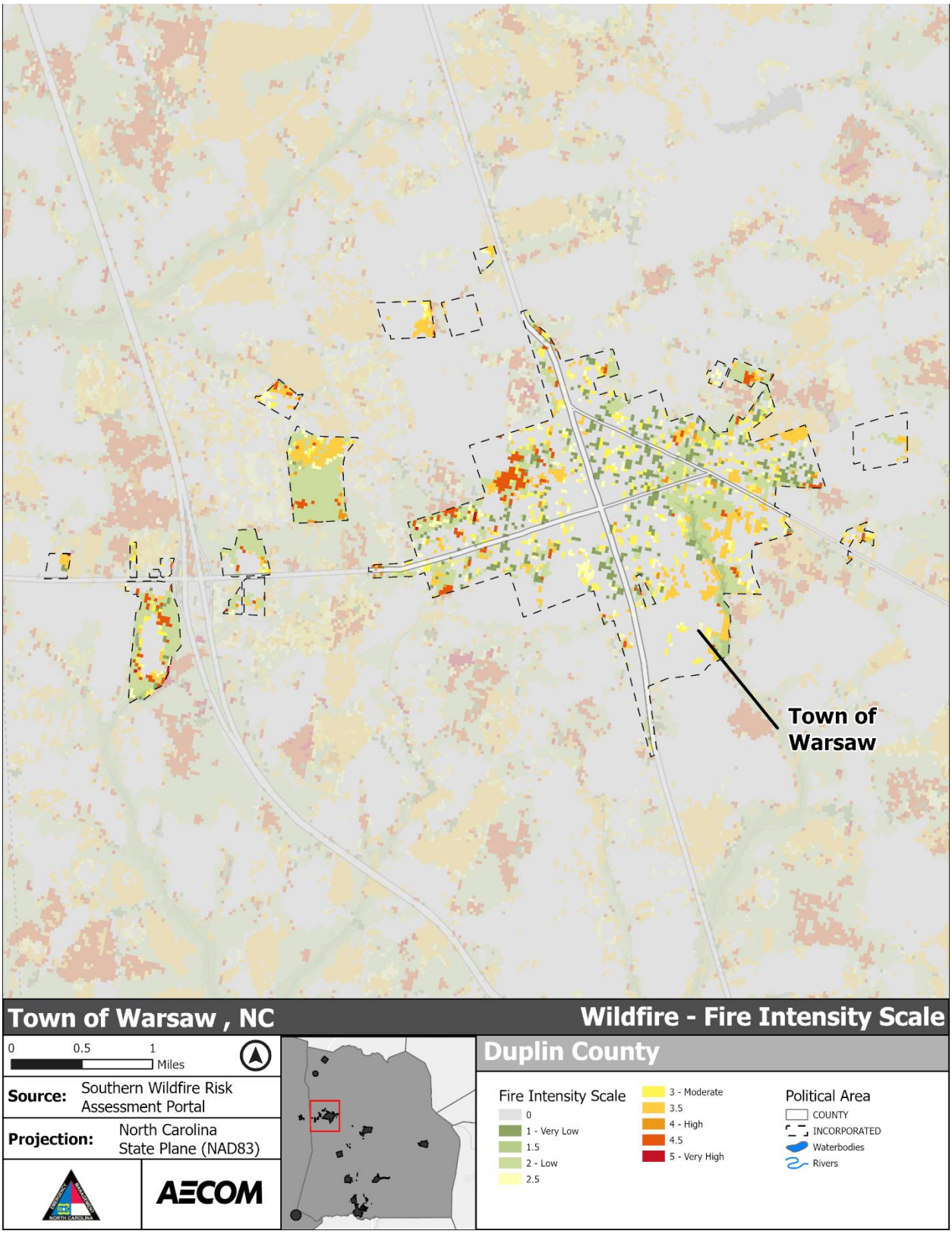


***Figure 5-173**: Town of Warsaw Wildfire Map*

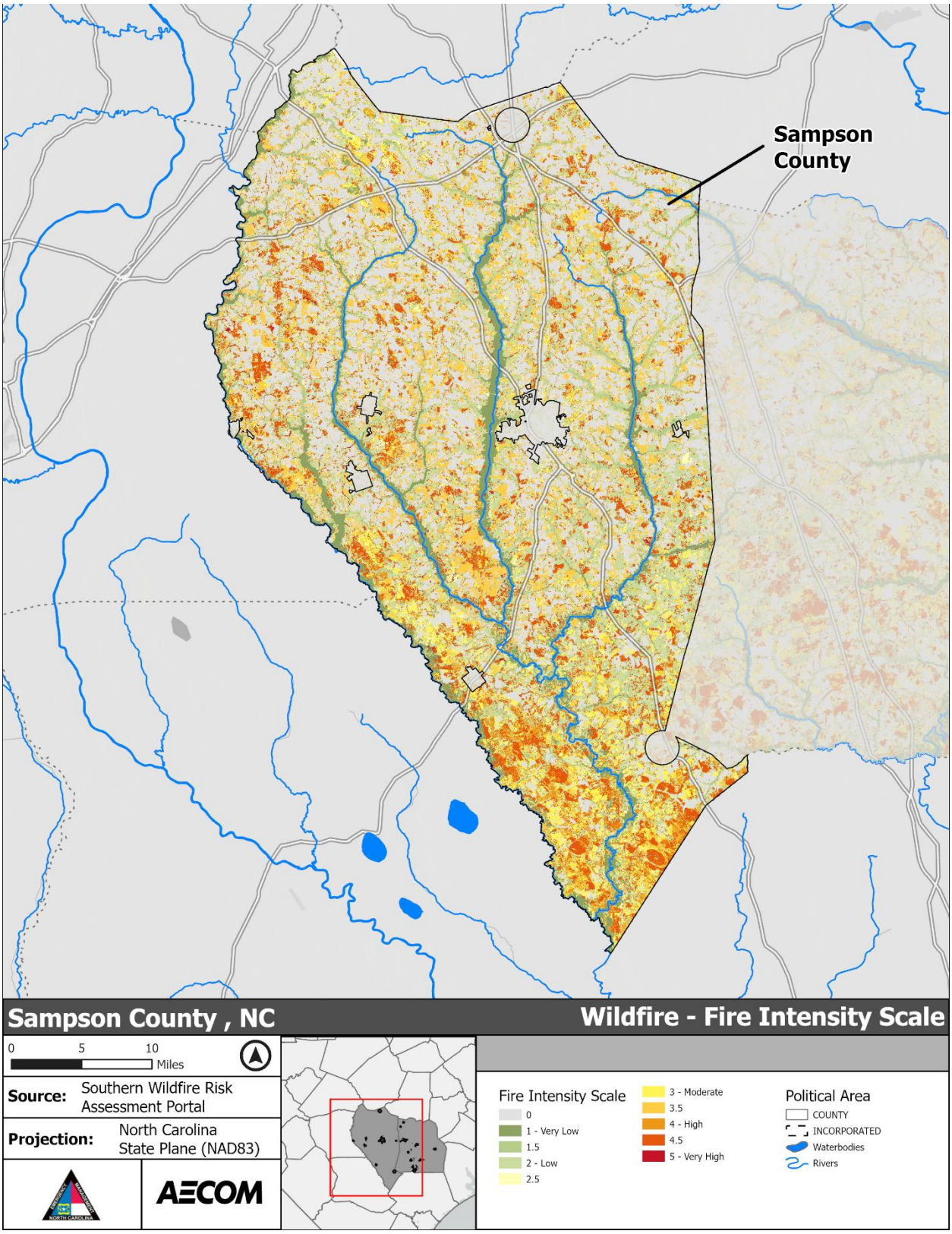


***Figure 5-174**: Sampson County Wildfire Map*

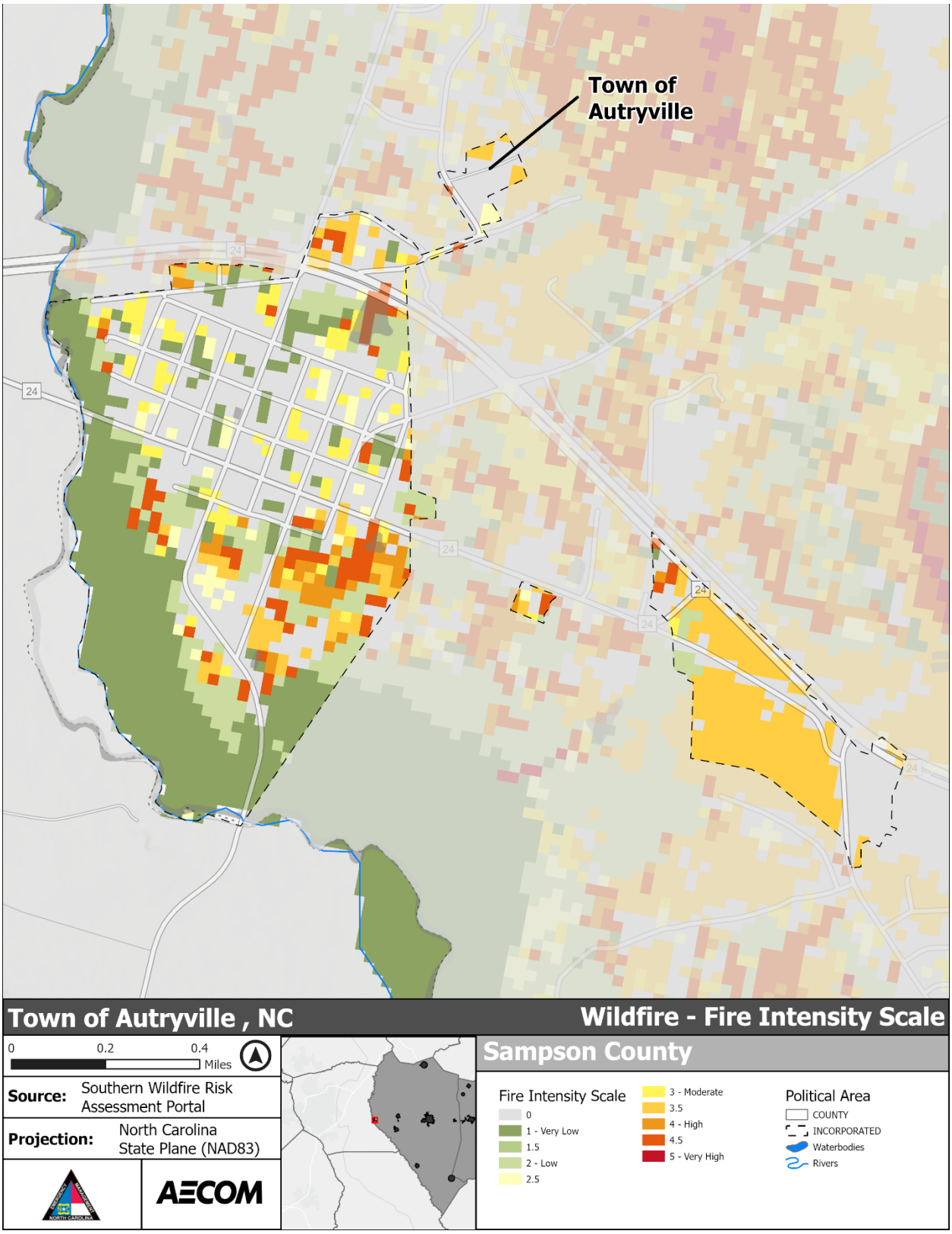


***Figure 5-175**: Town of Autryville Wildfire Map*

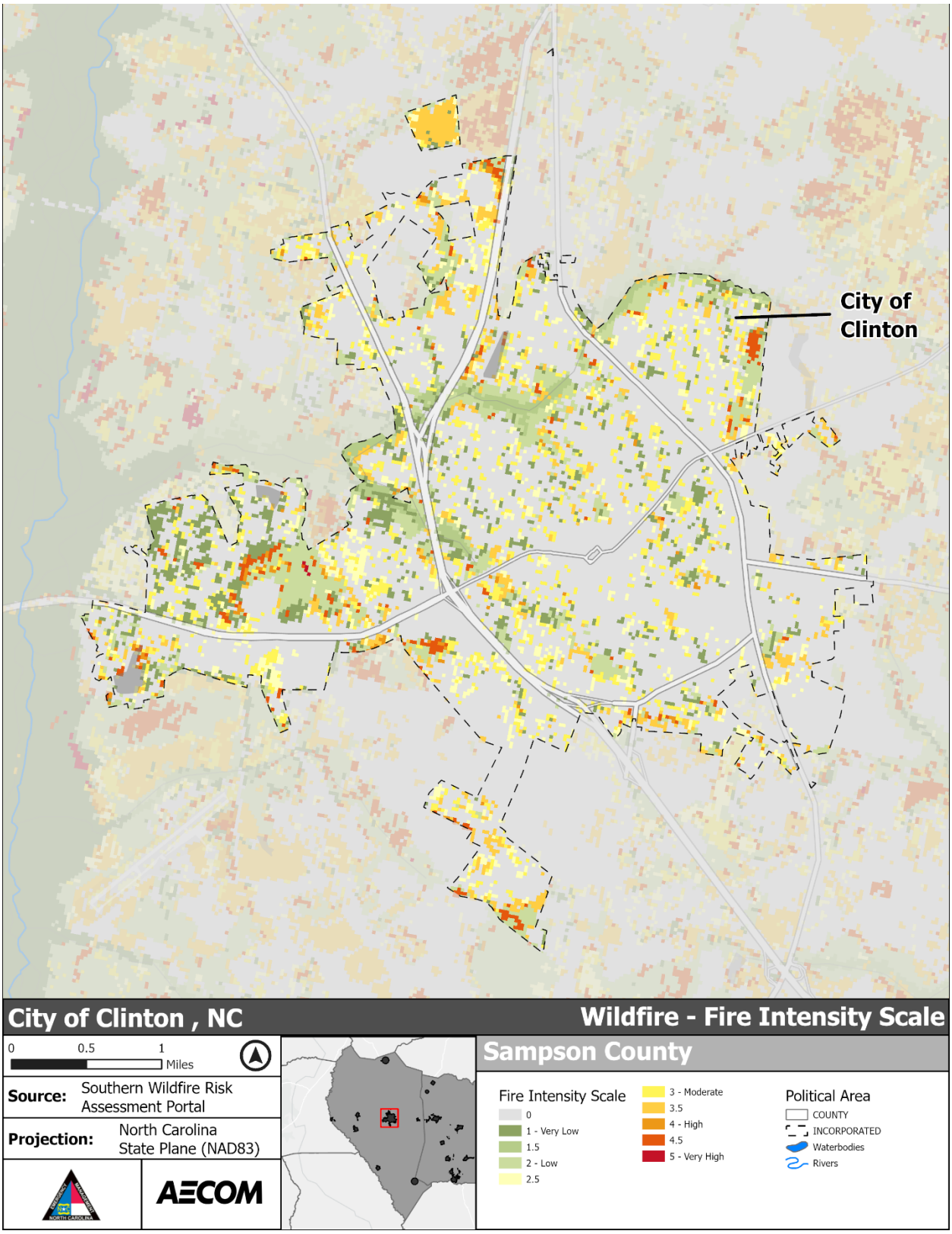


***Figure 5-176**: City of Clinton Wildfire Map*

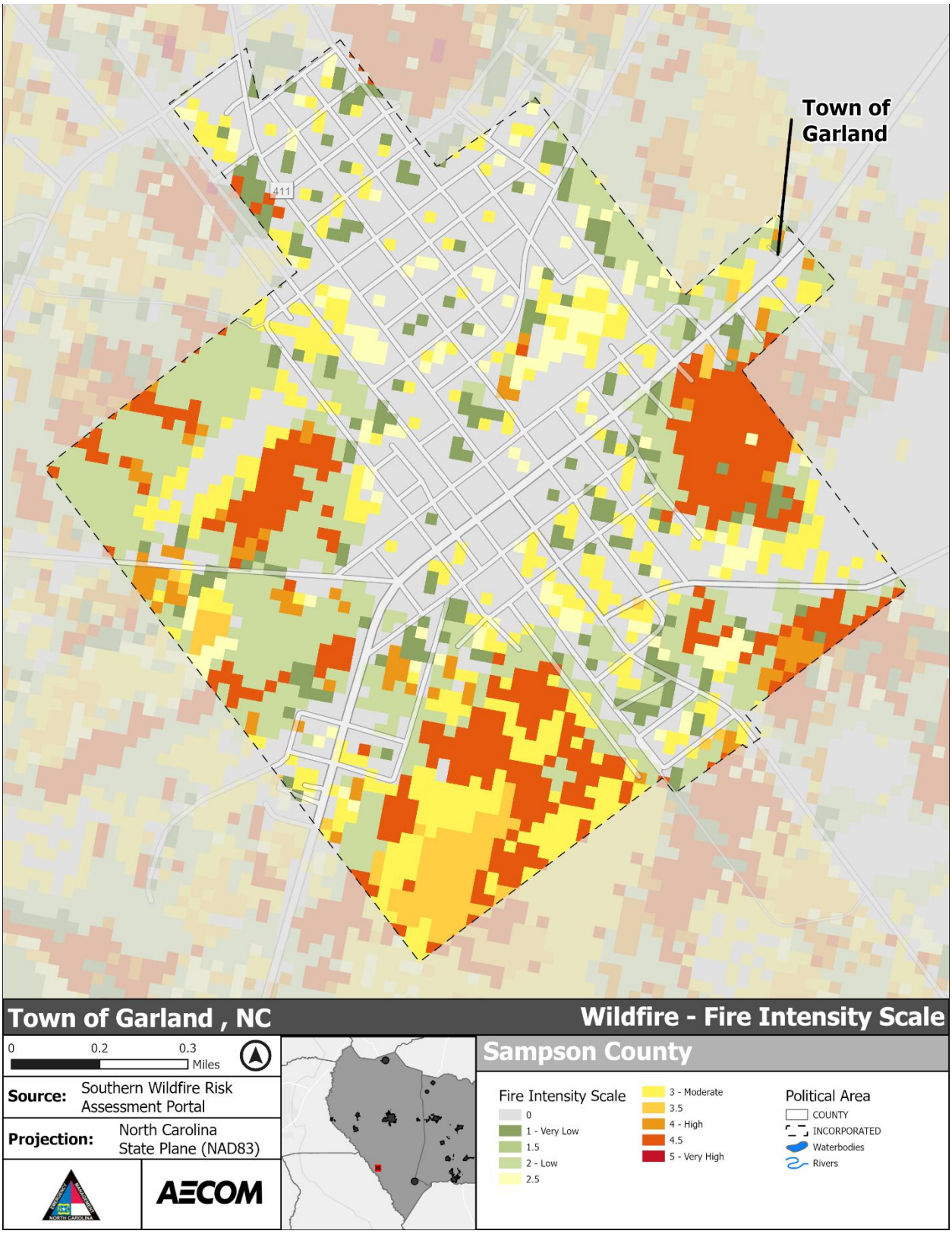


***Figure 5-177**: Town of Garland Wildfire Map*

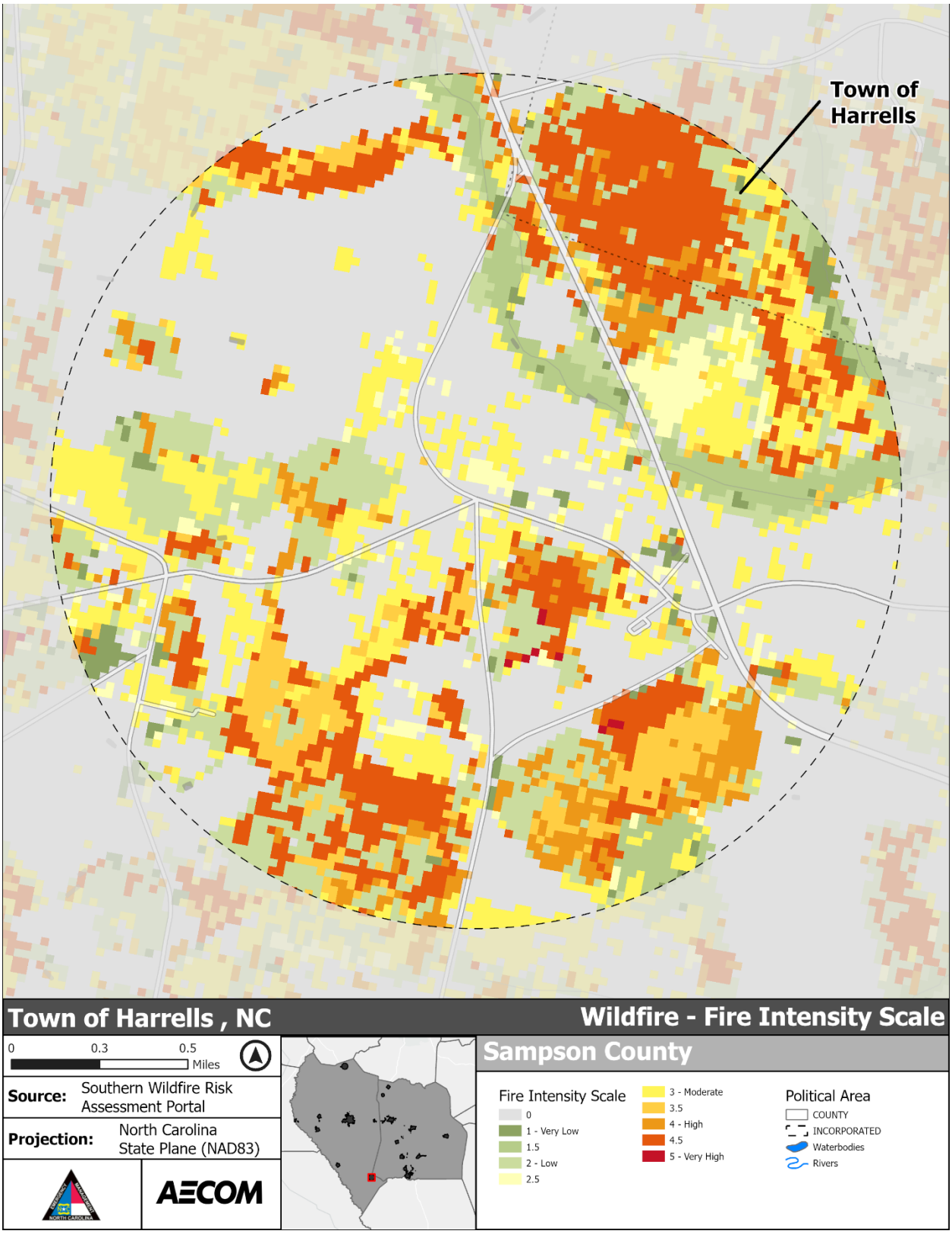


***Figure 5-178**: Town of Harrells Wildfire Map*

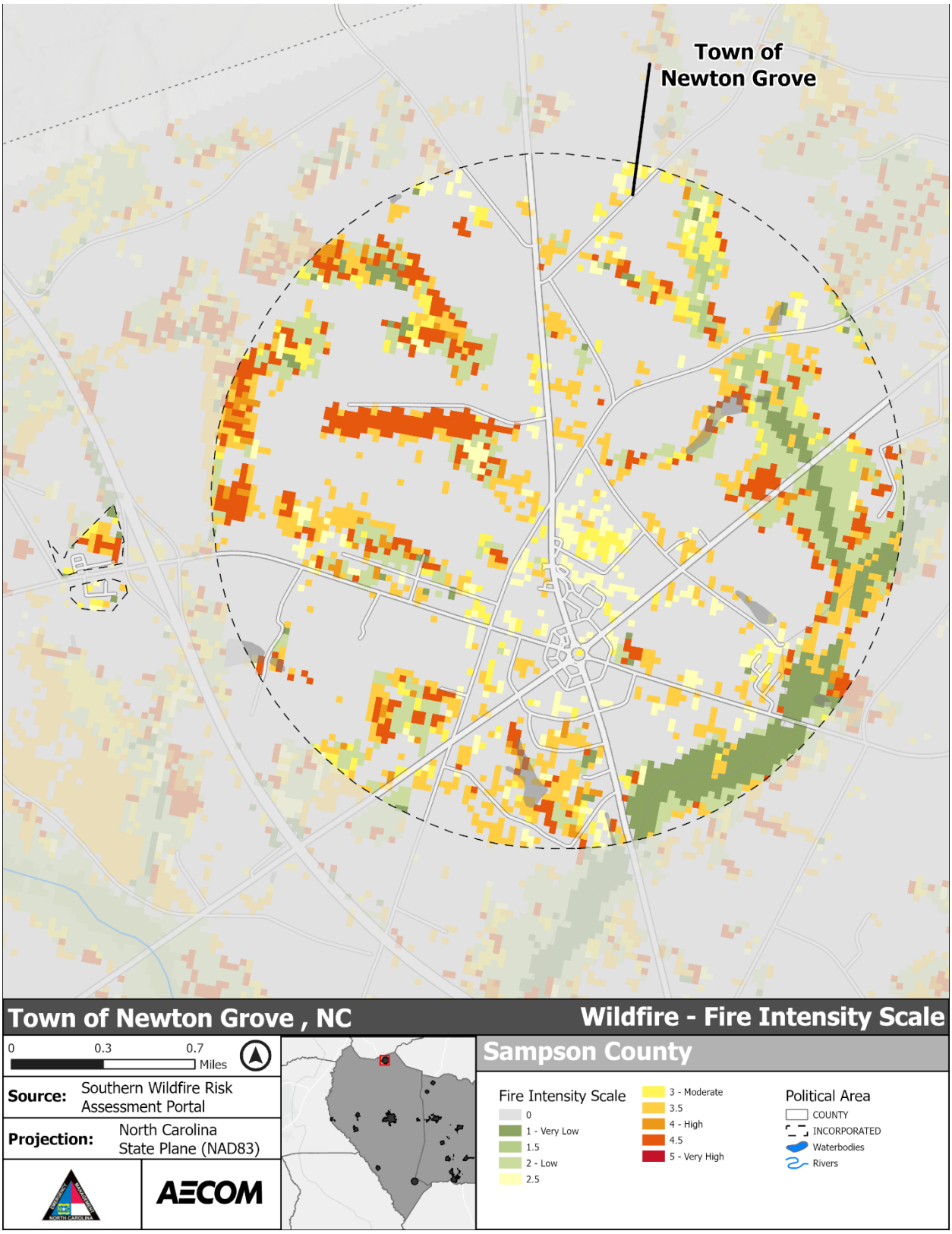


***Figure 5-179**: Town of Newton Grove Wildfire Map*

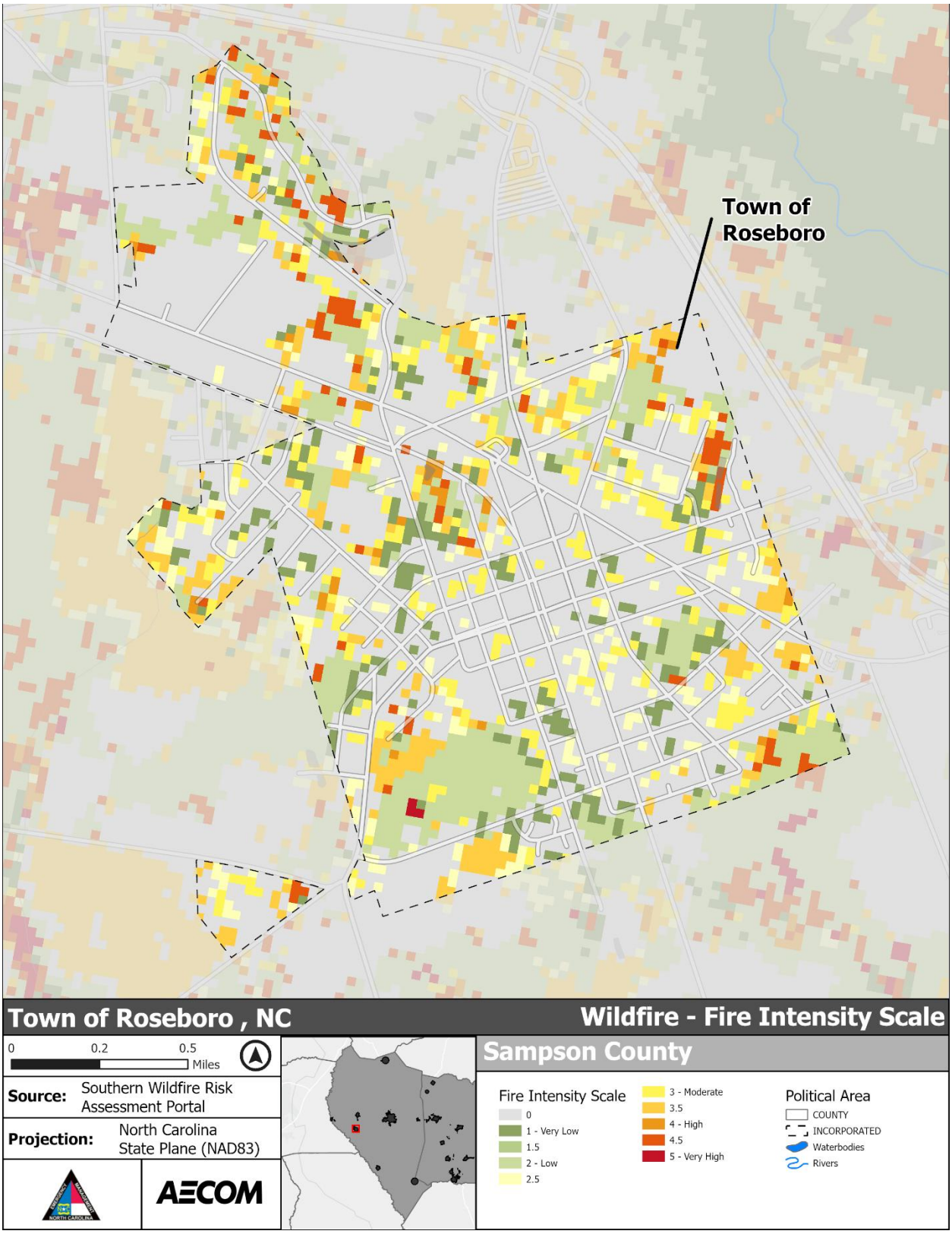


***Figure 5-180**: Town of Roseboro Wildfire Map*

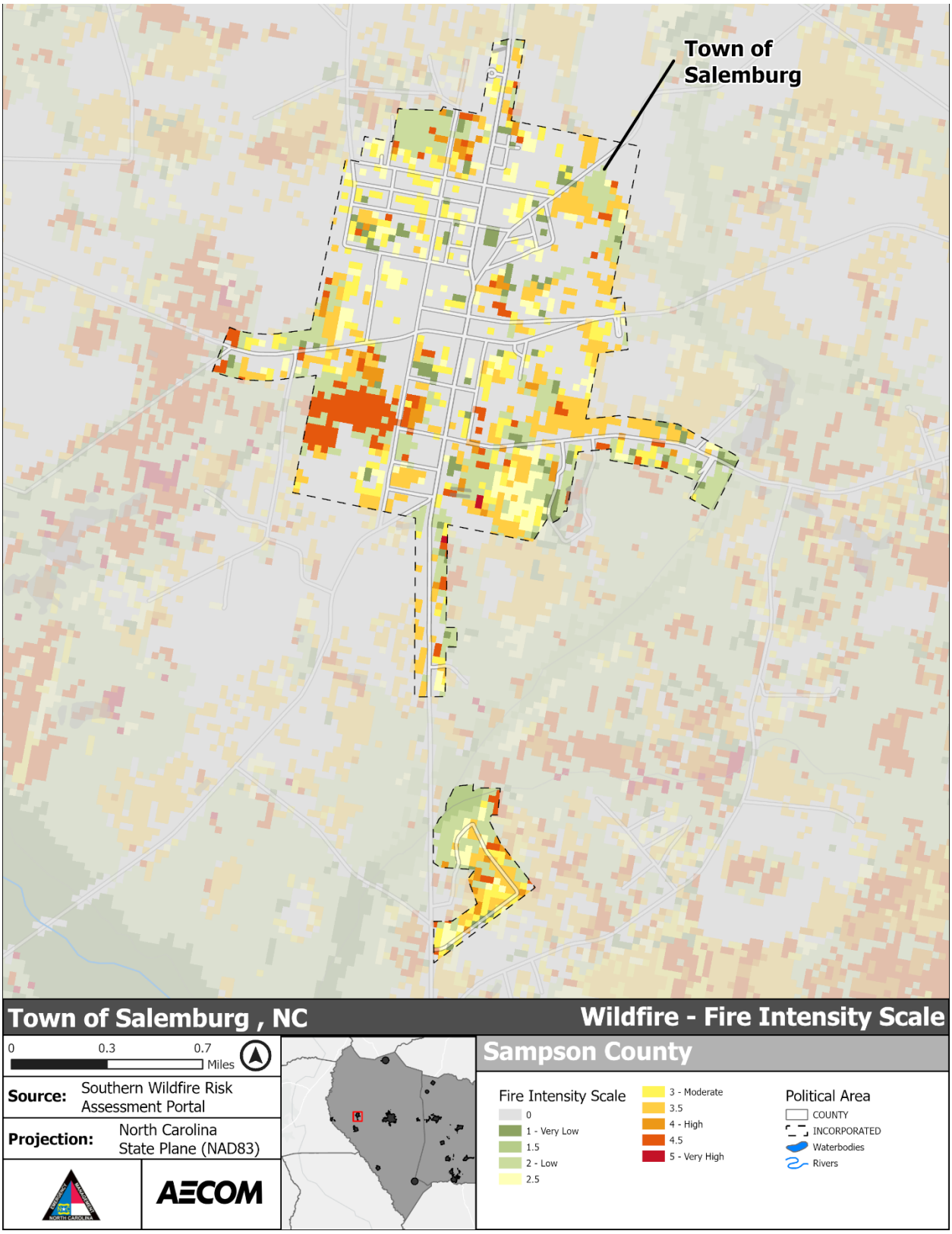


***Figure 5-181**: Town of Salemburg Wildfire Map*

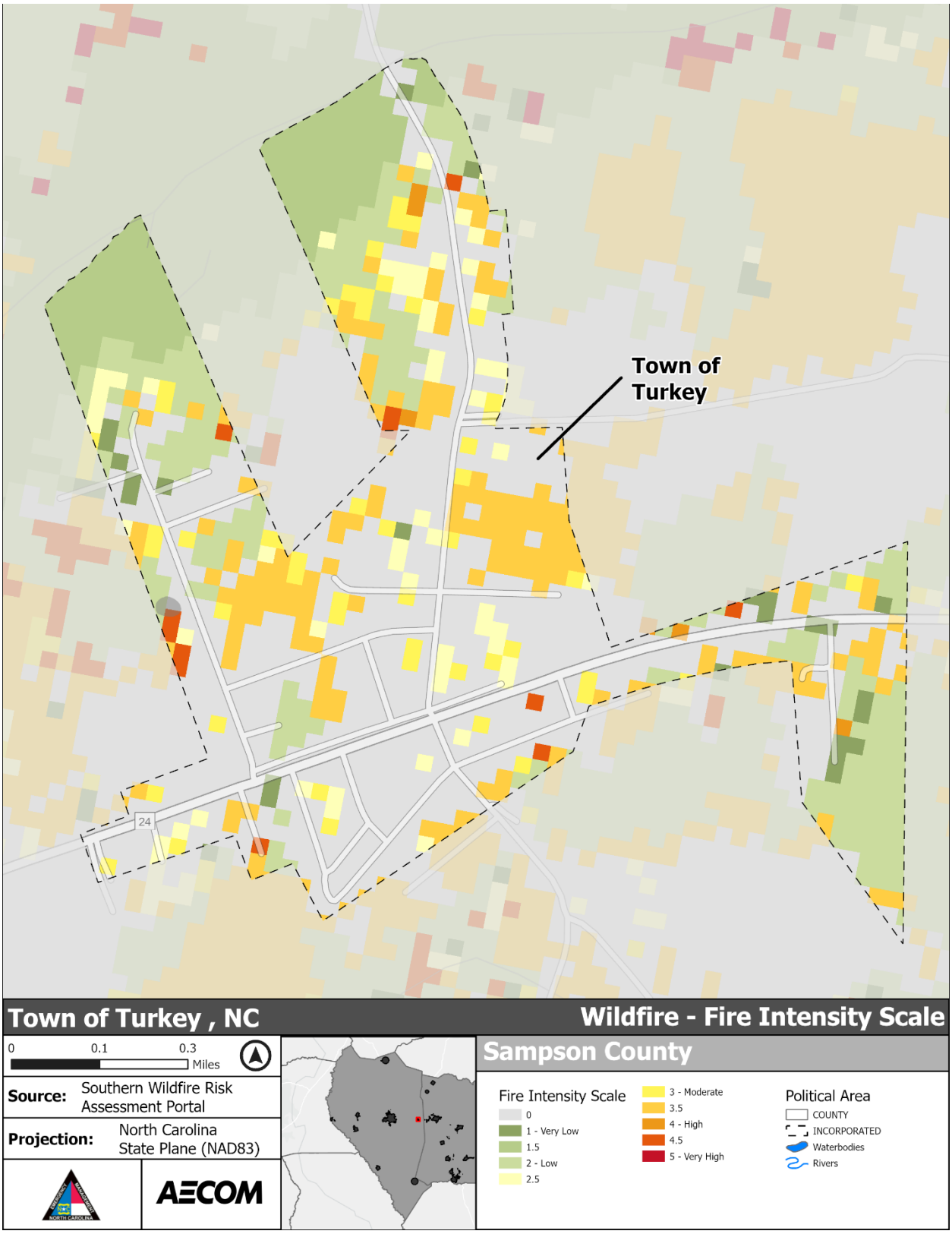


***Figure 5-182**: Town of Turkey Wildfire Map*

5.10.3 Past Occurrences

According to the NASF, there were 2029 wildfire events in the planning area between 2001 and 2021. Throughout the period of record in Sampson County, there were 2,741 residences threatened, 408 structures threatened, three residences destroyed, and 40 other structures destroyed. Throughout the period of record in Duplin County, there were 200 residences threatened, three residences destroyed, 177 structures threatened, and 13 structures destroyed by wildfires. There were two reported injuries in Duplin County, one attributed to the Bonham Road fire, discovered on August 5, 2015, that burned 0.58 acres, and one to the John Stanley Bostic Road fire, which burned 29.9 acres.

***Table 5-53**: National Association of State Foresters Wildfire Occurrence Summary of events between 2001 and 2021*[110]

County	Events Reported	Number of Injuries	Number of Deaths	Residences Threatened by Wildfire	Other Structures Threatened by Wildfire	Residences Destroyed by Wildfire	Other Structures Destroyed by Wildfire	Acres Burned
Duplin	839	2	0	200	177	3	13	2,861.27
Sampson	1190	0	0	2741	408	3	40	8,680.23
Planning Area Total	**2029**	**2**	**0**	**2941**	**585**	**6**	**53**	**11,541.5**

5.10.4 Probability of Future Occurrences

The NRI uses the USDA Forest Service's Probabilistic Wildfire Risk Components for the U.S. to determine the susceptible areas and probability of occurrence. The U.S. Forest Service Missoula Fire Sciences Laboratory has a raster dataset that represents burn probability (BP) and conditional fire intensity level (FIL) through its geospatial Fire Simulation (FSIM) System, which simulates wildfire occurrence across tens of thousands of hypothetical fire seasons under 2014 landscape conditions. Areas that have a Burn Probability of greater than 0 are considered to be susceptible, so any area with a BP higher than zero would be considered exposed.

Based on the NRI Wildfire Risk data, Duplin County has a Relatively High EAL Score and Hazard Risk Index Score, an EAL of $186,651, an annualized frequency of 0.00047, and an exposure area of 20.49 mi^2. The jurisdictions with the highest EAL totals are Wallace ($104,805), Unincorporated Areas ($45,945), and Greenevers ($14,101). Sampson County has a Relatively High EAL Score and Hazard Risk Index Score, a $119,281 EAL, 15 mi^2 of exposure area, and an annualized frequency of 0.00041. Unincorporated areas have the highest EAL ($66,803), followed by Harrells ($26,281) and Garland ($15,724).

[110] National Association of State Foresters. (2025). NASF Fire Data Extract [Dataset]. In Fire and Aviation Management Web Applications [FAMWeb], FAMWEB Data Warehouse. FAMWeb. https://famprod.nwcg.gov/cognos11/bi/?pathRef=.public_folders%2FFAMWEB%2BData%2BWarehouse%2FPublic%2BAccess%2BReports%2FFire%2BData%2BExtract%2FNASF%2BState%2BData%2BExtract

Table 5-54: NRI Wildfire Exposure Area, Annualized Frequency, EAL Total, EAL Score, and Hazard Risk Index Score

Jurisdiction	Exposure Area (Mi^2)	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Duplin County	**20.49**	**0.00047**	**$186,651**	**71.49**	**Relatively High**	**72.70**	**Relatively High**
Beulaville	2.47	0.00	$8,472	80.05	Very High	81.46	Very High
Calypso	0.69	0.00	$490	55.66	Relatively Moderate	63.24	Relatively High
Faison	0.69	0.00	$490	55.66	Relatively Moderate	63.24	Relatively High
Greenevers	2.02	0.00	$14,101	85.93	Very High	87.55	Very High
Kenansville	1.70	0.00	$5,797	71.41	Relatively High	75.48	Relatively High
Magnolia	2.47	0.00	$13,066	82.14	Very High	83.39	Very High
Rose Hill	2.90	0.00	$11,981	81.81	Very High	83.43	Very High
Teachey	0.64	0.00	$10,086	84.38	Very High	86.09	Very High
Wallace	4.06	0.00	$104,805	87.89	Very High	88.77	Very High
Warsaw	0.24	0.00	$1,130	53.27	Relatively Moderate	59.92	Relatively Moderate
Unincorporated Area	7.43	0.00	$45,945	64.29	Relatively High	66.43	Relatively High
Sampson County	**15.00**	**0.00041**	**$119,281**	**66.65**	**Relatively High**	**68.72**	**Relatively High**
Autryville	0.41	0.00	$4,295	80.17	Very High	79.26	Relatively High
Clinton	0.76	0.00	$4,404	50.91	Relatively Moderate	56.19	Relatively Moderate
Garland	1.66	0.00	$15,724	86.47	Very High	88.79	Very High
Harrells	3.33	0.00	$26,281	84.54	Very High	85.27	Very High
Newton Grove	0.40	0.00	$46	31.21	Relatively Low	31.93	Relatively Low
Roseboro	0.34	0.00	$4,919	80.87	Very High	82.07	Very High
Salemburg	0.14	0.00	$1,359	69.94	Relatively High	71.08	Relatively High

Turkey	0.37	0.00	$735	61.31	Relatively High	65.23	Relatively High
Unincorporated Area	9.60	0.00	$66,803	70.43	Relatively High	73.32	Relatively High

5.10.5 Consequence and Impact Analysis

5.10.5.1 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.

5.10.5.2 Changes in Development or Housing Characteristics

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.

5.10.5.3 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 defensive measures, or providing firefighting teams with food, ice, and amenities, such as temporary shelters and washing machines.

5.10.5.4 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, the introduction of invasive species, and changes in water quality, are often more disastrous than the fire itself.

5.10.5.5 First Responders

Public and firefighter safety is the priority in all wildland fire management activities. Wildfires pose a real threat to the health and safety of emergency services personnel. Most firefighters in rural areas are volunteers. This means that they are part-time and can be called away from their normal work to attend to fires. The more severe and widespread a fire is, the larger the threat to health and safety of first responders who assist with wildfire suppression and response.

5.10.5.6 Future Conditions

According to the NCCSR, higher annual and seasonal temperatures will increase drying vegetation and conditions that favor wildfires.[111] The increases in wildfires will pose a greater threat to human health, emergency services, the economy, first responders, and the planning area.

[111] North Carolina Institute for Climate Studies [NCICS]. (2020). North Carolina Climate Science Report. NCICS. Retrieved August 7, 2025, from https://ncics.org/wp-content/uploads/2020/10/NC_Climate_Science_Report_FullReport_Final_revised_September2020.pdf

5.11 WINTER STORM

5.11.1 Hazard Description

North Carolina winter weather is characterized by storms that produce snow, sleet, freezing rain, or a wintry mix of 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, which may delay recovery efforts. Winter storm events are 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 costs of snow removal, damage repairs, and lost business can have severe economic impacts on communities. Snow accumulation meeting or exceedingly 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 of 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, blowing/drifting snow, or freezing rain/drizzle), on a widespread or localized basis.

5.11.2 Location and Spatial Extent

The entire Region can be considered at risk from winter storm events. This includes the whole population and all critical facilities, buildings (commercial and residential), and infrastructure. To capture the distribution of winter weather-related hazards, the Ice Storm and Winter Weather risk data from the NRI are used to show expected annualized losses and the spatial distribution of winter weather-related hazards and risks. The NRI defines Ice Storms as freezing rain situations, or rain that freezes on contact with significant ice accumulations of 0.25 inches or more. The NRI uses the United States Army Corps of Engineers (USACE) Cold Regions Research and Engineering Laboratory (CRREL) Damaging Ice Storm GIS data, which covers

freezing rain events between 1940 and 2014. The NRI defines winter weather events as winter storm events where the main types of precipitation are snow, sleet, or freezing rain. The NRI uses the Iowa State University Iowa Environmental Mesonet for winter weather event data, and the data range spans from November 12, 2005, to October 6, 2022. To best represent the hazards related to winter storms in the planning area, the following maps illustrate Ice Storm and Winter Storm events, as defined by the NRI and the EAL, by census tract.

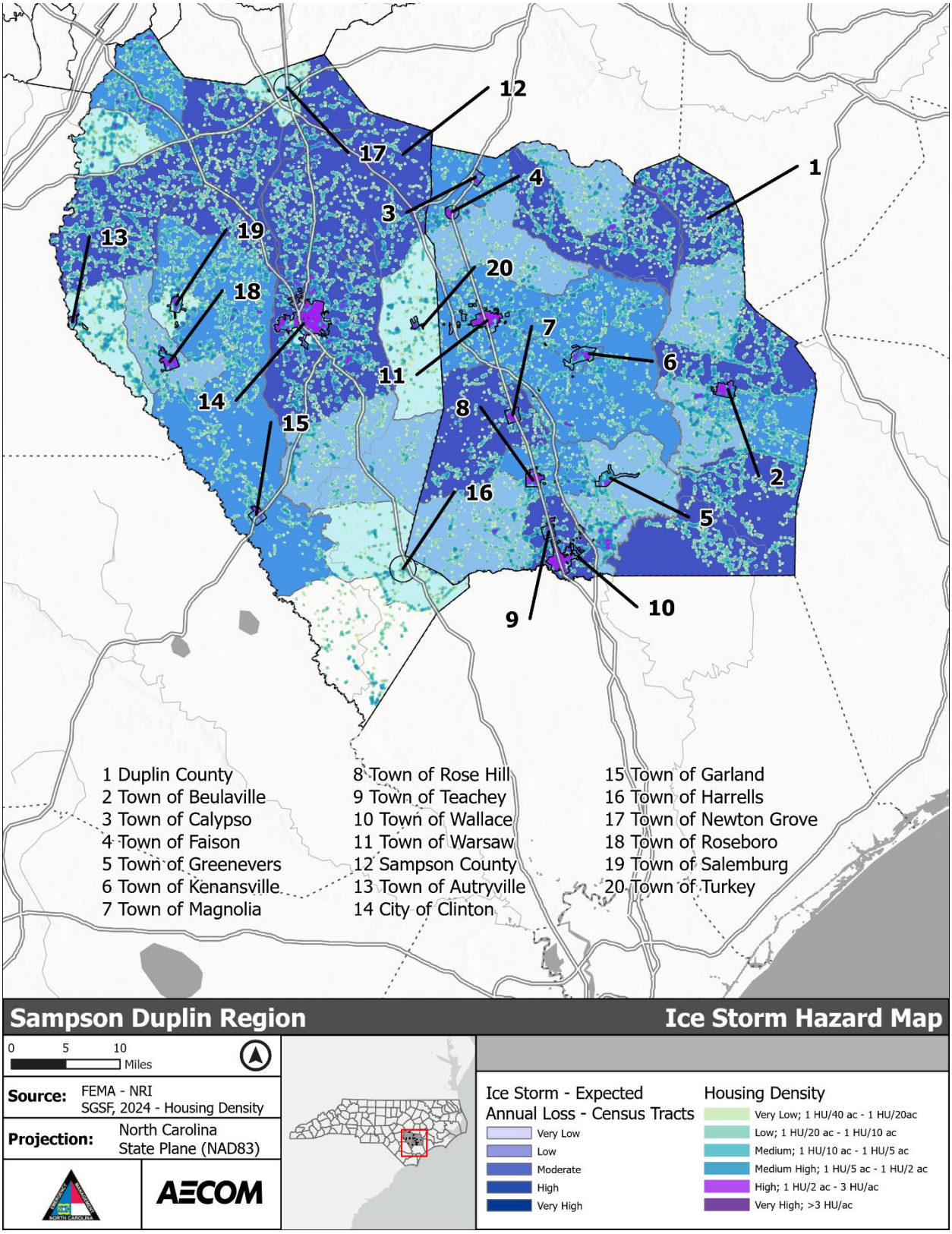


***Figure 5-183**: Sampson Duplin Ice Storm Hazard Areas - Regional*

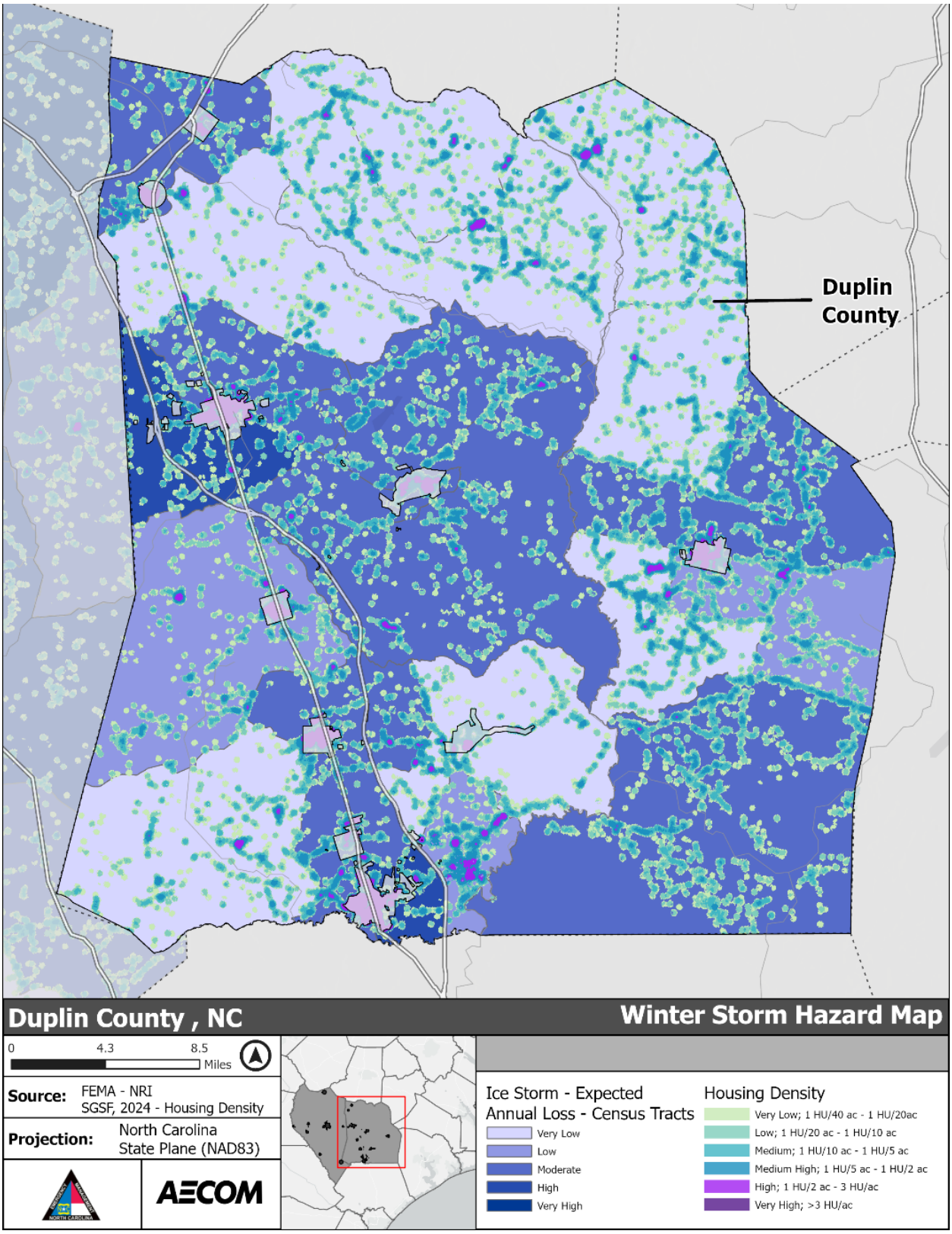


***Figure 5-184**: Duplin County Ice Storm Hazard Map*

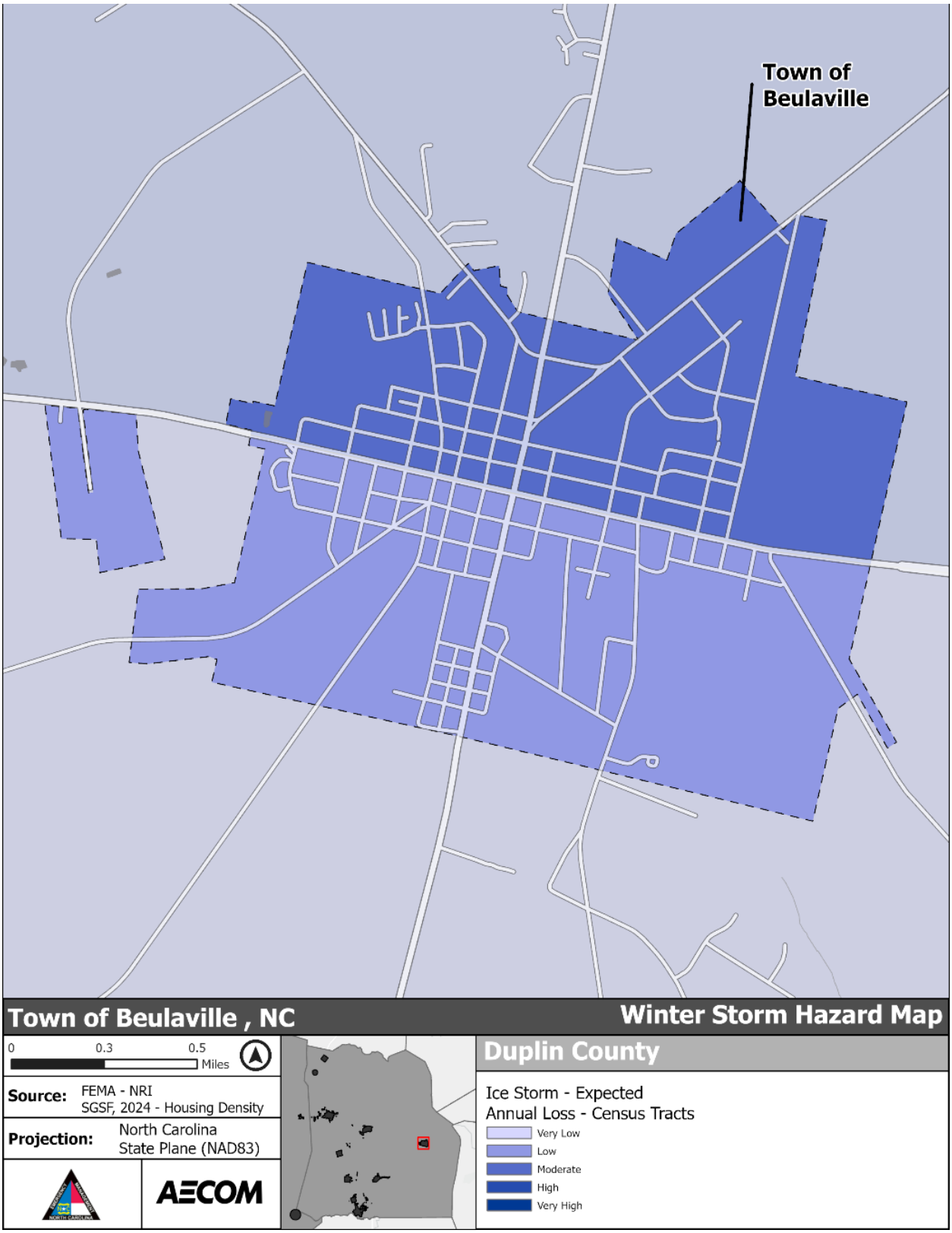


***Figure 5-185**: Town of Beulaville Ice Storm Hazard Map*



***Figure 5-186**: Town of Calypso Ice Storm Hazard Map*



***Figure 5-187**: Town of Faison Ice Storm Hazard Map*

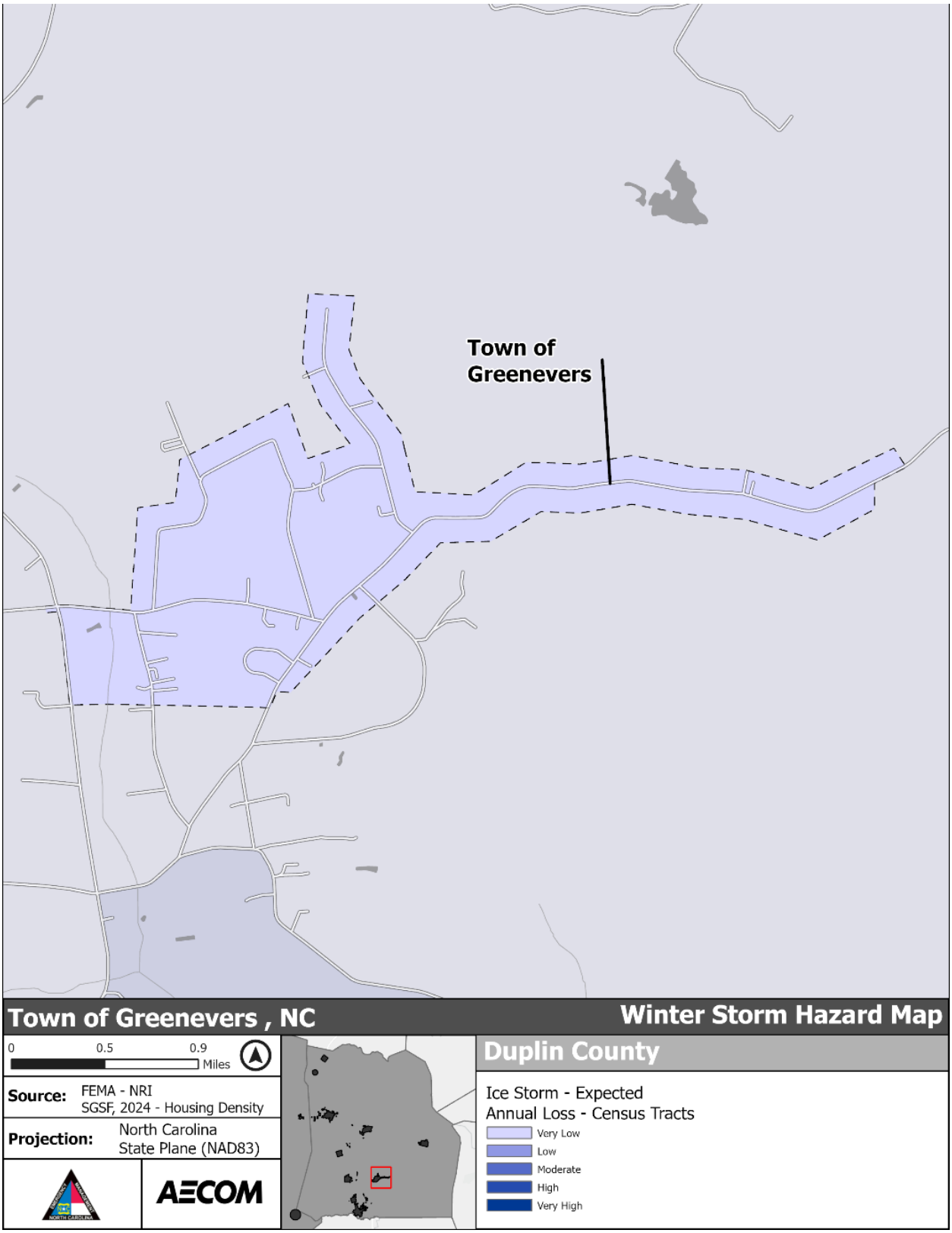


***Figure 5-188**: Town of Greenevers Ice Storm Hazard Map*

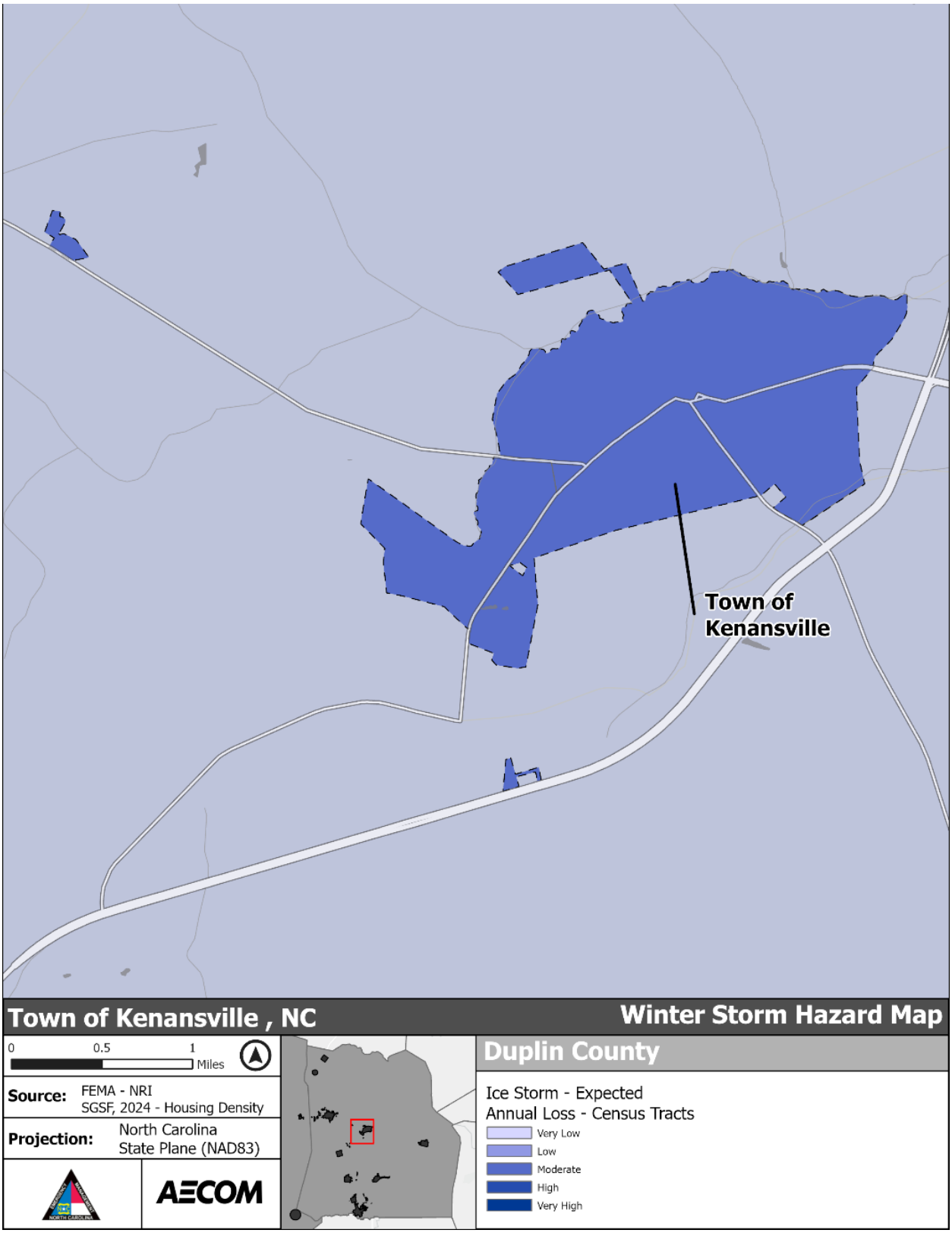


***Figure 5-189**: Town of Kenansville Ice Storm Hazard Map*

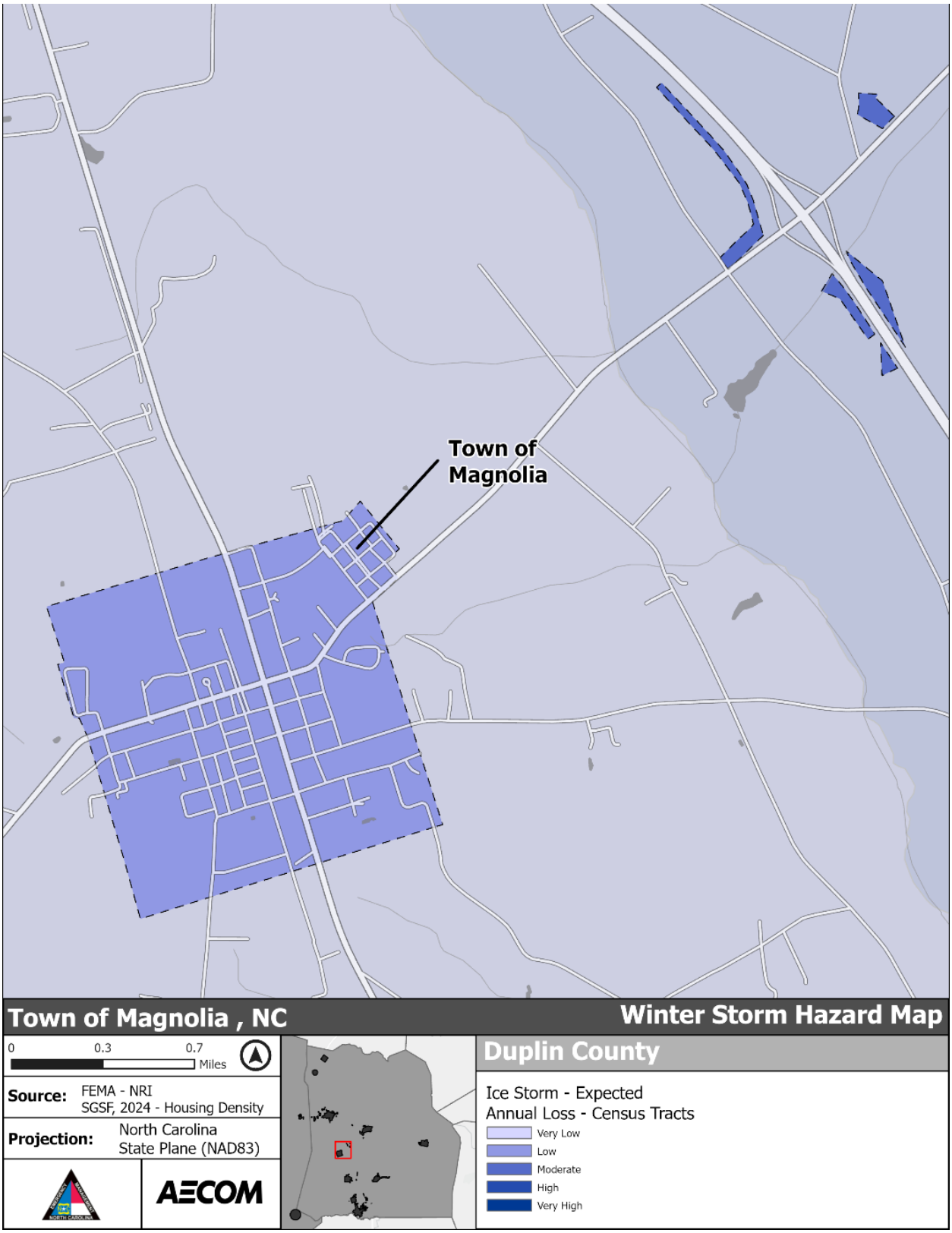


***Figure 5-190**: Town of Magnolia Ice Storm Hazard Map*

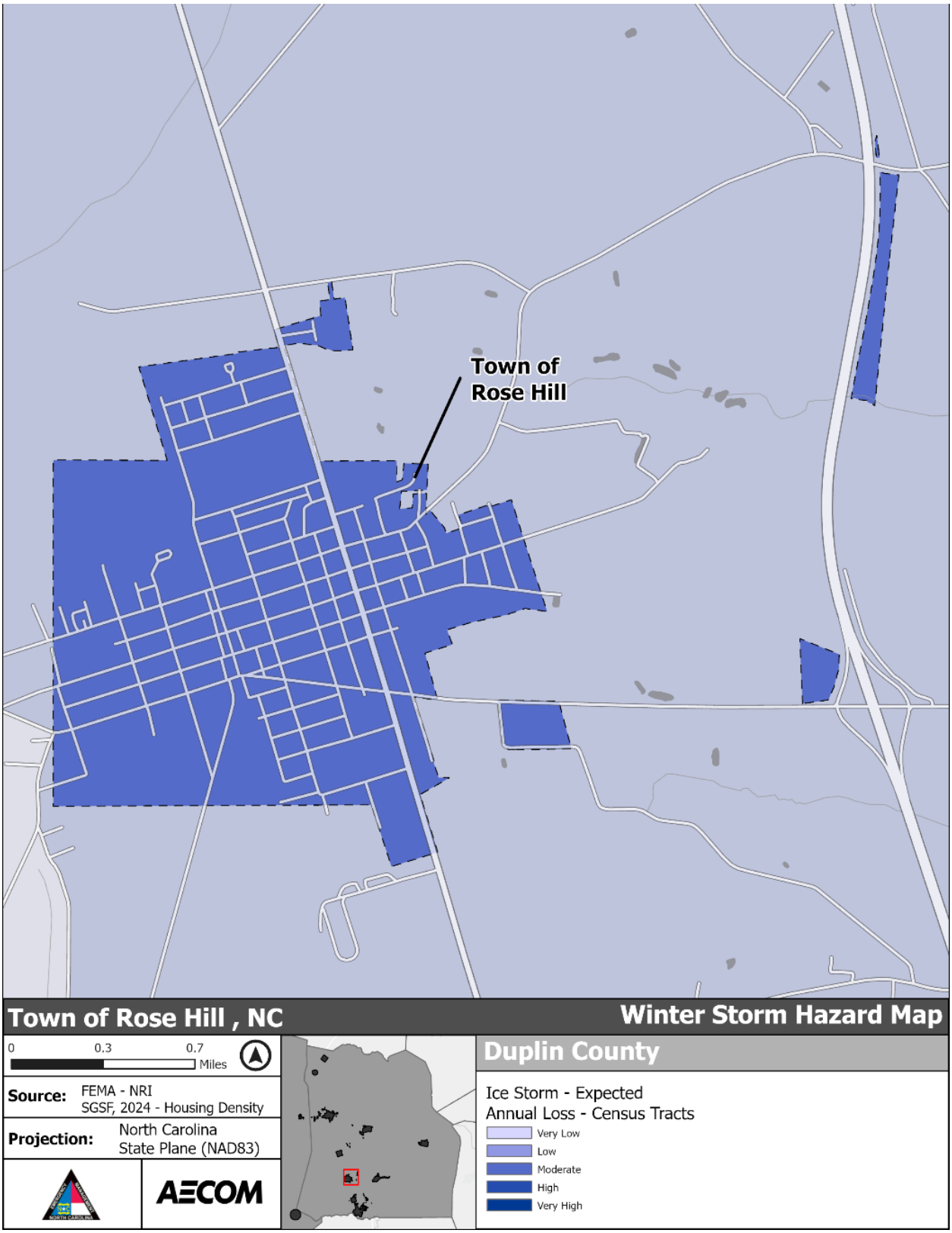


***Figure 5-191**: Town of Rose Hill Ice Storm Hazard Map*

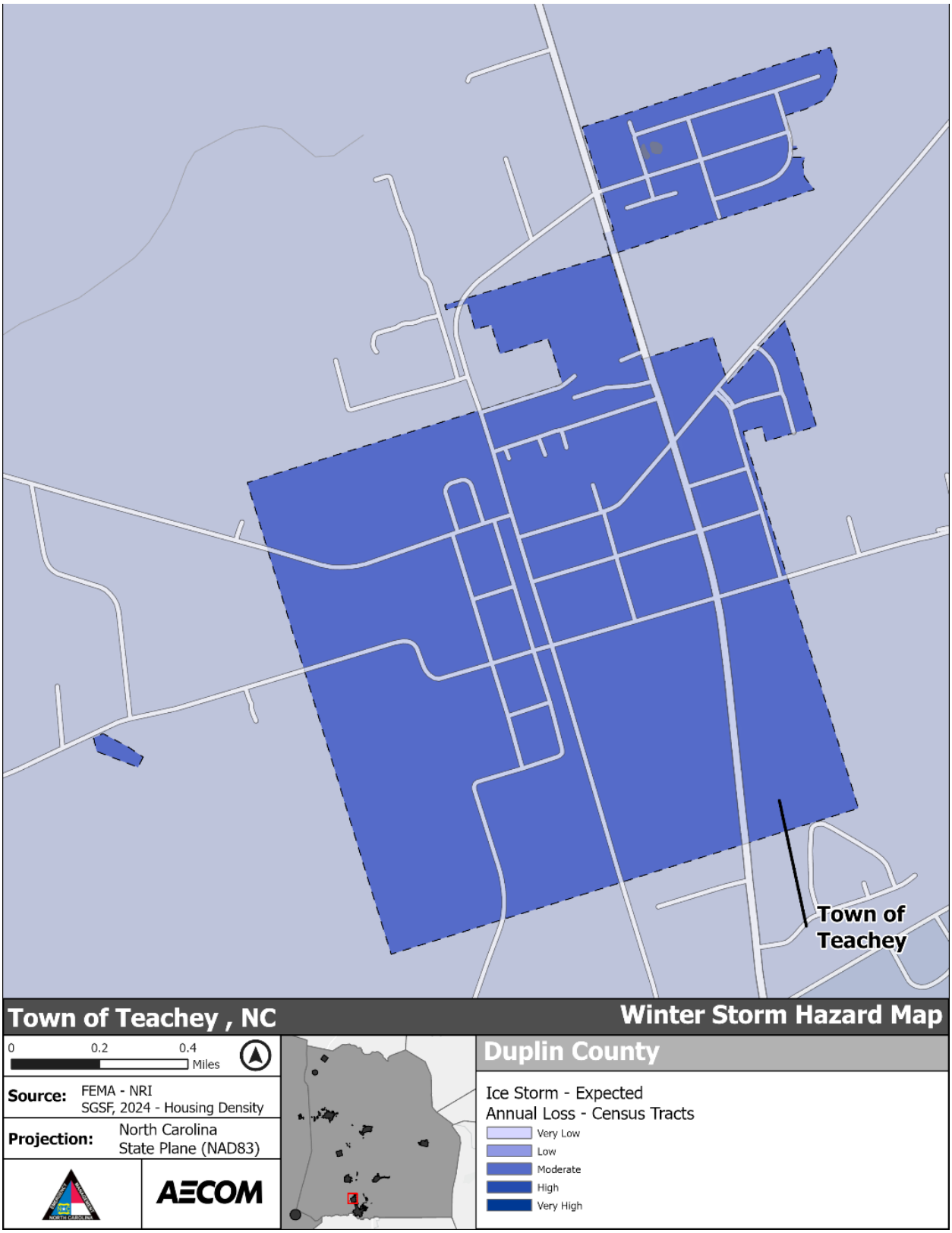


***Figure 5-192**: Town of Teachy Ice Storm Hazard Map*

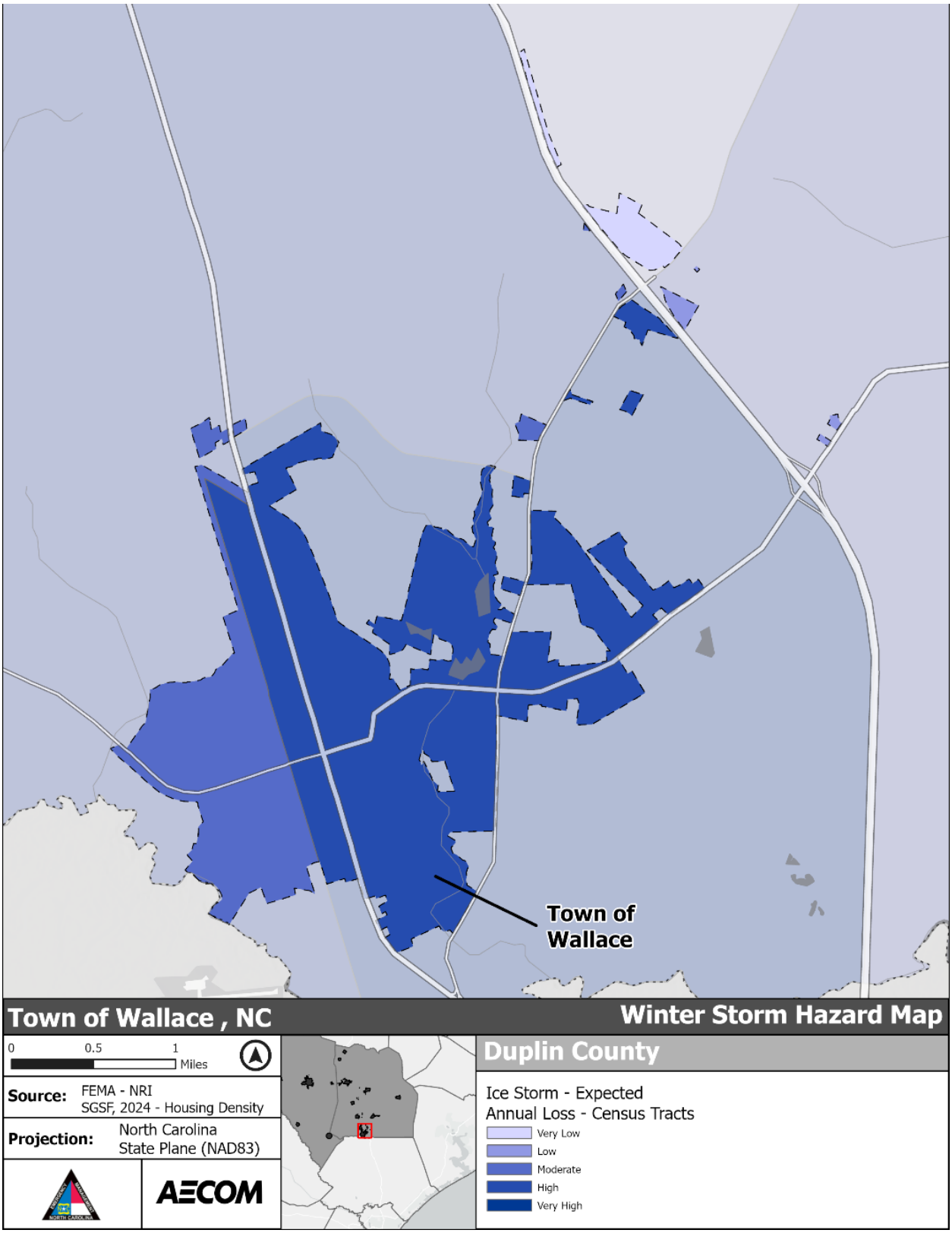


***Figure 5-193**: Town of Wallace Ice Storm Hazard Map*

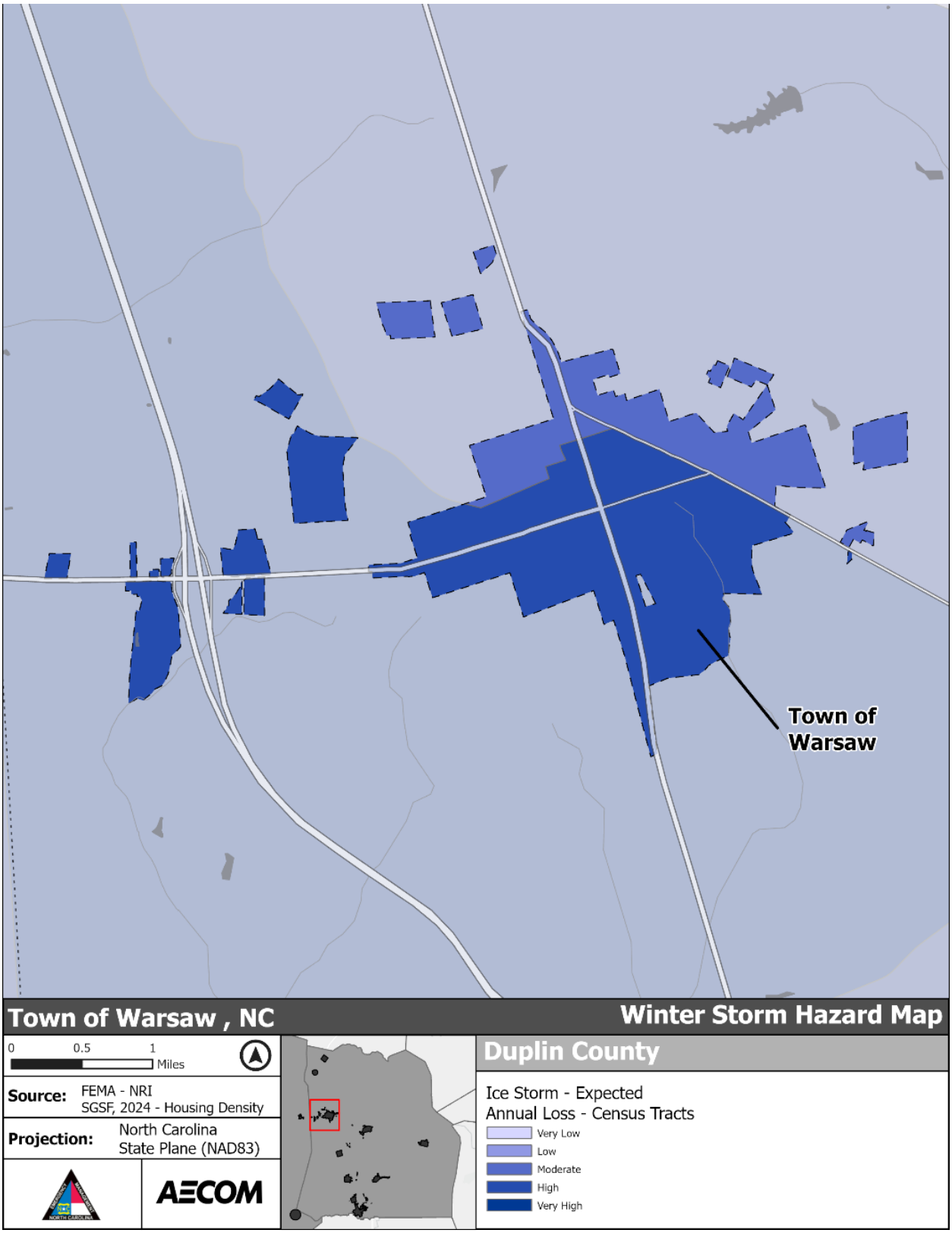


***Figure 5-194**: Town of Warsaw Ice Storm Hazard Map*

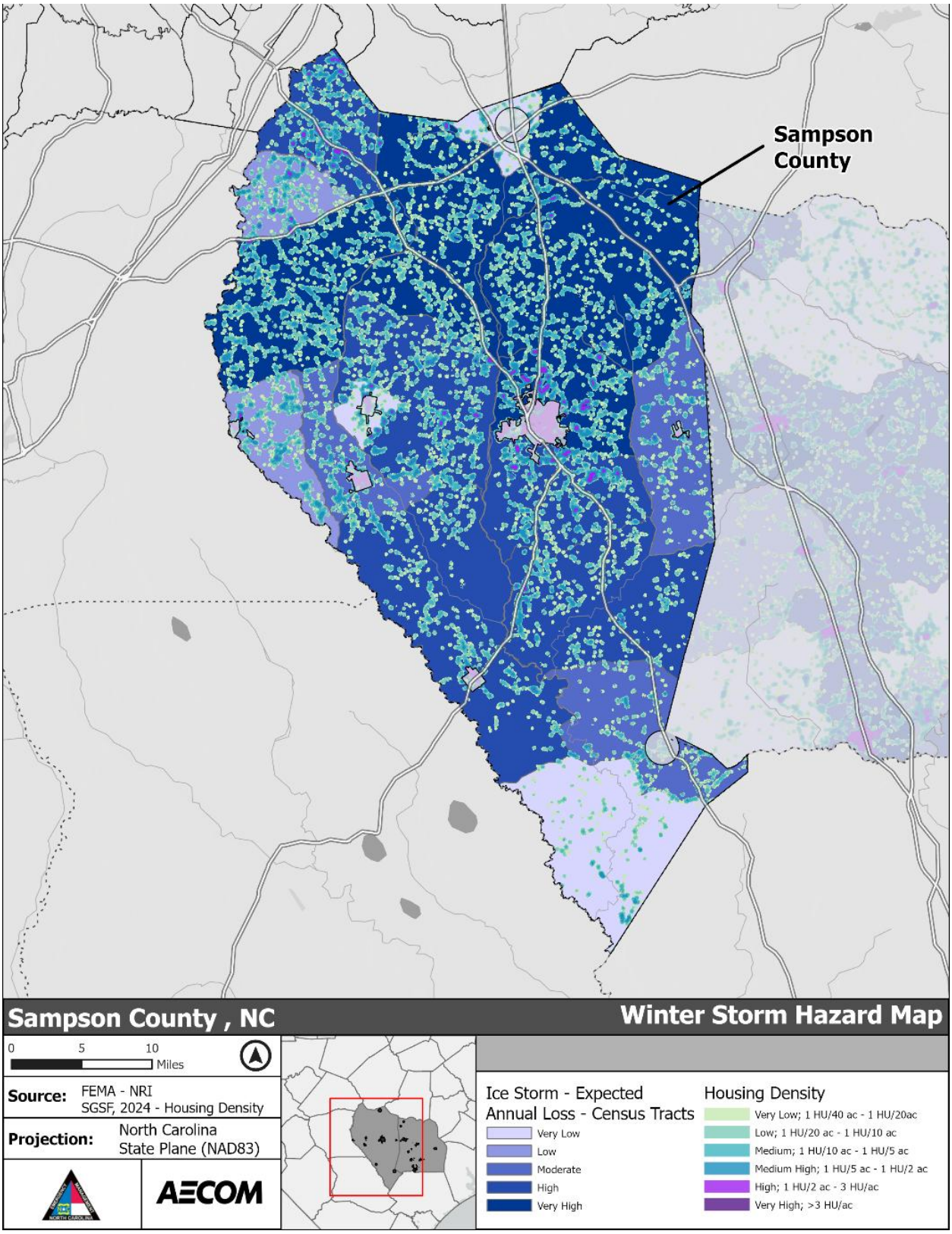


***Figure 5-195**: Sampson County Ice Storm Hazard Map*

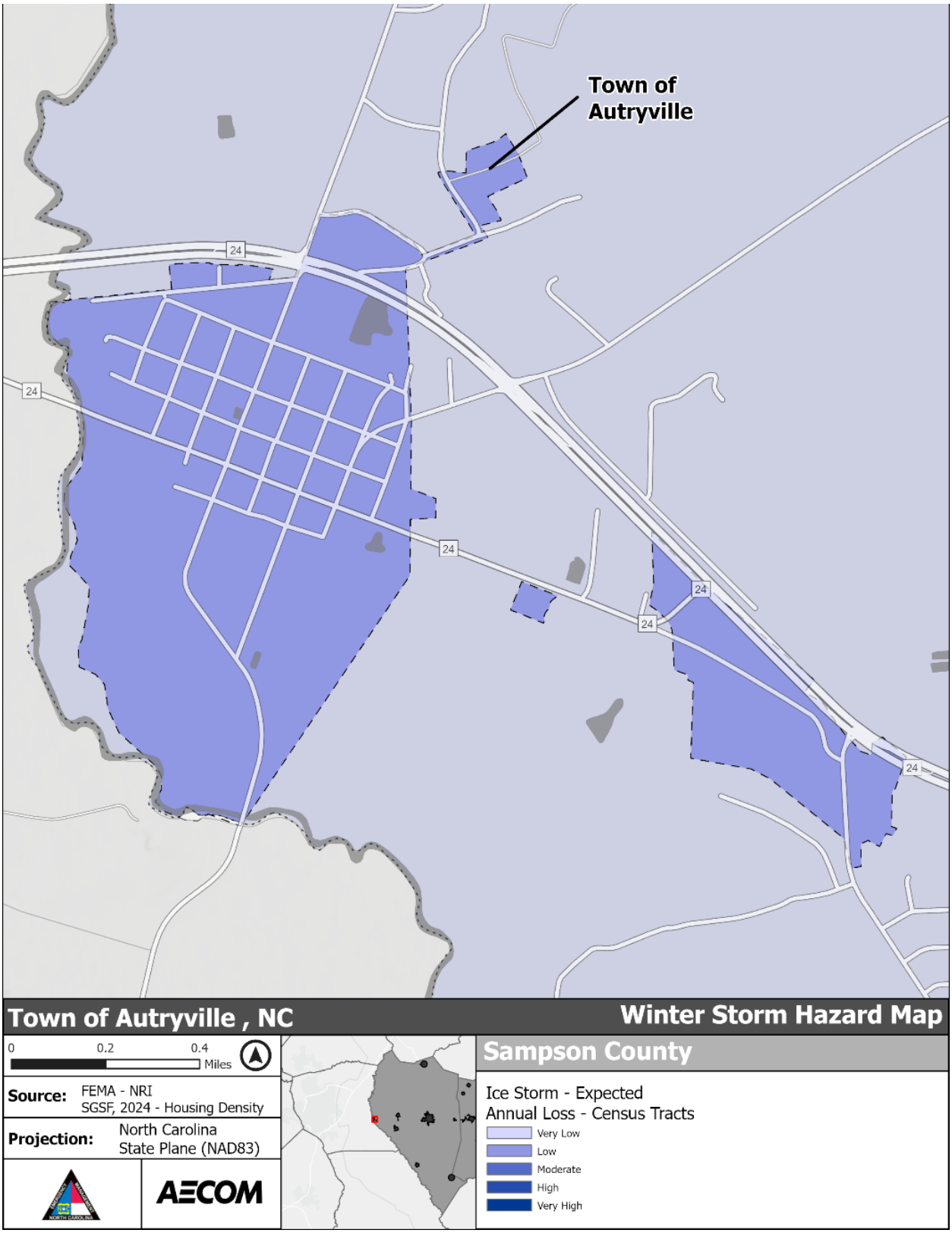


***Figure 5-196**: Town of Autryville Ice Storm Hazard Map*

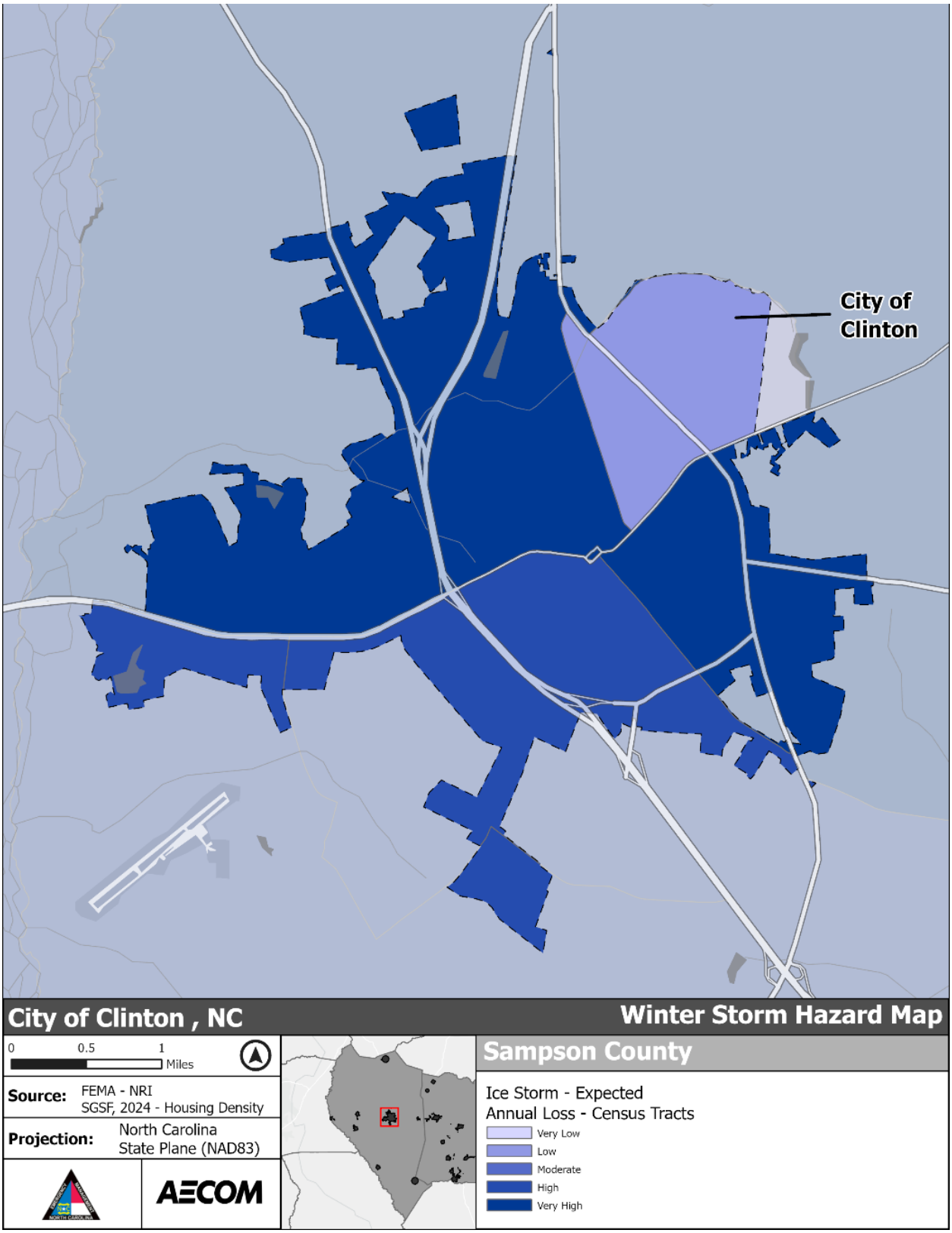


***Figure 5-197**: City of Clinton Ice Storm Hazard Map*

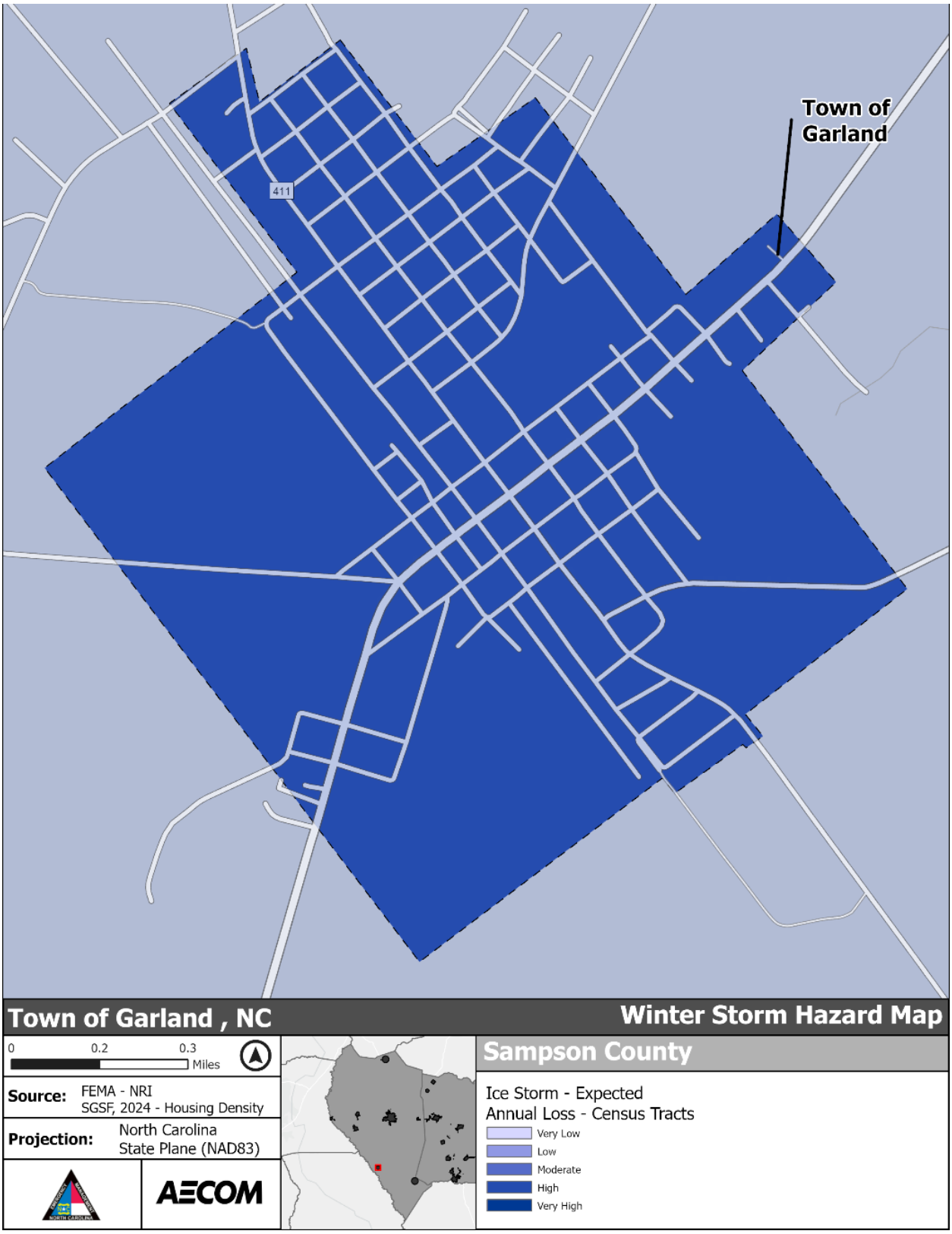


***Figure 5-198**: Town of Garland Ice Storm Hazard Map*

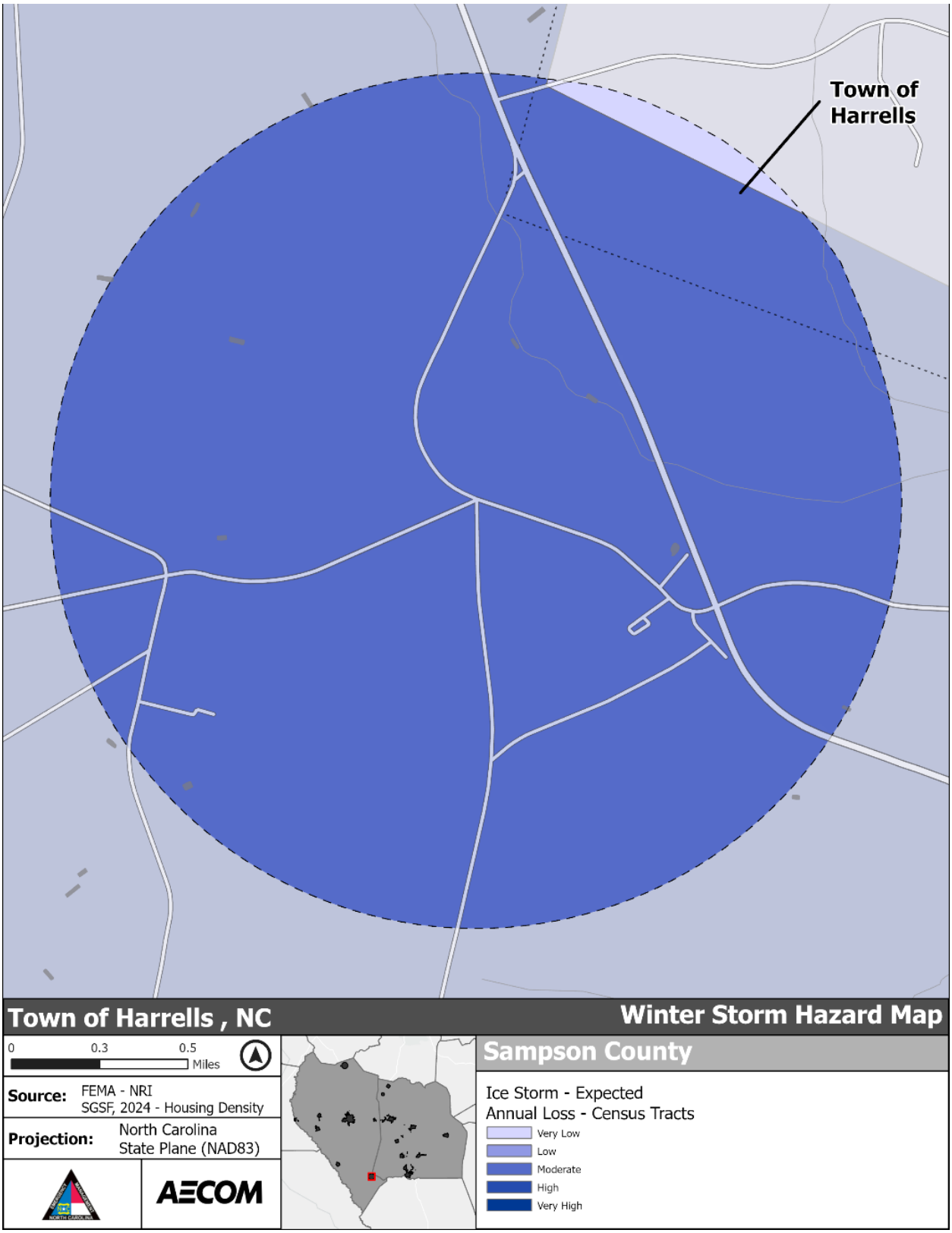


***Figure 5-199**: Town of Harrells Ice Storm Hazard Map*



***Figure 5-200**: Town of Newton Grove Ice Storm Hazard Map*

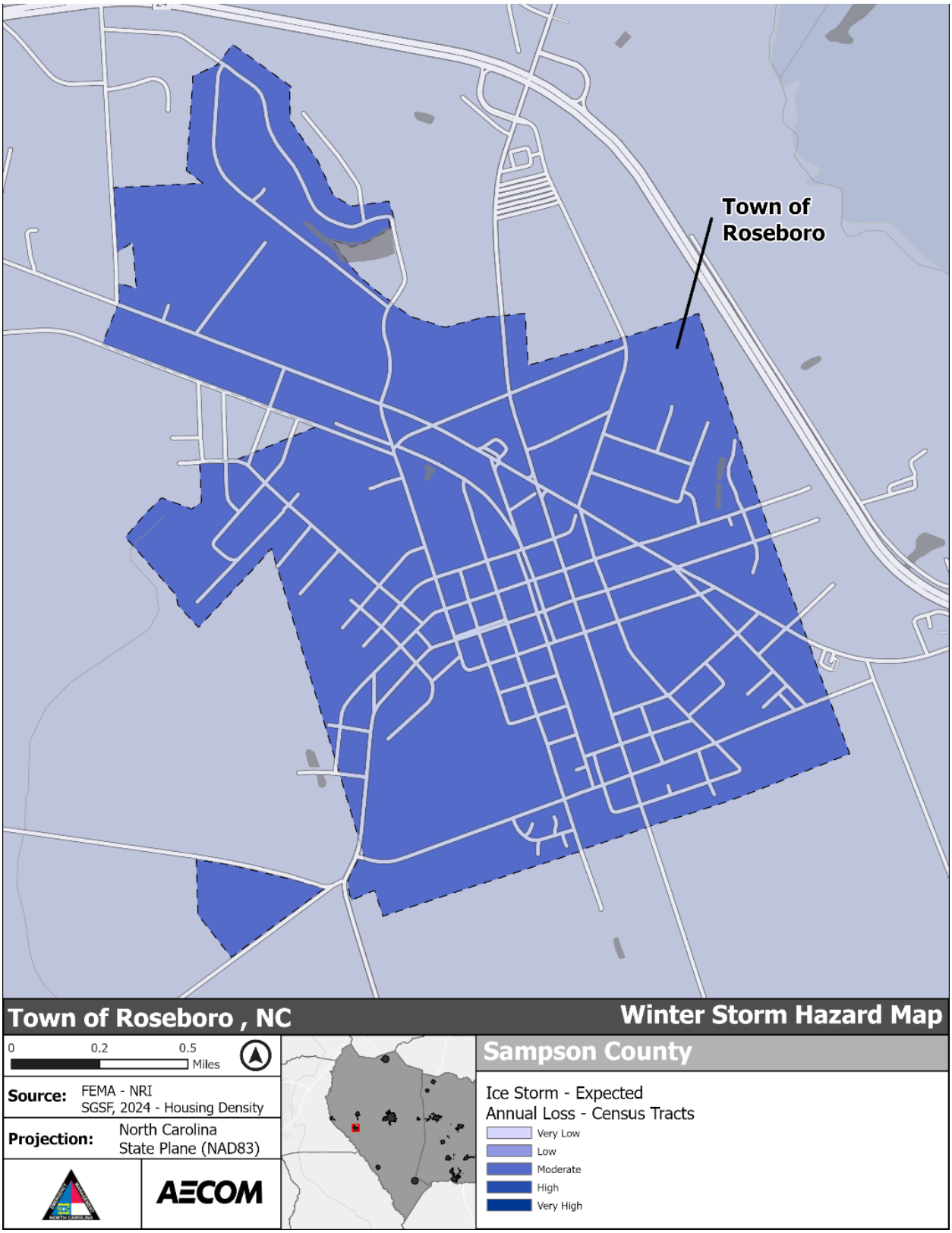


***Figure 5-201**: Town of Roseboro Ice Storm Hazard Map*

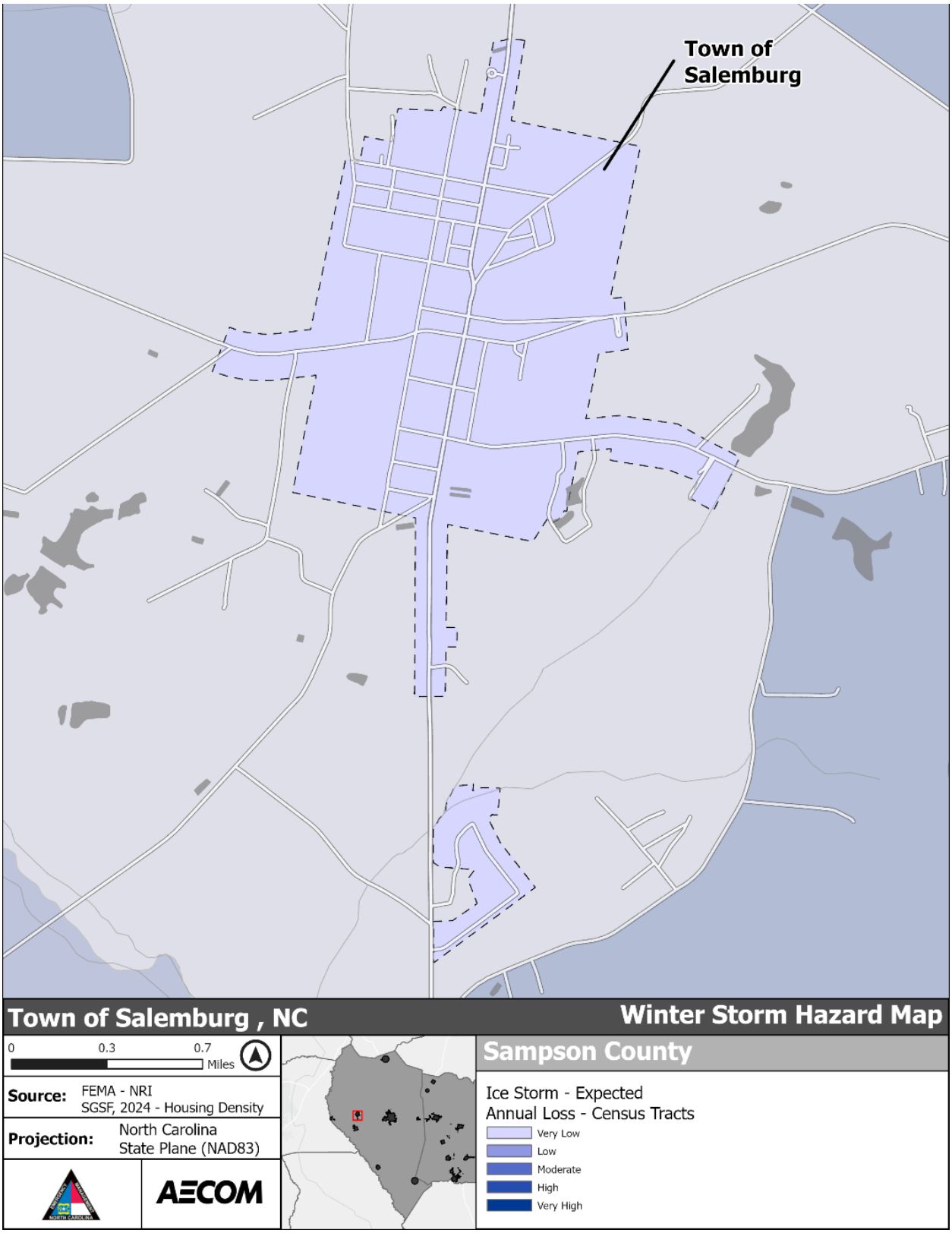


***Figure 5-202**: Town of Salemburg Ice Storm Hazard Map*



***Figure 5-203**: Town of Turkey Ice Storm Hazard Map*

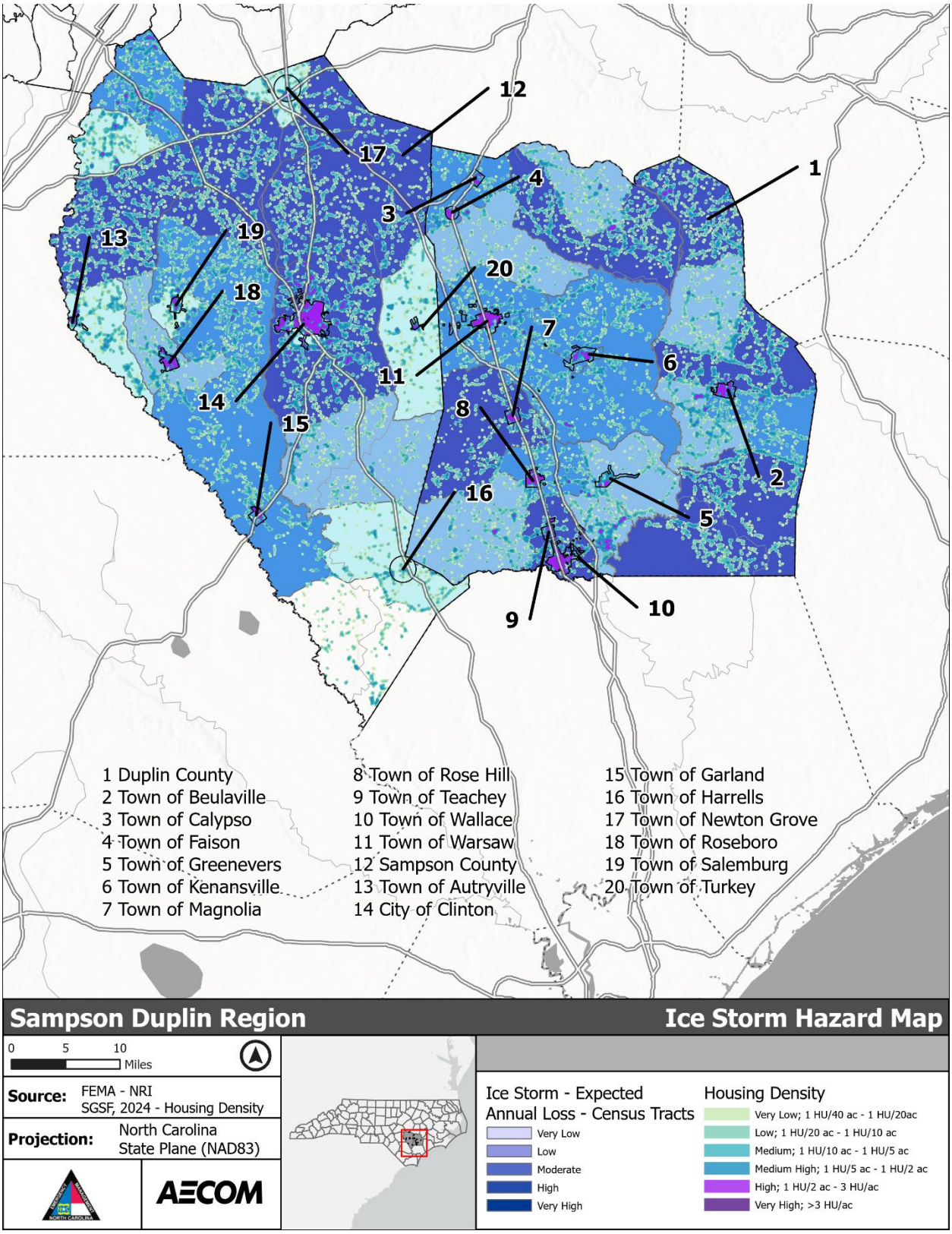


***Figure 5-204**: Sampson Duplin Winter Weather Hazard Map – Regional*

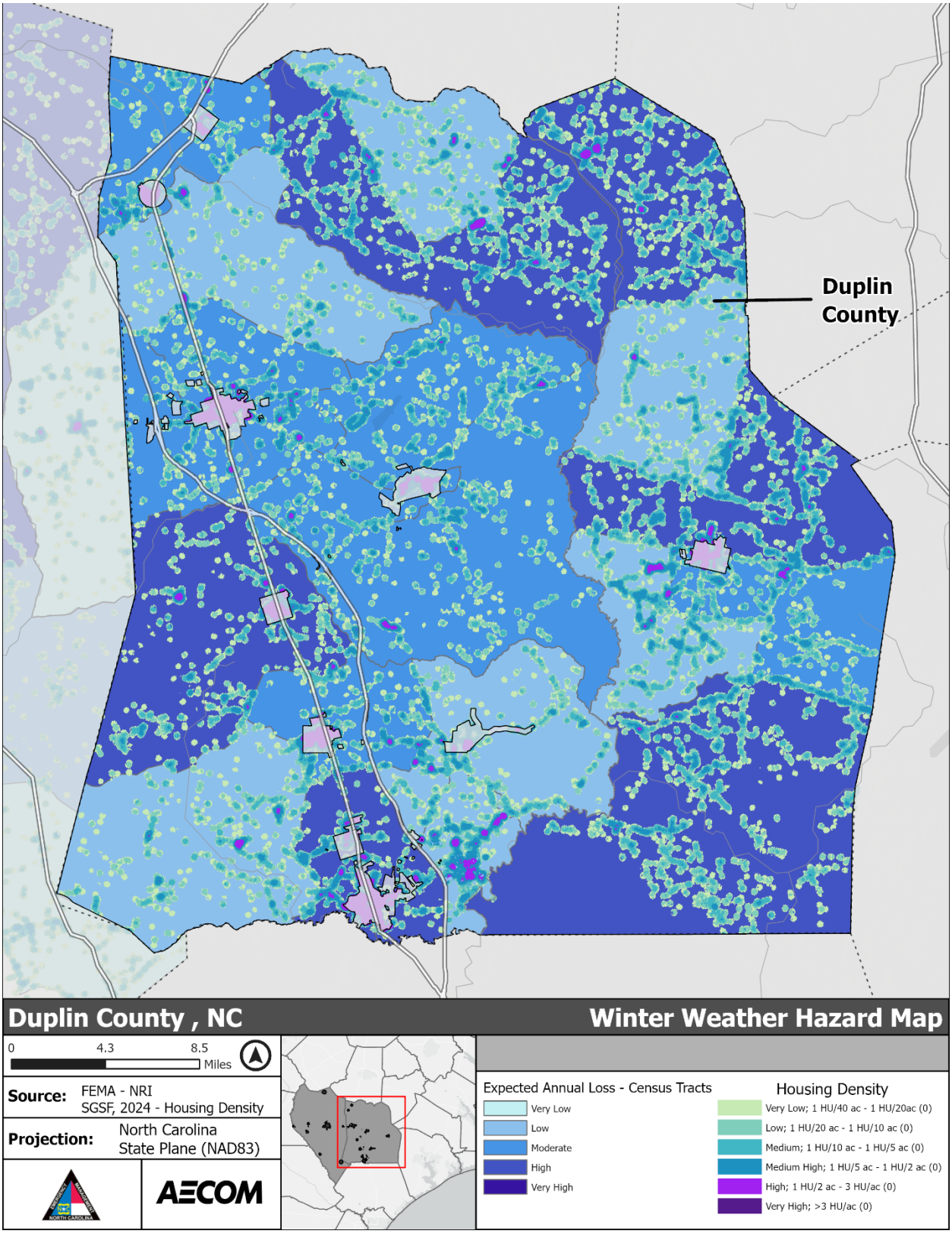


Figure 5-205: Duplin County Winter Weather Hazard Map

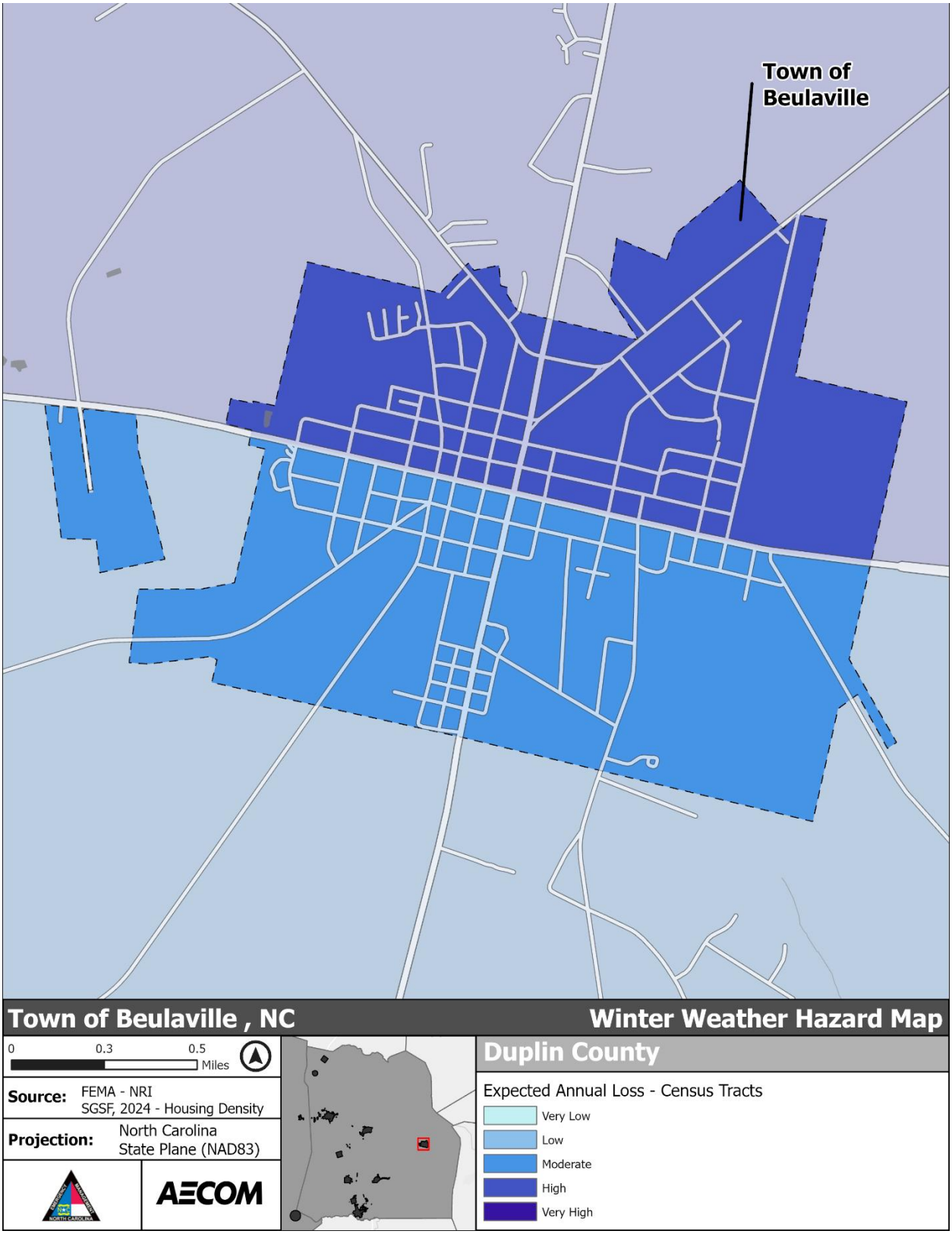


Figure 5-206: Town of Beulaville Winter Weather Hazard Map

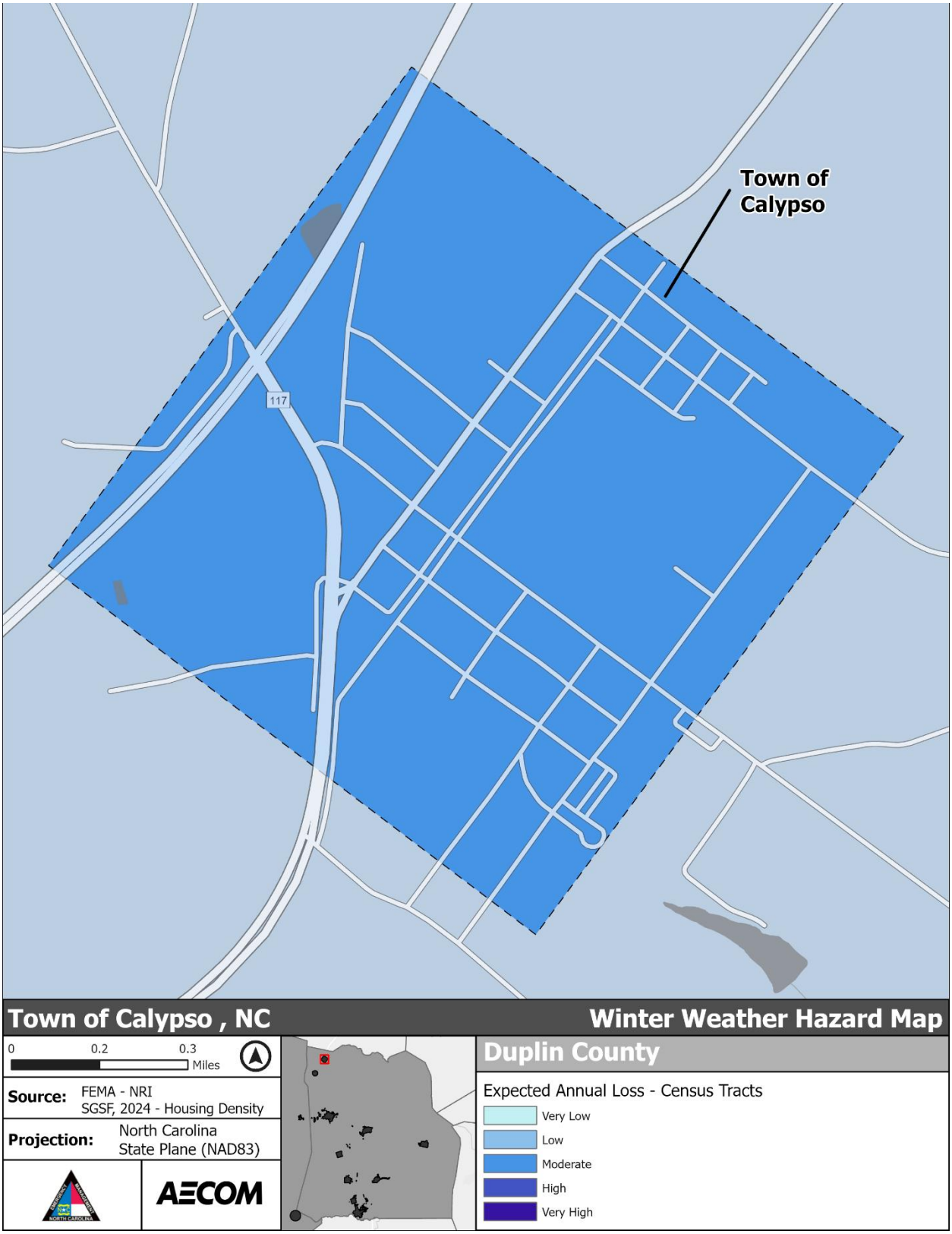


Figure 5-207: Town of Calypso Winter Weather Hazard Map

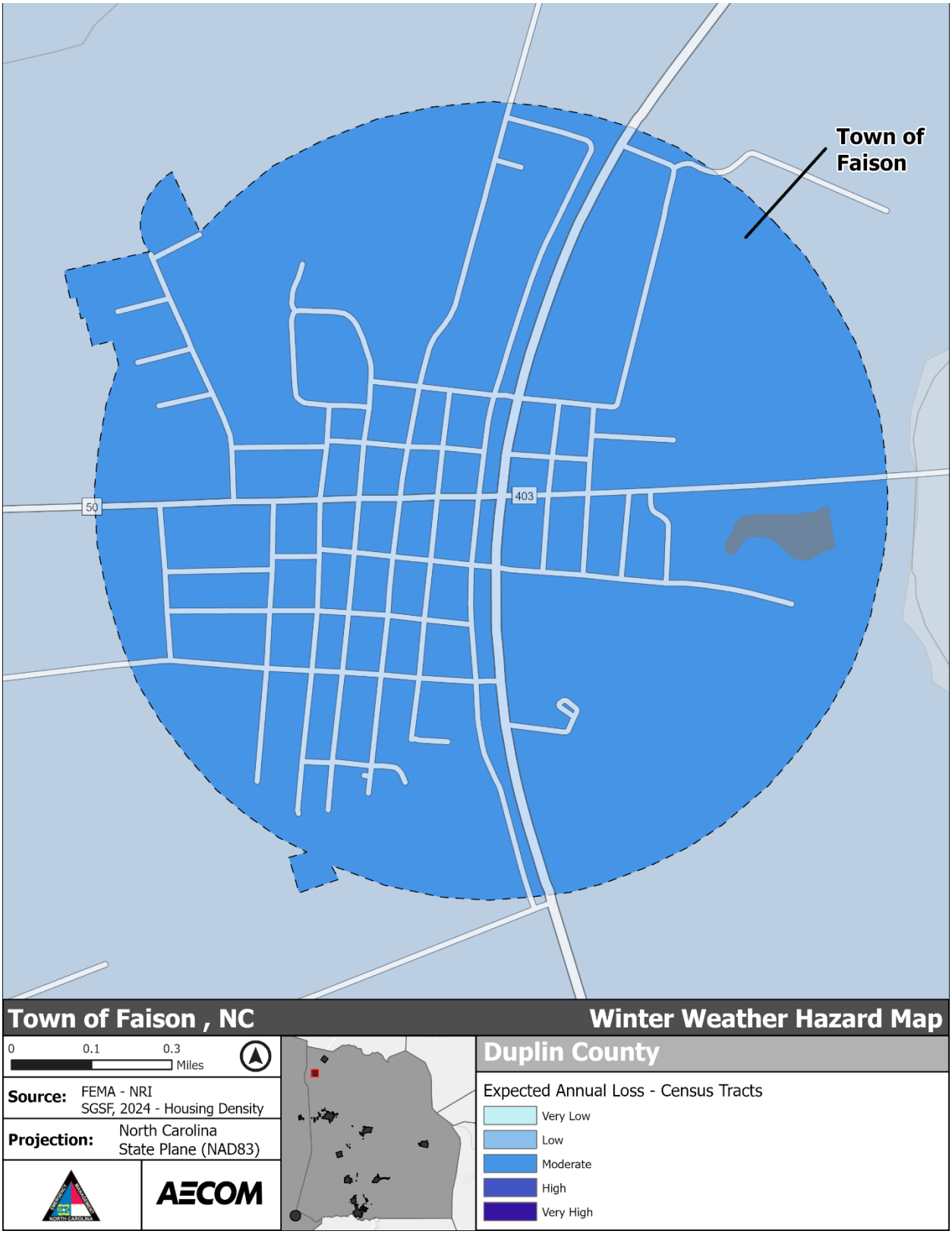


Figure 5-208: Town of Faison Winter Weather Hazard Map

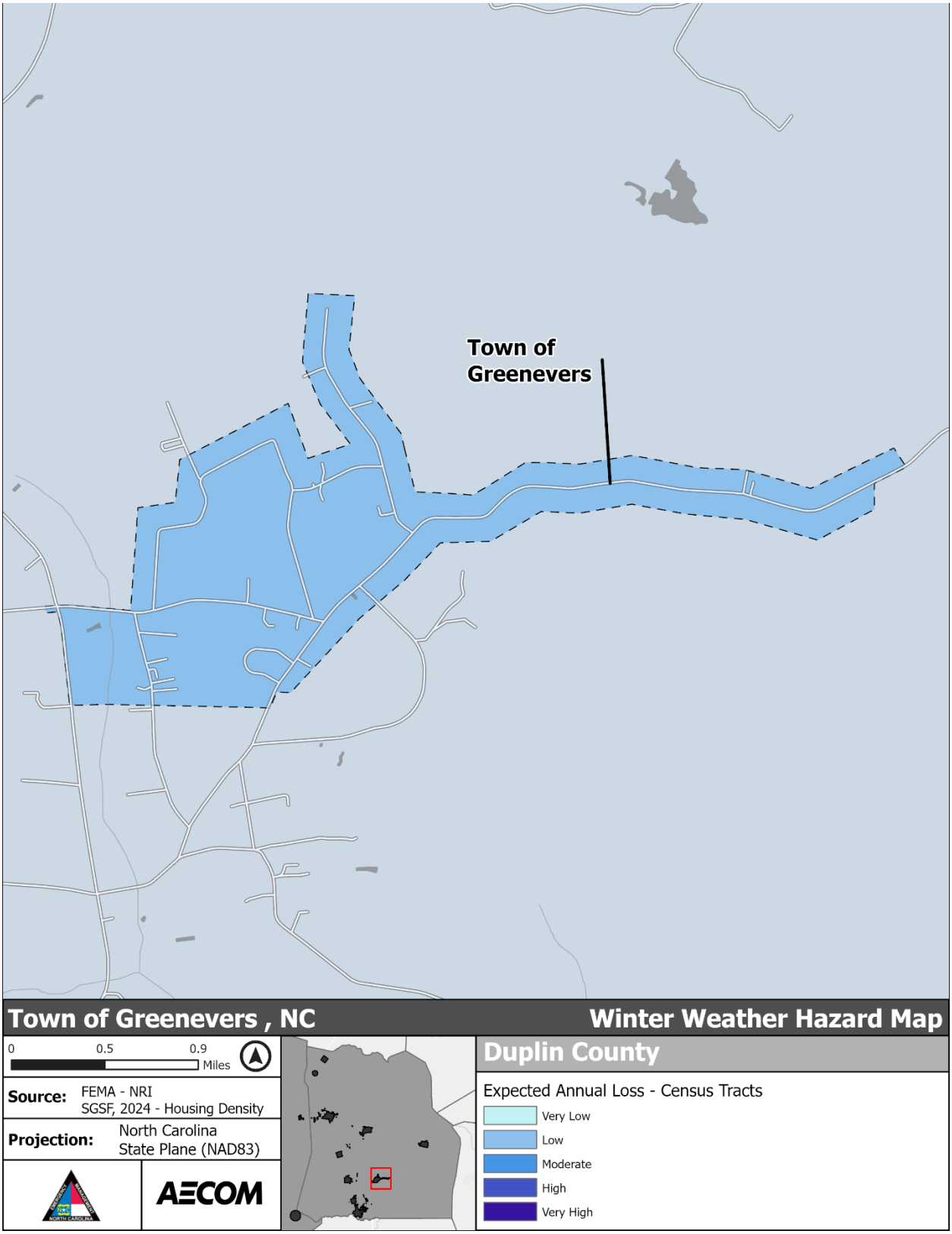


Figure 5-209: Town of Greenevers Winter Weather Hazard Map

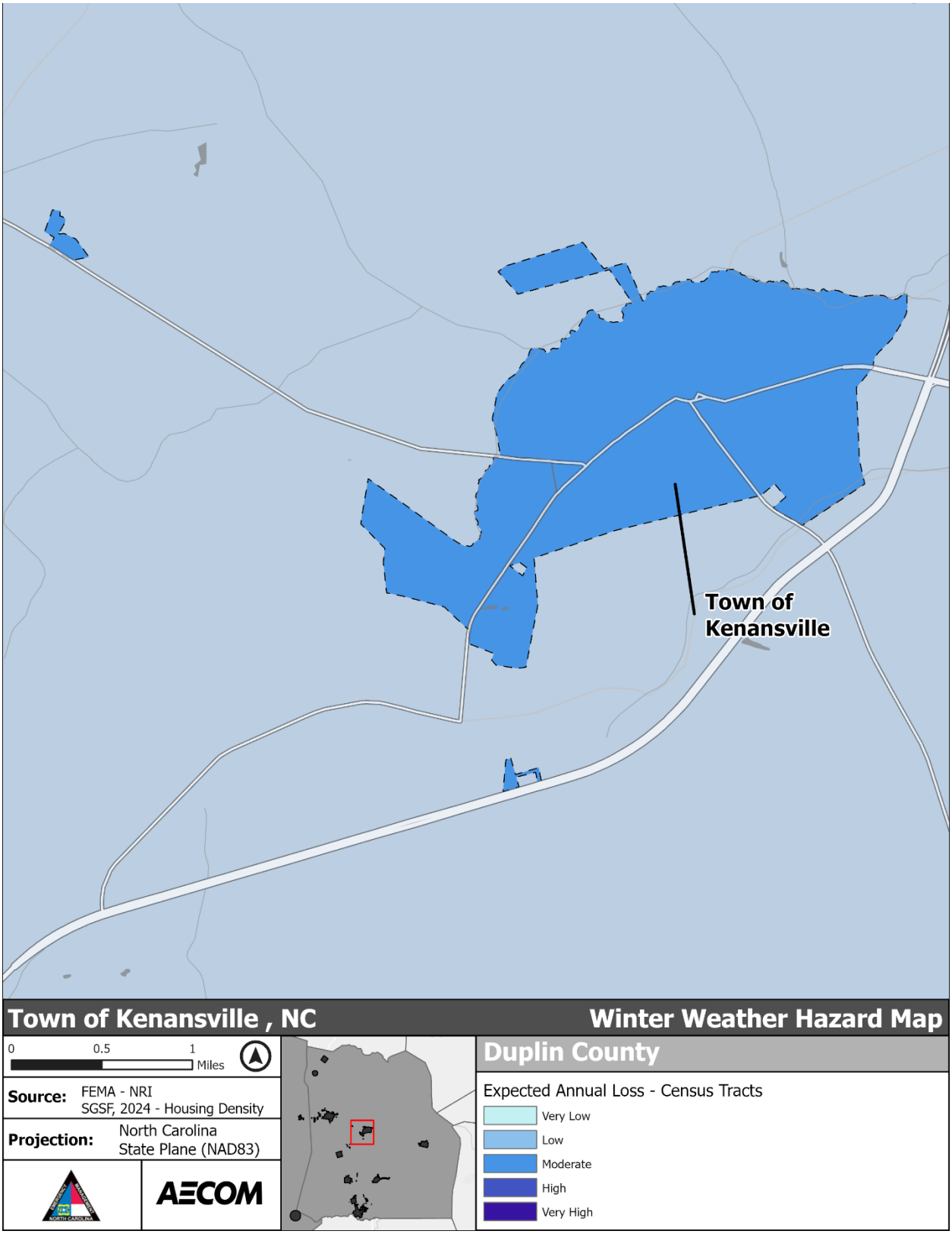


Figure 5-210: Town of Kenansville Winter Weather Hazard Map

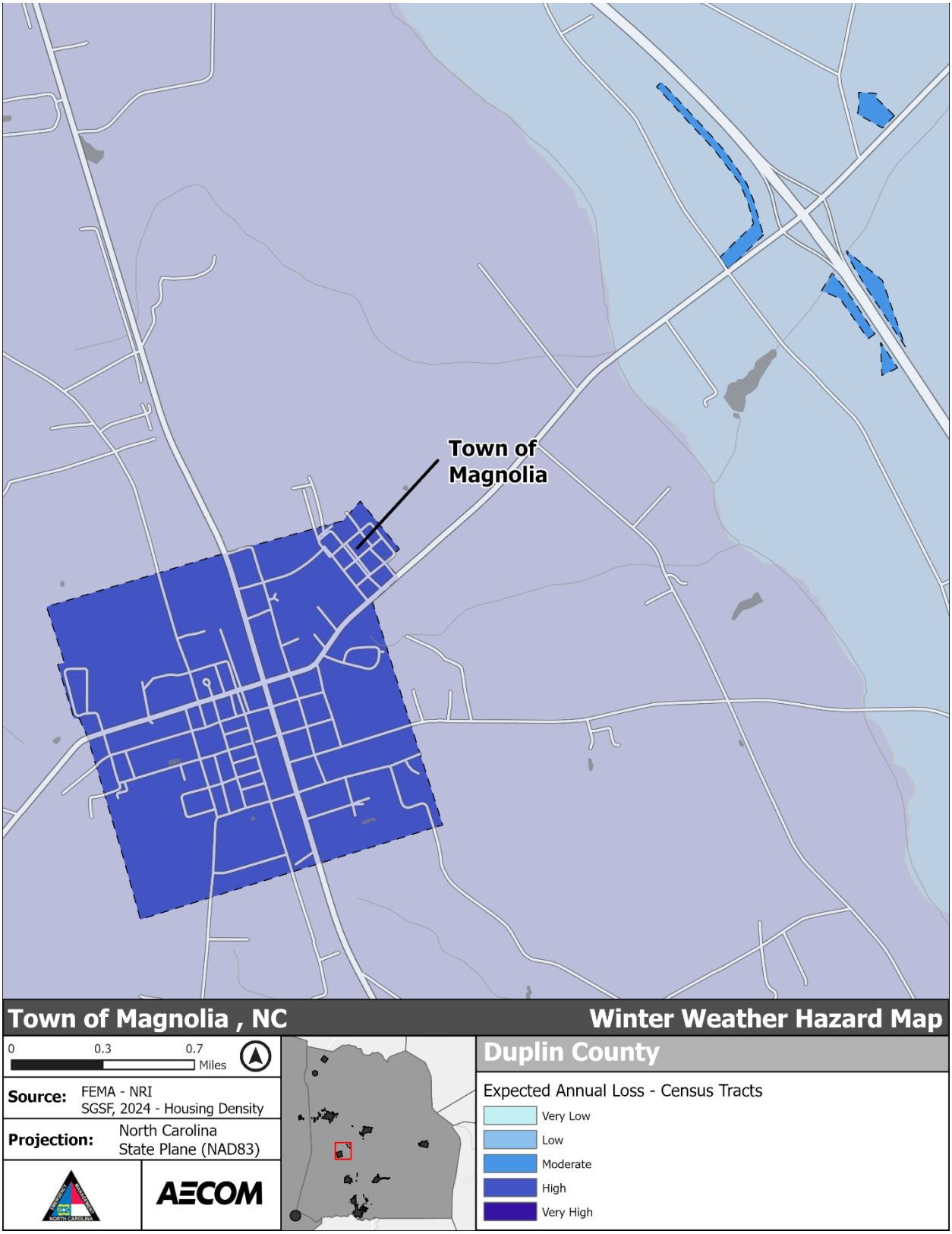


Figure 5-211: Town of Magnolia Winter Weather Hazard Map

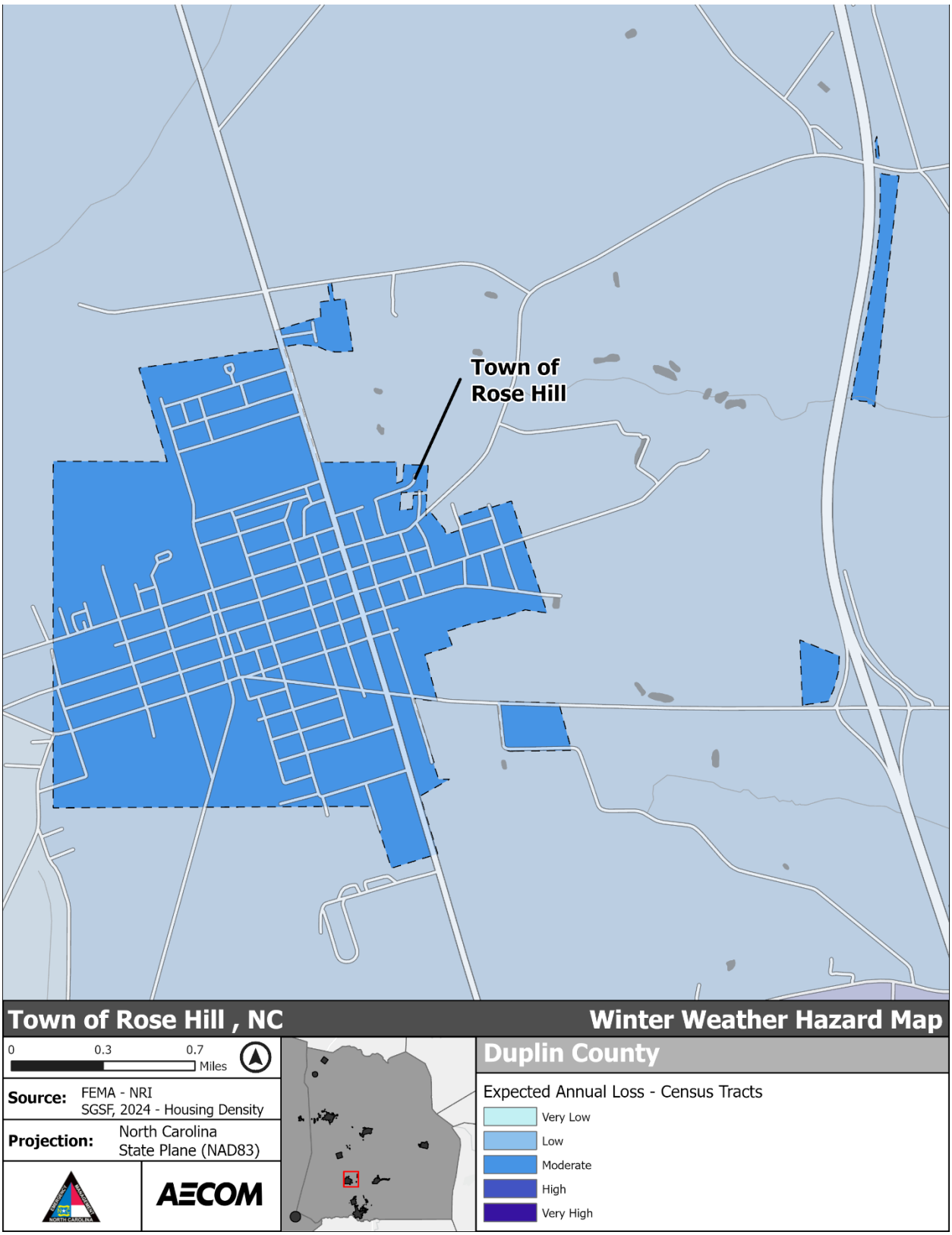


Figure 5-212: Town of Rose Hill Winter Weather Hazard Map

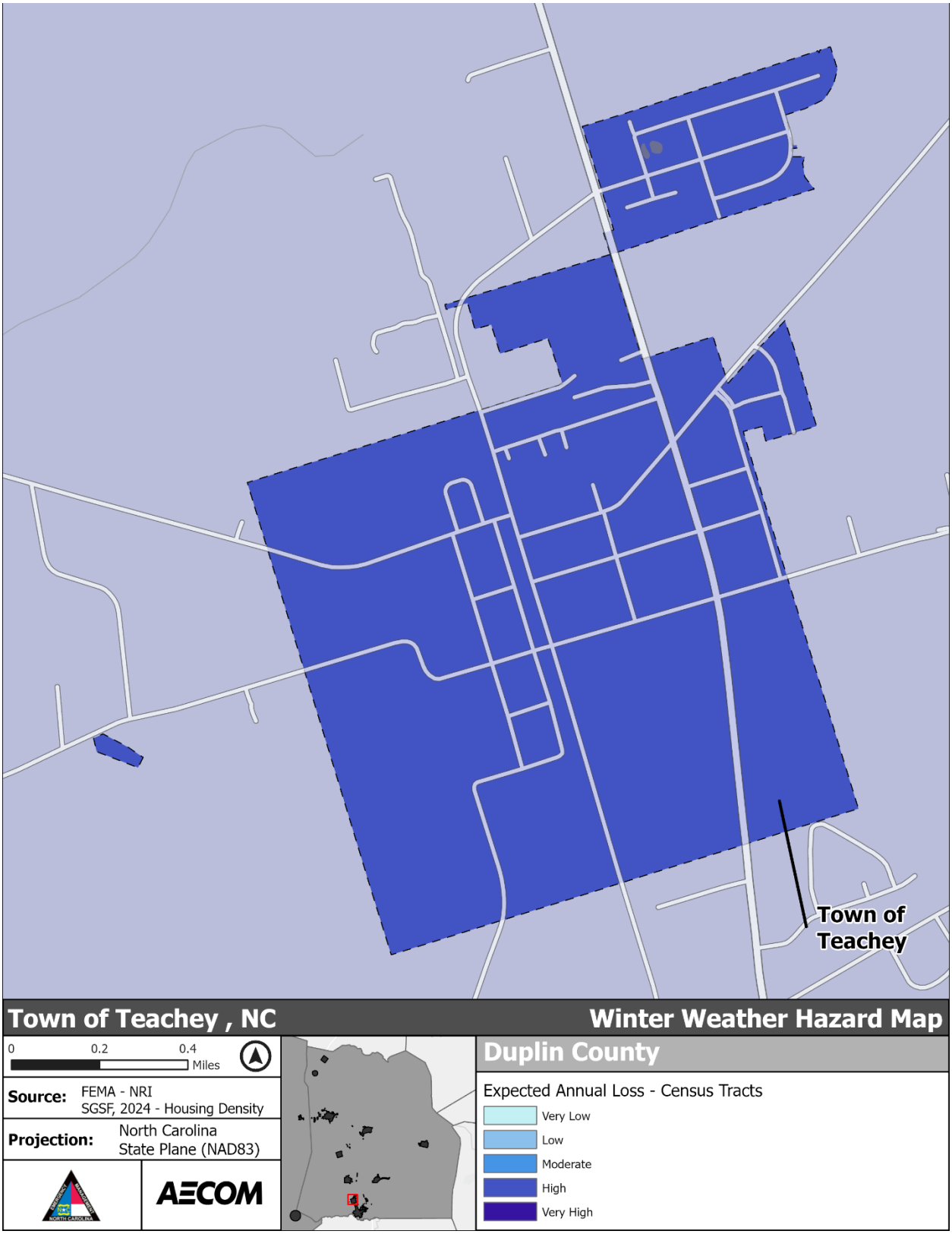


Figure 5-213: Town of Teachey Winter Weather Hazard Map

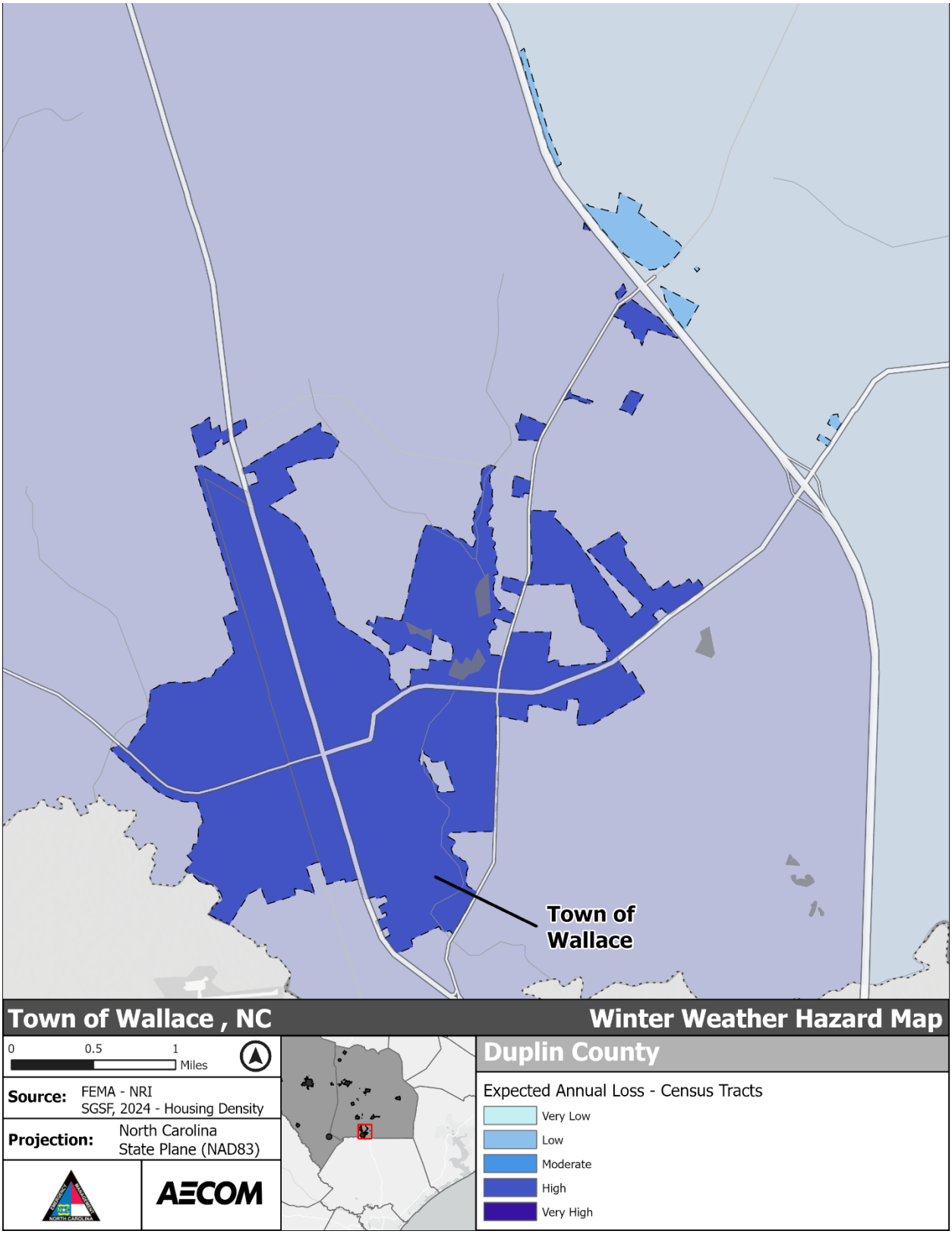


Figure 5-214: Town of Wallace Winter Weather Hazard Map

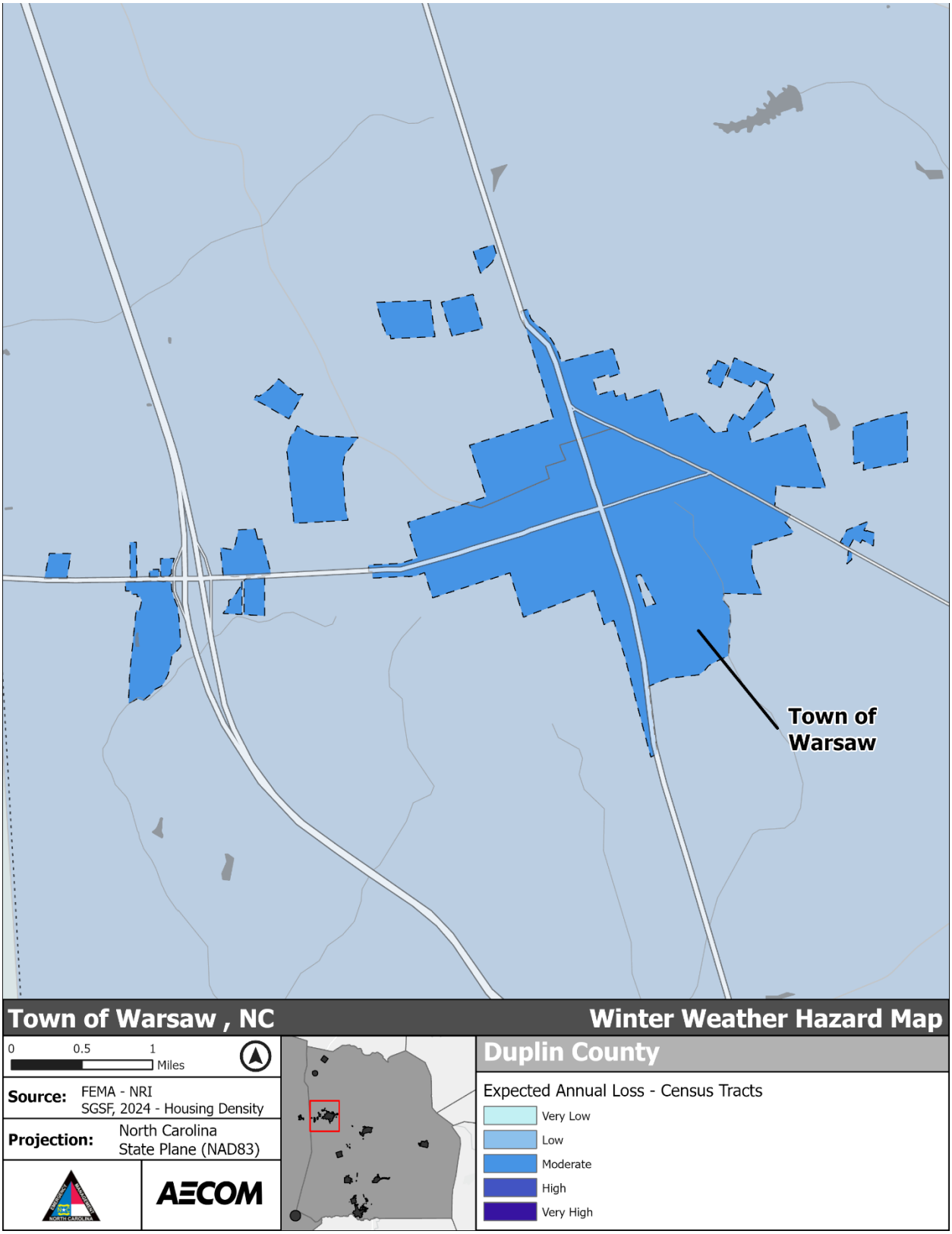


Figure 5-215: Town of Warsaw Winter Weather Hazard Map

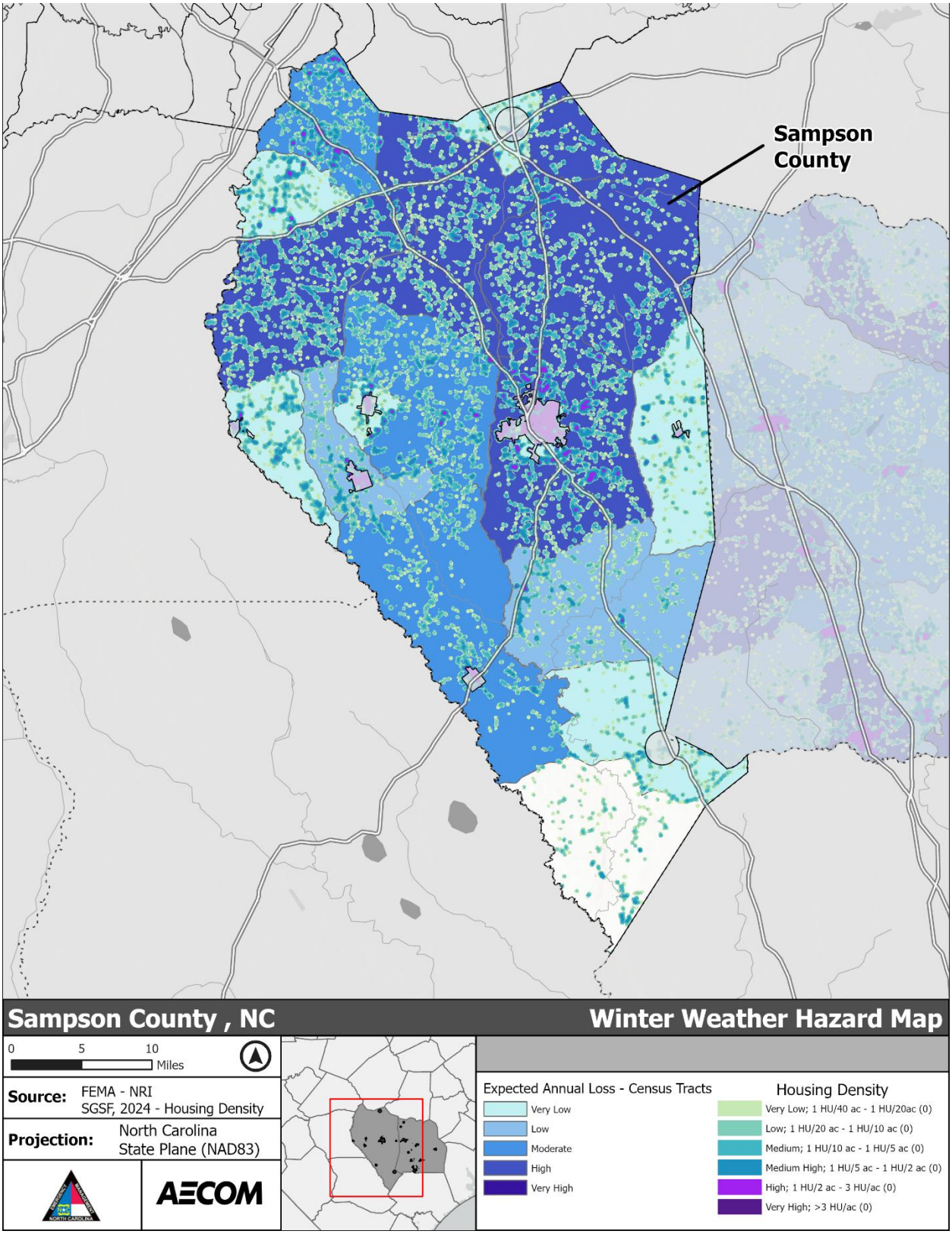


Figure 5-216: Sampson County Winter Weather Hazard Map

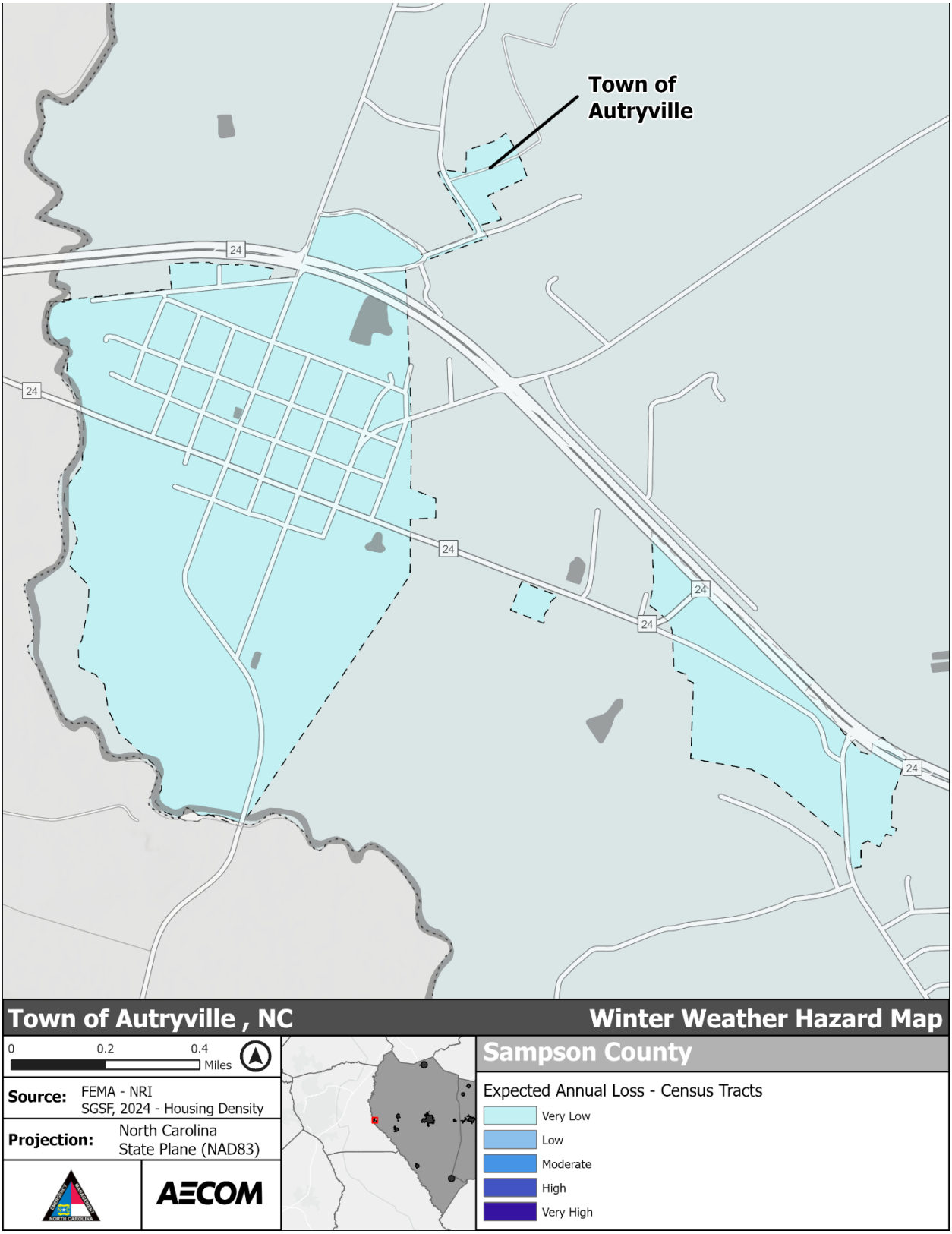


Figure 5-217: Town of Autryville Winter Weather Hazard Map

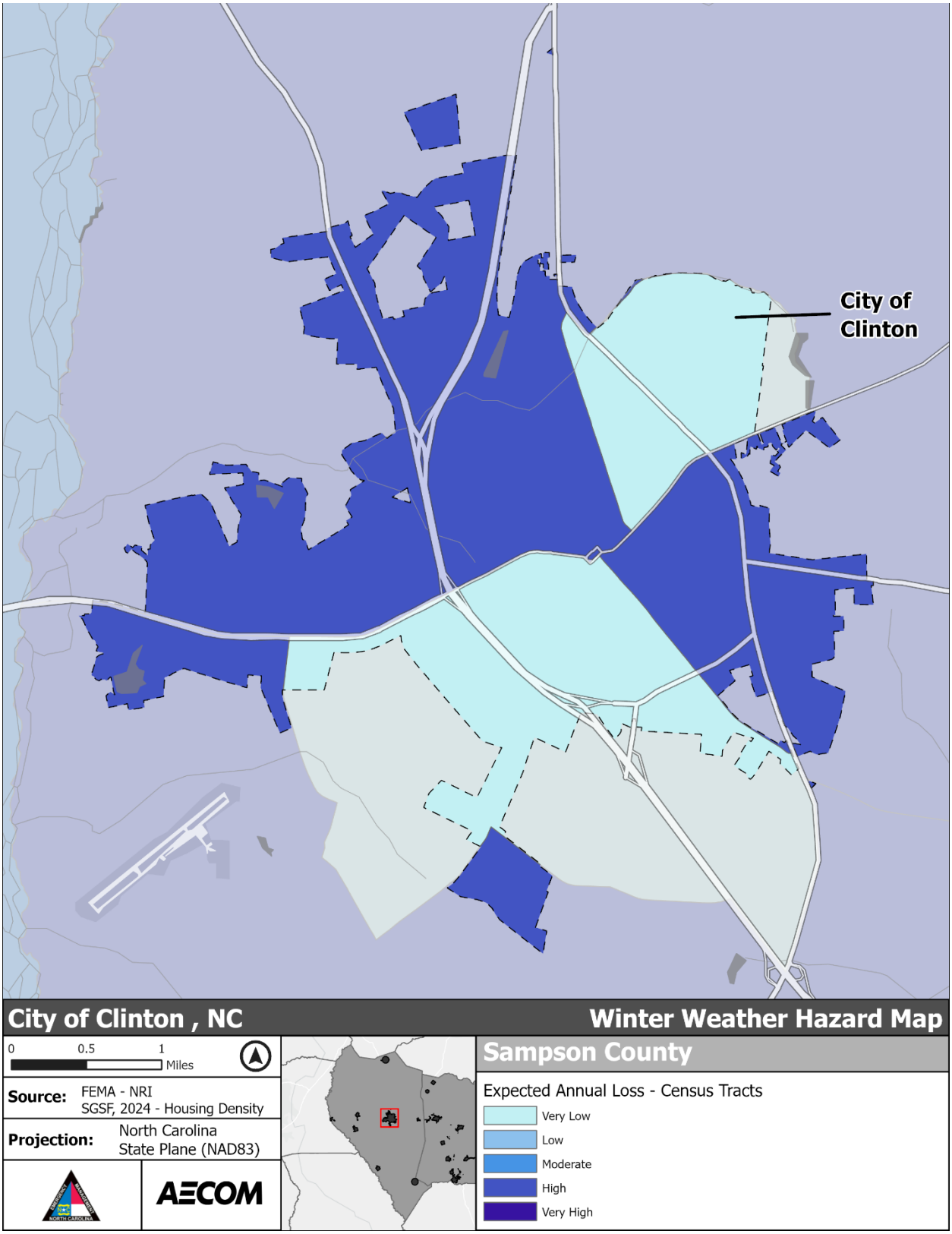


Figure 5-218: City of Clinton Winter Weather Hazard Map

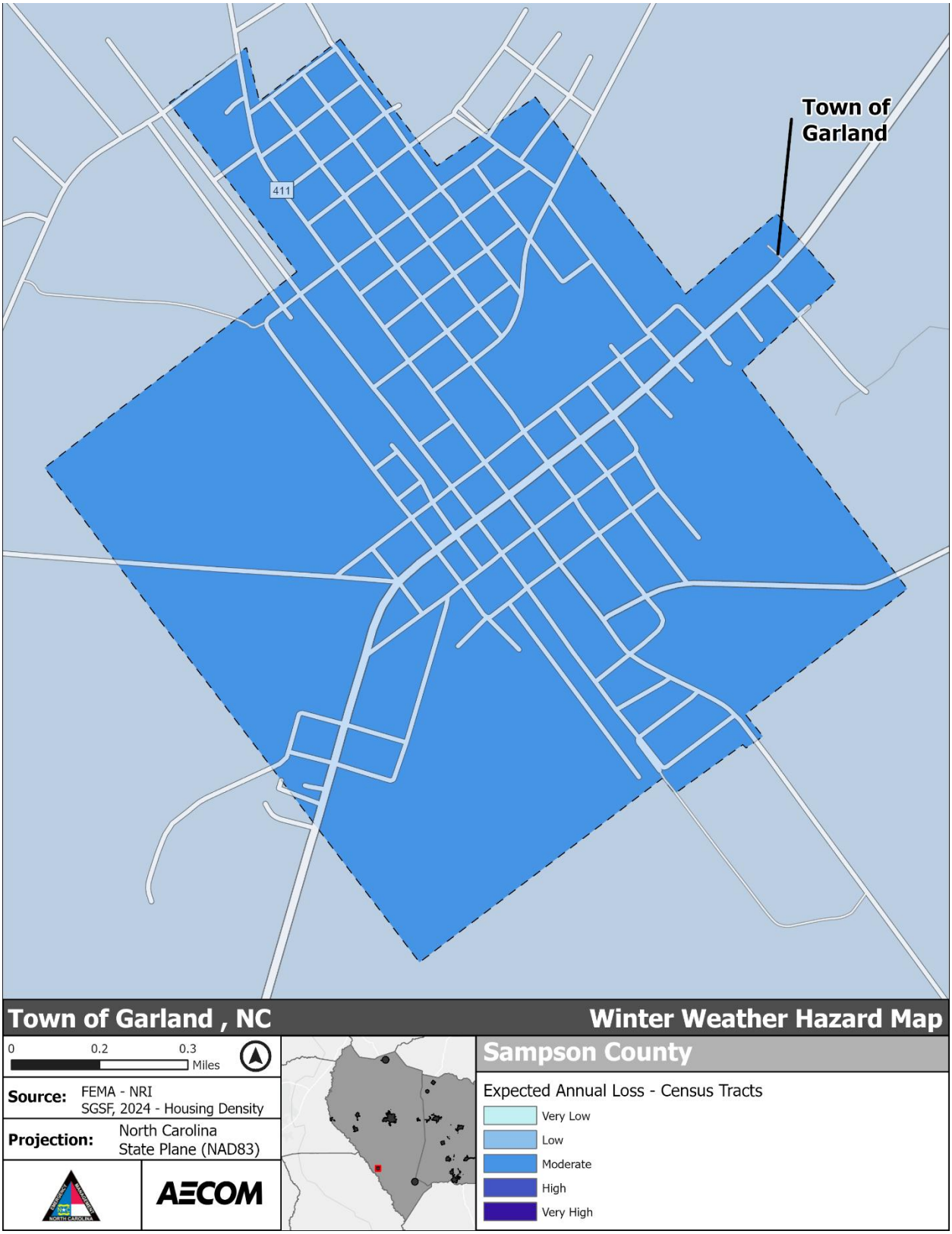


Figure 5-219: Town of Garland Winter Weather Hazard Map

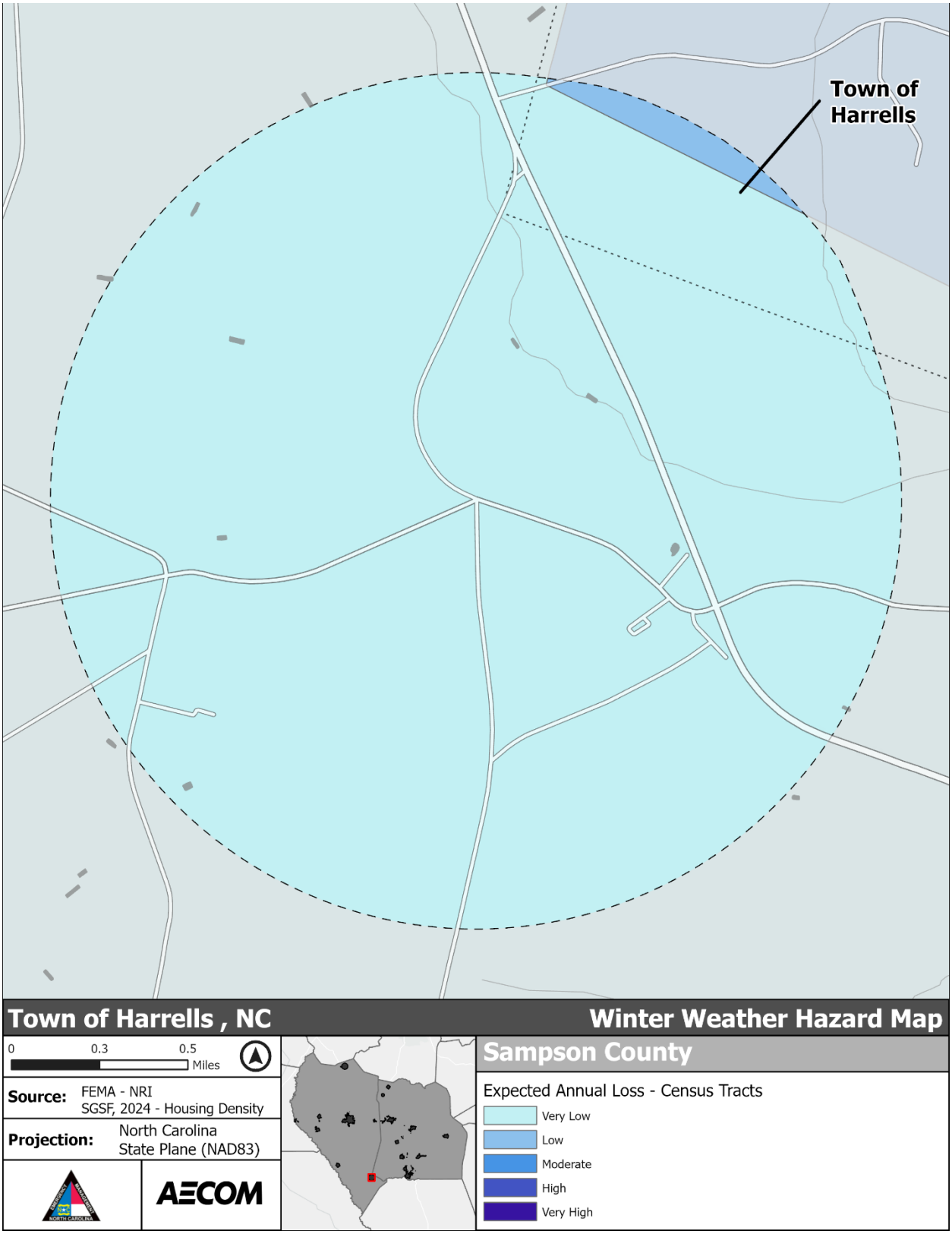


Figure 5-220: Town of Harrells Winter Weather Hazard Map

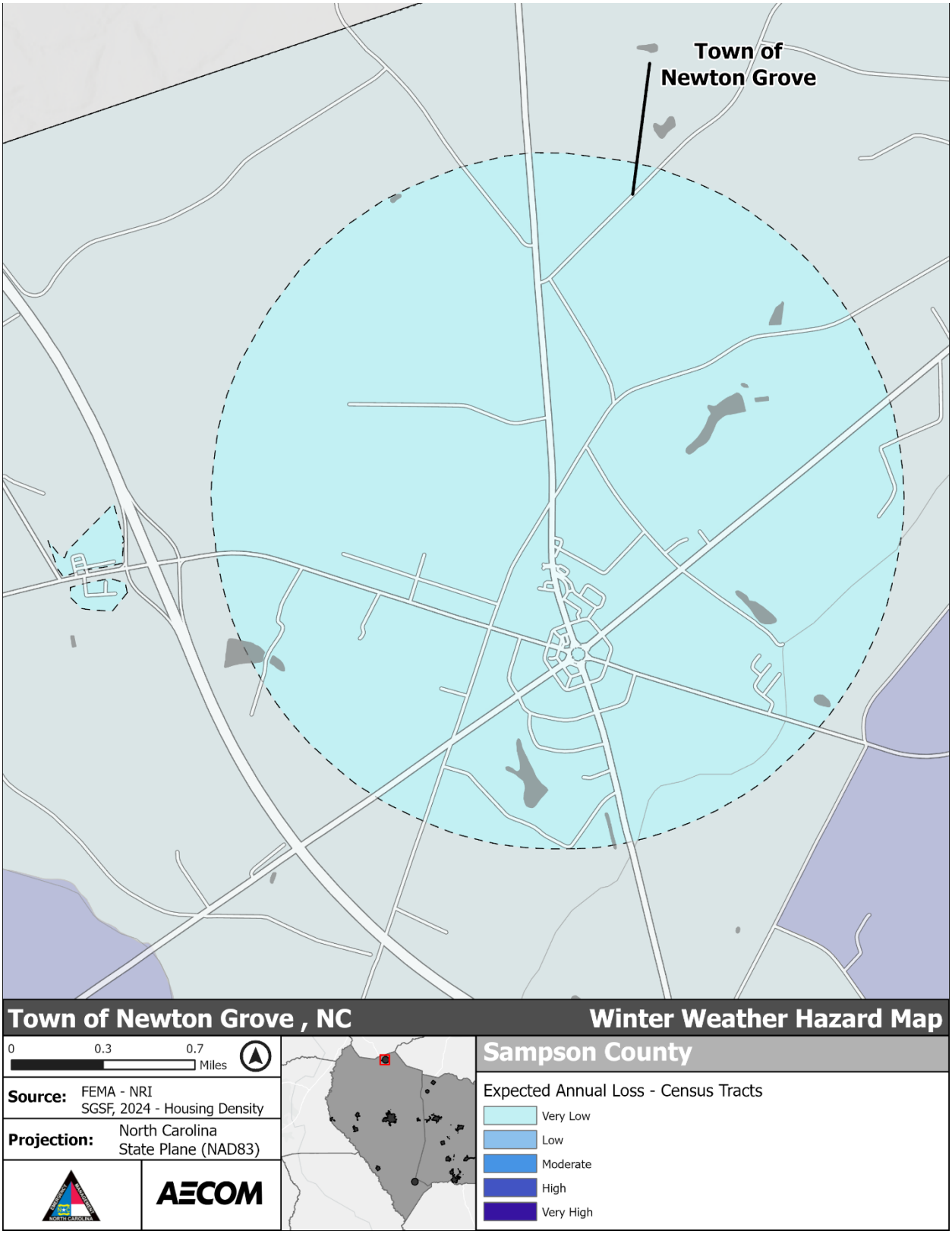


Figure 5-221: Town of Newton Grove Winter Weather Hazard Map

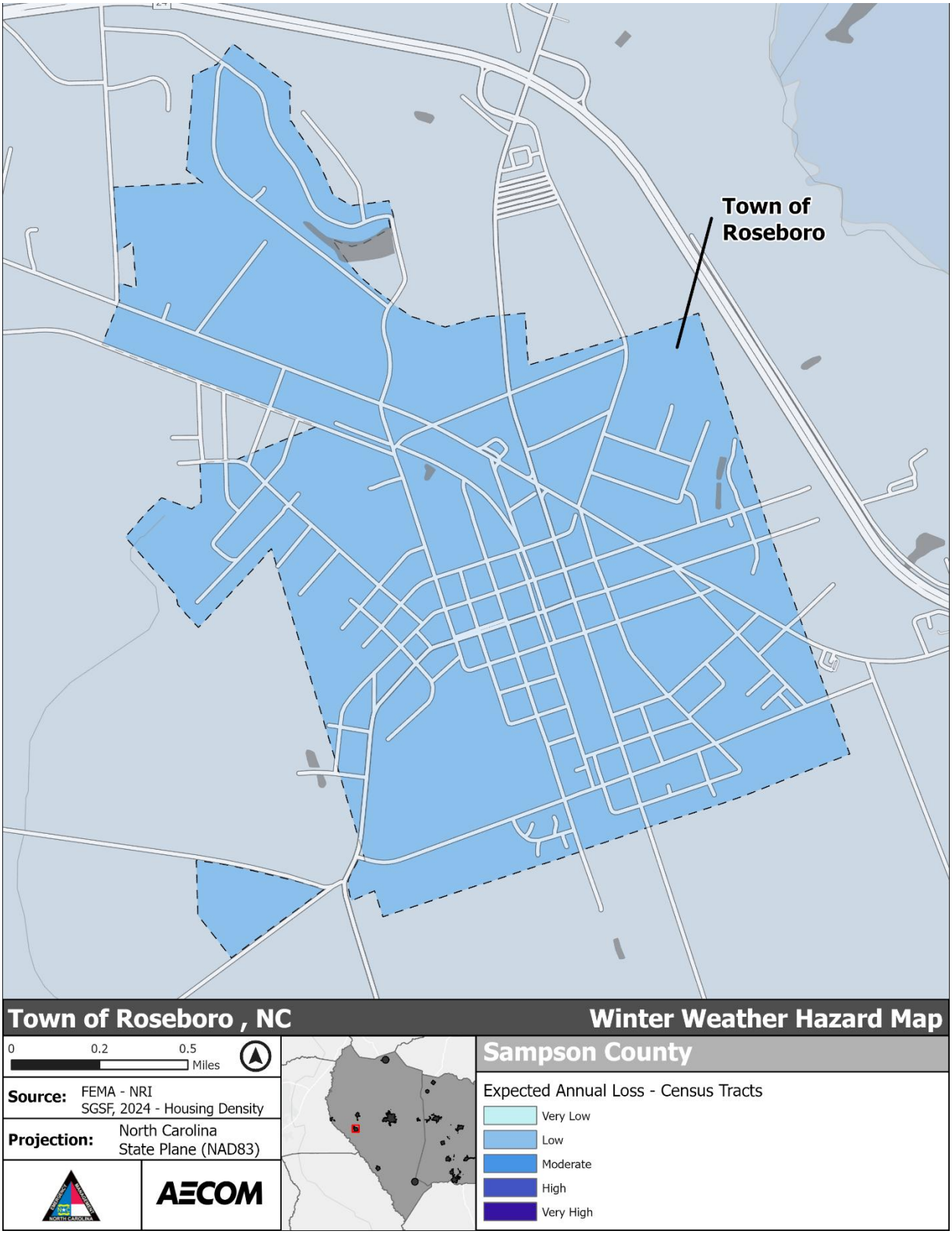


Figure 5-222: Town of Roseboro Winter Weather Hazard Map

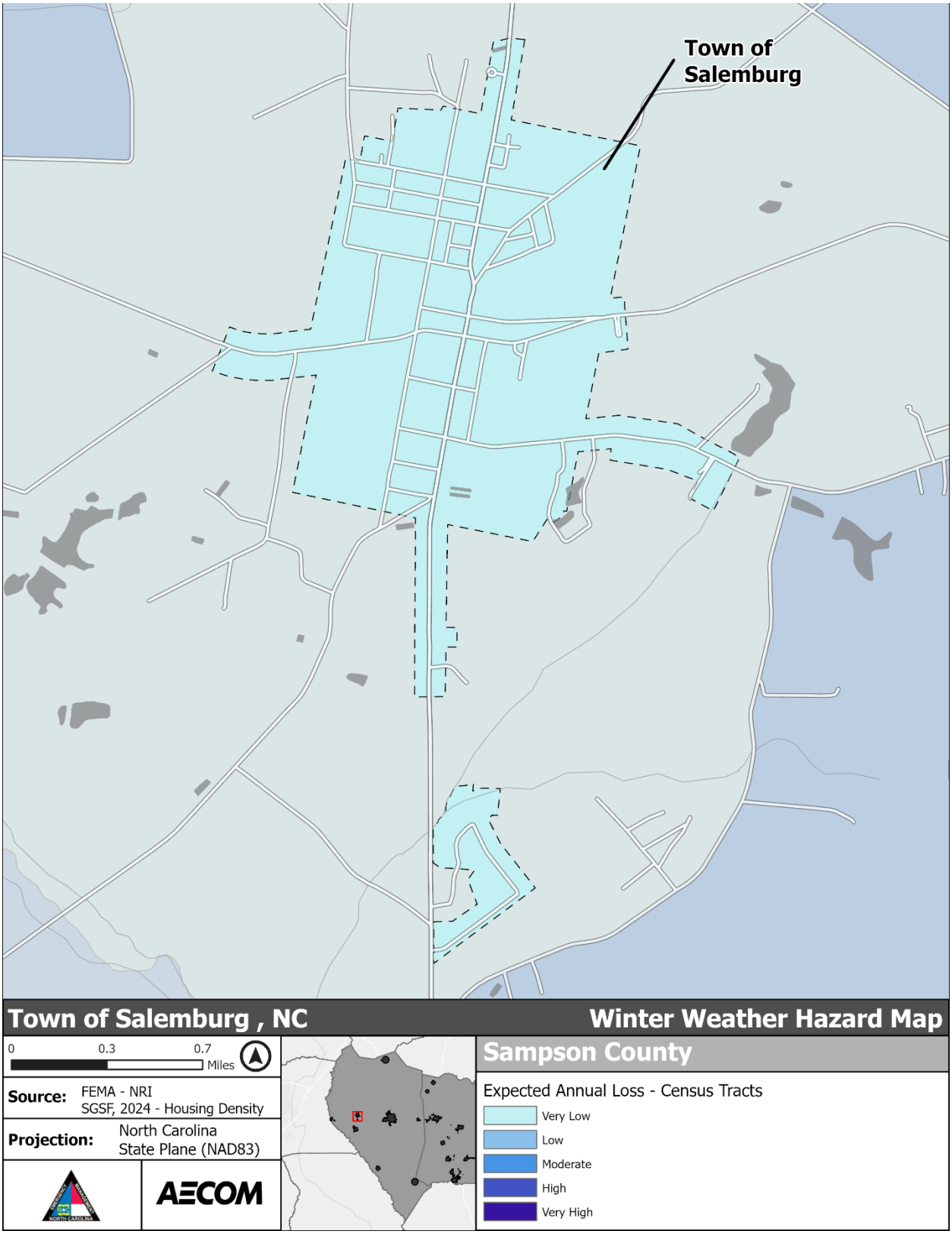


Figure 5-223: Town of Salemburg Winter Weather Hazard Map

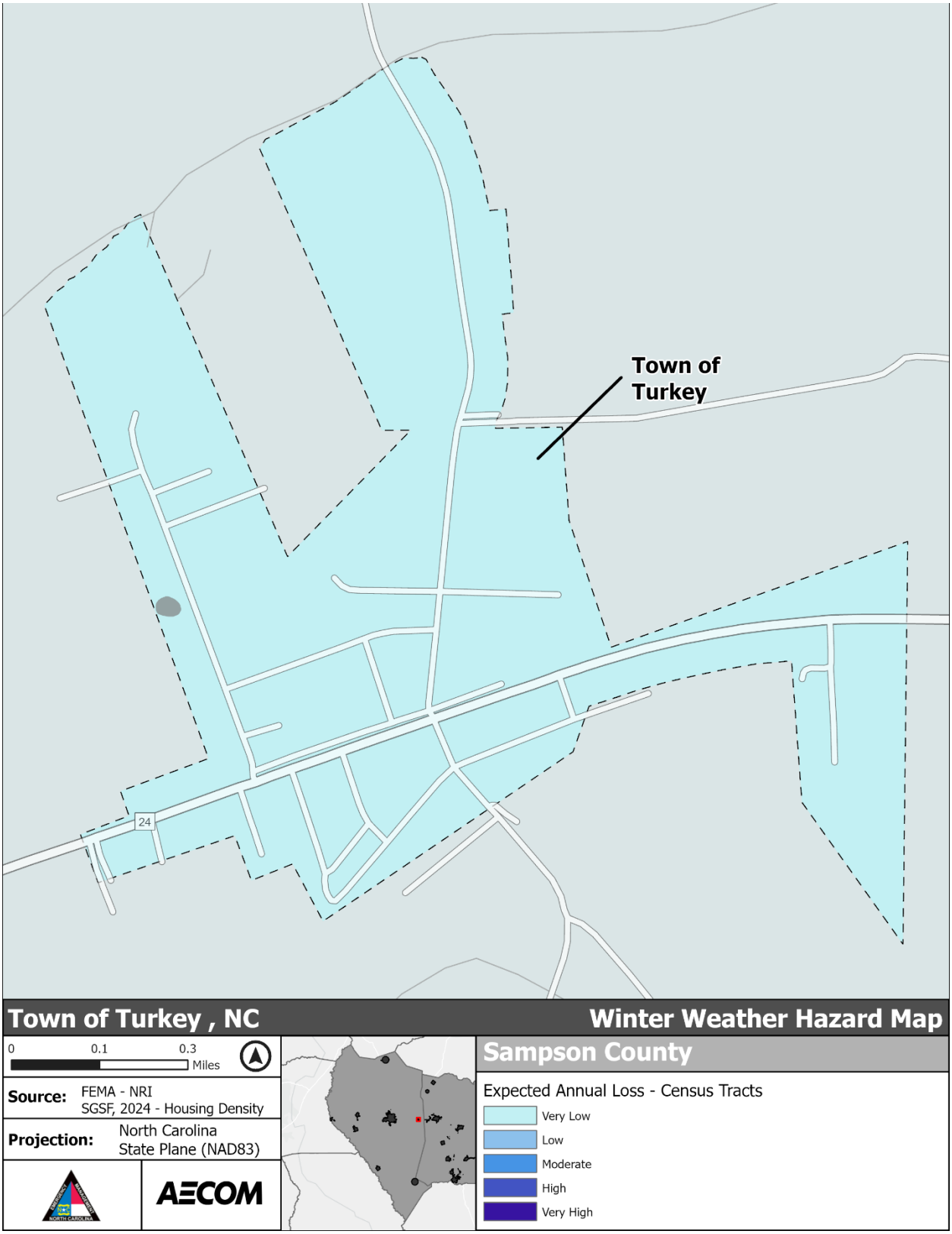


Figure 5-224: Town of Turkey Winter Weather Hazard Map

5.11.3 Extent

Table 5-55 shows the worst recorded winter storm events in the region.

Table 5-55: Sampson-Duplin Maximum Snowfall from the NCEI Snowfall Extremes[112]

County	Jurisdiction	Maximum Snowfall Data	Date
Sampson County	Clinton	10	12/24/1989
Duplin County	Kenansville	22	3/2/1927

5.11.4 Past Occurrences

According to NCDC, the Region has experienced 51 winter storm events since 1996, reported in Table 5-56. These events are reported to have caused one death and five injuries.

Table 5-56: Winter Storm Events in the Region (1996-Present)

Location	Date	Type	Deaths	Injuries	Property Damage	Crop Damage
DUPLIN (ZONE)	2/3/1996	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	1/19/1998	Winter Storm	0	**5**	0.00K	0.00K
DUPLIN (ZONE)	1/27/1998	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	2/3/1998	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/18/2000	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/20/2000	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/22/2000	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/24/2000	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/28/2000	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	12/3/2000	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	1/2/2002	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/3/2002	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	1/23/2003	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	1/9/2004	Winter Weather	0	0	0.00K	0.00K
DUPLIN (ZONE)	1/25/2004	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/26/2004	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	1/26/2004	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	2/16/2004	Winter Weather	0	0	0.00K	0.00K
DUPLIN (ZONE)	2/26/2004	Winter Weather	0	0	0.00K	0.00K
SAMPSON (ZONE)	2/26/2004	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	12/20/2004	Winter Weather	0	0	0.00K	0.00K
DUPLIN (ZONE)	12/26/2004	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	12/26/2004	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	2/1/2007	Winter Weather	0	0	0.00K	0.00K
SAMPSON (ZONE)	2/1/2007	Winter Weather	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/20/2009	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/30/2010	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	2/12/2010	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	3/2/2010	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	12/16/2010	Winter Weather	0	0	0.00K	0.00K

[112] National Center for Environmental Information [NCEI]. (n.d.-a). Snowfall Extremes | National Centers for Environmental Information (NCEI) (By National Oceanic and Atmospheric Administration [NOAA]). Retrieved August 28, 2025, from https://www.ncei.noaa.gov/access/monitoring/snowfall-extremes/NC/1

Location	Date	Type	Deaths	Injuries	Property Damage	Crop Damage
DUPLIN (ZONE)	12/16/2010	Winter Weather	**1**	0	0.00K	0.00K
SAMPSON (ZONE)	12/25/2010	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/10/2011	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/21/2014	Winter Weather	0	0	0.00K	0.00K
DUPLIN (ZONE)	1/28/2014	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/28/2014	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	2/11/2014	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	2/11/2014	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	2/12/2014	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	1/9/2015	Winter Weather	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/9/2015	Winter Weather	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/13/2015	Winter Weather	0	0	0.00K	0.00K
SAMPSON (ZONE)	2/16/2015	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	2/24/2015	Winter Weather	0	0	0.00K	0.00K
DUPLIN (ZONE)	2/24/2015	Winter Weather	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/22/2016	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	1/7/2017	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	1/3/2018	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/3/2018	Winter Weather	0	0	0.00K	0.00K
SAMPSON (ZONE)	2/20/2020	Winter Weather	0	0	0.00K	0.00K
DUPLIN (ZONE)	2/20/2020	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/16/2022	Winter Weather	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/21/2022	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	1/21/2022	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/29/2022	Winter Weather	0	0	0.00K	0.00K
DUPLIN (ZONE)	1/21/2025	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	1/21/2025	Winter Storm	0	0	0.00K	0.00K
DUPLIN (ZONE)	2/19/2025	Winter Storm	0	0	0.00K	0.00K
SAMPSON (ZONE)	2/19/2025	Winter Storm	0	0	0.00K	0.00K
Totals:	-	-	**1**	**5**	**0.00K**	**0.00K**

Source: NCDC

The following events are summarized from the NCEI Storm Events Database from the past 5 years of winter weather occurrence:

2/20/2020 Winter Weather:

A cold, high-pressure system arrived from the north and coincided with a mid- and upper-level trough from the west, allowing a winter weather event in North Carolina. As precipitation developed during the day on February 20, colder air continued to move over NC due to a strong high-pressure system over the Great Lakes. A mixture of rain and snow changed to snow precipitation throughout central NC. In Sampson County, 1 to 2 inches of snow were reported. In Duplin County, heavy snow of 1 to 2 inches fell across the county, making roads slippery, and several accidents were reported on I-40.

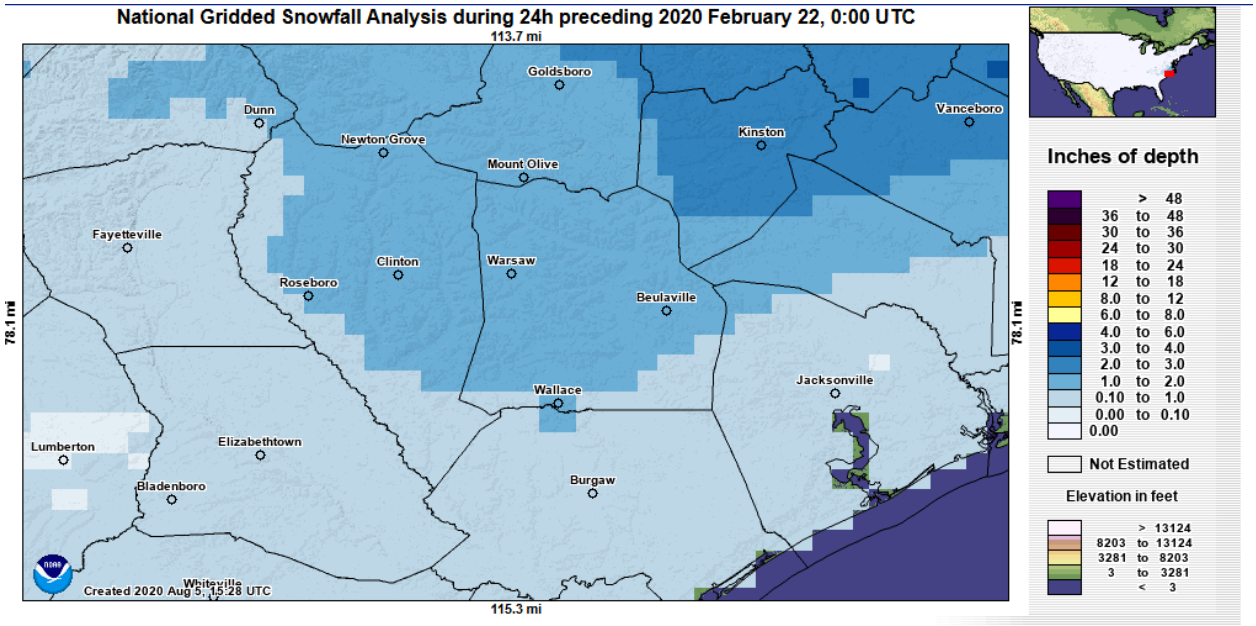


***Figure 5-225**: Gridded Snowfall Analysis for the 24 hours preceding February 22, 2020*[113]

1/16/2022 Winter Weather:

Around one-tenth to two-tenths of freezing rain was reported in Sampson County after a storm system moved from the central plains into the Southeast. Widespread winter precipitation over the central Piedmont region in NC, which included a mix of snow, sleet, freezing rain, and rain observed, with 3-5 inches of snow and sleet accumulation across the triad. There was a light glaze of ice across the Coastal Plain and 0.1-0.2 inches of ice accumulating from freezing rain across the Triangle.

1/21/2022 Winter Weather:

A cold front moved through the area late on January 20th, and as it passed, the rain changed to a wintery mix of snow, sleet, and freezing rain until the early morning the next day. Sampson County experienced 2 to 5 inches of snowfall, and Duplin County measured 3.5 inches of snow in Faison. Duplin County also experienced up to a quarter of an inch of freezing rain in the southern part of the county. The highest precipitation accumulations occurred on the Coastal Plain and the Sandhills, with up to 5 inches of snow measured. Other locations in the Piedmont region experienced 1 to 4 inches of snow. Significant amounts of ice fell towards the Crystal Coast, with around 2 to 6 inches of snow and sleet. The snow caused numerous accidents across NC and scattered power outages, especially in areas with heavy snowfall.

[113] NOAA's National Weather Service. (n.d.-h). NOHRSC Interactive Snow Information. Retrieved July 28, 2025, from https://www.nohrsc.noaa.gov/interactive/html/map.html



***Figure 5-226**: Snow in Clinton following the January 21, 2022, Winter Weather event*[114]

1/29/2022 Winter Weather:

In Sampson County, a winter weather event brought snowfall ranging from trace amounts to 1 inch. An upper low and associated arctic cold front brought precipitation to central NC, which began as rain and changed to snow as the front moved through the area.

1/21/2025 Winter Weather:

An upper-level storm system moved southeast through the Rockies and across the Southern US. The storm system overlapped with a cold air mass, leading to a southern winter storm that brought several inches of snow across Eastern NC. The snow began in the evening of the 21st as the surface trough moved into the Coastal Plain, eventually progressing to a stationary front set up offshore. Cold air in the region with a weak surface passing through the south, resulting in accumulating snow and ice in the impacted area. In Duplin County, widespread snowfall totaled about 4 inches and fell from the evening of the 21st to the morning of the 22nd. In Sampson County, 2 to 3 inches of snow were reported.

2/19/2025 Winter Weather:

An area of low pressure developed along the U.S. Gulf Coast, traveled northeast, and along the SE US coast. The system, combined with arctic air, created an area of widespread precipitation and, when temperatures were cold enough, a mix of sleet, freezing rain, and snow was observed across the Piedmont and northern Coastal Plain. South of snow and sleet, there were accumulations of ice between 0.1 to 0.3 inches of ice accretion. In Duplin County, widespread freezing rain accumulated, with 0.25 inches reported. The combination of ice and wind caused tree and power line damage across eastern NC, and about 1,500 residents of Duplin County lost power. In addition to the freezing rain accumulations, around 0.5 inches of sleet and snow fell in the county. In Sampson County, reports indicated 0.6 inches of sleet and 0.1 inches of freezing rain accumulation.

[114] The Sampson Independent, & Berendt, C. (2022, January 24). Snowy scenes in Sampson: Heavy snow blankets. The Sampson Independent. Retrieved August 28, 2025, from https://www.clintonnc.com/news/57052/snowy-scenes-in-sampsons-seat



***Figure 5-227**: Aerial Photo of Suttontown Road submitted by John Thomas King and Published by the Sampson Independent*[115]

5.11.5 Probability of Future Occurrences

The NRI reports on risk data for winter storm events, including precipitation such as snow, sleet, or freezing rain, generated from the NWS Winter Weather Alerts compiled by Iowa State University's Iowa Environmental Mesonet. These include the alert area and attributes for winter weather events from 2005 to 2017. The NRI also reports on Ice Storms, which include freezing rain events with significant ice accumulations of 0.25 inches or greater, and are based on historical events from the USACE Cold Regions Research and Engineering Laboratory Damaging Ice Storm GIS, which documents ice-damaged, ice-sensitive structures between 1946 and 2014.

According to the NRI, Duplin and Sampson counties have Very High EAL Scores and Hazard Risk Index Ratings for winter weather events. Sampson County has an annualized frequency of 0.93, and Duplin County has an annualized frequency of 0.99, meaning each county is expected to experience a winter weather event about once per year. The EAL total for Duplin County is $242,469, and for Sampson County, $177,175. The jurisdictions with the highest EAL total in Duplin County are unincorporated areas ($74,115), Wallace ($44,760), and Beulaville ($27,663). The highest EAL total in the Sampson County area is from Unincorporated Areas ($84,401), Clinton ($53,077), and Harrells ($12,711).

[115] King, J. T. (2025, February 21). Aerial photo of Suttontown Road. Sampson Independent. https://www.clintonnc.com/news/103776/freezing-rain-slows-activity

Table 5-57: NRI Winter Weather Annualized Frequency, EAL, EAL Score, and Hazard Risk Index Score for the Planning Area

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Duplin County	**0.99**	**$242,469**	**85.45**	**Very High**	**88.42**	**Very High**
Beulaville	0.99	$27,663	90.72	Very High	92.79	Very High
Calypso	0.99	$10,440	87.86	Very High	92.60	Very High
Faison	0.99	$10,440	87.86	Very High	92.60	Very High
Greenevers	0.99	$8,518	85.15	Very High	88.99	Very High
Kenansville	0.99	$25,873	90.34	Very High	92.24	Very High
Magnolia	0.99	$26,346	90.52	Very High	92.27	Very High
Rose Hill	0.99	$21,624	87.88	Very High	90.64	Very High
Teachey	0.99	$13,564	90.83	Very High	93.65	Very High
Wallace	0.99	$44,760	88.16	Very High	89.22	Very High
Warsaw	0.99	$24,252	89.63	Very High	93.81	Very High
Unincorporated Area	0.99	$74,115	87.05	Very High	88.31	Very High
Sampson County	**0.93**	**$177,175**	**80.50**	**Very High**	**84.82**	**Very High**
Autryville	0.93	$5,255	77.07	Relatively High	73.24	Relatively High
Clinton	0.93	$53,077	86.07	Very High	89.75	Very High
Garland	0.93	$9,789	87.09	Very High	92.07	Very High
Harrells	0.96	$12,711	78.77	Relatively High	80.92	Very High
Newton Grove	0.93	$3,380	68.57	Relatively High	71.20	Relatively High
Roseboro	0.93	$8,202	84.59	Very High	87.33	Very High

Salemburg	0.93	$3,445	68.96	Relatively High	69.39	Relatively High
Turkey	0.93	$5,557	78.13	Relatively High	81.61	Very High
Unincorporated Area	0.93	$84,401	85.36	Very High	87.66	Very High

The annualized frequency of Ice Storms is 0.89 in Duplin County and 1.03 in Sampson County, indicating that ice storms occur at least once a year in Sampson County and almost every year in Duplin County. The EAL attributed to Ice Storms in Duplin County is $47,846, and in Sampson County it is $79,868; both counties have a Relatively Moderate EAL Rating. Duplin County also has a Relatively Moderate Hazard Risk Rating, and Sampson County has a Relatively High Hazard Risk Rating.

***Table 5-58**: NRI Ice Storm Annualized Frequency, EAL Score, EAL, and Hazard Risk Index Score*

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Duplin County	**0.89**	**$47,846**	**47.10**	**Relatively Moderate**	**51.97**	**Relatively Moderate**
Beulaville	0.78	$4,467	48.18	Relatively Moderate	54.70	Relatively Moderate
Calypso	1.06	$2,994	55.33	Relatively Moderate	66.30	Relatively High
Faison	1.06	$2,994	55.33	Relatively Moderate	66.30	Relatively High
Greenevers	0.92	$1,282	35.04	Relatively Low	42.83	Relatively Moderate
Kenansville	0.80	$5,511	53.28	Relatively Moderate	59.56	Relatively Moderate
Magnolia	0.89	$4,673	49.34	Relatively Moderate	55.69	Relatively Moderate
Rose Hill	0.93	$4,452	46.39	Relatively Moderate	53.67	Relatively Moderate
Teachey	0.92	$2,595	51.88	Relatively Moderate	60.79	Relatively High
Wallace	0.92	$10,718	50.12	Relatively Moderate	54.04	Relatively Moderate
Warsaw	1.04	$6,865	57.76	Relatively Moderate	68.49	Relatively High
Unincorporated Area	0.86	$10,798	38.02	Relatively Low	42.06	Relatively Moderate

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Rating
Sampson County	**1.03**	**$79,868**	**56.36**	**Relatively Moderate**	**62.72**	**Relatively High**
Autryville	1.03	$1,719	42.20	Relatively Moderate	36.79	Relatively Low
Clinton	1.04	$28,130	66.01	Relatively High	72.45	Relatively High
Garland	0.95	$4,291	63.42	Relatively High	72.94	Relatively High
Harrells	0.95	$3,957	44.30	Relatively Moderate	47.96	Relatively Moderate
Newton Grove	1.06	$1,579	40.03	Relatively Moderate	43.10	Relatively Moderate
Roseboro	0.99	$3,393	58.21	Relatively Moderate	63.79	Relatively High
Salemburg	1.06	$1,514	39.03	Relatively Low	39.15	Relatively Low
Turkey	1.04	$2,633	52.21	Relatively Moderate	57.94	Relatively Moderate
Unincorporated Area	1.07	$34,042	60.24	Relatively High	64.94	Relatively High

5.11.6 Consequence and Impact Analysis

5.11.6.1 People

Winter storms are deceptive killers because most deaths are indirectly related to the storm event. The leading cause of death during winter weather 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 by improperly ventilated heating sources, such as space or kerosene heaters, and by blocked chimneys. House fires also occur more frequently in the winter due to inadequate safety precautions when using alternative heating sources. All jurisdictions in the Region are susceptible to this type of impact.

Individuals with disability (14.6% in Sampson County and 17.3% in Duplin County) or an independent living difficulty (7.1% in Sampson County and 8.4% in Duplin County) may be at an increased risk of negative impacts because of winter weather events.[116] It is important that

[116] U.S. Census Bureau, U.S. Department of Commerce. "Disability Characteristics." American Community Survey, ACS 5-Year Estimates Subject Tables, Table S1810, https://data.census.gov/table/ACSST5Y2023.S1810

residents are informed about risks and are informed about how to safely heat their homes and remain safe during winter weather events.

5.11.6.2 Changes in Development or Housing Characteristics

Localized impacts are expected for facilities and infrastructure in areas where winter weather events occur. Power lines and roads are most adversely affected and require extensive maintenance to keep them clear. As infrastructure continues to expand and development increases in the planning area, more infrastructure may be exposed to winter weather events. The development and expansion of infrastructure would require increased capabilities to prepare and clear roads during winter weather events.

5.11.6.3 Economy

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

5.11.6.4 Natural Environment

Winter weather 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 for being outside; significant injury may occur if a large limb snaps while a local resident is driving or walking beneath it.

5.11.6.5 First Responders

Adverse impact expected to be severe for unprotected personnel and moderate to light for trained, equipped, and protected personnel. Winter weather events can cause power outages, which may impact operations. Down trees, power lines, and icy road conditions may prevent access to critical facilities and/or emergency equipment. Fire suppression during winter weather may pose significant danger because water supplies can freeze, making it difficult for firefighting equipment to reach 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.

5.11.6.6 Future Conditions

According to the NC Climate Science Report, it is likely that snowfall and the number of heavy snowstorms in NC will decrease as winter temperatures rise.

5.12 HAZARD PROFILE SUMMARY

The conclusions drawn from the hazard profiling process for the Region, including the Priority Risk Index results and input from the Regional Hazard Mitigation Planning Team, resulted in the classification of risk for each identified hazard according to three categories: High Risk, Moderate Risk, and Low Risk (Table 5-59). For purposes of these classifications, risk is expressed in relative terms according to the estimated impact that a hazard will have on human life and property throughout the Region. A more quantitative analysis to assess potential dollar losses for each hazard has been performed separately and is described. It should be noted that although some hazards are classified below as posing low risk, their occurrence at varying or unprecedented magnitudes remains possible in some cases, and their assigned classification will continue to be evaluated during future updates to this Plan.

Table 5-59: NRI summary of Hazard Risk Ratings for the hazards in Duplin County

Jurisdiction	Drought	Hurricane and Tropical Storm	Severe Weather			Tornado	Winter Storm	Ice Storm	Earthquake	Extreme Heat	Flood	Wildfire
			Hail	Lightning	Strong Wind							
Duplin County	**Relatively Moderate**	**Very High**	**Relatively High**	**Relatively High**	**Relatively High**	**Relatively High**	**Very High**	**Relatively Moderate**	**Relatively Moderate**	**Relatively High**	**Relatively Moderate**	**Relatively High**
Beulaville	Relatively Moderate	Very High	Relatively High	Relatively High	Relatively High	Relatively High	Very High	Relatively Moderate	Relatively Moderate	**Relatively High**	Relatively Moderate	Very High
Calypso	Relatively Moderate	Very High	Relatively High	Relatively High	Relatively High	Very High	Very High	Relatively High	Relatively Moderate	**Relatively High**	Relatively Low	Relatively High
Faison	Relatively Moderate	Very High	Relatively High	Relatively High	Relatively High	Very High	Very High	Relatively High	Relatively Moderate	**Relatively High**	Relatively Low	Relatively High
Greenevers	Relatively Low	Very High	Relatively Moderate	Relatively Moderate	Relatively High	Relatively High	Very High	Relatively Moderate	Relatively Low	**Relatively High**	Relatively High	Very High
Kenansville	Relatively Moderate	Very High	Relatively High	Relatively High	Relatively High	Relatively High	Very High	Relatively Moderate	Relatively Moderate	**Relatively High**	Relatively High	Relatively High
Magnolia	Relatively Moderate	Very High	Relatively High	Relatively High	Relatively High	Relatively High	Very High	Relatively Moderate	Relatively Moderate	**Relatively High**	Relatively High	Very High
Rose Hill	Relatively Moderate	Very High	Relatively Moderate	Relatively High	Relatively High	Relatively High	Very High	Relatively Moderate	Relatively Moderate	**Relatively High**	Relatively Moderate	Very High
Teachey	Relatively Moderate	Very High	Relatively Moderate	Relatively High	Relatively High	Relatively High	Very High	Relatively High	Relatively Moderate	**Very High**	Relatively High	Very High
Wallace	Relatively Moderate	Very High	Relatively Moderate	Relatively High	Relatively High	Relatively High	Very High	Relatively Moderate	Relatively Moderate	**Relatively High**	Relatively High	Very High
Warsaw	Relatively High	Very High	Relatively High	Relatively High	Very High	Very High	Very High	Relatively High	Relatively High	**Very High**	Relatively Low	Relatively Moderate
Unincorporated Area	Relatively Low	Very High	Relatively High	Relatively Moderate	Relatively High	Relatively High	Very High	Relatively Moderate	Relatively Low	**Relatively High**	Relatively Moderate	Relatively High

Table 5-60: NRI summary of Hazard Risk Ratings for the hazards in Sampson County

Jurisdiction	Drought	Hurricane and Tropical Storm	Severe Weather			Tornado	Winter Storm	Ice Storm	Earthquake	Extreme Heat	Flood	Wildfire
			Hail	Lightning	Strong Wind							
Sampson County	**Relatively Moderate**	**Very High**	**Relatively High**	**Relatively Moderate**	**Very High**	**Relatively High**	**Very High**	**Relatively High**	**Relatively Moderate**	**Relatively High**	**Relatively High**	**Relatively High**
Autryville	Relatively Low	Very High	Relatively High	Relatively Low	Relatively High	Relatively Moderate	Relatively High	Relatively Low	Relatively Low	**Relatively High**	Relatively High	Relatively High
Clinton	Relatively High	Very High	Relatively High	Relatively High	Very High	Relatively High	Very High	Relatively High	Relatively High	**Very High**	Very High	Relatively Moderate
Garland	Relatively High	Very High	Very High	Relatively High	Very High	Very High	Very High	Relatively High	Relatively High	**Very High**	Very High	Very High
Harrells	Relatively Moderate	Very High	Relatively High	Relatively Moderate	Relatively High	Relatively High	Very High	Relatively Moderate	Relatively Moderate	**Relatively High**	Relatively High	Very High
Newton Grove	Relatively Low	Very High	Relatively Moderate	Relatively Low	Relatively High	Relatively Moderate	Relatively High	Relatively Moderate	Relatively Low	**Relatively High**	Relatively High	Relatively Low
Roseboro	Relatively High	Very High	Relatively High	Relatively Moderate	Very High	Relatively High	Very High	Relatively High	Relatively High	**Relatively High**	Relatively High	Very High
Salemburg	Relatively Low	Very High	Relatively Moderate	Relatively Low	Relatively Moderate	Relatively Moderate	Relatively High	Relatively Low	Relatively Low	**Relatively Moderate**	Relatively Moderate	Relatively High
Turkey	Relatively Moderate	Very High	Very High	Relatively Low	Very High	Relatively High	Very High	Relatively Moderate	Relatively Moderate	**Relatively High**	Very High	Relatively High
Unincorporated Area	Relatively Moderate	Very High	Relatively High	Relatively Moderate	Very High	Relatively High	Very High	Relatively High	Relatively Moderate	**Very High**	Relatively High	Relatively High

SECTION 6: CAPABILITY ASSESSMENT

This section discusses the Sampson-Duplin region's capability to implement hazard mitigation activities. It consists of the following four subsections:

- **6.1 Overview**
- **6.2 Conducting the Capability Assessment**
- **6.3 Capability Assessment Findings**
- **6.4 Conclusions on Local Capability**

6.1 Overview

The purpose of conducting a *Capability Assessment* is to determine a local jurisdiction's ability to implement a comprehensive Mitigation Strategy and to identify potential opportunities to establish or enhance specific mitigation policies, programs, or projects. As in any planning process, it is essential to assess which goals, objectives, and actions are feasible based on an understanding of the agencies or departments' organizational capacity to implement them. A *Capability Assessment* helps 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, fiscal resources, and current political climate.

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

6.2 Conducting the Capability Assessment

To facilitate the inventory and analysis of local government capabilities within the Plan counties, a detailed Local Capability Assessment Survey was distributed to Planning Committee members at the second planning committee meeting. The survey questionnaire requested information on a variety of "capability indicators" such as existing local plans, studies, reports, technical information, policies, programs, or ordinances that contribute to and/or hinder the Region's ability to implement hazard mitigation actions. Other indicators included information on the Region's fiscal, administrative, and technical capabilities, such as access to local budgetary and personnel resources for mitigation, as well as any existing education and outreach

programs that can be used to promote mitigation. Survey respondents were also asked to comment on the current political climate regarding hazard mitigation, an important consideration for any local planning or decision-making process.

At a minimum, the survey results provide an extensive, consolidated inventory of existing local plans, ordinances, programs, and resources in place or under development, along with their overall impact on hazard loss reduction. In completing the survey, local officials were also required to conduct a self-assessment of their jurisdiction's specific capabilities. In the self-assessment, participating jurisdictions rate their communities' overarching capability categories—Planning and Regulatory, Administrative and Technical, Fiscal, Political, and Overall Capabilities—for implementing mitigation actions. The survey instrument thereby not only helps accurately assess the degree of local capability, but it also serves as a good source of introspection for counties and local jurisdictions that want to improve their capabilities, as identified gaps, weaknesses, or conflicts can be recast as opportunities for specific actions to be proposed as part of the hazard mitigation strategy.

Lastly, communities score their jurisdiction's overall capability to implement mitigation actions on a scale of one through ten. While these classifications are designed to provide nothing more than a general assessment of local government capability, the results of the capability assessments provide critical information for developing an effective and meaningful mitigation strategy. At a minimum, survey results provide an extensive inventory of existing local plans, ordinances, programs, and resources. However, the survey also identifies gaps, weaknesses, or conflicts that counties and local jurisdictions can recast as opportunities for specific actions to be proposed as part of the hazard mitigation strategy.

6.3 Capability Assessment Findings

The findings of the *Capability Assessments* are summarized in this Plan to provide insight into the jurisdictions in the planning area's capacity to implement hazard mitigation activities. All information is primarily based on the *Capability Assessment Survey* and supplemented by reviews of existing hazard mitigation plans, local government websites, and input from local government officials during Planning Committee meetings. Each category of the *Capability Assessment* also includes a section named "Community Notes," which includes formatted, free-response statements provided by participating jurisdictions. These Community Notes allow jurisdictions to highlight any information not captured by the standardized *Capability Assessment Survey*. Specifically, many of the responding jurisdictions used the Community Notes to identify areas of their communities' mitigation capabilities they would like to expand or improve. By identifying these points for future improvement early in the planning process, the participating jurisdictions were then able to translate those gaps into mitigation actions to address and track desired growth in their hazard mitigation capabilities.

All relevant local and regional planning mechanisms, including comprehensive land use plans, floodplain management plans, stormwater ordinances, and other regulatory and programmatic tools, were reviewed and incorporated into the Sampson Duplin Regional Hazard Mitigation Plan through the Capability Assessment process. Participating jurisdictions identified whether these mechanisms were in place, assessed their effectiveness in addressing hazard risk, and provided information on how each supports hazard mitigation, risk reduction, and community

resilience. Data and policies from these existing mechanisms informed both the Risk Assessment, by identifying known hazards, vulnerable assets, and previously documented impacts, and the Mitigation Strategy, by capturing previously planned but unimplemented actions. The integration of these existing plans and ordinances ensures that the regional mitigation strategy builds on established local frameworks and aligns ongoing hazard mitigation efforts with broader land-use, environmental protection, and infrastructure investment objectives. Table 6-1 captures the types of planning mechanisms participating jurisdictions identified through the Capability Assessment Survey, the parts of the Plan they support, and what the Planning Committee sought to incorporate from those mechanisms.

***Table 6-1**: Existing Plans, Studies, Reports, and Technical Information Reviewed for and Incorporated into the Cape Fear Regional Hazard Mitigation Plan*

Planning Mechanism	What It Supports	What to Look For
Comprehensive Land Use Plan	Risk Assessment; Capability Assessment	Information on hazards, development trends, goals and policies, land use plans, and ordinances that support risk reduction
Floodplain Management Plan	Risk Assessment; Mitigation Strategy	Identification of flood-prone areas, mitigation priorities, and recommended flood-hazard reduction measures
Open Space Management Plan	Mitigation Strategy; Capability Assessment	Protected lands that provide flood storage or ecological benefits; policies for maintaining or expanding open space in flood-prone areas
Stormwater Management Ordinance	Risk Assessment; Capability Assessment	Regulations addressing drainage, runoff reduction, low-impact development, and infrastructure to reduce localized flooding
Natural Resource Protection Plan	Mitigation Strategy; Capability Assessment	Conservation goals; identification of wetlands, riparian buffers, and other natural systems that support hazard mitigation
Flood Response Plan	Risk Assessment; Planning Process	Procedures for flood monitoring, emergency response, communication, and resource deployment during flood events
Emergency Operations Plan	Risk Assessment; Capability Assessment	Data on hazards or events of concern and community vulnerabilities; coordination protocols and response responsibilities
Continuity of Operations Plan	Capability Assessment; Planning Process	Identification of critical facilities, backup procedures, and protection measures to maintain essential operations during disasters
Evacuation Plan	Planning Process; Risk Assessment	Evacuation routes, at-risk populations, special needs considerations, and coordination with transportation agencies
Disaster Recovery Plan	Planning Process; Mitigation Strategy	Post-disaster rebuilding policies, recovery priorities, and integration of long-term mitigation objectives
Capital Improvements Plan	Mitigation Strategy; Capability Assessment	Planned infrastructure investments that reduce hazard risks or address repetitive loss facilities

Economic Development Plan	Planning Process; Risk Assessment; Mitigation Strategy	Existing partners, priority growth areas, and industries; strategies for resilient economic development and risk reduction
Historic Preservation Plan	Risk Assessment; Mitigation Strategy	Inventory of historic assets at risk; strategies for protecting historic properties and cultural resources from hazards
Flood Damage Prevention Ordinance	Risk Assessment; Capability Assessment	Floodplain development standards, elevation requirements, permitting procedures, and National Flood Insurance (NFIP) compliance measures
Zoning Ordinance	Risk Assessment; Capability Assessment	Land use designations, density limits, overlay zones, and standards that minimize development in hazard-prone areas
Subdivision Ordinance	Risk Assessment; Mitigation Strategy	Design standards for drainage and infrastructure; site-planning requirements that minimize exposure to flood hazards
Unified Development Ordinance	Capability Assessment; Mitigation Strategy	Consolidated zoning, subdivision, and floodplain regulations that promote hazard-resilient growth and risk reduction
Post-Disaster Redevelopment Plan	Planning Process; Mitigation Strategy	Strategies for rebuilding safer and stronger; policies integrating mitigation into reconstruction and long-term recovery
Building Code	Risk Assessment; Capability Assessment	Construction standards that reduce vulnerability to floods, wind, and other hazards; adoption and enforcement details
Fire Code	Risk Assessment; Capability Assessment	Fire-resistant design standards, evacuation routes, and coordination with emergency response plans

6.3.1 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 responsibly, while maintaining the general welfare of the community. It includes emergency response, mitigation, and comprehensive land-use planning. This part of the Capability Assessment also highlights enforcement of stormwater management, zoning, and subdivision ordinances; building codes that regulate land development and the construction of structures; and the protection of environmental, historic, and cultural resources in the community. Although conflicts can arise, these planning initiatives generally offer significant opportunities to integrate hazard mitigation principles and practices into local decision-making.

This assessment is designed to provide a general overview of the key planning and regulatory tools or programs in place for the Region. This information will help identify opportunities to address existing gaps, weaknesses, or conflicts with other initiatives, and to integrate the implementation of this Plan with existing planning mechanisms where appropriate.

Table 6-2 provides a summary of the relevant local plans, ordinances, and programs already in place 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, existing plans, studies, reports, technical information, communication procedures, existing data, and shared objectives was reviewed and incorporated into the mitigation plan through coordination with relevant agencies, with hazards and mitigation actions prioritized.

A checkmark (✓) indicates that the given item is currently in place and being implemented. A dash (**–**) indicates that the jurisdiction does not have the item in place or implemented. The participating jurisdictions should consider each of the highlighted local plans, ordinances, and programs to be critical mechanisms for implementing the requirements of the Hazard Mitigation Plan and subsequent mitigation actions.

***Table 6-2**: Relevant Plans, Ordinances, and Programs*

Jurisdiction	Comprehensive Land Use Plan	Hazard Mitigation Plan	Floodplain Management Plan	Open Space Management Plan	Stormwater Management Ordinance	Natural Resource Protection Plan	Flood Response Plan	Emergency Operations Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Flood Damage Prevention Ordinance	Zoning Ordinance	Subdivision Ordinance	Unified Development Ordinance	Post-Disaster Redevelopment Ordinance	Building Code	Fire Code	National Flood Insurance Program	Community Rating System
Sampson County	✓	✓	–	✓	–	–	–	✓	✓	–	–	–	✓	–	✓	✓	✓	–	–	✓	✓	✓	✓
Autryville	–	✓	✓	–	–	–	–	–	–	–	–	–	–	–	✓	–	–	–	–	✓	–	✓	–
Clinton	✓	✓	–	✓	–	–	–	✓	–	–	–	–	–	–	✓	✓	✓	–	–	✓	✓	✓	✓
Garland	✓	✓	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	–	–	–	–	–	–
Harrells	–	✓	–	✓	–	–	–	✓	✓	–	✓	✓	✓	–	–	✓	✓	–	–	✓	✓	–	–
Newton Grove	✓	✓	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	–	–	–	–	✓	–
Roseboro	✓	✓	–	–	–	–	–	✓	✓	–	–	✓	✓	–	✓	✓	✓	–	–	✓	✓	–	–
Salemburg	✓	✓	–	–	–	–	–	✓	–	–	–	–	–	–	✓	✓	✓	–	–	–	✓	✓	–
Turkey	✓	✓	–	✓	–	–	–	✓	✓	–	✓	✓	✓	–	✓	✓	✓	–	–	✓	✓	✓	–
Duplin County	✓	✓	✓	–	–	–	–	✓	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	–	✓	✓	✓	–
Beulaville	✓	✓	–	–	✓	–	–	–	–	–	–	✓	–	–	✓	✓	✓	–	–	–	–	✓	–
Calypso	✓	✓	–	–	✓	–	–	–	–	–	–	–	–	–	✓	✓	✓	–	–	✓	✓	✓	–
Faison	✓	✓	–	–	–	–	–	–	–	–	–	✓	–	–	✓	✓	✓	–	–	✓	✓	✓	–
Greenevers	✓	✓	–	–	–	–	–	–	–	–	–	✓	–	–	✓	✓	✓	–	–	–	–	✓	–
Kenansville	✓	✓	–	–	✓	–	–	–	–	–	✓	–	–	–	✓	✓	✓	✓	–	–	–	✓	–
Magnolia*	–	✓	✓	–	–	–	–	✓	✓	✓	✓	✓	✓	–	✓	–	✓	–	–	✓	✓	✓	–
Rose Hill	✓	✓	✓	–	–	–	–	✓	✓	–	–	–	–	–	✓	✓	✓	–	–	✓	✓	✓	–
Teachey	–	✓	–	–	–	–	–	–	–	–	–	–	–	–	✓	✓	✓	–	–	✓	–	✓	–
Wallace	✓	✓	–	–	✓	–	–	✓	–	–	–	✓	✓	–	✓	✓	✓	✓	–	–	✓	✓	–
Warsaw	✓	✓	✓	–	–	–	✓	✓	–	–	✓	✓	–	–	✓	✓	✓	✓	–	✓	✓	✓	–

**Indicates that the jurisdiction did not provide an update to their Capability Assessment for this update cycle and elected to maintain their previous version (2020).*

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

6.3.1.1 Community Notes

The bulleted list below captures additional community notes from participating jurisdictions that provide more details on their planning and regulatory capabilities.

- **Autryville** does not have a police department and uses the Sampson County Sheriff's Office to enforce any violations of Town ordinances.
- **Clinton's** City Code, Land Development Ordinance, and Flood Damage Prevention Ordinance are all administered by the Clinton Planning Department. Clinton has a full-time Fire Inspector.
- **Garland** does not have a full-time Planning and Inspections Department. Sampson County completes inspections for the Town's jurisdiction. Mid-Carolina Regional Council provides zoning administration and planning services to the Town.
- **Salemburg's** fire codes are enforced annually by the local Public Works Department. Salemburg has two subdivisions and enforces its Zoning and Subdivision Ordinances. The jurisdiction's Emergency Operations Plan is handled through Sampson County.
- **Turkey** is a member of the Mid-Carolina Regional Council, which provides both technical assistance for local governments as well as planning and zoning assistance. These services also include assisting the town with its resiliency and mitigation efforts, as requested.
- **Duplin County** has several planning and regulatory tools that support hazard mitigation and guide safe development. The County enforces a Flood Damage Prevention Ordinance, follows the North Carolina State Building Code, and participates in the National Flood Insurance Program. A comprehensive land use plan and applicable zoning regulations help reduce development in high-risk areas. Subdivision reviews, stormwater management practices, and hazard considerations in capital improvement planning further support resilience. The County also actively participates in the Sampson-Duplin Regional Hazard Mitigation Plan to identify vulnerabilities and guide mitigation efforts.
- **Beulaville's** Town Manager serves as the jurisdiction's Zoning Officer. The jurisdiction has a volunteer Zoning Board/Board of Adjustment that meets as needed.
- **Calypso** coordinates with Duplin County on Planning & Regulatory matters.
- **Faison** has a Planning/Board of Adjustment Committee that meets regularly.
- **Greenevers** is still developing its full planning and regulatory capabilities; however, the jurisdiction has several key plans and programs in place. These include a Comprehensive Land Use Plan (with the University of North Carolina (UNC) School of Government), a Hazard Mitigation Plan (with Duplin and Sampson Counties), a Capital Improvements Plan (from an AIA study with an engineering firm), and a Zoning Ordinance developed by the Eastern Carolina Council. Greenevers also participates in the National Flood Insurance

Program, reflecting our ongoing commitment to responsible development and community resilience.

- **Warsaw**, in place of a Stormwater Management Ordinance, has opted to charge all customers a fee for stormwater management. These fees, along with Town resources, are used to maintain the stormwater system.

6.3.1.2 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. Each phase is interconnected with hazard mitigation, as Figure 6-1 suggests. Opportunities to reduce potential losses through mitigation practices are most often implemented before a disaster event, such as elevating flood-prone structures or continuously enforcing 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 6-1**: The Four Phases of Emergency Management*

Planning for each phase is a critical part of a comprehensive emergency management program and a key to successfully implementing hazard mitigation actions. As a result, the *Capability Assessment Survey* asked several questions across a range of emergency management plans to assess the Region's willingness to engage in planning activities and its level of technical proficiency.

Hazard Mitigation Plan

A hazard mitigation plan is a community's blueprint for reducing 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.

- 20 of the 20 participating jurisdictions in this regional plan update effort have previously participated in the Sampson-Duplin Multi-Jurisdictional Hazard Mitigation Plan.

Disaster Recovery Plan

A disaster recovery plan guides the recovery and reconstruction of a community's physical, social, environmental, and economic aspects following a disaster. In many instances, hazard mitigation principles and practices are incorporated into local disaster recovery plans to capitalize 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.

- 6 of the 20 participating jurisdictions have a disaster recovery plan in place.

Emergency Operations Plan

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

- 11 of the 20 participating jurisdictions have an emergency operations plan either in place or are covered under a county plan.

Continuity of Operations Plan

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

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

6.3.1.3 General Planning

Implementing 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. The *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 a community and serves as a guide for future government decision-making. Typically, a comprehensive plan includes sections on demographics, land use, transportation, and community facilities. Given the broad nature of the plan and its regulatory standing in many communities, integrating hazard mitigation measures into the comprehensive plan can increase the likelihood of achieving risk-reduction goals, objectives, and actions.

- 16 of the 20 participating jurisdictions have a comprehensive land use plan in place.

Capital Improvements Plan

A capital improvements plan guides the scheduling of public improvement spending. A capital improvements plan can serve as an essential 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.

- 10 of the 20 participating jurisdictions have a capital improvements plan in place.

Historic Preservation Plan

A historic preservation plan is intended to preserve historic structures or districts within a community. An often-overlooked aspect of the historic preservation plan is the assessment of buildings and sites located in areas subject to natural hazards, and the identification of ways to reduce future damage. This may involve retrofitting or relocation techniques that account for the need to protect buildings that do not meet current building standards or are within a historic district that cannot easily be relocated out of harm's way.

- None of the 20 participating jurisdictions have a historic preservation plan in place.

Zoning Ordinance

Zoning is the primary means by which local governments control land use. As part of a community's police power, zoning is used to protect the public health, safety, and welfare of those in each 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.

- 18 of the 20 participating jurisdictions have a zoning ordinance in place.

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 future development's exposure to natural hazards.

- 19 of the 20 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 before and after a disaster, and the enforcement of inspection protocols all affect the level of hazard risk a community faces.

- 13 of the 20 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 community and how the community enforces them, with special emphasis on loss mitigation from natural hazards. The results of BCEGS assessments are routinely provided to ISO's member private insurance companies, which, in turn, may offer rating 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, have lower insurance rates.

During the assessment, ISO collects information on personnel qualifications and continuing education, as well as the number of inspections conducted 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.

6.3.1.4 Floodplain Management

Flooding is one of the nation's greatest natural hazards. At the same time, the tools available to reduce the impacts of flooding are among the most developed hazard-specific mitigation techniques. In addition to approaches that cut across hazards, such as education, outreach, and training for local officials, the National Flood Insurance Program (NFIP) includes 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, the Federal Emergency Management Agency (FEMA) strongly encourages local governments to participate as a first step toward implementing and sustaining an effective hazard mitigation program. It is therefore used in this Capability Assessment as a key indicator of local capability.

For a county or municipality to participate in the NFIP, it must adopt a local flood damage prevention ordinance that requires compliance with 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 for educating residents, government officials, and the private sector about the likelihood of flooding in their communities.

Table 6-3 provides NFIP policy and claim information for each jurisdiction taking part in the Region's plan update.

Table 6-3: 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
Sampson County							
Sampson County (Unincorporated Area)	12/20/74	12/6/19	104	$31,642,000	$78,702	109	$5,683,573
City of Clinton	12/06/74	6/20/18	43	$12,226,000	$53,854	39	$379,612
Town of Autryville	07/25/75	6/20/18	1	$272,000	$624	0	-
Town of Garland*	6/21/74	6/20/18	-	-	-	-	-
Town of Harrells*	-	-	-	-	-	-	-
Town of Newton Grove	01/05/07	6/20/18	4	$1,127,000	$3,703	4	$292,185
Town of Roseboro*	-	-	-	-	-	-	-
Town of Salemburg	01/05/07	6/20/18	2	$700,000	$1,034	0	-
Town of Turkey	01/05/07	2/16/07	1	$350,000	$470	0	-
Subtotal Sampson	**-**	**-**	**155**	**$46,317,000**	**$138,387**	**152**	**$6,355,370**
Duplin County							
Duplin County (Unincorporated Area)	02/24/78	6/19/20	504	$153,090,000	$399,843	444	$48,327,825
Town of Beulaville	02/16/06	6/20/18	3	$998,000	$1,666	3	$51,801
Town of Calypso	02/16/06	6/20/18	4	$881,000	$1,899	4	$63,290
Town of Faison	7/4/89	02/16/07	1	$32,000	$294	2	-
Town of Greenevers	02/16/06	(NSFHA)	-	-	-	-	-

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies in Force	Insurance in Force	Written Premium in Force	Closed Losses	Total Payments
Town of Kenansville	06/24/77	7/17/86	1	$297,000	$350	0	-
Town of Magnolia	02/16/06	02/16/07	2	$700,000	$917	0	-
Town of Rose Hill	02/16/06	02/16/07	2	$578,000	$966	1	$14,749
Town of Teachey	02/16/06	(NSFHA)	1	$350,000	$907	1	$1,860
Town of Wallace	06/14/74	6/20/18	67	$21,061,000	$46,841	42	$2,415,295
Town of Warsaw	02/16/06	6/20/18	16	$3,743,000	$9,879	4	$166,021
Subtotal Duplin	**-**	**-**	**601**	**$181,730,000**	**$463,562**	**501**	**$51,040,841**
TOTAL PLAN	**-**	**-**	**756**	**$228,047,000**	**$601,949**	**653**	**$57,396,211**

Source: FEMA's HUDEX Report (08/31/2025)

**Indicates a jurisdiction does not participate in the NFIP*

Jurisdictions that participate in the National Flood Insurance Program will continue to comply with the program's requirements and work toward full compliance in the future, using several strategies. Floodplain management is managed through zoning ordinances, building code restrictions, and the county building inspection program. The jurisdictions will coordinate with the North Carolina Division of Emergency Management (NCEM) and FEMA to develop maps and regulations for Special Flood Hazard Areas within their jurisdictions and, through a consistent monitoring process, will design and improve their floodplain management programs to reduce the risk of flooding to people and property. Adoption of floodplain management requirements, including regulating new construction in the Special Flood Hazard Area, floodplain identification, and mapping, will continue to be implemented. 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 beyond the minimum requirements of the NFIP, adding local measures to protect against flooding. All 19 creditable CRS mitigation activities are assigned point values. As points accumulate and thresholds are met, 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 6-4 as class ratings improve (lower numbers indicate better ratings), the percent reduction in flood insurance premiums for NFIP policyholders in that community increases.

***Table 6-4**: 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 dramatically simplified over the past several

years, based on community comments intended to make it more user-friendly, and extensive technical assistance is available to communities who request it.

The City of Clinton, in Sampson County, is the only jurisdiction in the Sampson-Duplin Hazard Mitigation Plan that also participates in the CRS and has a class greater than 10. Clinton entered the CRS on October 1st, 1994, and received its currently effective class rating of 8 on May 1st, 2009. A community with a Class 8 rating in the CRS has implemented floodplain management activities that exceed the minimum National Flood Insurance Program standards. As a result, policyholders in Special Flood Hazard Areas receive a 10% discount on their flood insurance premiums, recognizing the community's proactive efforts to reduce flood risk. Clinton receives credit for the following CRS mitigation activities:

- Elevation Certificates
- Map Information Service
- Outreach Projects
- Hazard Disclosure
- Open Space Preservation
- Higher Regulatory Standards
- Flood Data Maintenance
- Stormwater Management
- Floodplain Management Planning
- Acquisition and Relocation

Floodplain Management Plan

A floodplain management plan (or flood mitigation plan) provides a framework for implementing corrective and preventive measures to reduce flood-related impacts.

- 5 of the 20 participating jurisdictions have a floodplain management plan in place.

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 align to reduce hazard losses, such as preserving wetlands and other flood-prone areas in their natural state in perpetuity.

- 4 of the 20 participating jurisdictions have an open space management plan in place or under development.

Stormwater Management Ordinance

A local stormwater management ordinance establishes requirements for how communities control runoff from rainfall and development to reduce flooding and protect water quality. These ordinances typically regulate site design, drainage systems, and post-construction measures such as detention basins, infiltration areas, and vegetated buffers. Effective implementation of these ordinances is critical in urban areas, where impervious surfaces can quickly overwhelm storm drains and contribute to recurrent urban flooding.

- 4 of the 20 participating jurisdictions have a stormwater management ordinance in place.

6.3.2 Administrative and Technical Capability

The ability of local governments to develop and implement mitigation projects, policies, and programs is directly tied to their capacity to allocate staff time and resources to that end. Administrative capability can be evaluated by assessing how mitigation-related activities are assigned to local departments and whether there are adequate personnel resources to complete them. The degree of interdepartmental coordination will also affect the administrative capacity to implement and achieve the 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 evaluate community hazard vulnerability. The Local Capability Assessment Survey was used to capture information on administrative and technical capabilities by identifying available staff and personnel resources. The *Local Capability Assessment Survey* was used to capture information on administrative and technical capabilities by identifying available staff and personnel resources.

Table 6-5 provides a summary of the *Local Capability Assessment Survey* results for the Plan Area regarding relevant staff and personnel resources. A checkmark (✓) indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill. A dash (–) indicates the jurisdiction does not have the resource in place.

***Table 6-5**: 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	Emergency manager	Floodplain manager	Land surveyors	Scientist(s) familiar with the hazards of the community	Staff with education or expertise to assess the community vulnerability to hazards	Personnel skilled in GIS and/or HAZUS	Resource development staff or grant writers
Sampson County	✓	✓	✓	✓	✓	–	–	✓	✓	–
Autryville	–	–	–	–	✓	–	–	–	–	–
Clinton	✓	–	✓	✓	✓	–	–	–	✓	–
Garland	✓	–	–	–	–	–	–	–	–	✓
Harrells	✓	–	–	–	–	–	–	✓	✓	✓
Newton Grove	–	–	–	–	–	–	–	–	–	–
Roseboro	✓	✓	–	✓	–	–	–	✓	✓	–
Salemburg	✓	–	–	✓	–	–	–	–	✓	–
Turkey	✓	✓	✓	✓	–	–	–	✓	–	✓
Duplin County	✓	✓	✓	✓	✓	–	✓	✓	✓	✓
Beulaville	✓	✓	–	–	–	–	–	–	–	–
Calypso	✓	✓	✓	✓	✓	–	–	–	✓	–
Faison	–	–	–	–	–	–	–	–	✓	–
Greenevers	–	–	–	–	✓	–	–	–	–	–
Kenansville	–	–	–	–	–	–	–	✓	✓	–
Magnolia*	✓	✓	✓	✓	✓	–	–	–	✓	–

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	Emergency manager	Floodplain manager	Land surveyors	Scientist(s) familiar with the hazards of the community	Staff with education or expertise to assess the community vulnerability to hazards	Personnel skilled in GIS and/or HAZUS	Resource development staff or grant writers
Rose Hill	✓	✓	✓	✓	✓	–	–	✓	–	✓
Teachey	–	–	–	–	–	–	–	–	–	–
Wallace	✓	–	–	–	✓	–	–	–	–	–
Warsaw	✓	–	–	–	–	–	–	–	✓	–

**Indicates that the jurisdiction did not provide an update to their Capability Assessment for this update cycle and elected to maintain their previous version (2020).*

6.3.2.1 Community Notes

The bulleted list below captures additional community notes from participating jurisdictions that provide more details on their administrative and technical capabilities.

- **Clinton** has two Certified Floodplain Managers on staff.
- **Garland** coordinates with the Mid-Carolina Regional Council for zoning administration and planning services. The Mid-Carolina Regional Council also assists the jurisdiction with acquiring and administering grants.
- **Harrells** is a very small community with only three employees. Many of the jurisdiction's services and resources come from Sampson County
- **Salemburg's** Zoning Administrator is familiar with land management/development, and the Planning Board is active. Sampson County oversees emergency management activities for the jurisdiction.
- **Turkey** relies on the Mid-Carolina Regional Council's experienced staff for administrative and technical support, which includes a Certified Floodplain Manager, Certified Zoning Officials, and nationally accredited planners.
- **Duplin County's** Planning Department has a land management/development planner, a planner familiar with natural hazard risk, a floodplain manager, and a staff to assess community hazard vulnerability. The County's Building Inspection and Fire Inspection Departments have professionals trained in construction. The County's Public Safety Department includes an emergency manager, staff to assess community hazard vulnerability, GIS personnel, and grant writers.
- **Faison** is a small town of approximately 1,000 residents and does not have a large staff, with many employees having multiple duties.
- **Greenevers** administrative capacity is limited. The jurisdiction has only one staff member, the designated Floodplain Manager, who handles mitigation activities. While the dedicated staff is minimal, the jurisdiction coordinates with regional partners as needed and continues to seek ways to strengthen its capabilities.

6.3.3 Fiscal Capability

A local government's ability to act is often closely tied to the funds 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 to administrative costs associated with creating and monitoring a given program. In other instances, direct expenses are linked to an actual project, such as the acquisition of flood-prone houses, which may require substantial commitments from local, state, and federal funding sources.

The *Capability Assessment Survey* was used to capture information on the Region's fiscal capability by identifying locally available financial resources.

Table 6-6 provides a summary of the Plan Area's results regarding 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). A dash (–) indicates the jurisdiction does not have the resource in place.

***Table 6-6**: 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, Revenue, and/or Special Tax Bonds	Partnering/Intergovernmental Arrangements	Other
Sampson County	–	–	✓	–	✓	–	–	–	–	–
Autryville	–	–	–	–	✓	–	–	–	–	–
Clinton	–	–	–	–	✓	–	–	–	–	–
Garland	–	✓	–	–	✓	–	–	–	–	–
Harrells	–	–	–	–	✓	–	–	–	–	–
Newton Grove	–	–	–	–	✓	–	–	–	–	–
Roseboro	✓	✓	–	–	✓	–	✓	–	–	–
Salemburg	–	–	–	–	✓	–	–	–	–	–
Turkey	–	–	–	–	✓	–	–	–	–	–
Duplin County	✓	✓	✓	–	✓	–	–	–	–	–
Beulaville	–	✓	–	–	✓	✓	–	–	–	–
Calypso	–	✓	–	–	✓	–	–	–	–	–
Faison	✓	–	–	–	✓	–	–	–	–	–
Greenevers	✓	–	–	–	✓	–	–	–	–	–
Kenansville	✓	✓	–	–	✓	–	–	–	–	–
Magnolia*	–	–	–	–	–	–	–	–	–	–
Rose Hill	–	✓	–	–	✓	–	–	–	–	–
Teachey	–	–	–	–	✓	–	–	–	–	–
Wallace	✓	–	–	–	✓	✓	✓	–	–	–
Warsaw	✓	✓	–	–	✓	✓	–	–	–	–

**Indicates that the jurisdiction did not provide an update to their Capability Assessment for this update cycle and elected to maintain their previous version (2020).*

6.3.3.1 Community Notes

The bulleted list below captures additional community notes from participating jurisdictions that provide more details on their fiscal capabilities.

- **Autryville** has a water utility and charges customers for its use.

- **Clinton's** water and sewer fees can be obtained from Rhonda Sommer (rsommer@cityofclintonnc.com)
- **Garland** collects water/sewer fees from residents connected to the Town's utilities. The Town has received Community Development Block Grants.
- **Turkey** charges water service fees and has the capability to apply for grant opportunities.
- **Duplin County's** capital improvement program is handled by its administrative team. The County's Planning Department handles Community Development Block Grants. The County has special-purpose taxes in the form of a fire district tax. The County's Water Department collects service fees.
- **Calypso** recently completed a Community Development Block Grant in 2025.
- **Faison's** capital improvement plan is maintained and updated by outside engineering firms, while its water/sewer fees are approved by the jurisdiction's Board of Commissioners and collected by staff Clerks.
- **Greenevers** supports mitigation efforts primarily through a capital improvement program and locally generated revenue from water and sewer fees. While the jurisdiction's funding capacity is limited, these resources help cover administrative and infrastructure-related costs. For larger-scale mitigation projects, Greenevers relies on potential state and federal grant opportunities to supplement local funding.
- **Teachey** has water/sewer fees that apply to services within the jurisdiction and some out-of-town residents. Teachey also collects garbage fees from residents.

6.3.4 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 disasters 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 6-7 provides a summary of the Plan Area's results regarding relevant education and outreach resources. A check mark (✓) indicates that the given resource is locally available for hazard mitigation, while a dash (–) indicates the jurisdiction does not have the resource in place.

Table 6-7: 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
Sampson County	✓	✓	✓	✓	–	✓
Autryville	–	✓	–	–	–	–
Clinton	–	✓	–	–	–	–
Garland	–	–	–	–	–	–
Harrells	–	✓	–	–	–	–
Newton Grove	–	–	–	–	–	–
Roseboro	–	✓	–	–	–	–
Salemburg	✓	✓	–	–	–	–
Turkey	–	–	–	–	–	–
Duplin County	✓	✓	✓	✓	–	✓
Beulaville	–	✓	–	–	–	–
Calypso	–	✓	–	–	–	–
Faison	–	✓	–	–	–	–
Greenevers	✓	✓	–	–	–	–
Kenansville	✓	✓	–	–	–	–
Magnolia*	–	–	–	–	–	–
Rose Hill	–	✓	–	–	–	–
Teachey	–	–	–	–	–	–
Wallace	–	–	–	–	–	–
Warsaw	✓	–	–	–	–	–

**Indicates that the jurisdiction did not provide an update to their Capability Assessment for this update cycle and elected to maintain their previous version (2020).*

6.3.4.1 Community Notes

The bulleted list below captures additional community notes from participating jurisdictions that provide more details on their education and outreach capabilities.

- **Sampson County** has numerous programs within its school system covering public safety topics. The County also has a local Community Emergency Response Team (CERT), and

another is starting up. The County participates in a wide variety of community outreach programs in which it shares information on emergency preparedness and prevention.

- **Autryville** uses its Facebook page to spread information to residents during an emergency.
- **Clinton's** City Hall and Planning Department has informational handouts about flood prevention.
- **Salemburg** coordinates with the Mid Carolina Regional Council for its functional needs, and the jurisdiction's Water/Sewer Department attends annual workshops for continued training.
- **Turkey** has access to the Disaster Recovery Toolkit provided to Sampson County and its municipalities for education and preparedness.
- **Duplin County** is a Know Your Zone County. The County has a Local Emergency Planning Committee (LEPC), a Long-Term Recovery Committee, a Fire Prevention Education Program, StormReady Certification, and partnerships with private companies, including utility companies.
- **Calypso's** Fire Department attends school functions and hosts children at the station upon request.
- **Faison** uses social media to communicate with the public as well as written communication via water bill enclosures and pamphlets available at its Town Hall.
- **Greenevers** engages in ongoing public education efforts to raise awareness of natural hazards and mitigation strategies. In addition, the jurisdiction collaborates with a neighboring local non-profit focused on emergency preparedness. These efforts help inform residents, strengthen community preparedness, and support broader mitigation planning through education and outreach.

6.3.5 Self-Assessment

In addition to inventorying and analyzing specific local capabilities, the *Capability Assessment Survey* asked counties and local jurisdictions within the Plan Area to conduct a self-assessment of their perceived capacity to implement hazard mitigation activities. As part of this process, local officials were encouraged to consider the barriers to implementing proposed mitigation strategies, as well as mechanisms that could enhance or further such strategies. In response to the survey questionnaire, county officials classified each overarching capability category as "Limited," "Moderate," or "High." Participants also rated their jurisdiction's overall capability on a scale of 1 to 10 (10 representing the highest level of capability).Table 6-8 summarizes the self-assessment results for the Sampson-Duplin region.

Table 6-8: Self-Assessment of Capability

Jurisdiction	Plans, Ordinances, Codes, and Programs	Administrative and Technical Capability	Fiscal Capability	Education and Outreach Capability	Political Capability	Overall Capability	Overall Capability to Implement Mitigation Actions (1-10)
Sampson County	**High**	**High**	**Moderate**	**High**	**High**	**High**	**8**
Autryville	Limited	Limited	Limited	Limited	Limited	Limited	1
Clinton	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	5
Garland	Moderate	Moderate	Limited	Limited	Limited	Limited	4
Harrells	Limited	Limited	Limited	Limited	Limited	Limited	-
Newton Grove	Moderate	Moderate	Moderate	Limited	Limited	Moderate	3
Roseboro	Limited	Moderate	Moderate	Limited	Limited	Limited	-
Salemburg	High	High	High	High	High	High	7
Turkey	Limited	Limited	Limited	Limited	Limited	Limited	2
Duplin County	**Moderate**	**Moderate**	**Limited**	**Moderate**	**Moderate**	**Moderate**	**6**
Beulaville	Limited	Limited	Limited	Limited	Limited	Limited	5
Calypso	Limited	Limited	Limited	Limited	Limited	Limited	3
Faison	Moderate	Moderate	High	Moderate	Moderate	Moderate	8
Greenevers	Limited	Limited	Limited	Limited	Limited	Limited	3
Kenansville	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	6
Magnolia*	Limited	Limited	Limited	Limited	Limited	Limited	-
Rose Hill	Limited	Limited	Limited	Limited	Limited	Limited	2
Teachey	High	High	High	High	Moderate	High	6
Wallace	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	5
Warsaw	Moderate	Moderate	Moderate	Limited	Moderate	Moderate	5

**Indicates that the jurisdiction did not provide an update to their Capability Assessment for this update cycle and elected to maintain their previous version (2020)*

6.3.5.1 Community Notes

The bulleted list below captures additional community notes from participating jurisdictions that provide more details on their local self-assessment.

- **Autryville** uses outside consultants, organizations, and agreements with larger municipalities to manage hazards.
- **Garland** would benefit from a hazard mitigation plan and any resources to fortify the jurisdiction from flooding.

- **Salemburg** has a high capability to educate and communicate all areas of hazard mitigation to its residents.
- **Turkey**, while supported by the Mid-Carolina Regional Council, has limited standalone capabilities for disaster preparedness and mitigation efforts. Through its partnership with Mid-Carolina, the jurisdiction has increased access to a range of capabilities and educational materials. Continued outreach and education will benefit Turkey's staff and residents by better preparing them for recovery in the event of a disaster.
- **Beulaville** has a limited number of staff.
- **Calypso's** current staff capabilities could be enhanced with significant training.
- **Faison** has seen a lot of staff turnover in recent years, and there is constant "training" for employees with boots on the ground. The jurisdiction has a good working relationship with local Fire/EMS and, collectively, has considerable administrative experience.
- **Greenevers** has foundational plans in place, including a Comprehensive Land Use Plan, Hazard Mitigation Plan, Capital Improvements Plan, and Zoning Ordinance, and participates in the National Flood Insurance Program. The Jurisdiction's administrative capacity is limited to a Floodplain Manager, with support from regional partners. Greenevers' funding comes from water/sewer fees and a capital improvement program, with grants sought for larger projects. Greenevers has ongoing public education and outreach, supported by a local nonprofit focused on emergency preparedness.
- **Teachey** keeps its residents up to date on weather events. The jurisdiction monitors storms in the area to manage water, sewer, and drainage in the town during flood events.
- **Wallace** has been focusing on flooding issues for the last few years, working with the American Flood Coalition to obtain grants for drainage and waterway improvements. Wallace's capital improvement and emergency management plans have considered the hazards identified in this plan and are working to make the town more resilient during hazardous events.

6.4 Conclusions on Local Capability

The overall capability to implement hazard mitigation actions varies among the participating jurisdictions. For planning and regulatory capability, there was a nearly even split between jurisdictions rating themselves as limited (9) and moderate (8). In contrast, only three communities rated themselves highly in this category. The administrative and technical capabilities component had a similar, relatively even split between jurisdictions, rating themselves as limited (8) and moderate (9), with only three communities rating themselves highly in this category. The fiscal capability category had slightly more jurisdictions rating themselves as limited (10), with seven communities rating themselves as moderate and three as high. The education and outreach, along with the political capability categories, had the most jurisdictions rating themselves as limited. In contrast to other categories, the political category was the only one with just two jurisdictions rating themselves highly.

The overall capability category shows that a majority (10) of participating jurisdictions consider their community's capability to implement mitigation actions to be limited, with only seven ratings of moderate and three as high. Participating jurisdictions were also asked to rate their

community's overall capability to implement hazard mitigation actions between zero and ten. Only 17 jurisdictions provided an overall capability score between one and ten. Of those 17 jurisdictions, the average overall rating is 4.6/10 (rounded to one decimal place). For a complete depiction of the self-assessment results, please refer to Figure 6-2.

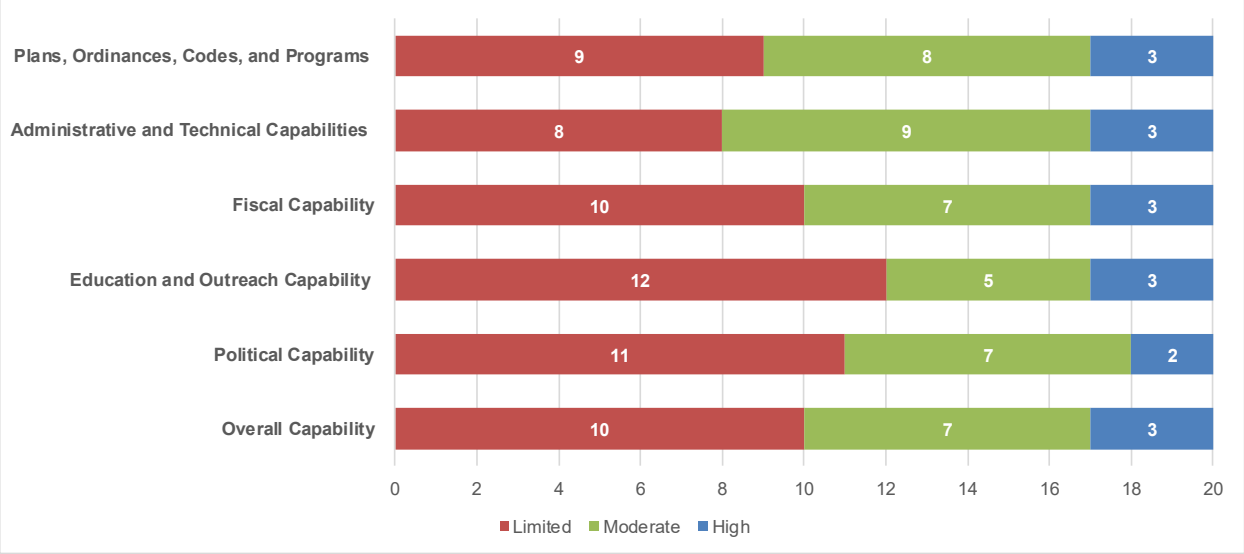


***Figure 6-2**: Local Capability Self-Assessment Results*

As previously discussed, one reason for conducting a *Capability Assessment* is to examine local capabilities and identify gaps or weaknesses in ongoing government activities that could hinder proposed mitigation efforts and potentially exacerbate community vulnerability to hazards. These gaps or deficiencies 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 identified in Section 8; therefore, each jurisdiction addresses its ability to expand and improve its existing capabilities through the identification of its mitigation actions.

The results of the Risk Assessment and Capability Assessment serve as the foundation for developing a comprehensive and effective hazard mitigation strategy. During the process of identifying specific mitigation actions to pursue, the Planning Committee considered not only each jurisdiction's level of hazard risk, but also its existing capability to minimize or eliminate that risk.

SECTION 7: MITIGATION STRATEGY

Section 7 discusses the mitigation strategy process and the mitigation action plan for the Regional Hazard Mitigation Plan (HMP) and outlines all the goals and strategies to be implemented at the county and municipal levels. This chapter consists of the following subsections:

- 7.1 Mitigation Strategy Overview
- 7.2 Goals
- 7.3 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.

7.1 Mitigation Strategy Overview

The results of the planning process, risk assessment, goal setting, and identification of mitigation actions led to the mitigation strategy and mitigation action plan for this HMP. This plan includes a mitigation strategy that analyzes actions the jurisdictions consider to reduce the impacts of the hazards identified in the risk assessment and identifies the actions the jurisdictions intend to implement. All strategies relating to regional initiatives were developed through this planning process. The modifications of these plan elements were based on the direction and input of the HMPC and a range of stakeholders. All actions have been updated to reflect the HMPC's current needs and desires. The mitigation strategies developed through the planning process will be implemented at the county and, in some cases, municipal level. Sampson and Duplin Counties will lead the implementation of all strategies outlined in this plan, with support from all participating jurisdictions.

The following umbrella mitigation strategy was used during the development of this HMP:

- **Communicate** the hazard information collected and analyzed through this planning process, as well as HMPC success stories, so that the community better understands what can happen where and what they themselves can do to be better prepared.
- **Implement** the action plan recommendations of this plan.
- **Use** existing rules, regulations, policies, and procedures already in existence.
- **Monitor** multi-objective management opportunities so that funding opportunities may be shared and packaged, and broader constituent support may be garnered.

As the HMPC developed this action plan, the group focused on six primary mitigation areas for the Region and for each participating jurisdiction. These focus areas define the various aspects

of mitigation and guide the development of a genuinely comprehensive mitigation planning solution.

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, diversions, channel modifications, and storm sewers.
6. **Public Education** includes providing hazard maps and information, outreach programs, real estate disclosure, technical assistance, and education.

7.1.1 Mitigation Plan Progress

Public Participation

All participating jurisdictions work closely with citizens to provide programs and support that improve the Region's resilience 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 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 HMPC intends to expand public outreach efforts, as outlined in the updated strategies.

Monitoring and Evaluation

The Region has and will continue to use the information in this document for day-to-day planning. By monitoring the status of the existing Mitigation Plan, the Region has improved the data used throughout this document. Sampson and Duplin Counties' administrations maintain dialogue with their Boards of Commissioners and municipal representatives regarding mitigation/emergency management issues and provide the public with information when deemed necessary.

Incorporation of Mitigation Plan into Other Planning Mechanisms/Changes in Development

Over the last five years, the Region has made several amendments to its land development policies. The information and strategies outlined within the existing HMPs were factored into

discussions during the development of these documents. This coordination ensures that the information outlined in the hazard mitigation plan is incorporated into land use policy. Additionally, the Region reviewed its 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 in decisions on capital expenditures, including infrastructure improvements (with emphasis on new and existing buildings and infrastructure). The changes in development since the previous plan update have not affected any of the jurisdictions' overall vulnerability to the identified hazards.

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 mitigation program and improved its community's resiliency. A status report on the existing mitigation actions is provided in Section 8 - Mitigation Action Plan to evaluate and demonstrate progress toward achieving and implementing the goals and actions outlined in their mitigation strategy.

7.2 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 6 evaluates the participating jurisdictions' capability to reduce the impact of those hazards. Goal Setting aims to identify areas where improvements to existing capabilities (policies and programs) can reduce community vulnerability. Goals are also necessary to guide the review of possible mitigation measures. This plan ensures that recommended actions are appropriate for the communities and that the hazards identified in the plan's mitigation goals reflect community priorities and are consistent with other plans in the community. Priorities have not changed since the plan was previously approved, though the communities will continually evaluate current conditions, considering disaster events and financial and political realities.

The overall hazard mitigation planning effort is focused on providing the Region with an action plan that will strive to achieve the goals outlined below. To establish this plan, the HMPC decided that the best approach would be to define goals to guide the identification of specific strategies. In taking this approach, the HMPC has reaffirmed the goals described in the previous plan. The overall intent is consistent; however, the language and content of the statements have been slightly modified as outlined in Section 7.2.3.

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.

7.2.1 Coordination with Other Planning Efforts

The goals of this plan must be consistent with and complement those of other planning efforts. The primary planning document that the goals of this Plan must complement and be consistent with is the Comprehensive Plan. The Comprehensive Plan is important because it guides future growth within the community. Therefore, there should be some consistency in the overall goals and how they relate to each other.

An overarching method by which the Planning Committee integrated the previous version of the Sampson-Duplin Regional Hazard Mitigation Plan into other planning mechanisms was by coordinating with the North Carolina Department of Environmental Quality's North Carolina Flood Resiliency Blueprint and related decision-support tool. The North Carolina Flood Resiliency Blueprint (the Blueprint) is the State's science-based and stakeholder-driven initiative designed to support the planning, evaluation, and implementation of flood resilience strategies. The Blueprint consists of several components developed in phases. This includes a decision support tool (Blueprint Tool) and a strategic framework for creating local resilience action plans and River Basin Action Strategies. It also involves sound investments and leveraging available funds through partnerships with state programs and local governments to build flood resilience. Mitigation actions from the previous planning cycle were refined and inputted into the Blueprint Tool as pre-identified actions. By entering these actions into the Blueprint Tool platform, the Planning Committee can more easily visualize and track planned actions across the planning area, promoting regional collaboration and learning more about what other regions are planning, potentially inspiring new actions for this update cycle. Newly added mitigation actions and other information from this Plan's update will continue to be entered into the Blueprint Tool to foster collaboration and support the integration of this Plan into other planning mechanisms.

7.2.2 Compliance with NFIP/CRS

Given the flood hazards in the planning area, an emphasis will be placed on compliance with the National Flood Insurance Program (NFIP) and participation in the Community Rating System (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.

7.2.3 Resulting Goals

As noted, goals are statements of desirable future conditions that are to be achieved. They are broad in scope and help set community priorities. The following goals will provide the basis for the implementation strategies outlined in this section, some of which are already being implemented locally. These goals consider the strategic goals outlined in the existing plan. These goals represent what the participating jurisdictions seek to accomplish through the implementation of the mitigation plan. These goals are consistent with the hazards identified in the plan and the North Carolina State Hazard Mitigation Plan.

Table 7-1: Sampson Duplin HMP Goals

Sampson Duplin HMP Goals
Goal 1 Protect public health, safety, and welfare by increasing public awareness of hazards and by encouraging collective and individual responsibility for mitigating hazard risks.
Goal 2 Improve technical capability to respond to hazards and to improve the effectiveness of hazard mitigation actions.
Goal 3 Enhance existing or create new policies and ordinances that will help reduce the damaging effects of natural hazards.
Goal 4 Protect the most vulnerable populations, buildings, and critical facilities through the implementation of cost-effective and technically feasible mitigation actions.

7.3 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.

7.3.1 Prioritization Process

The mitigation actions identified by jurisdictions during this plan update will be prioritized, implemented, and administered by each local jurisdiction. Prioritization emphasizes the extent to which benefits are maximized, given the cost-benefit review of the proposed projects and their associated costs. The actions in the following table have been ranked based on a cost-benefit review conducted by the HMPC through the planning process. Each implementing action has been provided a priority of low, medium, or high based on this review. The following provides a breakdown of the factors utilized to conduct this cost-benefit review:

- **High Priority:** Highly cost-effective, administratively feasible, and politically feasible strategies that should be implemented in 2 fiscal years and be continued.
- **Medium Priority:** Strategies that have at least two of the following characteristics (but not all three) and should be implemented in 3 fiscal years:
    - Highly cost-effective; or
    - Administratively feasible, given current levels of staffing and resources; or
    - Are politically popular and supportable given the current environment.

- **Low Priority:** Strategies that have one of the following characteristics and should be implemented in the next five years:
    - Highly cost-effective; or
    - Administratively feasible, given current levels of staffing and resources; or
    - Are politically popular and supportable given the current environment.

Strategies will be implemented earlier if resources are available. It should also be noted that projects or initiatives given low priority may ultimately depend on grant funding. In devising the strategies outlined in this section, the HMPC considered the following factors:

- 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 jurisdiction's standing in the NFIP.

In accordance with the Disaster Mitigation Act (DMA) requirements, emphasis was placed on the importance of a benefit-cost analysis in determining action priority. The HMPC reviewed each potential statement based on the overall benefit in relation to the financial and staff resources required for implementation.

Table 8-1 provides a detailed breakdown of specific mitigation actions to aid the Region and all participating jurisdictions in advancing the goals discussed throughout this section of the plan. These actions are intended to address activities to be achieved over the next five years. After this period, the HMPC will revisit these actions as outlined within Section 9, Plan Maintenance.

SECTION 8: 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.

Each proposed mitigation action has been identified as an effective measure (policy or project) to reduce hazard risk for the Region. Each action is listed in the Mitigation Action Plan (MAP) in conjunction with background information such as hazard(s) addressed and relative priority. Other information provided in the MAP includes potential funding sources to implement the action, should funding be required (not all proposed actions are contingent upon funding). Most importantly, implementation mechanisms are provided for each action, including the designation of the lead agency or department responsible for carrying it out and a timeframe for its completion. These implementation mechanisms ensure that the Plan remains a functional document that can be monitored for progress over time. The proposed actions are not listed in priority order, though each has been assigned a priority level of "high," "moderate," or "low" as described below. Priorities have not changed since the previous plan was approved.

The Mitigation Action Plan is organized by mitigation strategy category (Prevention, Property Protection, Natural Resource Protection, Structural Projects, Emergency Services, or Public Education and Awareness). The following are the key elements described in the *Mitigation Action Plan*.

Table 8-1: *Definitions for mitigation action plan details*

Category	Definition	
Hazards	Hazard that the action addresses.	
Relative Priority	High	Highly cost-effective, administratively feasible, and politically feasible strategies that could be implemented in 2 fiscal years and be continued.
	Medium	Strategies that have at least two of the following characteristics (but not all three) and could 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.

Category	Definition	
	Low	Strategies that have one of the following characteristics and could 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.
Action Type	Prevention	Preventative activities are intended to keep hazard problems from getting worse and are typically administered through government programs or regulatory actions that influence the way land is developed, and buildings are built.
	Property Protection	Property protection measures involve the modification of existing buildings and structures to help them better withstand the forces of a hazard, or removal of the structures from hazardous locations.
	Natural Resource Protection	Natural resource protection activities reduce the impact of natural hazards by preserving or restoring natural areas and their protective functions. Such areas include floodplains, wetlands, steep slopes, and sand dunes.
	Structural Projects	Structural mitigation projects are intended to lessen the impact of a hazard by modifying the environmental natural progression of the hazard event through construction.
	Public Education	Public education and awareness activities are used to advise residents, elected officials, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques they can use to protect themselves and their property.
	Emergency Services	Although not typically considered a “mitigation” technique, emergency service measures do minimize the impact of a hazard event on people and property.
Action Status	To Be Continued:	Continuing action or program; requires annual or periodic maintenance to continue the action.
	Complete:	No further action required for mitigation action to be implemented or used.
	In Progress:	Action is currently being implemented.

Category	Definition	
	Deferred:	Action will be reevaluated later.
	Deleted:	The Jurisdiction will no longer utilize the action as a viable mitigation action that can be implemented.
	New	The mitigation action has just been added to the HMP.
Estimated Cost	Low	Less than $10,000
	Moderate	$10,000 -$50,000
	High	More than $50,000
Potential Funding Sources	Local, State, or Federal sources such as grant funds or general operating budgets are noted here, where applicable.	
Responsible Party	Department responsible for undertaking the action.	
Time frame	Short-Term	1-2 years
	Medium-Term	3-5 years
	Long-Term	greater than 5 years

Table 8-1: *Sampson County Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Sampson County	Property Protection	Acquire properties in the floodplain.	Inland Flooding, Dam Failures, Hurricane/Tropical Storm	High	Sampson County, Clinton, Autryville, Garland, Harrells, Newton Grove, Roseboro, Salemburg, Turkey Administrators	General Fund, HMGP, PDM, FMA	High	5+ Years	To Be Continued	Funding and resource constraints have impacted progress. Eligible properties will be acquired as funding allows. This action will be reviewed and updated as needed or during the following HMP update process.
Sampson County	Emergency Services	Conduct exercises of the County Emergency Operations Plan periodically. These efforts will include participation by all municipalities.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, North Carolina Department of Public Safety (NCDPS)	Low; Local Staff Time	2-5 Years	In Progress	In July 2025, the county conducted functional exercise testing of the EOC's new facility and procedures. Exercises will be conducted periodically and as needed. This action will be updated as needed or during the following HMP update process.
Sampson County	Prevention	Consider applying to the Community Rating System using Hazard Mitigation Plan components to fulfill application requirements.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/ Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low; Local Staff Time	2-5 Years	To Be Continued	The County and City of Clinton Planning Departments separated in July 2018. No progress has been made at the Sampson County level due to a lack of funding and staff. This action will be implemented as funding becomes available. This will be reviewed and updated as needed or during the following HMP update process.
Sampson County	Prevention	Continue to enforce NC state building codes for wind restrictions and ensure that mobile/ manufactured homes are installed and secured properly. (CRS 430)	Tornado, Hurricane/ Tropical Storm	High	Clinton-Sampson Planning Department Municipal Inspections Department	General Fund	Low; Local Staff Time	--	Complete	--

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Sampson County	Emergency Services	Continue to implement Emergency Planning Community Right-to-Know Act, 42 USC 11001, et. seq., and Hazard Materials Incident Preparedness.	Man-made	High	Sampson County Emergency Management	General Fund	Low	2-5 Years	To Be Continued	In 2025, Sampson County reached 100% compliance with the facilities' reporting requirements. LEPC continues to meet quarterly. This action will be updated as needed or during the following HMP update process.
Sampson County	Public Education	Continue to maintain a library of materials focused on educating citizens, builders, realtors, and developers about the dangers associated with floodplain development. It will also provide techniques for floodproofing of existing structures. (CRS 430/ 450/460)	Flooding, Dam Failure, Severe Weather, Hurricane/ Tropical Storm	High	Clinton and Sampson Planning Departments; Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	2-5 Years	To Be Continued	The County and jurisdictions maintain staff educated in these issues to work with prospective builders.
Sampson County	Prevention	Continue to maintain a zoning and other regulatory ordinance (i.e., stormwater) to regulate land development in portions of the county already zoned and within municipal areas where zoning regulations are in place, and where land use is permitted.	Flooding, Dam Failures, Severe Weather, Hurricane/ Tropical Storm	Medium	Clinton-Sampson Planning Department Sampson County Administration	General Fund	Low; Local Staff Time	5+ Years	To Be Continued	Zoning and regulatory ordinances will be updated as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Sampson County	Prevention	Continue to maintain and enforce County/ Municipal Water Shortage Ordinances. These efforts will involve monitoring regional drought conditions and coordination with NCDEQ.	Drought	High	Sampson County Public Works Municipal Administration	General Fund	Low	--	To Be Continued	County ordinances are continually reviewed, maintained, and enforced as needed. This action will be updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Sampson County	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural mitigation grant funding process.	Flooding, Dam Failures, Hurricane/Tropical Storm	High	Sampson County Administration Municipal Administration	General Fund, NCDPS, PDM, HMGP	Low; Local Staff Time	5+ Years	To Be Continued	The County will seek grant funding as needed or as new repetitive loss properties are identified. The county will maintain an annual list of repetitive-loss properties and apply for funding for structures that meet FEMA-defined cost-benefit thresholds. This action will be updated as needed or during the following HMP update process.
Sampson County	Prevention	Continue to review and update the Continuity of Operations plan annually to ensure continuity of government services in the event of a disaster, including identifying leadership succession, evaluating access problems to critical facilities, making recommendations for protecting critical facilities, and establishing alternate operations.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	2-5 Years	In Progress	The County continually reviews all plans based on funding and staffing availability. This action will be reviewed and updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Sampson County	Natural Resource Protection	Continue supporting and maintaining the volunteer Friends of the River program.	Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Friends of the River Program	Volunteer	Low; Local Staff Time	5+ Years	Deferred	The Friends of the River Program continues its efforts. The County cannot support the program financially due to insufficient funding. This action may be reconsidered as funding becomes available.
Sampson County	Prevention	Coordinate with NCDEQ to enforce all NC State Erosion and Sedimentation and Erosion Control Regulations.	Flooding, Dam Failure, Hurricane/ Tropical Storm, Severe Weather	High	Clinton and Sampson Planning Department Municipal Administration	General Fund, NCDEQ	Low	2-5 Years	To Be Continued	No measurable progress in the last 5 years. This action will be updated as needed or during the following HMP update process.
Sampson County	Emergency Services	Develop a Community Emergency Response Team (CERT) to promote volunteer opportunities for emergency prevention, preparedness, and response to all hazards. These efforts will include training and recruitment of new CERT teams.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	2-5 Years	In Progress	A small CERT was established in 2024 with a church organization. They have had difficulty maintaining membership, as most volunteer agencies do. This action will be updated as needed or during the following HMP update process.
Sampson County	Public Education	Develop and implement a hazard awareness program, including availability / dissemination of educational materials on all-natural disasters and hazards. (CRS 450)	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	2-5 Years	In Progress	No measurable progress in the last 5 years. This action will be updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Sampson County	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, Appalachian Regional Commission (ARC)	Low	2-5 Years	In Progress	Funding and resource constraints have impacted progress. Critical facilities will be evaluated and assessed as funding and resources become available. This action will be updated as needed or during the following HMP update process.
Sampson County	Property Protection	Expand the beaver management program to mitigate stream debris and property loss if funding is available. If funding is unavailable, alternative approaches will be developed to address stream/drainage clearance.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Sampson County Administration	General Fund, NCDEQ, HMGP	Low; Local Staff Time	--	Complete	--
Sampson County	Emergency Services	Expand upon the County's Special Medical Needs Registry (SMNR). The SMNR is available to all County residents. Effective participation will require close coordination between County EM and local government staff members. All jurisdictions will work to advertise the availability of this service within their respective communities.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	2-5 Years	In Progress	No measurable progress in the last 5 years. This will be implemented as funding and resources become available. This action will be updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Sampson County	Emergency Services	Increase the reach of mass warning systems for all hazards and all jurisdictions in the county.	All Hazards	High	Sampson County, Clinton, Autryville, Garland, Harrells, Newton Grove, Roseboro, Salemburg, Turkey Administrators	General Fund, HMGP, PDM	High	1-2 Years	In Progress	New vendor for mass notification chosen, implementation in progress. This action will be updated and reviewed as needed or during the following HMP update process.
Sampson County	Emergency Services	Maintain a joint planning office with the City of Clinton to coordinate day-to-day implementation of land-use policies and regulatory ordinances. (CRS 320, 440)	All Hazards	High	Clinton and Sampson Planning Departments; Sampson County Administration	General Fund	Low; Local Staff Time	--	Complete	The County and City of Clinton Planning Departments separated in July 2018.
Sampson County	Prevention	Maintain and regularly update the County's GIS system. These efforts will include: (1) utilizing GIS to catalog protected areas (wildlife, land conservancy, wetlands) that should be protected from development, (2) working toward completion of computer modeling of public infrastructure/utilities, assessing potential hazards, and (3) identifying transportation systems to review and/or designate systematic evacuation routes. This map will be	All Hazards	High	Sampson County Tax Administration Sampson County Administration	General Fund	Low; Local Staff Time	2-5 Years	To Be Continued	In Sampson County, the GIS function became a full-time service instead of being contracted out. Layers are continually built and updated. This action will be reviewed and updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		available online once complete. (CRS 320, 440)								
Sampson County	Emergency Services	Maintain regulatory ordinances, emergency operations plans, and hazard awareness information on jurisdictions' websites, and provide access to GIS data on those websites.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	2-5 Years	To Be Continued	The county website has been updated with preparedness resources. The county website will be maintained as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Sampson County	Emergency Services	Maintain the County Emergency Operations Plan (EOP), including maintenance of the County's web-based EOP portal. These efforts shall include an assessment of conditions and issues affecting key evacuation routes.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low	2-5 Years	In Progress	No measurable progress in the last 5 years. This action will be updated as needed or during the following HMP update process.
Sampson County	Emergency Services	Provide backup power to critical facilities.	All Hazards	High	Sampson County, Clinton, Autryville, Garland, Harrells, Newton Grove, Roseboro, Salemburg, Turkey Administrators	General Fund, HMGP	High	5+ Years	To Be Continued	Hobbton Middle School generator project was completed in 08/2025. Lakewood High School is anticipated to be completed by 4/2026. This action will be implemented as new backup power opportunities at critical facilities are identified or as funding becomes available. This action will be updated as needed or during the following HMP update process.
Sampson County	Prevention	Revise/update regulatory floodplain maps (Statewide Floodplain Mapping Initiative) as required by the NFIP program. The County will assist all participating	Flooding, Dam Failures, Hurricane/Tropical Storm	High	Sampson County, Clinton, Autryville, Garland, Harrells,	General Fund, NCEM	High	5+ Years	To Be Continued	Regulatory floodplain maps will be updated and revised as required by the NFIP. This will be updated as needed or during the next HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		jurisdictions through the review process. (CRS 410)			Newton Grove, Roseboro, Salemburg, Turkey Administrators					
Sampson County	Prevention	Revise/update regulatory floodplain maps (Statewide Floodplain Mapping Initiative) as required by the NFIP program. The County will assist all participating jurisdictions through the review process. (CRS 410)	Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low	--	Complete	--
Sampson County	Property Protection	Target key properties located in flood hazard areas for open space acquisition; identify appropriate protected properties for passive recreation opportunities. (CRS 420)	Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Sampson County Parks & Recreation Clinton-Sampson Planning Department	General Fund	Low; Local Staff Time	5+ Years	To Be Continued	Properties in flood hazard areas will be acquired for open space as properties are identified and as funding becomes available. This action will be updated and reviewed as needed or during the following HMP update process.
Sampson County	Prevention	Updating and maintaining a Parks & Recreation Master Plan	All Hazards	Medium	Sampson County Parks & Recreation Clinton-Sampson Planning Department	General Fund	Low; Local Staff Time	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be reviewed and updated as needed or during the following HMP update process.
Sampson County	Public Education	Work closely with real estate agents to ensure that prospective buyers are educated about development within a flood hazard area. The County will prepare materials for dissemination to local real	Inland Flooding, Hurricane/Tropical Storm, Severe Weather	Medium	Clinton-Sampson Planning Department Municipal Administration	General Fund, NCDPS	Low	--	Complete	GIS mapping of flood plain areas completed.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		estate agents to assist in this education process. (CRS 450)								
Sampson County	Prevention	Work in cooperation with Sampson County to provide one point-of-contact for zoning requirements.	All Hazards	Medium	Salemburg Administration Sampson County Administration	General Fund	Low; Local Staff Time	--	Complete	--
Sampson County	Prevention	Develop inundation modeling for each dam in the planning area that does not already have inundation data. Evaluate infrastructure, property, and people at risk of dam failure impacts to identify and implement projects that improve resiliency to dam failure impacts	Dam Failure	High	Sampson County Administration	General Fund, Grant funding	High	5+ Years	New	--

Table 8-2: *Autryville Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Autryville	Prevention	Consider applying to the Community Rating System using Hazard Mitigation Plan components to fulfill application requirements.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low; Local Staff Time	--	Deleted	--
Autryville	Prevention	Continue to development of a Land Use Plan.	All Hazards	Medium	Autryville Administration	General Fund	Low	--	Deleted	Autryville does not plan to develop a Land Use Plan.
Autryville	Prevention	Continue to enforce NC state building codes for wind restrictions and ensure that mobile/ manufactured homes are installed and secured properly. (CRS 430)	Tornado, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Inspections Department	General Fund	Low; Local Staff Time	--	Deleted	--
Autryville	Emergency Services	Continue to implement Emergency Planning Community Right-to-Know Act, 42 USC 11001, et. seq., and Hazard Materials Incident Preparedness.	Man-made	High	Sampson County Emergency Management	General Fund	Low	--	Deleted	--
Autryville	Public Education	Continue to maintain a library of materials focused on educating citizens, builders, realtors, and developers about the dangers associated with floodplain development. It	Inland Flooding, Dam Failure, Severe Weather,	High	Clinton and Sampson Planning Departments; Sampson County	General Fund, NCDPS, HMGP	Low	--	Deleted	--

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		will also provide techniques for floodproofing of existing structures. (CRS 430/ 450/460)	Hurricane/Tropical Storm		Emergency Management					
Autryville	Prevention	Continue to maintain a zoning and other regulatory ordinance (i.e., stormwater) to regulate land development in portions of the county already zoned and within municipal areas where zoning regulations are in place, and where land use is permitted.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Clinton-Sampson Planning Department Sampson County Administration	General Fund	Low; Local Staff Time	--	Deleted	--
Autryville	Prevention	Continue to maintain and enforce County/ Municipal Water Shortage Ordinances. These efforts will involve monitoring regional drought conditions and coordination with NCDEQ.	Drought	High	Sampson County Public Works Municipal Administration	General Fund	Low	--	Deleted	--
Autryville	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal	Inland Flooding, Dam Failures, Hurricane/Tropical Storm	High	Sampson County Administration Municipal Administration	General Fund, NCDPS, PDM, HMGP	Low; Local Staff Time	--	Deleted	--

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		jurisdictions in working through the structural mitigation grant funding process.								
Autryville	Prevention	Continue to review and update the Continuity of Operations plan annually to ensure continuity of government services in the event of a disaster, including identifying leadership succession, evaluating access problems to critical facilities, making recommendations for protecting critical facilities, and establishing alternate operations.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	--	Deleted	--
Autryville	Natural Resource Protection	Continue supporting and maintaining the volunteer Friends of the River program.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Friends of the River Program	Volunteer	Low; Local Staff Time	--	Deleted	--
Autryville	Prevention	Coordinate with NCDEQ to enforce all NC State Erosion and Sedimentation and Erosion Control Regulations.	Inland Flooding, Dam Failure, Hurricane/Tropical Storm,	High	Clinton and Sampson Planning Department Municipal Administration	General Fund, NCDEQ	Low	--	Deleted	--

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
			Severe Weather							
Autryville	Emergency Services	Develop a Community Emergency Response Team to promote volunteer opportunities for emergency prevention, preparedness, and response to all hazards. These efforts will include training and recruitment of new CERT teams.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	--	Deleted	--
Autryville	Public Education	Develop and implement a hazard awareness program, including availability / dissemination of educational materials on all-natural disasters and hazards. (CRS 450)	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	5+ Years	To Be Continued	No measurable progress due to lack of funding. This action will be implemented as funding becomes available and will be reviewed and updated as needed.
Autryville	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, ARC	Low	1-2 Years	To Be Continued	Critical facilities are assessed annually. This action will be updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Autryville	Property Protection	Expand the beaver management program to mitigate stream debris and property loss if funding is available. If funding is unavailable, alternative approaches will be developed to address stream/drainage clearance.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Sampson County Administration	General Fund, NCDEQ, HMGP	Low; Local Staff Time	--	Deleted	--
Autryville	Emergency Services	Expand upon the County's Special Medical Needs Registry (SMNR). The SMNR is available to all County residents. Effective participation will require close coordination between County EM and local government staff members. All jurisdictions will work to advertise the availability of this service within their respective communities.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	--	Deleted	--
Autryville	Prevention	Maintain and regularly update the County's GIS system. These efforts will include: (1) utilizing GIS to catalog protected areas (wildlife, land conservancy, wetlands) that should be protected from development, (2) working toward completion of computer modeling of public infrastructure/utilities, assessing potential hazards, and (3) identifying	All Hazards	High	Sampson County Tax Administration Sampson County Administration	General Fund	Low; Local Staff Time	0-1 Years	To Be Continued	This action is implemented regularly. This action will be reviewed and updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		transportation systems to review and/or designate systematic evacuation routes. This map will be available online once completed. (CRS 320, 440)								
Autryville	Emergency Services	Maintain regulatory ordinances, emergency operations plans, and hazard awareness information on jurisdictions' websites, and provide website access to GIS data.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	--	Deleted	--
Autryville	Emergency Services	Maintain the County Emergency Operations Plan, including maintenance of the County's web-based EOP portal. These efforts shall include an assessment of conditions and issues affecting key evacuation routes.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low	--	Deleted	--
Autryville	Prevention	Revise/update regulatory floodplain maps (Statewide Floodplain Mapping Initiative) as required by the NFIP program. The County will assist all participating jurisdictions through the review process. (CRS 410)	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low	--	Deleted	--
Autryville	Prevention	Updating and maintaining a Parks & Recreation Master Plan	All Hazards	Medium	Sampson County Parks & Recreation Clinton-Sampson	General Fund	Low; Local Staff Time	--	Deleted	--

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
					Planning Department					
Autryville	Public Education	Work closely with real estate agents to ensure that prospective buyers are educated about development within a flood hazard area. The County will prepare materials for dissemination to local real estate agents to assist in this education process. (CRS 450)	Inland Flooding, Hurricane/Tropical Storm, Severe Weather	Medium	Clinton-Sampson Planning Department Municipal Administration	General Fund, NCDPS	Low	--	Deleted	--

Table 8-3: *Clinton Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Clinton	Property Protection	Carry out activities required under the Community Rating System Program (refer to Section 6.IV)	Inland Flooding, Dam Failures, Severe Weather, Hurricane/	High	Clinton Administration	General Fund, NCDPS	Low	5+ Years	In Progress	Approximately 15% complete. CRS activities will be implemented as soon as possible, subject to funding availability. This action will be reviewed and updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
			Tropical Storm							
Clinton	Emergency Services	Conduct exercises of the County Emergency Operations Plan periodically. These efforts will include participation by all municipalities.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	5+ Years	In Progress	Will continue to work with County EM to conduct periodic exercises. This action will be reviewed and updated as needed or during the following HMP update process.
Clinton	Prevention	Consider developing and adopting a Stormwater Management Ordinance.	Inland Flooding, Dam Failure, Severe Weather, Hurricane/ Tropical Storm	Medium	Clinton Administration	General Fund	Low	5+ Years	In Progress	No measurable progress in the last 5 years in developing a stormwater management ordinance. The stormwater management ordinance will be considered as needed or as funding allows. This action will be reviewed and updated as needed or during the following HMP update process.
Clinton	Prevention	Continue to enforce NC state building codes for wind restrictions and ensure that mobile/ manufactured homes are installed and secured properly. (CRS 430)	Tornado, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Inspections Department	General Fund	Low; Local Staff Time	Choose an item.	In Progress	Building codes and manufactured home installation codes are enforced continually and as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Clinton	Emergency Services	Continue to implement Emergency Planning Community Right-to-Know Act, 42 USC 11001, et. seq., and Hazard Materials Incident Preparedness.	Man-made	High	Sampson County Emergency Management	General Fund	Low	5+ Years	To Be Continued	Currently developing training programs that promote HazMat Awareness through the County LEPC. This action will be reviewed and updated as training programs are created or as needed.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Clinton	Public Education	Continue to maintain a library of materials focused on educating citizens, builders, realtors, and developers about the dangers associated with floodplain development. It will also provide techniques for floodproofing of existing structures. (CRS 430/ 450/460)	Inland Flooding, Dam Failure, Severe Weather, Hurricane/Tropical Storm	High	Clinton and Sampson Planning Departments; Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	5+ Years	To Be Continued	The County and jurisdictions maintain staff educated in these issues to work with prospective builders. Materials will be updated as needed or as funding and staff availability allow. This action will be reviewed and updated as needed or during the following HMP update process.
Clinton	Prevention	Continue to maintain a zoning and other regulatory ordinance (i.e., stormwater) to regulate land development in portions of the county already zoned and within municipal areas where zoning regulations are in place, and where land use.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Clinton-Sampson Planning Department Sampson County Administration	General Fund	Low; Local Staff Time	5+ Years	To Be Continued	Zoning and regulatory ordinances will be updated as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Clinton	Prevention	Continue to maintain and enforce County/ Municipal Water Shortage Ordinances. These efforts will involve monitoring of regional drought conditions and coordination with NCDEQ.	Drought	High	Sampson County Public Works Municipal Administration	General Fund	Low	5+ Years	To Be Continued	Reviewed and enforced as needed and continually.
Clinton	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual	Inland Flooding, Dam Failures, Hurricane/Tropical Storm	High	Sampson County Administration Municipal Administration	General Fund, NCDPS, PDM, HMGP	Low; Local Staff Time	5+ Years	In Progress	As of this Plan's update, approximately 12 grants have been submitted to the state for review. Continually seeking grant funding as eligible RLPs are identified for potential mitigation projects. This action will be reviewed and updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural mitigation grant funding process.								
Clinton	Prevention	Continue to review and update the Continuity of Operations plan annually to ensure continuity of government services in the event of a disaster, including identifying leadership succession, evaluating access problems to critical facilities, making recommendations for protecting critical facilities, and establishing alternate operations.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	--	Deferred	Clinton does not currently have a Continuity of Operations Plan (COOP). This may be reconsidered if Clinton develops or adopts a COOP in the future.
Clinton	Natural Resource Protection	Continue supporting and maintaining the volunteer Friends of the River program.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Friends of the River Program	Volunteer	Low; Local Staff Time	5+ Years	To Be Continued	Maintain support as funding and staffing allow. This action will be reviewed and updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Clinton	Prevention	Coordinate with NCDEQ to enforce all NC State Erosion and Sedimentation and Erosion Control Regulations.	Inland Flooding, Dam Failure, Hurricane/Tropical Storm, Severe Weather	High	Clinton and Sampson Planning Department Municipal Administration	General Fund, NCDEQ	Low	5+ Years	In Progress	No measurable progress in the last 5 years. Will coordinate with NCDEQ to enforce erosion and sedimentation regulations, as needed and continually. This action will be updated and reviewed as needed or during the following HMP update process.
Clinton	Emergency Services	Develop a Community Emergency Response Team to promote volunteer opportunities for emergency prevention, preparedness, and response to all hazards. These efforts will include training and recruitment of new CERT teams.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	5+ Years	In Progress	No measurable progress in the last 5 years. Will consider developing a community emergency response team to promote preparedness, volunteering opportunities, and emergency prevention, as funding allows. This action will be reviewed and updated as needed or during the following HMP update process.
Clinton	Public Education	Develop and implement a hazard awareness program, including availability / dissemination of educational materials on all-natural disasters and hazards. (CRS 450)	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	5+ Years	In Progress	No measurable progress in the last 5 years due to a lack of funding. This will be implemented as staff availability allows or as funding becomes available. This action will be reviewed and updated as needed or during the following HMP update process.
Clinton	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes,	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, ARC	Low	5+ Years	In Progress	Critical facilities are assessed by the county annually. This action will be updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		etc., to make determinations regarding need and capacity.								
Clinton	Property Protection	Expand the beaver management program to mitigate stream debris and property loss if funding is available. If funding is unavailable, alternative approaches will be developed to address stream/drainage clearance.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Sampson County Administration	General Fund, NCDEQ, HMGP	Low; Local Staff Time	5+ Years	In Progress	Due to funding constraints and staff availability, no measurable progress has been made. This action will be implemented as funding or staffing allows. This action will be reviewed and updated as needed or during the following HMP update process.
Clinton	Emergency Services	Expand upon the County's Special Medical Needs Registry (SMNR). The SMNR is available to all County residents. Effective participation will require close coordination between County EM and local government staff members. All jurisdictions will work to advertise the availability of this service within their respective communities.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress in the last 5 years. Will implement action as funding allows and as the county develops its special needs registry. This action will be updated as needed or during the following HMP update process.
Clinton	Prevention	Maintain a joint planning office with the City of Clinton to coordinate day-to-day implementation of land-use policies and regulatory ordinances. (CRS 320, 440)	All Hazards	High	Clinton and Sampson Planning Departments; Sampson County Administration	General Fund	Low; Local Staff Time	--	Deleted	The County and City of Clinton Planning Departments separated in July 2018.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Clinton	Prevention	Maintain and regularly update the County's GIS system. These efforts will include: (1) utilizing GIS to catalog protected areas (wildlife, land conservancy, wetlands) that should be protected from development, (2) working toward completion of computer modeling of public infrastructure/utilities, assessing potential hazards, and (3) identifying transportation systems to review and/or designate systematic evacuation routes. This map will be available online once complete. (CRS 320, 440)	All Hazards	High	Sampson County Tax Administration Sampson County Administration	General Fund	Low; Local Staff Time	5+ Years	To Be Continued	GIS data is updated as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Clinton	Emergency Services	Maintain regulatory ordinances, emergency operations plans, and hazard awareness information on jurisdictions' websites, and provide access to GIS data on those websites.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress in the last 5 years. Hazard awareness information and ordinances will be maintained on the jurisdiction's website when staff and funding allow. This action will be reviewed and updated as needed or during the following HMP update process.
Clinton	Emergency Services	Maintain the County Emergency Operations Plan, including maintenance of the County's web based EOP portal. These efforts shall include an assessment of conditions and issues	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress in the last 5 years. Will continue to assist the County with maintaining EOP when necessary. This action will be reviewed and updated as needed or during the next HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		affecting key evacuation routes.								
Clinton	Prevention	Revise/update regulatory floodplain maps (Statewide Floodplain Mapping Initiative) as required by the NFIP program. The County will assist all participating jurisdictions through the review process. (CRS 410)	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low	5+ Years	In Progress	Will work with the county to revise and update regulatory floodplain maps as required by the NFIP. This will be reviewed and updated as needed or during the next HMP update process.
Clinton	Prevention	Updating and maintaining a Parks & Recreation Master Plan	All Hazards	Medium	Sampson County Parks & Recreation Clinton-Sampson Planning Department	General Fund	Low; Local Staff Time	5+ Years	In Progress	Due to lack of funding and available staff, no measurable progress has been made. This will be implemented as funding allows and as needed. This action will be reviewed and updated as needed or during the next HMP update process.
Clinton	Public Education	Work closely with real estate agents to ensure that prospective buyers are educated about development within a flood hazard area. The County will prepare materials for dissemination to local real estate agents to assist in this education process. (CRS 450)	Inland Flooding, Hurricane/Tropical Storm, Severe Weather	Medium	Clinton-Sampson Planning Department Municipal Administration	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress due to lack of funding. This action will be implemented as funding becomes available and will be reviewed and updated as needed.

Table 8-4: *Garland Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Garland	Emergency Services	Conduct exercises of the County Emergency Operations Plan periodically. These efforts will include participation by all municipalities.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	1-2 Years	In Progress	Will work with the County as they conduct emergency operations exercises. This action will be reviewed and updated as needed or during the following HMP update process.
Garland	Prevention	Consider applying to the Community Rating System using Hazard Mitigation Plan components to fulfill application requirements.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low; Local Staff Time	1-2 Years	Deferred	No flood zone in the Town limits according to NCFRIS. However, this action will be reevaluated during the following HMP process or as needed.
Garland	Prevention	Continue to enforce NC state building codes for wind restrictions and ensure that mobile/ manufactured homes are installed and secured properly. (CRS 430)	Tornado, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Inspections Department	General Fund	Low; Local Staff Time	5+ Years	To Be Continued	Building codes and manufactured home installation codes are enforced continually and as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Garland	Emergency Services	Continue to implement Emergency Planning Community Right-to-Know Act, 42 USC 11001, et. seq., and Hazard Materials Incident Preparedness.	Man-made	High	Sampson County Emergency Management	General Fund	Low	1-2 Years	To Be Continued	No measurable progress developing training programs that promote HazMat Awareness through the County LEPC. This action will be implemented and reviewed, and updated as needed, or during the following HMP update process.
Garland	Public Education	Continue to maintain a library of materials focused on educating citizens, builders, realtors, and developers about the dangers associated with	Inland Flooding, Dam Failure, Severe Weather,	High	Clinton and Sampson Planning Departments; Sampson County	General Fund, NCDPS, HMGP	Low	5+ Years	To Be Continued	The County and jurisdictions maintain staff educated in these issues to work with prospective builders. These materials are updated as needed or as funding or staffing allows. This action will be updated and reviewed as needed or

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		floodplain development. It will also provide techniques for floodproofing of existing structures. (CRS 430/ 450/460)	Hurricane/Tropical Storm		Emergency Management					during the following HMP update process.
Garland	Prevention	Continue to maintain a zoning and other regulatory ordinance (i.e., stormwater) to regulate land development in portions of the county already zoned and within municipal areas where zoning regulations are in place, and where land use is permitted.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Clinton-Sampson Planning Department Sampson County Administration	General Fund	Low; Local Staff Time	2-5 Years	To Be Continued	Will continue to maintain and update zoning and regulatory ordinances as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Garland	Prevention	Continue to maintain and enforce County/ Municipal Water Shortage Ordinances. These efforts will involve monitoring of regional drought conditions and coordination with NCDEQ.	Drought	High	Sampson County Public Works Municipal Administration	General Fund	Low	5+ Years	To Be Continued	Ordinances and regulations are enforced continually and as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Garland	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working	Inland Flooding, Dam Failures, Hurricane/Tropical Storm	High	Sampson County Administration Municipal Administration	General Fund, NCDPS, PDM, HMGP	Low; Local Staff Time	1-2 Years	To Be Continued	As of this Plan's update, approximately 12 grants have been submitted to the state for review. Continually seeking grant funding as eligible RLPs are identified for potential mitigation projects. This action will be reviewed and updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		through the structural mitigation grant funding process.								
Garland	Prevention	Continue to review and update the Continuity of Operations plan annually to ensure continuity of government services in the event of a disaster, including identifying leadership succession, evaluating access problems to critical facilities, making recommendations for protecting critical facilities, and establishing alternate operations.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	1-2 Years	In Progress	No measurable progress to report. Will work with the county to assist in reviewing and updating the Continuity of Operations plan as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Garland	Natural Resource Protection	Continue supporting and maintaining the volunteer Friends of the River program.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Friends of the River Program	Volunteer	Low; Local Staff Time	1-2 Years	To Be Continued	Maintained as needed and as resources allow. This action will be reviewed and updated as needed or during the following HMP update process.
Garland	Prevention	Continue to update the Town Zoning Ordinance, Code of Ordinances, and Land Use Plan.	All Hazards	Medium	Garland Administration	General Fund	Low	5+ Years	In Progress	Ordinance updates continue as needed. This action will be reviewed and updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Garland	Prevention	Coordinate with NCDEQ to enforce all NC State Erosion and Sedimentation and Erosion Control Regulations.	Inland Flooding, Dam Failure, Hurricane/Tropical Storm, Severe Weather	High	Clinton and Sampson Planning Department Municipal Administration	General Fund, NCDEQ	Low	5+ Years	In Progress	No measurable progress. Sediment and erosion control regulations are continually enforced as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Garland	Emergency Services	Develop a Community Emergency Response Team to promote volunteer opportunities for emergency prevention, preparedness, and response to all hazards. These efforts will include training and recruitment of new CERT teams.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	1-2 Years	In Progress	No measurable progress in the last 5 years. Will develop a community emergency response team as funding and staff availability allow. This action will be reviewed and updated as needed or during the following HMP update process.
Garland	Public Education	Develop and implement a hazard awareness program, including availability / dissemination of educational materials on all-natural disasters and hazards. (CRS 450)	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	5+ Years	To Be Continued	No measurable progress in the last 5 years due to a lack of funding. This will be implemented as staff availability allows or as funding becomes available. This action will be reviewed and updated as needed or during the following HMP update process.
Garland	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes,	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, ARC	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		etc., to make determinations regarding need and capacity.								
Garland	Property Protection	Expand the beaver management program to mitigate stream debris and property loss if funding is available. If funding is unavailable, alternative approaches will be developed to address stream/drainage clearance.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Sampson County Administration	General Fund, NCDEQ, HMGP	Low; Local Staff Time	2-5 Years	In Progress	Due to limited staff and resources, no measurable progress has been made. The beaver management program will be expanded as funding becomes available and reevaluated as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Garland	Emergency Services	Expand upon the County's Special Medical Needs Registry (SMNR). The SMNR is available to all County residents. Effective participation will require close coordination between County EM and local government staff members. All jurisdictions will work to advertise the availability of this service within their respective communities.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the following HMP update process.
Garland	Prevention	Maintain and regularly update the County's GIS system. These efforts will include: (1) utilizing GIS to catalog protected areas (wildlife, land conservancy, wetlands) that should be protected from development, (2) working toward completion of computer modeling of public	All Hazards	High	Sampson County Tax Administration Sampson County Administration	General Fund	Low; Local Staff Time	1-2 Years	To Be Continued	GIS data is updated as needed. This action will be reviewed and updated as needed or during the next HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		infrastructure/utilities, assessing potential hazards, and (3) identifying transportation systems to review and/or designate systematic evacuation routes. This map will be available online once complete. (CRS 320, 440)								
Garland	Emergency Services	Maintain regulatory ordinances, emergency operations plans, and hazard awareness information on jurisdictions' websites, and provide access to GIS data on those websites.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	5+ Years	In Progress	Regulatory ordinances and hazard preparedness information are maintained regularly on jurisdiction websites. This action will be reviewed and updated as needed or during the following HMP update process.
Garland	Emergency Services	Maintain the County Emergency Operations Plan, including maintenance of the County's web-based EOP portal. These efforts shall include an assessment of conditions and issues affecting key evacuation routes.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low	1-2 Years	In Progress	No measurable progress in the last 5 years. Will maintain emergency operations information on websites as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Garland	Prevention	Revise/update regulatory floodplain maps (Statewide Floodplain Mapping Initiative) as required by the NFIP program. The County will assist all participating jurisdictions through the review process. (CRS 410)	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low	5+ Years	To Be Continued	Regulatory floodplain maps will be updated and revised as required by the NFIP. This will be updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Garland	Prevention	Updating and maintaining a Parks & Recreation Master Plan	All Hazards	Medium	Sampson County Parks & Recreation Clinton-Sampson Planning Department	General Fund	Low; Local Staff Time	2-5 Years	In Progress	Working on grants to update existing park facilities. This action will be reviewed and updated as needed or during the next HMP update process.
Garland	Public Education	Work closely with real estate agents to ensure that prospective buyers are educated about development within a flood hazard area. The County will prepare materials for dissemination to local real estate agents to assist in this education process. (CRS 450)	Inland Flooding, Hurricane/Tropical Storm, Severe Weather	Medium	Clinton-Sampson Planning Department Municipal Administration	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the next HMP update process.

Table 8-5: *Harrells Mitigation Action*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Harrells	Emergency Services	Conduct exercises of the County Emergency Operations Plan periodically. These efforts will include participation by all municipalities.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	5+ Years	To Be Continued	Will continue to work with the county to conduct exercises as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Harrells	Prevention	Consider applying to the Community Rating System using Hazard Mitigation Plan components to fulfill application requirements.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low; Local Staff Time	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made in the last 5 years. This action will be reevaluated as funding becomes available. This action will be reviewed and updated during the following HMP update process.
Harrells	Prevention	Continue to enforce NC state building codes for wind restrictions and ensure that mobile/ manufactured homes are installed and secured properly. (CRS 430)	Tornado, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Inspections Department	General Fund	Low; Local Staff Time	5+ Years	To Be Continued	There are no Mobile homes in the Town of Harrells. However, Harrells will continue to enforce building codes as needed and continually. This action will be updated as needed or during the following HMP update process.
Harrells	Emergency Services	Continue to implement Emergency Planning Community Right-to-Know Act, 42 USC 11001, et. seq., and Hazard Materials Incident Preparedness.	Man-made	High	Sampson County Emergency Management	General Fund	Low	--	Deleted	Deleted
Harrells	Public Education	Continue to maintain a library of materials focused on educating citizens, builders, realtors, and developers about the dangers associated with floodplain development. It	Inland Flooding, Dam Failure, Severe Weather,	High	Clinton and Sampson Planning Departments; Sampson County	General Fund, NCDPS, HMGP	Low	5+ Years	To Be Continued	Will continue to maintain a list of library materials to educate the public on natural hazards. This action will be reviewed and updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		will also provide techniques for floodproofing of existing structures. (CRS 430/ 450/460)	Hurricane/Tropical Storm		Emergency Management					
Harrells	Prevention	Continue to maintain a zoning and other regulatory ordinance (i.e., stormwater) to regulate land development in portions of the county already zoned and within municipal areas where zoning regulations are in place, and where land use is permitted.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Clinton-Sampson Planning Department Sampson County Administration	General Fund	Low; Local Staff Time	5+ Years	To Be Continued	We will continue to work with the Mid-Carolina Council of Government on all zoning ordinances, and the ordinances will be maintained regularly. This action will be reviewed and updated as needed or during the following HMP update process.
Harrells	Prevention	Continue to maintain and enforce County/ Municipal Water Shortage Ordinances. These efforts will involve monitoring regional drought conditions and coordination with NCDEQ.	Drought	High	Sampson County Public Works Municipal Administration	General Fund	Low	5+ Years	To Be Continued	Ordinances will be enforced continually and as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Harrells	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural	Inland Flooding, Dam Failures, Hurricane/Tropical Storm	High	Sampson County Administration Municipal Administration	General Fund, NCDPS, PDM, HMGP	Low; Local Staff Time	5+ Years	To Be Continued	Still working with Sampson County to apply for grants as needed. This action will be reviewed and updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		mitigation grant funding process.								
Harrells	Prevention	Continue to review and update the Continuity of Operations plan annually to ensure continuity of government services in the event of a disaster, including identifying leadership succession, evaluating access problems to critical facilities, making recommendations for protecting critical facilities, and establishing alternate operations.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	5+ Years	To Be Continued	This action will be reviewed and updated annually.
Harrells	Natural Resource Protection	Continue supporting and maintaining the volunteer Friends of the River program.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/ Tropical Storm	High	Friends of the River Program	Volunteer	Low; Local Staff Time	5+ Years	To Be Continued	Will continue to maintain support as available. This action will be reviewed and updated as needed or during the following HMP update process.
Harrells	Prevention	Continue to update the Town Code of Ordinances	All Hazards	High	Newton Grove Administration	General Fund	Low	5+ Years	To Be Continued	Will be updated as needed. This action will be reviewed and updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Harrells	Prevention	Coordinate with NCDEQ to enforce all NC State Erosion and Sedimentation and Erosion Control Regulations.	Inland Flooding, Dam Failure, Hurricane/ Tropical Storm, Severe Weather	High	Clinton and Sampson Planning Department Municipal Administration	General Fund, NCDEQ	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the following HMP update process.
Harrells	Emergency Services	Develop a Community Emergency Response Team to promote volunteer opportunities for emergency prevention, preparedness, and response to all hazards. These efforts will include training and recruitment of new CERT teams.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	5+ Years	To Be Continued	We have emergency response volunteers and a list of around 25 volunteers who are willing to assist in the event of an emergency. Will continue to promote volunteer opportunities. This action will be reviewed and updated as needed or during the following HMP update process.
Harrells	Public Education	Develop and implement a hazard awareness program, including availability / dissemination of educational materials on all-natural disasters and hazards. (CRS 450)	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	5+ Years	To Be Continued	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the following HMP update process.
Harrells	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes,	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, ARC	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the next HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		etc., to make determinations regarding need and capacity.								
Harrells	Property Protection	Expand the beaver management program to mitigate stream debris and property loss if funding is available. If funding is unavailable, alternative approaches will be developed to address stream/drainage clearance.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Sampson County Administration	General Fund, NCDEQ, HMGP	Low; Local Staff Time	5+ Years	To Be Continued	A beaver was successfully relocated with assistance from the state. We will continue to consider beaver management programs as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Harrells	Emergency Services	Expand upon the County's Special Medical Needs Registry (SMNR). The SMNR is available to all County residents. Effective participation will require close coordination between County EM and local government staff members. All jurisdictions will work to advertise the availability of this service within their respective communities.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the following HMP update process.
Harrells	Prevention	Maintain and regularly update the County's GIS system. These efforts will include: (1) utilizing GIS to catalog protected areas (wildlife, land conservancy, wetlands) that should be protected from development, (2) working toward completion of computer modeling of public	All Hazards	High	Sampson County Tax Administration Sampson County Administration	General Fund	Low; Local Staff Time	5+ Years	Deleted	We will continue to support the County's GIS system. This action will be reviewed and updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		infrastructure/utilities, assessing potential hazards, and (3) identifying transportation systems to review and/or designate systematic evacuation routes. This map will be available online once complete. (CRS 320, 440)								
Harrells	Emergency Services	Maintain regulatory ordinances, emergency operations plans, and hazard awareness information on jurisdictions' websites, and provide access to GIS data on those websites.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the following HMP update process.
Harrells	Emergency Services	Maintain the County Emergency Operations Plan, including maintenance of the County's web-based EOP portal. These efforts shall include an assessment of conditions and issues affecting key evacuation routes.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low	5+ Years	To Be Continued	Will continue to work with the County to maintain the EOP Portal. This action will be reviewed and updated as needed or during the following HMP update process.
Harrells	Prevention	Revise the Town's Land Use Plan as needed.	All Hazards	High	Newton Grove Administration	General Fund	Low	5+ Years	To Be Continued	Will be updated as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Harrells	Prevention	Revise/update regulatory floodplain maps (Statewide Floodplain Mapping Initiative) as required by the	Inland Flooding, Dam Failures,	High	Clinton-Sampson Planning Department	General Fund	Low	5+ Years	To Be Continued	Regulatory floodplain maps will be updated and revised as required by the NFIP. This will be updated as needed or during the next HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		NFIP program. The County will assist all participating jurisdictions through the review process. (CRS 410)	Severe Weather, Hurricane/Tropical Storm		Municipal Administration					
Harrells	Prevention	Updating and maintaining a Parks & Recreation Master Plan	All Hazards	Medium	Sampson County Parks & Recreation Clinton-Sampson Planning Department	General Fund	Low; Local Staff Time	5+ Years	In Progress	Due to lack of funding and staff availability, no measurable progress has been made. This action will be implemented as funding or staffing allows. This action will be reviewed and updated as needed or during the next HMP update process.
Harrells	Public Education	Work closely with real estate agents to ensure that prospective buyers are educated about development within a flood hazard area. The County will prepare materials for dissemination to local real estate agents to assist in this education process. (CRS 450)	Inland Flooding, Hurricane/Tropical Storm, Severe Weather	Medium	Clinton-Sampson Planning Department Municipal Administration	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the next HMP update process.

Table 8-6: *Newton Grove Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Newton Grove	Emergency Services	Conduct exercises of the County Emergency Operations Plan periodically. These efforts will include participation by all municipalities.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	5+ Years	In Progress	Will continue to participate with the County conducting exercises from the County Emergency Operations plan as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Newton Grove	Prevention	Consider applying to the Community Rating System using Hazard Mitigation Plan components to fulfill application requirements.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low; Local Staff Time	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made in the last 5 years. This action will be reevaluated as funding becomes available or as needed. This action will be reviewed and updated during the following HMP update process.
Newton Grove	Prevention	Continue to enforce NC state building codes for wind restrictions and ensure that mobile/ manufactured homes are installed and secured properly. (CRS 430)	Tornado, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Inspections Department	General Fund	Low; Local Staff Time	5+ Years	In Progress	Building codes and manufactured home installation codes are enforced continually and as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Newton Grove	Emergency Services	Continue to implement Emergency Planning Community Right-to-Know Act, 42 USC 11001, et. seq., and Hazard Materials Incident Preparedness.	Man-made	High	Sampson County Emergency Management	General Fund	Low	5+ Years	To Be Continued	Currently developing training programs that promote HazMat Awareness through the County LEPC. This action will be reviewed and updated as needed or during the following HMP update process.
Newton Grove	Public Education	Continue to maintain a library of materials focused on educating citizens, builders, realtors, and developers about the dangers associated with floodplain development. It	Inland Flooding, Dam Failure, Severe Weather,	High	Clinton and Sampson Planning Departments; Sampson County	General Fund, NCDPS, HMGP	Low	5+ Years	To Be Continued	The County and jurisdictions maintain staff educated in these issues to work with prospective builders. This action will be reviewed and updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		will also provide techniques for floodproofing of existing structures. (CRS 430/ 450/460)	Hurricane/Tropical Storm		Emergency Management					
Newton Grove	Prevention	Continue to maintain a zoning and other regulatory ordinance (i.e., stormwater) to regulate land development in portions of the county already zoned and within municipal areas where zoning regulations are in place, and where land use is permitted.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Clinton-Sampson Planning Department Sampson County Administration	General Fund	Low; Local Staff Time	5+ Years	To Be Continued	Zoning and other ordinances will be updated as necessary. This action will be reviewed and updated as needed or during the following HMP update process.
Newton Grove	Prevention	Continue to maintain and enforce County/ Municipal Water Shortage Ordinances. These efforts will involve monitoring of regional drought conditions and coordination with NCDEQ.	Drought	High	Sampson County Public Works Municipal Administration	General Fund	Low	5+ Years	To Be Continued	Reviewed and enforced as needed. This action will be reviewed and updated as needed or during the following HMP update process.
Newton Grove	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural	Inland Flooding, Dam Failures, Hurricane/Tropical Storm	High	Sampson County Administration Municipal Administration	General Fund, NCDPS, PDM, HMGP	Low; Local Staff Time	5+ Years	In Progress	As of the previous HMP update, 12 grants had been submitted to the state for review. Will continue to seek grant funding as eligible RLPs are identified, and the County will maintain a list of RLPs and apply for funding on an annual basis. This action will be reviewed and updated during the next HMP update process or as needed.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		mitigation grant funding process.								
Newton Grove	Prevention	Continue to review and update the Continuity of Operations plan annually to ensure continuity of government services in the event of a disaster, including identifying leadership succession, evaluating access problems to critical facilities, making recommendations for protecting critical facilities, and establishing alternate operations.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	5+ Years	In Progress	No measurable progress in the last 5 years. Will continue to review and update the Continuity of Operations plan as needed. This action will be updated and reviewed as needed or during the following HMP update process.
Newton Grove	Natural Resource Protection	Continue supporting and maintaining the volunteer Friends of the River program.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Friends of the River Program	Volunteer	Low; Local Staff Time	5+ Years	To Be Continued	Maintain support as funding and staff availability allow. This action will be reviewed and updated during the following HMP update process.
Newton Grove	Prevention	Continue to update the Town Code of Ordinances	All Hazards	High	Newton Grove Administration	General Fund	Low	5+ Years	To Be Continued	Code of Ordinances Updated as needed. This action will be updated as needed or during the following HMP update process.
Newton Grove	Prevention	Coordinate with NCDEQ to enforce all NC State Erosion and Sedimentation and Erosion Control Regulations.	Inland Flooding, Dam Failure, Hurricane/Tropical Storm,	High	Clinton and Sampson Planning Department Municipal Administration	General Fund, NCDEQ	Low	5+ Years	In Progress	Erosion and sedimentation regulations are enforced continually and as needed. This action status will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
			Severe Weather							
Newton Grove	Emergency Services	Develop a Community Emergency Response Team to promote volunteer opportunities for emergency prevention, preparedness, and response to all hazards. These efforts will include training and recruitment of new CERT teams.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	5+ Years	To Be Continued	No measurable progress has been made in the last 5 years. This action will be reviewed and updated as needed or during the following HMP update process.
Newton Grove	Public Education	Develop and implement a hazard awareness program, including the availability / dissemination of educational materials on all-natural disasters and hazards. (CRS 450)	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	5+ Years	To Be Continued	No measurable progress has been made in the last 5 years. Will evaluate implementing this action as funding and staffing allow. This action will be reviewed and updated as needed or during the following HMP update process.
Newton Grove	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, ARC	Low	5+ Years	In Progress	No measurable progress in the last 5 years. Will evaluate and assess critical facilities when funding and staff availability allow. This action status will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Newton Grove	Property Protection	Expand the beaver management program to mitigate stream debris and property loss if funding is available. If funding is unavailable, alternative approaches will be developed to address stream/drainage clearance.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Sampson County Administration	General Fund, NCDEQ, HMGP	Low; Local Staff Time	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be reviewed and updated during the following HMP update process.
Newton Grove	Emergency Services	Expand upon the County's Special Medical Needs Registry (SMNR). The SMNR is available to all County residents. Effective participation will require close coordination between County EM and local government staff members. All jurisdictions will work to advertise the availability of this service within their respective communities.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress in the last 5 years. Will work with the county as needed to ensure that residents can participate in the Special Medical Needs Registry. This action status will be reviewed and updated as needed or during the next HMP update.
Newton Grove	Prevention	Maintain and regularly update the County's GIS system. These efforts will include: (1) utilizing GIS to catalog protected areas (wildlife, land conservancy, wetlands) that should be protected from development, (2) working toward completion of computer modeling of public infrastructure/utilities, assessing potential hazards, and (3) identifying	All Hazards	High	Sampson County Tax Administration Sampson County Administration	General Fund	Low; Local Staff Time	5+ Years	To Be Continued	GIS systems will be updated as needed. This will be reviewed and updated as needed or during the next HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		transportation systems to review and/or designate systematic evacuation routes. This map will be available online once completed. (CRS 320, 440)								
Newton Grove	Emergency Services	Maintain regulatory ordinances, emergency operations plans, and hazard awareness information on jurisdictions' websites, and provide access to GIS data on those websites.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	5+ Years	In Progress	Ordinances and plans will be maintained regularly and as needed. This action status will be reviewed and updated as needed or during the next HMP update.
Newton Grove	Emergency Services	Maintain the County Emergency Operations Plan, including maintenance of the County's web-based EOP portal. These efforts shall include an assessment of conditions and issues affecting key evacuation routes.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress has been made in the last 5 years. This action will be reviewed and updated as needed or during the following HMP update process.
Newton Grove	Prevention	Revise the Town's Land Use Plan as needed.	All Hazards	High	Newton Grove Administration	General Fund	Low	5+ Years	In Progress	No measurable progress over the last 5 years, but the land-use plan will be updated as needed. This action will be updated as needed or during the following HMP update process.
Newton Grove	Prevention	Revise/update regulatory floodplain maps (Statewide Floodplain Mapping Initiative) as required by the NFIP program. The County will assist all participating jurisdictions through the review process. (CRS 410)	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low	5+ Years	In Progress	Regulatory floodplain maps will be updated and revised as required by the NFIP. This will be updated as needed or during the following HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Newton Grove	Prevention	Updating and maintaining a Parks & Recreation Master Plan	All Hazards	Medium	Sampson County Parks & Recreation Clinton-Sampson Planning Department	General Fund	Low; Local Staff Time	5+ Years	In Progress	Due to lack of funding and available staff, no measurable progress has been made. This action will be reviewed and updated as needed or during the next HMP update process.
Newton Grove	Public Education	Work closely with real estate agents to ensure that prospective buyers are educated about development within a flood hazard area. The County will prepare materials for dissemination to local real estate agents to assist in this education process. (CRS 450)	Inland Flooding, Hurricane/Tropical Storm, Severe Weather	Medium	Clinton-Sampson Planning Department Municipal Administration	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress due to lack of funding. This action will be implemented as funding and resources become available. This action will be reviewed and updated as needed or during the next HMP update process.

Table 8-7: *Roseboro Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Roseboro	Emergency Services	Conduct exercises of the County Emergency Operations Plan periodically. These efforts will include participation by all municipalities.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	2-5 Years	To Be Continued	Will work with the county to conduct periodic exercises. This action will be reviewed and updated as needed or during the next HMP update.
Roseboro	Prevention	Consider applying to the Community Rating System using Hazard Mitigation Plan components to fulfill application requirements.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/ Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low; Local Staff Time	2-5 Years	Deferred	Due to a lack of funding and available staff, no measurable progress has been made in the last 5 years. This action will be reviewed and updated as needed or during the next HMP update.
Roseboro	Prevention	Continue to enforce NC state building codes for wind restrictions and ensure that mobile/ manufactured homes are installed and secured properly. (CRS 430)	Tornado, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Inspections Department	General Fund	Low; Local Staff Time	2-5 Years	To Be Continued	Building codes and manufactured home installation codes are enforced continually and as needed. This action will be reviewed and updated as needed or during the following HMP update.
Roseboro	Emergency Services	Continue to implement Emergency Planning Community Right-to-Know Act, 42 USC 11001, et. seq., and Hazard Materials Incident Preparedness.	Man-made	High	Sampson County Emergency Management	General Fund	Low	5+ Years	To Be Continued	Currently developing training programs that promote HazMat Awareness through the County LEPC. This will be reviewed and updated as needed or during the next HMP update.
Roseboro	Public Education	Continue to maintain a library of materials focused on educating citizens, builders, realtors, and developers about the dangers associated with	Inland Flooding, Dam Failure, Severe Weather,	High	Clinton and Sampson Planning Departments; Sampson County	General Fund, NCDPS, HMGP	Low	5+ Years	To Be Continued	The County and jurisdictions maintain staff educated in these issues to work with prospective builders. The library will be updated as needed and as funding or staffing allows. This action will be

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		floodplain development. It will also provide techniques for floodproofing of existing structures. (CRS 430/ 450/460)	Hurricane/Tropical Storm		Emergency Management					reviewed and updated as needed or during the following HMP update.
Roseboro	Prevention	Continue to maintain a zoning and other regulatory ordinance (i.e., stormwater) to regulate land development in portions of the county already zoned and within municipal areas where zoning regulations are in place, and where land use is permitted.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Clinton-Sampson Planning Department Sampson County Administration	General Fund	Low; Local Staff Time	5+ Years	To Be Continued	Ordinances will be maintained regularly and as needed. This action will be reviewed and updated as needed or during the next HMP update.
Roseboro	Prevention	Continue to maintain and enforce County/ Municipal Water Shortage Ordinances. These efforts will involve monitoring regional drought conditions and coordination with NCDEQ.	Drought	High	Sampson County Public Works Municipal Administration	General Fund	Low	2-5 Years	In Progress	Ordinances and regulations are enforced continually and as needed. This action will be reviewed and updated as needed or during the next HMP update.
Roseboro	Prevention	Continue to maintain the Town's Water Shortage Response Plan.	Drought	Medium	Roseboro Administration	General Fund	Low	1-2 Years	To Be Continued	Maintained annually. This action will be reviewed and updated as needed or during the next HMP update.
Roseboro	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit	Inland Flooding, Dam Failures, Hurricane/Tropical Storm	High	Sampson County Administration Municipal Administration	General Fund, NCDPS, PDM, HMGP	Low; Local Staff Time	2-5 Years	In Progress	Will work with the County to identify RLPs and obtain funding for buildings that meet cost-benefit thresholds as defined by FEMA. This action will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		thresholds. The County will assist all municipal jurisdictions in working through the structural mitigation grant funding process.								
Roseboro	Prevention	Continue to review and update the Continuity of Operations plan annually to ensure continuity of government services in the event of a disaster, including identifying leadership succession, evaluating access problems to critical facilities, making recommendations for protecting critical facilities, and establishing alternate operations.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	2-5 Years	In Progress	No measurable progress in the last 5 years. Will continue to review and update the Continuity of Operations plan as needed. This action will be updated and reviewed as needed or during the next HMP update.
Roseboro	Natural Resource Protection	Continue supporting and maintaining the volunteer Friends of the River program.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/ Tropical Storm	High	Friends of the River Program	Volunteer	Low; Local Staff Time	5+ Years	To Be Continued	Will continue to support and maintain the volunteer Friends of the River program as funding and staffing allow. This action will be reviewed and updated as needed or during the next HMP update.
Roseboro	Prevention	Continue to update the Land Use Plan and Code of Ordinances as needed.	All Hazards	Medium	Roseboro Administration	General Fund	Low	5+ Years	To Be Continued	Updated as needed. This action will be reviewed and updated as needed or during the following HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Roseboro	Prevention	Coordinate with NCDEQ to enforce all NC State Erosion and Sedimentation and Erosion Control Regulations.	Inland Flooding, Dam Failure, Hurricane/ Tropical Storm, Severe Weather	High	Clinton and Sampson Planning Department Municipal Administration	General Fund, NCDEQ	Low	5+ Years	To Be Continued	Erosion and Sedimentation regulations are enforced continuously and as needed. This action will be reviewed and updated as needed or during the next HMP update.
Roseboro	Emergency Services	Develop a Community Emergency Response Team to promote volunteer opportunities for emergency prevention, preparedness, and response to all hazards. These efforts will include training and recruitment of new CERT teams.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	5+ Years	To Be Continued	No measurable progress due to insufficient funding. This will be reviewed and updated as needed or during the next HMP update.
Roseboro	Public Education	Develop and implement a hazard awareness program, including availability / dissemination of educational materials on all-natural disasters and hazards. (CRS 450)	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	5+ Years	To Be Continued	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the next HMP update.
Roseboro	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes,	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, ARC	Low	5+ Years	To Be Continued	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		etc., to make determinations regarding need and capacity.								
Roseboro	Property Protection	Expand the beaver management program to mitigate stream debris and property loss if funding is available. If funding is unavailable, alternative approaches will be developed to address stream/drainage clearance.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Sampson County Administration	General Fund, NCDEQ, HMGP	Low; Local Staff Time	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be reevaluated if funding allows. This action will be reviewed and updated as needed or during the next HMP update.
Roseboro	Emergency Services	Expand upon the County's Special Medical Needs Registry (SMNR). The SMNR is available to all County residents. Effective participation will require close coordination between County EM and local government staff members. All jurisdictions will work to advertise the availability of this service within their respective communities.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	5+ Years	To Be Continued	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the next HMP update.
Roseboro	Prevention	Maintain and regularly update the County's GIS system. These efforts will include: (1) utilizing GIS to catalog protected areas (wildlife, land conservancy, wetlands) that should be protected from development, (2) working toward completion of computer modeling of public	All Hazards	High	Sampson County Tax Administration Sampson County Administration	General Fund	Low; Local Staff Time	5+ Years	To Be Continued	GIS data is updated as needed. This action will be reviewed and updated as needed or during the next HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		infrastructure/utilities, assessing potential hazards, and (3) identifying transportation systems to review and/or designate systematic evacuation routes. This map will be available online once completed. (CRS 320, 440)								
Roseboro	Emergency Services	Maintain regulatory ordinances, emergency operations plans, and hazard awareness information on jurisdictions' websites, and provide access to GIS data on those websites.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	5+ Years	To Be Continued	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the next HMP update.
Roseboro	Emergency Services	Maintain the County Emergency Operations Plan, including maintenance of the County's web-based EOP portal. These efforts shall include an assessment of conditions and issues affecting key evacuation routes.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low	2-5 Years	In Progress	Will assist the county in updating the Emergency Operations Plan as needed. This action will be reviewed and updated as needed or during the next HMP update.
Roseboro	Prevention	Revise/update regulatory floodplain maps (Statewide Floodplain Mapping Initiative) as required by the NFIP program. The County will assist all participating jurisdictions through the review process. (CRS 410)	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low	2-5 Years	In Progress	Floodplain maps are revised and updated as required by the NFIP and as needed. This action will be reviewed and updated as needed or during the following HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Roseboro	Prevention	Updating and maintaining a Parks & Recreation Master Plan	All Hazards	Medium	Sampson County Parks & Recreation Clinton-Sampson Planning Department	General Fund	Low; Local Staff Time	5+ Years	To Be Continued	Due to lack of funding and available staff, no measurable progress has been made. The plan will be updated as funding and staff availability allows. This action will be reviewed and updated as needed or during the next HMP update process.
Roseboro	Public Education	Work closely with real estate agents to ensure that prospective buyers are educated about development within a flood hazard area. The County will prepare materials for dissemination to local real estate agents to assist in this education process. (CRS 450)	Inland Flooding, Hurricane/Tropical Storm, Severe Weather	Medium	Clinton-Sampson Planning Department Municipal Administration	General Fund, NCDPS	Low	2-5 Years	To Be Continued	No measurable progress due to a lack of funding. This action will be reviewed and updated as needed or during the next HMP update process.

Table 8-8: *Salemburg Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Salemburg	Prevention	Complete and adopt a Land Development Plan.	All Hazards	Medium	Salemburg Administration	General Fund	Low; Local Staff Time	0-1 Years	In Progress	Due to staffing shortages, no measurable progress has been made. This action will be reviewed and updated as needed or during the following HMP update.
Salemburg	Emergency Services	Conduct exercises of the County Emergency Operations Plan periodically. These efforts will include participation by all municipalities.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	2-5 Years	In Progress	Last Exercise in 2020. Will continue to work with the County to conduct exercises as needed. This action will be reviewed and updated as needed or during the next HMP update.
Salemburg	Prevention	Consider applying to the Community Rating System using Hazard Mitigation Plan components to fulfill application requirements.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low; Local Staff Time	5+ Years	Deferred	Due to a lack of funding and available staff, no measurable progress has been made in the past five years. This action will be reviewed and updated as needed or during the next HMP update.
Salemburg	Prevention	Continue to enforce NC state building codes for wind restrictions and ensure that mobile/ manufactured homes are installed and secured properly. (CRS 430)	Tornado, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Inspections Department	General Fund	Low; Local Staff Time	1-2 Years	In Progress	Building codes and manufactured home installation codes are enforced continually and as needed. This action will be reviewed and updated as needed or during the next HMP update.
Salemburg	Emergency Services	Continue to implement Emergency Planning Community Right-to-Know Act, 42 USC 11001, et. seq., and Hazard Materials Incident Preparedness.	Man-made	High	Sampson County Emergency Management	General Fund	Low	1-2 Years	To Be Continued	Currently developing training programs that promote HazMat Awareness through the County LEPC. This action will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Salemburg	Public Education	Continue to maintain a library of materials focused on educating citizens, builders, realtors, and developers about the dangers associated with floodplain development. It will also provide techniques for floodproofing of existing structures. (CRS 430/ 450/460)	Inland Flooding, Dam Failure, Severe Weather, Hurricane/Tropical Storm	High	Clinton and Sampson Planning Departments; Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	2-5 Years	To Be Continued	The County and jurisdictions maintain staff educated in these issues to work with prospective builders. This action will be reviewed and updated as needed or during the next HMP update.
Salemburg	Prevention	Continue to maintain a zoning and other regulatory ordinance (i.e., stormwater) to regulate land development in portions of the county already zoned and within municipal areas where zoning regulations are in place, and where land use is permitted.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Clinton-Sampson Planning Department Sampson County Administration	General Fund	Low; Local Staff Time	2-5 Years	To Be Continued	Ordinances are maintained, reviewed, and enforced as needed. This action will be updated as needed or during the next HMP update.
Salemburg	Prevention	Continue to maintain and enforce County/ Municipal Water Shortage Ordinances. These efforts will involve monitoring regional drought conditions and coordination with NCDEQ.	Drought	High	Sampson County Public Works Municipal Administration	General Fund	Low	1-2 Years	To Be Continued	Ordinances are reviewed and enforced as needed. This action will be updated as needed or during the next HMP update.
Salemburg	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual	Inland Flooding, Dam Failures, Hurricane/Tropical Storm	High	Sampson County Administration Municipal Administration	General Fund, NCDPS, PDM, HMGP	Low; Local Staff Time	5+ Years	In Progress	As of 2025, the number of grants that have been applied for and obtained is uncertain. Will continue to work with the County to maintain lists of RLPs and apply for funding, as needed. This action will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural mitigation grant funding process.								
Salemburg	Prevention	Continue to review and update the Continuity of Operations plan annually to ensure continuity of government services in the event of a disaster, including identifying leadership succession, evaluating access problems to critical facilities, making recommendations for protecting critical facilities, and establishing alternate operations.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	2-5 Years	In Progress	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the next HMP update.
Salemburg	Natural Resource Protection	Continue supporting and maintaining the volunteer Friends of the River program.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Friends of the River Program	Volunteer	Low; Local Staff Time	2-5 Years	To Be Continued	Will continue to support and maintain the volunteer Friends of the River program as funding and staffing allow. This action will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Salemburg	Prevention	Coordinate with NCDEQ to enforce all NC State Erosion and Sedimentation and Erosion Control Regulations.	Inland Flooding, Dam Failure, Hurricane/Tropical Storm, Severe Weather	High	Clinton and Sampson Planning Department Municipal Administration	General Fund, NCDEQ	Low	2-5 Years	In Progress	Erosion and Sedimentation regulations are enforced continuously and as needed. This action will be reviewed and updated as needed or during the next HMP update.
Salemburg	Emergency Services	Develop a Community Emergency Response Team to promote volunteer opportunities for emergency prevention, preparedness, and response to all hazards. These efforts will include training and recruitment of new CERT teams.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	2-5 Years	In Progress	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the next HMP update.
Salemburg	Public Education	Develop and implement a hazard awareness program, including availability / dissemination of educational materials on all-natural disasters and hazards. (CRS 450)	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	2-5 Years	To Be Continued	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the next HMP update.
Salemburg	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes,	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, ARC	Low	1-2 Years	In Progress	No measurable progress in the last 5 years .This action will be reviewed and updated as needed or during the next HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		etc., to make determinations regarding need and capacity.								
Salemburg	Property Protection	Expand the beaver management program to mitigate stream debris and property loss if funding is available. If funding is unavailable, alternative approaches will be developed to address stream/drainage clearance.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Sampson County Administration	General Fund, NCDEQ, HMGP	Low; Local Staff Time	2-5 Years	In Progress	Due to a lack of funding, no measurable progress has been made. This action will be reviewed and updated as needed or during the next HMP update.
Salemburg		Expand upon the County's Special Medical Needs Registry (SMNR). The SMNR is available to all County residents. Effective participation will require close coordination between County EM and local government staff members. All jurisdictions will work to advertise the availability of this service within their respective communities.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	2-5 Years	In Progress	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the next HMP update.
Salemburg		Maintain and regularly update the County's GIS system. These efforts will include: (1) utilizing GIS to catalog protected areas (wildlife, land conservancy, wetlands) that should be protected from development, (2) working toward completion of computer modeling of public	All Hazards	High	Sampson County Tax Administration Sampson County Administration	General Fund	Low; Local Staff Time	2-5 Years	To Be Continued	GIS data is updated as needed. This action will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		infrastructure/utilities, assessing potential hazards, and (3) identifying transportation systems to review and/or designate systematic evacuation routes. This map will be available online once complete. (CRS 320, 440)								
Salemburg	Emergency Services	Maintain regulatory ordinances, emergency operations plans, and hazard awareness information on jurisdictions' websites, and provide access to GIS data on those websites.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	2-5 Years	In Progress	Ordinances, EOPs, and hazard awareness information are updated as needed on the jurisdictional and county websites. This action will be reviewed and updated as needed or during the next HMP update.
Salemburg	Emergency Services	Maintain the County Emergency Operations Plan, including maintenance of the County's web-based EOP portal. These efforts shall include an assessment of conditions and issues affecting key evacuation routes.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low	2-5 Years	In Progress	No measurable progress in the last 5 years. This action will be reviewed and updated as needed or during the next HMP update.
Salemburg		Revise/update regulatory floodplain maps (Statewide Floodplain Mapping Initiative) as required by the NFIP program. The County will assist all participating jurisdictions through the review process. (CRS 410)	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low	1-2 Years	In Progress	Floodplain maps are revised and updated as required by the NFIP and as needed. This action will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Salemburg		Updating and maintaining a Parks & Recreation Master Plan	All Hazards	Medium	Sampson County Parks & Recreation Clinton-Sampson Planning Department	General Fund	Low; Local Staff Time	2-5 Years	In Progress	Due to lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update process.
Salemburg	Public Education	Work closely with real estate agents to ensure that prospective buyers are educated about development within a flood hazard area. The County will prepare materials for dissemination to local real estate agents to assist in this education process. (CRS 450)	Inland Flooding, Hurricane/ Tropical Storm, Severe Weather	Medium	Clinton-Sampson Planning Department Municipal Administration	General Fund, NCDPS	Low	2-5 Years	In Progress	No measurable progress due to a lack of funding. Implementation will be reevaluated as funding becomes available. This action will be reviewed and updated as needed or during the next HMP update process.
Salemburg		Work in cooperation with Sampson County to provide one point-of-contact for zoning requirements.	All Hazards	Medium	Salemburg Administration Sampson County Administration	General Fund	Low; Local Staff Time	2-5 Years	In Progress	No measurable progress in past 5 years. This action will be reviewed and updated as needed or during the next HMP update process.

Table 8-9: *Turkey Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Turkey	Emergency Services	Conduct exercises of the County Emergency Operations Plan periodically. These efforts will include participation by all municipalities.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	5+ Years	In Progress	Last exercise completed in September 2019. This action will be completed as needed and updated as needed.
Turkey	Prevention	Consider applying to the Community Rating System using Hazard Mitigation Plan components to fulfill application requirements.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low; Local Staff Time	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made in the last five years.
Turkey	Prevention	Continue to enforce NC state building codes for wind restrictions and ensure that mobile/ manufactured homes are installed and secured properly. (CRS 430)	Tornado, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Inspections Department	General Fund	Low; Local Staff Time	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be implemented as funding becomes available or as staff availability increases. This action will be updated as needed or during the next HMP update.
Turkey	Emergency Services	Continue to implement Emergency Planning Community Right-to-Know Act, 42 USC 11001, et. seq., and Hazard Materials Incident Preparedness.	Man-made	High	Sampson County Emergency Management	General Fund	Low	5+ Years	To Be Continued	Currently developing training programs that promote HazMat Awareness through the County LEPC. This action will be implemented as soon as possible and updated as needed or during the next HMP update.
Turkey	Public Education	Continue to maintain a library of materials focused on educating citizens, builders, realtors, and developers about the dangers associated with floodplain development. It	Inland Flooding, Dam Failure, Severe Weather,	High	Clinton and Sampson Planning Departments; Sampson County	General Fund, NCDPS, HMGP	Low	5+ Years	To Be Continued	The County and jurisdictions maintain staff educated in these issues to work with prospective builders. This action will be implemented and updated as needed, or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		will also provide techniques for floodproofing of existing structures. (CRS 430/ 450/460)	Hurricane/Tropical Storm		Emergency Management					
Turkey	Prevention	Continue to maintain a zoning and other regulatory ordinance (i.e., stormwater) to regulate land development in portions of the county already zoned and within municipal areas where zoning regulations are in place, and where land use is permitted.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Clinton-Sampson Planning Department Sampson County Administration	General Fund	Low; Local Staff Time	5+ Years	To Be Continued	These ordinances are reviewed and updated as needed. This will be updated as needed or during the next HMP update.
Turkey	Prevention	Continue to maintain and enforce County/ Municipal Water Shortage Ordinances. These efforts will involve monitoring regional drought conditions and coordination with NCDEQ.	Drought	High	Sampson County Public Works Municipal Administration	General Fund	Low	5+ Years	To Be Continued	Ordinances are reviewed and enforced as needed. This action will be updated as needed or during the next HMP update.
Turkey	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural	Inland Flooding, Dam Failures, Hurricane/Tropical Storm	High	Sampson County Administration Municipal Administration	General Fund, NCDPS, PDM, HMGP	Low; Local Staff Time	5+ Years	In Progress	As of this Plan update, approximately 12 grants have been submitted to the state for review. This action will be completed as needed and updated as needed.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		mitigation grant funding process.								
Turkey	Prevention	Continue to review and update the Continuity of Operations plan annually to ensure continuity of government services in the event of a disaster, including identifying leadership succession, evaluating access problems to critical facilities, making recommendations for protecting critical facilities, and establishing alternate operations.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low; Local Staff Time	5+ Years	To Be Continued	No measurable progress in the last five years. This action will be implemented when possible and updated as needed.
Turkey	Natural Resource Protection	Continue supporting and maintaining the volunteer Friends of the River program.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Friends of the River Program	Volunteer	Low; Local Staff Time	5+ Years	To Be Continued	Continue to maintain support as available. This action will be updated as needed or during the next HMP update.
Turkey	Prevention	Coordinate with NCDEQ to enforce all NC State Erosion and Sedimentation and Erosion Control Regulations.	Inland Flooding, Dam Failure, Hurricane/Tropical Storm, Severe Weather	High	Clinton and Sampson Planning Department Municipal Administration	General Fund, NCDEQ	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be implemented and updated as needed, or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Turkey	Emergency Services	Develop a Community Emergency Response Team to promote volunteer opportunities for emergency prevention, preparedness, and response to all hazards. These efforts will include training and recruitment of new CERT teams.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be implemented when possible and updated as needed.
Turkey	Public Education	Develop and implement a hazard awareness program, including availability / dissemination of educational materials on all-natural disasters and hazards. (CRS 450)	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, HMGP	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be implemented when possible and updated as needed.
Turkey	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS, ARC	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be implemented and updated as needed, or during the next HMP update.
Turkey	Property Protection	Expand the beaver management program to mitigate stream debris and property loss if funding is available. If funding is unavailable, alternative	Inland Flooding, Dam Failures, Severe Weather,	Medium	Sampson County Administration	General Fund, NCDEQ, HMGP	Low; Local Staff Time	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		approaches will be developed to address stream/drainage clearance.	Hurricane/Tropical Storm							
Turkey		Expand upon the County's Special Medical Needs Registry (SMNR). The SMNR is available to all County residents. Effective participation will require close coordination between County EM and local government staff members. All jurisdictions will work to advertise the availability of this service within their respective communities.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be implemented and updated as needed, or during the next HMP update.
Turkey		Maintain and regularly update the County's GIS system. These efforts will include: (1) utilizing GIS to catalog protected areas (wildlife, land conservancy, wetlands) that should be protected from development, (2) working toward completion of computer modeling of public infrastructure/utilities, assessing potential hazards, and (3) identifying transportation systems to review and/or designate systematic evacuation routes. This map will be available online once complete. (CRS 320, 440)	All Hazards	High	Sampson County Tax Administration Sampson County Administration	General Fund	Low; Local Staff Time	5+ Years	To Be Continued	This action is updated as needed. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Turkey	Emergency Services	Maintain regulatory ordinances, emergency operations plans, and hazard awareness information on jurisdictions' websites, and provide access to GIS data on those websites.	All Hazards	High	Sampson County Emergency Management	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be implemented and updated as needed, or during the next HMP update.
Turkey	Emergency Services	Maintain the County Emergency Operations Plan, including maintenance of the County's web-based EOP portal. These efforts shall include an assessment of conditions and issues affecting key evacuation routes.	All Hazards	High	Sampson County Administration Municipal Administration	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be implemented when possible and updated as needed.
Turkey		Revise/update regulatory floodplain maps (Statewide Floodplain Mapping Initiative) as required by the NFIP program. The County will assist all participating jurisdictions through the review process. (CRS 410)	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be implemented as funding becomes available or as staff availability increases. This action will be updated as needed or during the next HMP update.
Turkey		Update subdivision and zoning regulations.	All Hazards	High	Turkey Administration	General Fund	Low; Local Staff Time	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. Subdivision and zoning regulations will be updated as funding becomes available or as staff availability increases. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Turkey		Update the existing Land Use Plan.	All Hazards	High	Turkey Administration	General Fund	Low; Local Staff Time	5+ Years	In Progress	Due to lack of funding and available staff, no measurable progress has been made. The Land Use Plan will be updated as funding becomes available or as staff availability increases. This action will be updated as needed or during the next HMP update process.
Turkey		Updating and maintaining a Parks & Recreation Master Plan	All Hazards	Medium	Sampson County Parks & Recreation Clinton-Sampson Planning Department	General Fund	Low; Local Staff Time	5+ Years	In Progress	Due to lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update process.
Turkey	Public Education	Work closely with real estate agents to ensure that prospective buyers are educated about development within a flood hazard area. The County will prepare materials for dissemination to local real estate agents to assist in this education process. (CRS 450)	Inland Flooding, Hurricane/Tropical Storm, Severe Weather	Medium	Clinton-Sampson Planning Department Municipal Administration	General Fund, NCDPS	Low	5+ Years	In Progress	No measurable progress in the last 5 years. This action will be implemented as needed and updated as needed or during the next HMP update process.

Table 8-10: *Duplin County Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Duplin County	Prevention	Cabin Lake Dam Monitoring	Hurricane & Tropical Storm, Severe Weather, Dam Failure, Flood	High	Soil & Water	Grant Funding	Medium	--	New	Automatic Water level monitoring device installed on Cabin Lake Dam (county-owned dam). The monitoring device will send notifications when certain thresholds are met.
Duplin County	Emergency Services	Construction of a Back-Up 911 Center	All Hazards	High	County Government	Grant Funding	High	--	New	Grant funding secured the construction of a backup 911 center in Wayne County's new build three years ago. This portion of the center is dedicated to Duplin County but housed within the Wayne County 911 Center.
Duplin County	Emergency Services	Construction of a New Emergency Operations Center	All Hazards	High	County Government	General Fund, Grants, State Allocation	High	5 Years	New	Obtain Funding and begin construction of a new EOC. Mitigation efforts should include hardened facilities, flood-prone facilities, a secondary IT infrastructure backbone, etc. The facility would consist of a 911 center, Emergency Management, Fire Marshal, EMS, etc.
Duplin County	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal	Inland Flooding, Hurricane/Tropical Storm, Tornado, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, PDM, HMGP, SR	Medium: Local Staff Time	--	Complete	Properties have been acquired through Hurricane Florence HMGP. Working on closeout for expedited and non-expedited grants. This action status will be updated as needed or during the next HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		jurisdictions in working through the structural mitigation grant funding process. (CRS 330)								
Duplin County	Prevention	Develop, implement, and update a Continuity of Operations Plan (COOP) or a similar plan. This plan should focus on establishing seamless operations following a disaster event.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	COOP Disaster Readiness Plan is 75% complete. This action status will be updated as needed or during the next HMP update.
Duplin County	Prevention	Encourage owners to annually remove brush or downed limbs promptly.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	1-2 Years	In Progress	An effort is made during each Severe Weather Week/Hurricane Preparedness week to echo the importance of doing so annually. The action status will be updated as needed or during the next HMP update.
Duplin County	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Duplin County Emergency Services Sampson County Administration	General Fund, NCDPS, ARC	Medium	2-5 Years	In Progress	Secured partial grant funding to outfit all mass care shelters with back-up generator power once the facility is complete. Awaiting additional grant funding to complete the other three shelter facilities. This action will be updated as needed or during the next HMP update.
Duplin County	Emergency Services	Hire an Emergency Management staff planner to update plans such as COOP, EOP, and HMP.	All Hazards	High	Duplin County Administration	General Fund, Unified Hazard Mitigation Assistance	Low: Local Staff Time	1-2 Years	In Progress	Hired a planner in October of 2020 but was promoted to a different position. Need to hire another planner. This action is in progress, and the county is working to hire a new planner.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
						Program (UHMA)				
Duplin County	--	Improve the wind resistance of structures within the County and Towns by continuing to enforce the North Carolina Building Code through the County's minimum housing code. (CRS 440)	Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	To Be Continued	Building codes are continually enforced in Duplin County. This action will be reviewed and updated as needed or during the next HMP update.
Duplin County	--	Increase mass alert reach for all county and jurisdiction residents for all hazards, such as Hyper-Reach. Reverse 911 feature.	All Hazards	High	Duplin County Administration	General Fund, UHMA	Medium: Local Staff Time	2-5 Years	In Progress	Changed to the new system (CodeRED) with premium data reaching approximately. 25000 out of 49000 citizens. This action will be updated and reviewed as needed or during the next HMP update.
Duplin County	Emergency Services	Integrated Public Alert & Warning System (IPAWS)	All Hazards	High	Duplin County Emergency Services	NA	Low	1 Year	New	Working to onboard with IPAWS. Have completed the Memorandum of Agreement (MOA)/Memorandum of Understanding (MOU) and are now working on completing the training.
Duplin County	Emergency Services	Know Your Zone Evacuation Initiative	Dam Failure, Flood	High	Duplin County Emergency Services	General Fund	Low	NA	New	Onboarded with NC KYZ in 2023 with two evacuation zones identified within the County.
Duplin County	--	Locate different funding sources that can aid in the improvement of drainage within the county caused by regular Inland Flooding events (such as grants through CDBG, DEQ, etc.).	Inland Flooding, Dam Failures, Severe Weather	Medium	Duplin County Administration Municipal Administration	General Fund, NCDPS, NCDEQ	Medium	2-5 Years	In Progress	Duplin County Soil and Water has secured multiple grants for river cleanout to mitigate river flooding—an ongoing effort to obtain additional funding for maintenance. Since the last plan, funding has been secured to clean the entire Duplin County portion of the river. This action will be updated as needed or during the next HMP update.
Duplin County	--	Maintain and update local GIS Flood Insurance Rate Maps (FIRM). (CRS 440)	Inland Flooding, Dam	High	Duplin County Administration	General Fund, NCDPS	Medium: Local Staff Time	1-2 Years	In Progress	Map updates are assessed annually for posting to GIS platform. This action will

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
			Failure. Severe Weather, Hurricane/Tropical Storm		& All Municipal Administration					be reviewed and updated as needed or during the next HMP update process.
Duplin County	--	Monitor trees and branches at risk of breaking or falling in storms. Prune or thin trees or branches on County or jurisdictions' properties when they pose an immediate threat to property, utility lines, or other significant structures or critical facilities.	Severe Weather, Hurricane/Tropical Storm, Tornado	High	Duplin County Administration Municipal Administration Utility Providers	General Fund, Utility Providers	Medium	1-2 Years	In Progress	Duplin County maintenance performs regular assessments on county properties to ensure tree/limb hazards are mitigated. This action will be reviewed and updated as needed or during the next HMP update.
Duplin County	Public Education	Preparation of a series of mailings to citizens discussing the proper safety procedures for each hazard addressed in this Plan. This effort should focus on mitigation preparation and EOP procedures. (CRS 330)	All Hazards	Low	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be reviewed and updated as needed or during the next HMP update.
Duplin County	--	Provide safety warning radio broadcasts, determining the approximate time and area where a tornado, Hurricane/Tropical Storm, or winter storm is likely to hit.	Severe Weather, Hurricane/Tropical Storm, Tornado, Winter Storm	High	Duplin County Emergency Services Municipal Administration	General Fund; UHMA	Medium	--	Complete	The National Weather Service (NWS) is sending messages via Wireless Emergency Alerts (WEA).

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Duplin County	--	Purchase generator(s) to supply auxiliary power to critical facilities (buildings, wells, pump stations) during power outages. Where possible, the transformers should be pad-mounted with appropriate transfer components. Priority should be given to installing a generator at the facility at 195 Fair Ground Dr (CRDP) in Kenansville (to be used as a regional disaster response building).	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund, NCDPS, UHMA	Medium	2-5 Years	In Progress	Generator installed at CRDP, Medic 7 EMS Station, County Fuel Pump, and County Well Sites. Priority should be given to replacing the generator at the County Administration Building due to server continuity. This action status will be updated as needed or during the next HMP update.
Duplin County	--	Revise Mobile Home Park and Subdivision Ordinances to prohibit development in the 100-year floodplain. (CRS 430)	Inland Flooding, Hurricane/Tropical Storm, Tornado, Severe Weather	Medium	Duplin County Administration	General Fund	Low: Local Staff Time	--	Complete	--
Duplin County	--	Support Implementation of the NCDEQ Watershed Protection program.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, NCDEQ	Medium: Local Staff Time	5+ Years	To Be Continued	Support the Watershed Protection Program, which ensures the minimum statewide water supply watershed protection requirements.
Duplin County	--	Update the County Land Use Plan to integrate mitigation resources for all hazards recommended through this plan.	All Hazards	High	Duplin County Administration	General Fund, SR	Medium: Local Staff Time	5+ Years	To Be Continued	No measurable progress due to insufficient funding. The land use plan will be updated as funding allows. The action will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Duplin County	--	Work with NCDOT to improve ditches along NC 24 and NC 241. (Keith Eason, NCDOT)	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium: Local Staff Time	--	Complete	DOT has completed this project and moved on to other areas of the county, now targeting backroads and secondary roads.
Duplin County	--	Work with the curriculum directors of schools to provide all hazards preparedness and mitigation information programs.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	2-5 Years	In Progress	Duplin County began sponsoring all-hazards and incident management courses through James Sprunt Community College. This action will be reviewed and updated as needed or during the next HMP update process.
Duplin County	Emergency Services	Hire Emergency Management staff planner to update plans such as COOP, EOP, HMP	All Hazards	High	Duplin County Administration	General Fund, UHMA	Low: Local Staff Time	1-2 Years	In Progress	Hired planner in October of 2020 but was promoted to different position. Need to hire another planner. This action will be updated when a new planner is hired or during the next HMP update process.
Duplin County	Prevention	Develop inundation modeling for each dam in the planning area that does not already have inundation data. Evaluate infrastructure, property, and people at risk of dam failure impacts to identify and implement projects that improve resiliency to dam failure impacts	Dam Failure	High	Sampson County Administration	General Fund, Grant funding	High	5+ Years	New	--

Table 8-11: *Beulaville Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Beulaville	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural mitigation grant funding process. (CRS 330)	Inland Flooding, Hurricane/ Tropical Storm, Tornado, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, PDM, HMGP, SR	Beulaville	5+ Years	To Be Continued	Duplin County has submitted approximately 300 grant applications. Will continue to work with the County as new eligible RLPs are identified. This action will be implemented as funding becomes available and updated as needed or during the next HMP update.
Beulaville	Prevention	Develop, implement, and update a Continuity of Operations Plan (COOP) or a similar plan. This plan should focus on establishing	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Beulaville	5+ Years	In Progress	COOP Disaster Readiness Plan is 75% complete. Will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		seamless operations following a disaster event.								
Beulaville	Prevention	Encourage owners to annually remove brush or downed limbs promptly.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Emergency Services Municipal Administration	General Fund	Beulaville	5+ Years	To Be Continued	A campaign via websites and social media during Hurricane/Tropical Storm season promoting the maintenance of brush and downed limbs annually. This action will be reviewed and updated as needed or during the next HMP update.
Beulaville	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Duplin County Emergency Services Sampson County Administration	General Fund, NCDPS, ARC	Beulaville	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be reviewed and updated as needed or during the next HMP update.
Beulaville	--	Improve the wind resistance of structures within the County and Towns by continuing to enforce the North Carolina Building Code through the County's minimum housing code. (CRS 440)	Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Beulaville	5+ Years	In Progress	Building codes are continually enforced in Duplin County. This action will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Beulaville	--	Increase mass alert reach for all county and jurisdiction residents for all hazards, such as Hyper-Reach. Reverse 911 feature.	All Hazards	High	Duplin County Administration	General Fund, UHMA	Beulaville	5+ Years	In Progress	Approximately 10,000 out of 66,000 residents are registered in Duplin County. This action will be updated as needed or during the next HMP update.
Beulaville	--	Locate different funding sources that can aid in the improvement of drainage within the county caused by regular Inland Flooding events (such as grants through CDBG, DEQ, etc.).	Inland Flooding, Dam Failures, Severe Weather	Medium	Duplin County Administration Municipal Administration	General Fund, NCDPS, NCDEQ	Beulaville	1-2 Years	In Progress	Beulaville is developing a stormwater management program and establishing stormwater fees. Also, the Town obtained funding from Golden Leaf, Streamflow Rehabilitation Assistance Program (StRAP), and Local Assistance for Stormwater Infrastructure Investments (LASII) to help address mitigation issues in outfall ditches. This action will be reviewed and updated as needed or during the next HMP update.
Beulaville	--	Maintain and update local GIS Flood Insurance Rate Maps (FIRM). (CRS 440)	Inland Flooding, Dam Failure. Severe Weather, Hurricane/ Tropical Storm	High	Duplin County Administration & All Municipal Administration	General Fund, NCDPS	Beulaville	5+ Years	To Be Continued	The county and all jurisdictions continue to review and formally update FIRMs as revisions become available through the North Carolina Floodplain Mapping Program. This action will be updated and reviewed as needed or during the next HMP update.
Beulaville	--	Monitor trees and branches at risk of breaking or falling in storms. Prune or thin trees or branches on County or jurisdictions' properties when they would pose an immediate threat to property, utility lines, or other significant structures or critical facilities.	Severe Weather, Hurricane/Tropical Storm, Tornado	High	Duplin County Administration Municipal Administration Utility Providers	General Fund, Utility Providers	Beulaville	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Beulaville	Public Education	Preparation of a series of mailings to citizens discussing the proper safety procedures for each hazard addressed in this Plan. This effort should focus on mitigation preparation and EOP procedures. (CRS 330)	All Hazards	Low	Duplin County Administration Municipal Administration	General Fund	Beulaville	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be reviewed and updated as needed or during the next HMP update.
Beulaville	--	Provide safety warning radio broadcasts, determining the approximate time and area where a tornado, Hurricane / Tropical Storm, or winter storm is likely to hit.	Severe Weather, Hurricane/Tropical Storm, Tornado, Winter Storm	High	Duplin County Emergency Services Municipal Administration	General Fund; UHMA	Beulaville	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be revisited if funding becomes available or if staffing allows. This action will be updated and reviewed as needed or during the next HMP update.
Beulaville	--	Purchase generator(s) to supply auxiliary power to critical facilities (buildings, wells, pump stations) during power outages. Where possible, the transformers should be pad-mounted with appropriate transfer components. Priority should be given to installing a generator at the facility at 195 Fair Ground Dr (CRDP) in Kenansville (to be used as a regional disaster response building).	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund, NCDPS, UHMA	Beulaville	5+ Years	In Progress	Beulaville is searching for grants to upgrade generators at wells and lift stations. This action will be implemented as funding becomes available and updated as needed.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Beulaville	--	Support Implementation of the NCDEQ Watershed Protection program.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, NCDEQ	Beulaville	5+ Years	To Be Continued	To be continued: support the Watershed Protection Program, which ensures the minimum statewide water supply watershed protection requirements.
Beulaville	--	Upgrade the Wastewater Treatment Plant (WWTP) generator to meet current plant demands during power outages caused by hazards.	Severe Weather, Hurricane/Tropical Storm, Tornado, Winter Storm	Medium	Beulaville Administration	General Fund, HMGP	Beulaville	1-2 Years	To Be Continued	Change priority to “High”
Beulaville	--	Work with NCDOT to improve ditches along NC 24 and NC 241. (Keith Eason, NCDOT)	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Beulaville	1-2 Years	In Progress	Approximately 75% complete. The Town obtained grant funding to clean outfall ditches. Working with the United States Department of Agriculture (USDA) to get funding to complete the project. This action will be updated as needed or during the next HMP update.
Beulaville	--	Work with the curriculum directors of schools to provide all hazards preparedness and mitigation information programs.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Beulaville	5+ Years	In Progress	Due to lack of funding and available staff, no measurable progress has been made. This action will be revisited if funding becomes available or if staffing allows. This action will be updated and reviewed as needed or during the next HMP update process.

Table 8-12: *Calypso Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Calypso	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal	Inland Flooding, Hurricane/ Tropical Storm, Tornado, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, PDM, HMGP, SR	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to work with the county as eligible RLPs are identified, and funding becomes available. This action will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		jurisdictions in working through the structural mitigation grant funding process. (CRS 330)								
Calypso	Prevention	Develop, implement, and update a Continuity of Operations Plan (COOP) or a similar plan. This plan should focus on establishing seamless operations following a disaster event.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to work with the County as funding and staff availability allow to follow a Continuity of Operations plan. This action will be reviewed and updated as needed or during the next HMP update.
Calypso	Prevention	Encourage owners to annually remove brush or downed limbs promptly.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to encourage property owners to clear brush and downed tree limbs as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update.
Calypso	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Duplin County Emergency Services Sampson County Administration	General Fund, NCDPS, ARC	Medium	5+ Years	Deferred	Due to a lack of funding and available staff, no measurable progress has been made. This action is deferred but will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Calypso	--	Improve the wind resistance of structures within the County and Towns by continuing to enforce the North Carolina Building Code through the County's minimum housing code. (CRS 440)	Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium	--	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Calypso	--	Increase mass alert reach for all county and jurisdiction residents for all hazards, such as Hyper-Reach. Reverse 911 feature.	All Hazards	High	Duplin County Administration	General Fund, UHMA	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to work with the county as needed to implement emergency alert systems.
Calypso	--	Locate different funding sources that can aid in the improvement of drainage within the county caused by regular Inland Flooding events (such as grants through CDBG, DEQ, etc.).	Inland Flooding, Dam Failures, Severe Weather	Medium	Duplin County Administration Municipal Administration	General Fund, NCDPS, NCDEQ	Medium	5+ Years	Deferred	Due to a lack of funding and available staff, no measurable progress has been made. This action is deferred but will be updated as needed or during the next HMP update.
Calypso	--	Maintain and update local GIS Flood Insurance Rate Maps (FIRM). (CRS 440)	Inland Flooding, Dam Failure. Severe Weather, Hurricane/ Tropical Storm	High	Duplin County Administration & All Municipal Administration	General Fund, NCDPS	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to maintain and update FIRMs as needed. This action will be updated as needed or during the next HMP update.
Calypso	--	Monitor trees and branches at risk of breaking or falling in storms. Prune or thin trees or branches on County or jurisdictions' properties when they would pose an	Severe Weather, Hurricane/Tropical Storm, Tornado	High	Duplin County Administration Municipal Administration Utility Providers	General Fund, Utility Providers	Medium	5+ Years	Deferred	Due to a lack of funding and available staff, no measurable progress has been made. This action is deferred but will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		immediate threat to property, utility lines, or other significant structures or critical facilities.								
Calypso	Public Education	Preparation of a series of mailings to citizens discussing the proper safety procedures for each hazard addressed in this Plan. This effort should focus on mitigation preparation and EOP procedures. (CRS 330)	All Hazards	Low	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	Deferred	Due to a lack of funding and available staff, no measurable progress has been made. This action is deferred but will be updated as needed or during the next HMP update.
Calypso	--	Provide safety warning radio broadcasts, determining the approximate time and area where a tornado, hurricane / tropical storm, or winter storm is likely to hit.	Severe Weather, Hurricane/Tropical Storm, Tornado, Winter Storm	High	Duplin County Emergency Services Municipal Administration	General Fund; UHMA	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Calypso	--	Purchase generator(s) to supply auxiliary power to critical facilities (buildings, wells, pump stations) during power outages. Where possible, the transformers should be pad-mounted with appropriate transfer components. Priority should be given to the installation of a generator at the facility located at 195 Fair Ground Dr (CRDP) in Kenansville	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund, NCDPS, UHMA	Medium	5+ Years	To Be Continued	Will continue to work with the County as funding and staff availability allows. This action will be reviewed and updated as needed or during the next HMP update process.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		(for use as a regional building for disasters).								
Calypso	--	Support Implementation of the NCDEQ Watershed Protection program.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, NCDEQ	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to support the implementation of NCDEQ watershed protection program as funding and staff availability allows. This action will be reviewed and updated as needed or during the next HMP update.
Calypso	--	Work with NCDOT to improve ditches along NC 24 and NC 241. (Keith Eason, NCDOT)	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	Coordinating with NCDOT for improvements as needed. This action will be implemented as funding becomes available and updated as needed or during the next HMP update.
Calypso	--	Work with the curriculum directors of schools to provide all hazards preparedness and mitigation information programs.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	Due to lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Table 8-13: *Faison Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Faison	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural mitigation grant funding process. (CRS 330)	Inland Flooding, Hurricane/ Tropical Storm, Tornado, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, PDM, HMGP, SR	Medium: Local Staff Time	1-2 Years	To Be Continued	Will continue to work with the county as eligible RLPs are identified, and funding becomes available. This action will be reviewed and updated as needed or during the next HMP update.
Faison	Prevention	Develop, implement, and update a Continuity of Operations Plan (COOP) or a similar plan. This plan should focus on establishing seamless operations following a disaster event.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	1-2 Years	To Be Continued	Will continue to assist the county in implementing, developing, and updating the COOP as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update.
Faison	Prevention	Encourage owners to annually remove brush or downed limbs promptly.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	1-2 Years	To Be Continued	Will continue to encourage property owners to clear brush and downed tree limbs as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Faison	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Duplin County Emergency Services Sampson County Administration	General Fund, NCDPS, ARC	Medium	1-2 Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Faison	--	Improve the wind resistance of structures within the County and Towns by continuing to enforce the North Carolina Building Code through the County's minimum housing code. (CRS 440)	Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium	1-2 Years	To Be Continued	Will continue to enforce building codes as required and continually. This action will be updated as needed or during the next HMP update.
Faison	--	Increase mass alert reach for all county and jurisdiction residents for all hazards, such as Hyper-Reach. Reverse 911 feature.	All Hazards	High	Duplin County Administration	General Fund, UHMA	Medium: Local Staff Time	1-2 Years	To Be Continued	The County reported approximately 10,000 out of 66,000 residents had registered as of 2020. Will continue to work with the county as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update.
Faison	--	Locate different funding sources that can aid in the improvement of drainage within the county caused by regular Inland Flooding events (such as grants through CDBG, DEQ, etc.).	Inland Flooding, Dam Failures, Severe Weather	Medium	Duplin County Administration Municipal Administration	General Fund, NCDPS, NCDEQ	Medium	1-2 Years	To Be Continued	The Golden Leaf grant was in progress, and Calypso's grant was denied for the Powell Fund to create a stormwater master Plan. The East Carolina Council and Faison are working on new opportunities. This action will be updated

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
										as needed or during the next HMP update.
Faison	--	Maintain and update local GIS Flood Insurance Rate Maps (FIRM). (CRS 440)	Inland Flooding, Dam Failure. Severe Weather, Hurricane/ Tropical Storm	High	Duplin County Administration & All Municipal Administration	General Fund, NCDPS	Medium: Local Staff Time	1-2 Years	To Be Continued	Will continue to maintain and update local FIRMs as needed and as required by the NFIP. This action will be updated as needed or during the next HMP update.
Faison	--	Monitor trees and branches at risk of breaking or falling in storms. Prune or thin trees or branches on County or jurisdictions' properties when they would pose an immediate threat to property, utility lines, or other significant structures or critical facilities.	Severe Weather, Hurricane/ Tropical Storm, Tornado	High	Duplin County Administration Municipal Administration Utility Providers	General Fund, Utility Providers	Medium	1-2 Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Faison	Public Education	Preparation of a series of mailings to citizens discussing the proper safety procedures for each hazard addressed in this Plan. This effort should focus on mitigation preparation and EOP procedures. (CRS 330)	All Hazards	Low	Duplin County Administration Municipal Administration	General Fund	Medium	1-2 Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Faison	--	Provide safety warning radio broadcasts, determining the approximate time and area where a tornado, hurricane / tropical storm, or winter storm is likely to hit.	Severe Weather, Hurricane/ Tropical Storm, Tornado,	High	Duplin County Emergency Services Municipal Administration	General Fund; UHMA	Medium	1-2 Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
			Winter Storm							
Faison	--	Purchase generator(s) to supply auxiliary power to critical facilities (buildings, wells, pump stations) during power outages. Where possible, the transformers should be pad-mounted with appropriate transfer components. Priority should be given to the installation of a generator at the facility located at 195 Fair Ground Dr (CRDP) in Kenansville (for use as a regional building for disasters).	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund, NCDPS, UHMA	Medium	1-2 Years	To Be Continued	County applied for hazard mitigation grants for Florence from NC and FEMA. Faison acquired a generator through Golden Leaf thus far. Will continue to support the County as possible. This action will be updated as needed or during the next HMP update.
Faison	--	Support Implementation of the NCDEQ Watershed Protection program.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, NCDEQ	Medium: Local Staff Time	1-2 Years	To Be Continued	Will continue to support the implementation of NCDEQ watershed protection program as funding and staff availability allows. This action will be reviewed and updated as needed or during the next HMP update.
Faison	--	Work with NCDOT to improve ditches along NC 24 and NC 241. (Keith Eason, NCDOT)	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium: Local Staff Time	1-2 Years	To Be Continued	Coordinating with NCDOT to improve these ditches. Approximately 50% complete. This will be updated and reviewed as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Faison	--	Work with the curriculum directors of schools to provide all hazards preparedness and mitigation information programs.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	1-2 Years	To Be Continued	Due to lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Table 8-14: *Greenevers Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Greenevers	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural mitigation grant funding process. (CRS 330)	Inland Flooding, Hurricane/ Tropical Storm, Tornado, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, PDM, HMGP, SR	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to work with the county as eligible RLPs are identified, and funding becomes available. This action will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Greenevers	Prevention	Continued review and update (if necessary) of the town's Mobile Home Park Ordinance.	Severe Weather, Tornado, Hurricane/ Tropical Storm	High	Greenevers Administration	General Fund	Medium	5+ Years	To Be Continued	Will continue to update the town's mobile home park ordinance as needed. This action will be reviewed and updated as needed or during the next HMP update.
Greenevers	Prevention	Develop, implement, and update a Continuity of Operations Plan (COOP) or a similar plan. This plan should focus on establishing seamless operations following a disaster event.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	The County applied for hazard mitigation grants for Florence from NC and FEMA. Faison acquired a generator through Golden Leaf thus far. Will continue to support the County as much as possible. This action will be updated as needed or during the next HMP update.
Greenevers	Prevention	Encourage owners to annually remove brush or downed limbs promptly.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to encourage property owners to clear brush and downed tree limbs as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update.
Greenevers	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Duplin County Emergency Services Sampson County Administration	General Fund, NCDPS, ARC	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Greenevers	--	Improve the wind resistance of structures within the County and Towns by continuing to enforce the North Carolina Building Code through the County's minimum housing code. (CRS 440)	Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Greenevers	--	Increase mass alert reach for all county and jurisdiction residents for all hazards, such as Hyper-Reach. Reverse 911 feature.	All Hazards	High	Duplin County Administration	General Fund, UHMA	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to work with the county to implement emergency alert systems as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update.
Greenevers	--	Locate different funding sources that can aid in the improvement of drainage within the county caused by regular Inland Flooding events (such as grants through CDBG, DEQ, etc.).	Inland Flooding, Dam Failures, Severe Weather	Medium	Duplin County Administration Municipal Administration	General Fund, NCDPS, NCDEQ	Medium	5+ Years	To Be Continued	Will continue working with the county to identify funding opportunities to improve drainage. This action will be updated as needed or during the next HMP update.
Greenevers	--	Maintain and update local GIS Flood Insurance Rate Maps (FIRM). (CRS 440)	Inland Flooding, Dam Failure. Severe Weather, Hurricane/ Tropical Storm	High	Duplin County Administration & All Municipal Administration	General Fund, NCDPS	Medium: Local Staff Time	5+ Years	To Be Continued	The County and all jurisdictions continue to review and formally update FIRMs as revisions become available through the North Carolina Floodplain Mapping Program, as required by the NFIP. This action will be updated and reviewed as needed or during the next HMP update.
Greenevers	--	Monitor trees and branches at risk of breaking or falling in storms. Prune or thin trees or branches on County or jurisdictions' properties when they would pose an	Severe Weather, Hurricane/ Tropical Storm, Tornado	High	Duplin County Administration Municipal Administration Utility Providers	General Fund, Utility Providers	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		immediate threat to property, utility lines, or other significant structures or critical facilities.								
Greenevers	Public Education	Preparation of a series of mailings to citizens discussing the proper safety procedures for each hazard addressed in this Plan. This effort should focus on mitigation preparation and EOP procedures. (CRS 330)	All Hazards	Low	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Greenevers	--	Provide safety warning radio broadcasts, determining the approximate time and area where a tornado, hurricane/ tropical storm, or winter storm is likely to hit.	Severe Weather, Hurricane/ Tropical Storm, Tornado, Winter Storm	High	Duplin County Emergency Services Municipal Administration	General Fund; UHMA	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the following HMP update process.
Greenevers	--	Purchase generator(s) to supply auxiliary power to critical facilities (buildings, wells, pump stations) during power outages. Where possible, the transformers should be pad-mounted with appropriate transfer components. Priority should be given to installing a generator at the facility at 195 Fair Ground Dr (CRDP) in Kenansville (to be used	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund, NCDPS, UHMA	Medium	5+ Years	To Be Continued	Will continue to support the county in applying for hazard mitigation grants as funding and staff availability allow. This action will be reviewed and updated as needed or during the following HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		as a regional disaster response building).								
Greenevers	--	Support Implementation of the NCDEQ Watershed Protection program.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, NCDEQ	Medium: Local Staff Time	5+ Years	To Be Continued	will continue to support the Watershed Protection Program, which ensures the minimum statewide water supply watershed protection requirements. This action will be reviewed and updated as needed or during the next HMP update.
Greenevers	--	Work with NCDOT to improve ditches along NC 24 and NC 241. (Keith Eason, NCDOT)	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	Coordinating with NCDOT to improve these ditches. Approximately 50% complete as of 2020. This action will be implemented as funding allows and will be updated as needed.
Greenevers	--	Work with the curriculum directors of schools to provide all hazards preparedness and mitigation information programs.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	Due to lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update process

Table 8-15: *Kenansville Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Kenansville	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural	Inland Flooding, Hurricane/Tropical Storm, Tornado, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, PDM, HMGP, SR	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to support the county in applying for hazard mitigation grants for eligible RLPs as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		mitigation grant funding process. (CRS 330)								
Kenansville	Prevention	Develop, implement, and update a Continuity of Operations Plan (COOP) or a similar plan. This plan should focus on establishing seamless operations following a disaster event.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	The County's COOP Disaster Readiness Plan was 75% complete as of 2020. This action will be updated as needed or during the next HMP update.
Kenansville	Prevention	Encourage owners to annually remove brush or downed limbs promptly.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	An annual campaign via websites and social media during Hurricane/Tropical Storm season, promoting the maintenance of brush and downed limbs. This action will be updated as needed or during the next HMP update.
Kenansville	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Duplin County Emergency Services Sampson County Administration	General Fund, NCDPS, ARC	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Kenansville	--	Improve the wind resistance of structures within the County and Towns by continuing to enforce the North Carolina Building Code through the County's minimum housing code. (CRS 440)	Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Kenansville	--	Increase mass alert reach for all county and jurisdiction residents for all hazards, such as Hyper-Reach. Reverse 911 feature.	All Hazards	High	Duplin County Administration	General Fund, UHMA	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to work with the county to implement emergency alert systems as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update.
Kenansville	--	Locate different funding sources that can aid in the improvement of drainage within the county caused by regular Inland Flooding events (such as grants through CDBG, DEQ, etc.).	Inland Flooding, Dam Failures, Severe Weather	Medium	Duplin County Administration Municipal Administration	General Fund, NCDPS, NCDEQ	Medium	5+ Years	To Be Continued	Golden Leaf grant…Calypso's grant to the Powell Fund to create a stormwater master plan was denied. East Carolina Council Faison is working on new opportunities. This action will be updated as needed or during the following HMP update.
Kenansville	--	Maintain and update local GIS Flood Insurance Rate Maps (FIRM). (CRS 440)	Inland Flooding, Dam Failure. Severe Weather, Hurricane/Tropical Storm	High	Duplin County Administration & All Municipal Administration	General Fund, NCDPS	Medium: Local Staff Time	5+ Years	To Be Continued	The county and all jurisdictions continue to review and formally update FIRMs as revisions become available through the North Carolina Floodplain Mapping Program. This action will be updated and reviewed as needed or during the next HMP update.
Kenansville	--	Monitor trees and branches at risk of breaking or falling in storms. Prune or thin trees or branches on County or jurisdictions' properties when they would pose an immediate threat to	Severe Weather, Hurricane/Tropical Storm, Tornado	High	Duplin County Administration Municipal Administration Utility Providers	General Fund, Utility Providers	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		property, utility lines, or other significant structures or critical facilities.								
Kenansville	Public Education	Preparation of a series of mailings to citizens discussing the proper safety procedures for each hazard addressed in this Plan. This effort should focus on mitigation preparation and EOP procedures. (CRS 330)	All Hazards	Low	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Kenansville	--	Provide safety warning radio broadcasts, determining the approximate time and area where a tornado, hurricane / tropical storm, or winter storm is likely to hit.	Severe Weather, Hurricane/ Tropical Storm, Tornado, Winter Storm	High	Duplin County Emergency Services Municipal Administration	General Fund; UHMA	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Kenansville	--	Purchase generator(s) to supply auxiliary power to critical facilities (buildings, wells, pump stations) during power outages. Where possible, the transformers should be pad-mounted with appropriate transfer components. Priority should be given to the installation of a generator at the facility located at 195 Fair Ground Dr (CRDP) in Kenansville	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund, NCDPS, UHMA	Medium	5+ Years	To Be Continued	County applied for hazard mitigation grants for Florence from NC and FEMA. Faison acquired a generator through Golden Leaf thus far. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		(for use as a regional building for disasters).								
Kenansville	--	Support Implementation of the NCDEQ Watershed Protection program.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, NCDEQ	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to support the implementation of NCDEQ watershed protection program as funding and staff availability allows. This action will be reviewed and updated as needed or during the next HMP update.
Kenansville	--	Work with NCDOT to improve ditches along NC 24 and NC 241. (Keith Eason, NCDOT)	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to work with the County to improve ditches. This action will be reviewed and updated as needed or during the next HMP update.
Kenansville	--	Work with the curriculum directors of schools to provide all hazards preparedness and mitigation information programs.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	Due to lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Table 8-16: *Magnolia Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Magnolia	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural mitigation grant funding process. (CRS 330)	Inland Flooding, Hurricane/ Tropical Storm, Tornado, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, PDM, HMGP, SR	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to work with the county to maintain a list of RLPs and seek funding for eligible properties as funding and staff availability allow. This action will be updated and reviewed as needed or during the next HMP update.
Magnolia	Prevention	Develop, implement, and update a Continuity of Operations Plan (COOP) or a similar plan. This plan should focus on establishing seamless operations following a disaster event.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	COOP Disaster Readiness Plan is 75% complete. This action will be updated as needed or during the next HMP update.
Magnolia	Prevention	Encourage owners to annually remove brush or downed limbs promptly.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	An annual campaign via websites and social media during Hurricane/Tropical Storm season, promoting the maintenance of brush and downed limbs. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Magnolia	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Duplin County Emergency Services Sampson County Administration	General Fund, NCDPS, ARC	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Magnolia	--	Improve the wind resistance of structures within the County and Towns by continuing to enforce the North Carolina Building Code through the County's minimum housing code. (CRS 440)	Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Magnolia	--	Increase mass alert reach for all county and jurisdiction residents for all hazards, such as Hyper-Reach. Reverse 911 feature.	All Hazards	High	Duplin County Administration	General Fund, UHMA	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to work with the county to implement emergency alert systems as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update.
Magnolia	--	Locate different funding sources that can aid in the improvement of drainage within the county caused by regular Inland Flooding events (such as grants through CDBG, DEQ, etc.).	Inland Flooding, Dam Failures, Severe Weather	Medium	Duplin County Administration Municipal Administration	General Fund, NCDPS, NCDEQ	Medium	5+ Years	To Be Continued	Golden Leaf grant…Calypso's grant to the Powell Fund to create a stormwater master plan was denied. East Carolina Council Faison is working on new opportunities. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Magnolia	--	Maintain and update local GIS Flood Insurance Rate Maps (FIRM). (CRS 440)	Inland Flooding, Dam Failure, Severe Weather, Hurricane/ Tropical Storm	High	Duplin County Administration & All Municipal Administration	General Fund, NCDPS	Medium: Local Staff Time	5+ Years	To Be Continued	The county and all jurisdictions continue to review and formally update FIRMs as revisions become available through the North Carolina Floodplain Mapping Program. This action will be updated and reviewed as needed or during the next HMP update.
Magnolia	--	Monitor trees and branches at risk of breaking or falling in storms. Prune or thin trees or branches on County or jurisdictions' properties when they would pose an immediate threat to property, utility lines, or other significant structures or critical facilities.	Severe Weather, Hurricane/ Tropical Storm, Tornado	High	Duplin County Administration Municipal Administration Utility Providers	General Fund, Utility Providers	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Magnolia	Public Education	Preparation of a series of mailings to citizens discussing the proper safety procedures for each hazard addressed in this Plan. This effort should focus on mitigation preparation and EOP procedures. (CRS 330)	All Hazards	Low	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Magnolia	--	Provide safety warning radio broadcasts, determining the approximate time and area where a tornado, hurricane/tropical storm, or winter storm is likely to hit.	Severe Weather, Hurricane/ Tropical Storm, Tornado, Winter Storm	High	Duplin County Emergency Services Municipal Administration	General Fund; UHMA	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Magnolia	--	Purchase generator(s) to supply auxiliary power to critical facilities (buildings, wells, pump stations) during power outages. Where possible, the transformers should be pad-mounted with appropriate transfer components. Priority should be given to the installation of a generator at the facility located at 195 Fair Ground Dr (CRDP) in Kenansville (for use as a regional building for disasters).	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund, NCDPS, UHMA	Medium	5+ Years	To Be Continued	County applied for hazard mitigation grants for Florence from NC and FEMA. Faison acquired a generator through Golden Leaf thus far. Will continue to support the County as funding and staff availability allows. This action will be updated as needed or during the next HMP update.
Magnolia	--	Support Implementation of the NCDEQ Watershed Protection program.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, NCDEQ	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to support the implementation of NCDEQ watershed protection program as funding and staff availability allows. This action will be reviewed and updated as needed or during the next HMP update.
Magnolia	--	Work with NCDOT to improve ditches along NC 24 and NC 241. (Keith Eason, NCDOT)	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	Coordinating with NCDOT to improve these ditches. Approximately 50% complete.
Magnolia	--	Work with the curriculum directors of schools to provide all hazards preparedness and mitigation information programs.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	Due to lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Table 8-17: *Rose Hill Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Rose Hill	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural mitigation grant funding process. (CRS 330)	Inland Flooding, Hurricane/ Tropical Storm, Tornado, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, PDM, HMGP, SR	Medium: Local Staff Time	5+ Years	To Be Continued	Submitted approximately 300 grant applications. Will continue to support the county in maintaining a list of RLPs and applying for funding to acquire eligible RLPs. This action will be updated as needed or during the next HMP update.
Rose Hill	Prevention	Create and implement a stormwater system maintenance plan to clean and maintain ditches and storm drains.	Flood, Dam Failures	High	Rose Hill Administration	General Fund	Medium; Local Staff Time	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Rose Hill	Prevention	Develop, implement, and update a Continuity of Operations Plan (COOP) or a similar plan. This plan should focus on establishing seamless operations following a disaster event.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	In Progress	COOP Disaster Readiness Plan is 75% complete. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Rose Hill	Prevention	Encourage owners to annually remove brush or downed limbs promptly.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	An annual campaign via websites and social media during Hurricane/Tropical Storm season, promoting the maintenance of brush and downed limbs. This action will be updated as needed or during the next HMP update.
Rose Hill	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Duplin County Emergency Services Sampson County Administration	General Fund, NCDPS, ARC	Medium	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Rose Hill	--	Hire a building inspector to oversee and ensure safe development for the Town.	All Hazards	High	Rose Hill Administration	General Fund	Medium	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Rose Hill	--	Improve the wind resistance of structures within the County and Towns by continuing to enforce the North Carolina Building Code through the County's minimum housing code. (CRS 440)	Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Rose Hill	--	Increase mass alert reach for all county and jurisdiction residents for all hazards, such as Hyper-Reach. Reverse 911 feature.	All Hazards	High	Duplin County Administration	General Fund, UHMA	Medium: Local Staff Time	5+ Years	In Progress	Approximately 10,000 out of 66,000 residents are registered. Will continue to work with the county as funding and staff availability allow to increase mass alert reach. This action will be updated and reviewed as needed or during the next HMP update.
Rose Hill	--	Install surge protectors at wells, the WWTP, and lift stations to protect against Dam Failure from lightning.	Severe Weather	Medium	Rose Hill Administration	General Fund	Medium	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Rose Hill	--	Locate different funding sources that can aid in the improvement of drainage within the county caused by regular Inland Flooding events (such as grants through CDBG, DEQ, etc.).	Inland Flooding, Dam Failures, Severe Weather	Medium	Duplin County Administration Municipal Administration	General Fund, NCDPS, NCDEQ	Medium	0-1 Years	In Progress	Currently have a Golden Leaf grant for stormwater repair at Walnut and Charity Road. This action will be updated as needed or during the next HMP update.
Rose Hill	--	Maintain and update local GIS Flood Insurance Rate Maps (FIRM). (CRS 440)	Inland Flooding, Dam Failure. Severe Weather, Hurricane/ Tropical Storm	High	Duplin County Administration & All Municipal Administration	General Fund, NCDPS	Medium: Local Staff Time	5+ Years	To Be Continued	The county and all jurisdictions continue to review and formally update FIRMs as revisions become available through the North Carolina Floodplain Mapping Program. This action will be updated and reviewed as needed or during the next HMP update.
Rose Hill	--	Monitor trees and branches at risk of breaking or falling in storms. Prune or thin trees or branches on County or jurisdictions' properties when they would pose an immediate threat to	Severe Weather, Hurricane/ Tropical Storm, Tornado	High	Duplin County Administration Municipal Administration Utility Providers	General Fund, Utility Providers	Medium	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
		property, utility lines, or other significant structures or critical facilities.								
Rose Hill	Public Education	Preparation of a series of mailings to citizens discussing the proper safety procedures for each hazard addressed in this Plan. This effort should focus on mitigation preparation and EOP procedures. (CRS 330)	All Hazards	Low	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Rose Hill	--	Provide safety warning radio broadcasts, determining the approximate time and area where a tornado, hurricane/tropical storm, or winter storm is likely to hit.	Severe Weather, Hurricane/ Tropical Storm, Tornado, Winter Storm	High	Duplin County Emergency Services Municipal Administration	General Fund; UHMA	Medium	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Rose Hill	--	Purchase generator(s) to supply auxiliary power to critical facilities (buildings, wells, pump stations) during power outages. Where possible, the transformers should be pad-mounted with appropriate transfer components. Priority should be given to installing a generator at the facility at 195 Fair Ground Dr (CRDP) in Kenansville (to be used as a regional disaster response building).	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund, NCDPS, UHMA	Medium	2-5 Years	In Progress	Received a FEMA grant for a new generator at Sixth Street Well. Intend to apply for generator grants for the remaining wells and lift stations. This action will be implemented as funding is acquired. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Rose Hill	--	Support Implementation of the NCDEQ Watershed Protection program.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, NCDEQ	Medium: Local Staff Time	5+ Years	To Be Continued	To be continued: support the Watershed Protection Program which ensures the minimum statewide water supply watershed protection requirements.
Rose Hill	--	Work with NCDOT to improve ditches along NC 24 and NC 241. (Keith Eason, NCDOT)	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	In Progress	Coordinating with NCDOT to improve these ditches. Approximately 50% complete. This will be updated and reviewed as needed or during the next HMP update.
Rose Hill	--	Work with the curriculum directors of schools to provide all hazards preparedness and mitigation information programs.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	In Progress	Due to lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Table 8-18: *Teachey Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Teachey	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural mitigation grant funding process. (CRS 330)	Inland Flooding, Hurricane/Tropical Storm, Tornado, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, PDM, HMGP, SR	Medium: Local Staff Time	5+ Years	To Be Continued	Submitted approximately 300 grant applications. Will continue to support the County in maintaining a list of RLPs and seeking funding for eligible RLPs. This action will be updated as needed or during the next HMP update.
Teachey	Prevention	Develop, implement, and update a Continuity of Operations Plan (COOP) or a similar plan. This plan should focus on establishing seamless operations following a disaster event.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	In Progress	COOP Disaster Readiness Plan is 75% complete. This action will be updated as needed or during the next HMP update.
Teachey	Prevention	Encourage owners to annually remove brush or downed limbs promptly.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	To be continued: An annual campaign via websites and social media during Hurricane/Tropical Storm season, promoting the maintenance of brush and downed limbs. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Teachey	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Duplin County Emergency Services Sampson County Administration	General Fund, NCDPS, ARC	Medium	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Teachey	--	Improve the wind resistance of structures within the County and Towns by continuing to enforce the North Carolina Building Code through the County's minimum housing code. (CRS 440)	Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Teachey	--	Increase mass alert reach for all county and jurisdiction residents for all hazards, such as Hyper-Reach. Reverse 911 feature.	All Hazards	High	Duplin County Administration	General Fund, UHMA	Medium: Local Staff Time	5+ Years	In Progress	Approximately 10,000 out of 66,000 residents are registered. Will continue working to increase the reach of emergency alerts. This action will be updated as needed or during the next HMP update.
Teachey	--	Locate different funding sources that can aid in the improvement of drainage within the county caused by regular Inland Flooding events (such as grants through CDBG, DEQ, etc.).	Inland Flooding, Dam Failures, Severe Weather	Medium	Duplin County Administration Municipal Administration	General Fund, NCDPS, NCDEQ	Medium	5+ Years	In Progress	Golden Leaf grant…Calypso's grant request to the Powell Fund to create a stormwater master plan was denied. East Carolina Council Faison is working on new opportunities. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Teachey	--	Maintain and update local GIS Flood Insurance Rate Maps (FIRM). (CRS 440)	Inland Flooding, Dam Failure. Severe Weather, Hurricane/Tropical Storm	High	Duplin County Administration & All Municipal Administration	General Fund, NCDPS	Medium: Local Staff Time	5+ Years	To Be Continued	The county and all jurisdictions continue to review and formally update FIRMs as revisions become available through the North Carolina Floodplain Mapping Program. This action will be updated and reviewed as needed or during the next HMP update.
Teachey	--	Monitor trees and branches at risk of breaking or falling in storms. Prune or thin trees or branches on County or jurisdictions' properties when they would pose an immediate threat to property, utility lines, or other significant structures or critical facilities.	Severe Weather, Hurricane/ Tropical Storm, Tornado	High	Duplin County Administration Municipal Administration Utility Providers	General Fund, Utility Providers	Medium	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Teachey	Public Education	Preparation of a series of mailings to citizens discussing the proper safety procedures for each hazard addressed in this Plan. This effort should focus on mitigation preparation and EOP procedures. (CRS 330)	All Hazards	Low	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Teachey	--	Provide safety warning radio broadcasts, including the approximate time and area where a tornado, hurricane/tropical storm, or winter storm is likely to hit.	Severe Weather, Hurricane/ Tropical Storm, Tornado, Winter Storm	High	Duplin County Emergency Services Municipal Administration	General Fund; UHMA	Medium	5+ Years	In Progress	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Teachey	--	Purchase generator(s) to supply auxiliary power to critical facilities (buildings, wells, pump stations) during power outages. Where possible, the transformers should be pad-mounted with appropriate transfer components. Priority should be given to the installation of a generator at the facility located at 195 Fair Ground Dr (CRDP) in Kenansville (for use as a regional building for disasters).	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund, NCDPS, UHMA	Medium	5+ Years	In Progress	County applied for hazard mitigation grants for Florence from NC and FEMA. Faison acquired a generator through Golden Leaf thus far. This action will be updated as needed or during the next HMP update.
Teachey	--	Support Implementation of the NCDEQ Watershed Protection program.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, NCDEQ	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to support implementation of the watershed protection program. This action will be updated as needed or during the next HMP update.
Teachey	--	Work with NCDOT to improve ditches along NC 24 and NC 241. (Keith Eason, NCDOT)	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	In Progress	Coordinating with NCDOT to improve these ditches. Approximately 50% complete. This will be updated and reviewed as needed or during the next HMP update.
Teachey	--	Work with the curriculum directors of schools to provide all hazards preparedness and mitigation information programs.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	In Progress	Due to lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Table 8-19: *Wallace Mitigation Actions*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Wallace	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural mitigation grant funding process. (CRS 330)	Inland Flooding, Hurricane/ Tropical Storm, Tornado, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, PDM, HMGP, SR	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to work with the county to maintain a list of RLPs and seek funding for eligible properties as funding and staff availability allow. This action will be updated and reviewed as needed or during the next HMP update.
Wallace	Prevention	Develop, implement, and update a Continuity of Operations Plan (COOP) or a similar plan. This plan should focus on establishing seamless operations following a disaster event.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	0-1 Years	Complete	Town updated its Emergency Management Plan in June 2025. Will continue to maintain the emergency management plan as needed. This action will be updated as needed or during the next HMP update.
Wallace	Prevention	Encourage owners to annually remove brush or downed limbs promptly.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	1-2 Years	In Progress	An annual campaign via websites and social media during Hurricane/Tropical Storm season, promoting the maintenance of brush and downed limbs. This action will be updated and reviewed as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Wallace	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Duplin County Emergency Services Sampson County Administration	General Fund, NCDPS, ARC	Medium	1-2 Years	In Progress	Improving facilities. Have added a community center that could be used as a shelter. Will continue to evaluate critical facilities and evaluate potential shelter sites. This action will be updated and reviewed as needed or during the next HMP update.
Wallace	--	Improve the wind resistance of structures within the County and Towns by continuing to enforce the North Carolina Building Code through the County's minimum housing code. (CRS 440)	Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	In Progress	The Town has updated its facilities and buildings and is currently renovating. As part of the renovations, the goal is to make it more resilient to storms. Will continue to improve building resilience as funding allows and opportunities are identified. This action will be updated and reviewed as needed or during the next HMP update.
Wallace	--	Increase mass alert reach for all county and jurisdiction residents for all hazards, such as Hyper-Reach. Reverse 911 feature.	All Hazards	High	Duplin County Administration	General Fund, UHMA	Medium: Local Staff Time	5+ Years	In Progress	Approximately 10,000 out of 66,000 residents are registered. Will continue working to increase the reach of emergency alerts. This action will be updated as needed or during the next HMP update.
Wallace	--	Install generators at the Water Treatment Plan (WTP) and WWTP to meet current plant demands during power outages.	Severe Weather, Hurricane/Tropical Storm, Tornado,	High	Wallace Administration	General Fund	Medium		Complete	The generator is installed at the WWTP, and two new wells have generator backups.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
			Winter Storm							
Wallace	--	Locate different funding sources that can aid in the improvement of drainage within the county caused by regular Inland Flooding events (such as grants through CDBG, DEQ, etc.).	Inland Flooding, Dam Failures, Severe Weather	Medium	Duplin County Administration Municipal Administration	General Fund, NCDPS, NCDEQ	Medium	2-5 Years	In Progress	The Town consistently seeks grants to improve drainage and has completed several major projects over the last 3 years. Action will be updated and reviewed as needed or during the next HMP update.
Wallace	--	Maintain and update local GIS Flood Insurance Rate Maps (FIRM). (CRS 440)	Inland Flooding, Dam Failure. Severe Weather, Hurricane/Tropical Storm	High	Duplin County Administration & All Municipal Administration	General Fund, NCDPS	Medium: Local Staff Time	5+ Years	To Be Continued	Two are estimated to have been updated. They have been completed in Wallace. But Wallace will continue to maintain and update FIRMs as needed. This action will be updated as needed or during the next HMP update.
Wallace	--	Monitor trees and branches at risk of breaking or falling in storms. Prune or thin trees or branches on County or jurisdictions' properties when they would pose an immediate threat to property, utility lines, or other significant structures or critical facilities.	Severe Weather, Hurricane/Tropical Storm, Tornado	High	Duplin County Administration Municipal Administration Utility Providers	General Fund, Utility Providers	Medium	0-1 Years	In Progress	Ongoing, reviewed annually, and scheduled maintenance regularly. This action will be updated as needed.
Wallace	Public Education	Preparation of a series of mailings to citizens discussing the proper safety procedures for each hazard addressed in this Plan. This effort should focus on mitigation preparation and EOP procedures. (CRS 330)	All Hazards	Low	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. Implementation will be considered as funding and staff time allow. This action will be updated and reviewed as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Wallace	--	Provide safety warning radio broadcasts, including the approximate time and area where a tornado, hurricane/tropical storm, or winter storm is likely to hit.	Severe Weather, Hurricane/ Tropical Storm, Tornado, Winter Storm	High	Duplin County Emergency Services Municipal Administration	General Fund; UHMA	Medium	Choose an item.	In Progress	We use social media, the website, and CodeRed to issue warnings when needed. But the County takes the lead on this. Will continue to support and work with the county to facilitate the distribution of emergency alerts and warnings. This action will be updated and reviewed as needed or during the next HMP update.
Wallace	--	Purchase generator(s) to supply auxiliary power to critical facilities (buildings, wells, pump stations) during power outages. Where possible, the transformers should be pad-mounted with appropriate transfer components. Priority should be given to installing a generator at the facility at 195 Fair Ground Dr (CRDP) in Kenansville (to be used as a regional disaster response building).	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund, NCDPS, UHMA	Medium	1-2 Years	In Progress	The Town has added a generator to its Public Services Facility. The New Fire Station will have a generator. Will continue to evaluate and add units to the community center/shelter and the new town hall. This action will be updated as needed or during the next HMP update.
Wallace	--	Support Implementation of the NCDEQ Watershed Protection program.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, NCDEQ	Medium: Local Staff Time	5+ Years	To Be Continued	will continue to support the Watershed Protection Program, which ensures the minimum statewide water supply watershed protection requirements. This action will be reviewed and updated as needed or during the next HMP update.
Wallace	--	Work with NCDOT to improve ditches along NC 24 and NC 241. (Keith Eason, NCDOT)	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	In Progress	Coordinating with NCDOT to improve these ditches. Approximately 50% complete. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Wallace	--	Work with the curriculum directors of schools to provide all hazards preparedness and mitigation information programs.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	1-2 Years	To Be Continued	Due to lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Warsaw	Prevention	Continue to proactively clean ditches and upsize culverts within the jurisdiction to aid with stormwater management. Continue to camera lines to identify problems and blockages.	Flood	High	Municipal Administration	General Fund, Grand Funding	Medium	5+ Years	New	Monthly maintenance to ensure all ditches are maintained.

Table 8-20: *Warsaw Mitigation Action Plan*

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Warsaw	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural mitigation grant funding process. (CRS 330)	Inland Flooding, Hurricane/ Tropical Storm, Tornado, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, PDM, HMGP, SR	Medium: Local Staff Time	5+ Years	In Progress	Warsaw has been part of multiple grant projects that have repaired/replaced damaged homes, and we continue to seek funding for RLPs. This action will be updated as needed or during the next HMP update.
Warsaw	Prevention	Develop, implement, and update a Continuity of Operations Plan (COOP) or a similar plan. This plan should focus on establishing seamless operations following a disaster event.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	COOP Disaster Readiness Plan is 75% complete. This action will be updated as needed or during the next HMP update.
Warsaw	Prevention	Encourage owners to annually remove brush or downed limbs promptly.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	In Progress	Warsaw has a yard debris weekly pickup to assist owners with removal. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Warsaw	Prevention	Evaluate and assess all critical facilities outlined within this plan on an annual basis. These efforts should focus on the facility's effectiveness and capabilities for use as a shelter site. The County will coordinate with NCEM, the Red Cross, local animal shelters, local care homes, etc., to make determinations regarding need and capacity.	All Hazards	High	Duplin County Emergency Services Sampson County Administration	General Fund, NCDPS, ARC	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.
Warsaw	--	Improve the wind resistance of structures within the County and Towns by continuing to enforce the North Carolina Building Code through the County's minimum housing code. (CRS 440)	Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium	1-2 Years	In Progress	Warsaw is currently updating its Unified Development Ordinance (UDO) to ensure that new codes meet our zoning requirements. About 90% complete. This action will be updated as needed or during the next HMP update.
Warsaw	--	Increase mass alert reach for all county and jurisdiction residents for all hazards, such as Hyper-Reach. Reverse 911 feature.	All Hazards	High	Duplin County Administration	General Fund, UHMA	Medium: Local Staff Time	5+ Years	To Be Continued	Approximately 10,000 out of 66,000 residents are registered. Will continue working to increase the reach of emergency alerts. This action will be updated as needed or during the next HMP update.
Warsaw	--	Locate different funding sources that can aid in the improvement of drainage within the county caused by regular Inland Flooding events (such as grants through CDBG, DEQ, etc.).	Inland Flooding, Dam Failures, Severe Weather	Medium	Duplin County Administration Municipal Administration	General Fund, NCDPS, NCDEQ	Medium	5+ Years	In Progress	Warsaw continues to seek funding for Stormwater grants to assist with hydrology studies and stormwater mitigation. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Warsaw	--	Maintain and update local GIS Flood Insurance Rate Maps (FIRM). (CRS 440)	Inland Flooding, Dam Failure. Severe Weather, Hurricane/ Tropical Storm	High	Duplin County Administration & All Municipal Administration	General Fund, NCDPS	Medium: Local Staff Time	5+ Years	To Be Continued	The county and all jurisdictions continue to review and formally update FIRMs as revisions become available through the North Carolina Floodplain Mapping Program. This action will be updated and reviewed as needed or during the next HMP update.
Warsaw	--	Monitor trees and branches at risk of breaking or falling in storms. Prune or thin trees or branches on County or jurisdictions' properties when they would pose an immediate threat to property, utility lines, or other significant structures or critical facilities.	Severe Weather, Hurricane/Tropical Storm, Tornado	High	Duplin County Administration Municipal Administration Utility Providers	General Fund, Utility Providers	Medium	5+ Years	To Be Continued	We currently regularly monitor trees and branches and prune as needed. This action will be updated as needed or during the next HMP update.
Warsaw	Public Education	Preparation of a series of mailings to citizens discussing the proper safety procedures for each hazard addressed in this Plan. This effort should focus on mitigation preparation and EOP procedures. (CRS 330)	All Hazards	Low	Duplin County Administration Municipal Administration	General Fund	Medium	5+ Years	To Be Continued	We are looking to add quarterly newsletters for all citizens, including tips on severe weather. This action will be updated as needed or during the next HMP update.
Warsaw	--	Provide safety warning radio broadcasts, including the approximate time and area where a tornado, hurricane / tropical storm, or winter storm is likely to hit.	Severe Weather, Hurricane/Tropical Storm, Tornado, Winter Storm	High	Duplin County Emergency Services Municipal Administration	General Fund; UHMA	Medium	5+ Years	To Be Continued	Due to a lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

Applicable Jurisdictions	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Timeline	Implementation Status	2025-2026 Implementation Details
Warsaw	--	Purchase generator(s) to supply auxiliary power to critical facilities (buildings, wells, pump stations) during power outages. Where possible, the transformers should be pad-mounted with appropriate transfer components. Priority should be given to installing a generator at the facility at 195 Fair Ground Dr (CRDP) in Kenansville (to be used as a regional disaster response building).	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund, NCDPS, UHMA	Medium	5+ Years	In Progress	Warsaw is currently updating its Capital Improvement Plan which includes the purchase of generators for all major facilities. Purchases have already been made for some facilities. 75% complete. This action will be updated as needed or during the next HMP update.
Warsaw	--	Support Implementation of the NCDEQ Watershed Protection program.	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, NCDEQ	Medium: Local Staff Time	5+ Years	To Be Continued	Will continue to support the Watershed Protection Program which ensures the minimum statewide water supply watershed protection requirements. This action will be updated as needed or during the next HMP update.
Warsaw	--	Work with NCDOT to improve ditches along NC 24 and NC 241. (Keith Eason, NCDOT)	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	Coordinating with NCDOT to improve these ditches. Approximately 50% complete. This action will be updated and reviewed as needed or during the next HMP update.
Warsaw	--	Work with the curriculum directors of schools to provide all hazards preparedness and mitigation information programs.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	5+ Years	To Be Continued	Due to lack of funding and available staff, no measurable progress has been made. This action will be updated as needed or during the next HMP update.

SECTION 9: 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 section provides an 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 addressing continued public involvement. It consists of the following subsections:

- **9.1 Implementation and Incorporation**
- **9.2 Plan Integration**
- **9.3 Role of the HMPC in Implementation and Maintenance**
- **9.4 Monitoring, Evaluating, and Updating**
- **9.5 Continued Public Involvement**

9.1 Implementation and Incorporation

Implementation and maintenance of the plan are critical to the overall success of hazard mitigation planning. Implementation of the Hazard Mitigation Plan (HMP) will commence upon the document's adoption by all participating jurisdictions. Resolutions of Adoption are provided in Appendix F of the plan.

Upon adoption, this Hazard Mitigation Plan faces its truest test – implementation. Implementation implies two closely related concepts: action and priority. While this plan offers many worthwhile and high-priority recommendations, the first task facing the Hazard Mitigation Planning Committee (HMPC) is deciding which action to undertake first. There are two factors to consider when making that decision: the item's priority 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 in implementing some of the mitigation strategies.

Another highly effective and low-cost implementation mechanism is incorporating the hazard mitigation plan recommendations and their underlying principles into other county and municipal plans and regulatory mechanisms, such as Capital Improvement Plans and Land Use Plans. The Counties and participating municipalities will use this plan as a starting point for implementing policies and programs to reduce losses of life and property from natural hazards. Through the planning process, partnerships are formed, and sustained action can increase the community’s resilience to disasters. Sampson and Duplin Counties will be charged with ensuring the implementation of strategies specific to their jurisdiction. If these efforts require intergovernmental coordination, the HMPC 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.

9.2 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 through ongoing efforts to network, identify, and highlight the multi-objective benefits of each program and its stakeholders. This effort is achieved through routine actions such as monitoring implementation, attending meetings, and promoting a safe, sustainable community. Additional mitigation strategies could include consistent, ongoing enforcement of existing policies and the review of county and municipal programs to coordinate and identify 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 becomes available, HMPC members will be able 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 support multi-objective implementing actions.

The HMPC, which meets at a minimum annually, will provide a mechanism to ensure that the actions identified in this plan are incorporated into ongoing County and municipal planning activities for each participating jurisdiction. The participating jurisdictions currently use comprehensive land-use planning and building codes to guide and control development in their 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 6 – Capability Assessments.

After the adoption of the HMP, the participating jurisdictions will work with the State Building Code office to ensure they 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. The Regional HMPC and each respective County HMPC will carry out these efforts.

Future capital improvements will also contribute to the goals of 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.

9.3 Role of the HMPC in Implementation and Maintenance

Upon adoption of this plan, the HMPC will be tasked with its implementation and maintenance. The HMPC, led by Matthew Barwick, Director of Emergency Management of Duplin County, and Rick Sauer, Director of Emergency Services of Sampson 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 at 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 the implementation and update of this plan;
- Report on the plan's progress and recommended changes to the Boards of Commissioners; and
- Inform and solicit input from the public.

The HMPC 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.

9.4 Monitoring, Evaluating, and Updating

Since the previous plan was adopted, each jurisdiction has worked to ensure that the 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 ultimately succeeded in implementing the monitoring, evaluation, and update processes outlined in the previous plan, as jurisdictions held annual meetings to discuss the mitigation plan and the priorities outlined and tracked in it. The specific method is outlined below, including an explanation of how the monitoring, evaluating, and updating process was and will be carried out, as well as any changes 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. To track progress and update the mitigation strategies identified in the policy section of the plan, the HMPC will revisit the plan annually and after a hazard event. Matthew Barwick, Director of Emergency Management, and Rick Sauer, Director of Emergency Services, acting as chairs of the HMPC, are responsible for initiating this review and will consult with HMPC members. This monitoring and updating will take place through a formal review by the HMPC annually and a written update every five years, to be submitted to the North Carolina Division of Emergency Management (NCEM) and the Federal Emergency Management Agency (FEMA) Region IV, unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule.

The Plan will be thoroughly reviewed by the HMPC 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 developments in identified hazard areas, increased exposure to hazards, changes in the 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 successful actions and to document potential losses avoided through 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 HMPC 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?

Progress can be evaluated by monitoring changes in the 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

To best evaluate any changes in vulnerability as a result of plan implementation, the HMPC 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 HMPC 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 HMPC may recommend additional measures to be implemented, and an assigned individual will be responsible for defining project scope, implementing the project, monitoring the success of the project, and making any required modifications to the plan.

Changes will be made to the plan to accommodate projects that have failed or are not considered feasible after a review of their consistency with established criteria, the time frame, county priorities, and/or funding resources. Priorities identified as potential mitigation strategies will also be reviewed during the monitoring and updating of this plan to determine their feasibility for future implementation.

Updates to the plan will be made through written changes and submissions as the HMPC deems appropriate and necessary, and as approved by the Board of Commissioners or the participating municipalities' governing boards, if applicable. In keeping with the plan adoption process, a public involvement process to receive public comment on plan maintenance and updates will be held annually, and the Counties will adopt the final product, along with all participating municipalities. The plan will be updated every five years, as required.

9.5 Continued Public Involvement

Public participation is an integral component of the new mitigation planning process and will remain essential as the Hazard Mitigation Plan evolves. 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 HMPC with an invitation for public participation;
- Designating knowledgeable and willing members of the community to serve as official representatives on the HMPC;
- Use local media to update the community on any maintenance and/or periodic review activities taking place;
- Use the Sampson and Duplin Counties' government website to advertise any maintenance and/or periodic review activities taking place;
- Soliciting public feedback via social media surveys.

APPENDIX A: ACRONYMS

ACS – American Community Survey

ARC – Appalachian Regional Commission

ATSDR – Agency for Toxic Substances and Disease Registry

BCEGS – Building Code Effectiveness Grading Schedule

BP – Burn Probability

CDBG – Community Development Block Grant

CDC – Centers for Disease Control and Prevention

CERT – Community Emergency Response Team

CFR – Code of Federal Regulations

COOP – Continuity of Operations Plan

CRREL – Cold Regions Research and Engineering Laboratory

CRS – Community Rating System

DFIRM – Digital Flood Insurance Rate Map

DMA – Disaster Mitigation Act

EAL – Expected Annual Loss

EAP – Emergency Action Plan

EDT – Eastern Daylight Time

EF – Enhanced Fujita

EM – Emergency Management

EMC – Electric Membership Corporation

EMP – Electromagnetic Pulse

EMS – Emergency Medical Services

EOC – Emergency Operations Center

EOP – Emergency Operations Plan

F – Fujita

FEMA – Federal Emergency Management Agency

FIL – Fire Intensity Level

FIRM – Flood Insurance Rate Map

FIS – Fire Intensity Scale

FMA – Flood Mitigation Assistance

FSIM – Fire Simulation

GIS – Geographic Information System

HHPD – High Hazard Potential Dam

HMGP – Hazard Mitigation Grant Program

HMP – Hazard Mitigation Plan

HMPC – Hazard Mitigation Planning Committee

HUC – Hydrologic Unit Code

HVRI-BRIC – Hazards and Vulnerability Research Institute's Baseline Resilience Indicators for Communities

IBTRACTS – Best Track Archive for Climate Stewardship

ILM – Wilmington International Airport

IPAWS – Integrated Public Alert & Warning System

ISO – Insurance Services Office

IT – Internet Technology

LASII – Local Assistance for Stormwater Infrastructure Investments

LEPC – Local Emergency Planning Committee

LLC – Limited Liability Company

MAP – Mitigation Action Plan

MLLW – Mean Lower Low Water

MMI – Modified Mercalli Intensity

MOA – Memorandum of Agreement

MOU – Memorandum of Understanding

MPH – Miles per Hour

MSL – Mean Sea Level

NASA – National Aeronautics and Space Administration

NASF – National Association of State Foresters

NC – North Carolina

NCCSR – North Carolina Climate Science Report

NCDC – National Climatic Data Center

NCDEQ – North Carolina Department of Environmental Quality

NCDFR – North Carolina Division of Forest Resources

NCDOT – North Carolina Department of Transportation

NCDPS – North Carolina Department of Public Safety

NCEI – National Center for Environmental Information

NCEM – North Carolina Division of Emergency Management

NCFRIS – North Carolina Flood Risk Information System

NCSU – North Carolina State University

NCUC – North Carolina Utilities Commission

NDMC – National Drought Mitigation Center

NFIP – National Flood Insurance Program

NHC – National Hurricane Center

NOAA – National Oceanic and Atmospheric Administration

NRI – National Risk Index

NSFHA – No Special Flood Hazard Area

NSHM – National Seismic Hazard Model

NWS – National Weather Service

ORW – Outstanding Resource Waters

PDI – Palmer Drought Index

PDM – Pre-Disaster Mitigation

PDSI – Palmer Drought Severity Index

PGA – Predicted Horizontal Acceleration

RDU – Raleigh-Durham International Airport

RLP – Repetitive Loss Property

RV – Recreational Vehicle

SD – Substantial Damage

SERA – State Emergency Response Application

SFHA – Special Flood Hazard Area

SI – Substantial Improvement

SMNR – Special Medical Needs Registry

SPC – Storm Prediction Center

SPI – Standardized Precipitation Index

SRLP – Severe Repetitive Loss Property

StRAP – Streamflow Rehabilitation Assistance Program

SVI – Social Vulnerability Index

SWRA – Southern Wildfire Risk Assessment

UDO – Unified Development Ordinance

UHMA - Unified Hazard Mitigation Assistance Program

UNC – University of North Carolina

US – United States

USACE – United States Army Corps of Engineers

USD – United States Dollars

USDA – United States Department of Agriculture

USGS – United States Geological Survey

UTC – Coordinated Universal Time

UV – Ultraviolet

WEA – Wireless Emergency Alerts

WFSI – Wildland Fire Susceptibility Index

WMD – Weapons of Mass Destruction

WTP – Water Treatment Plan

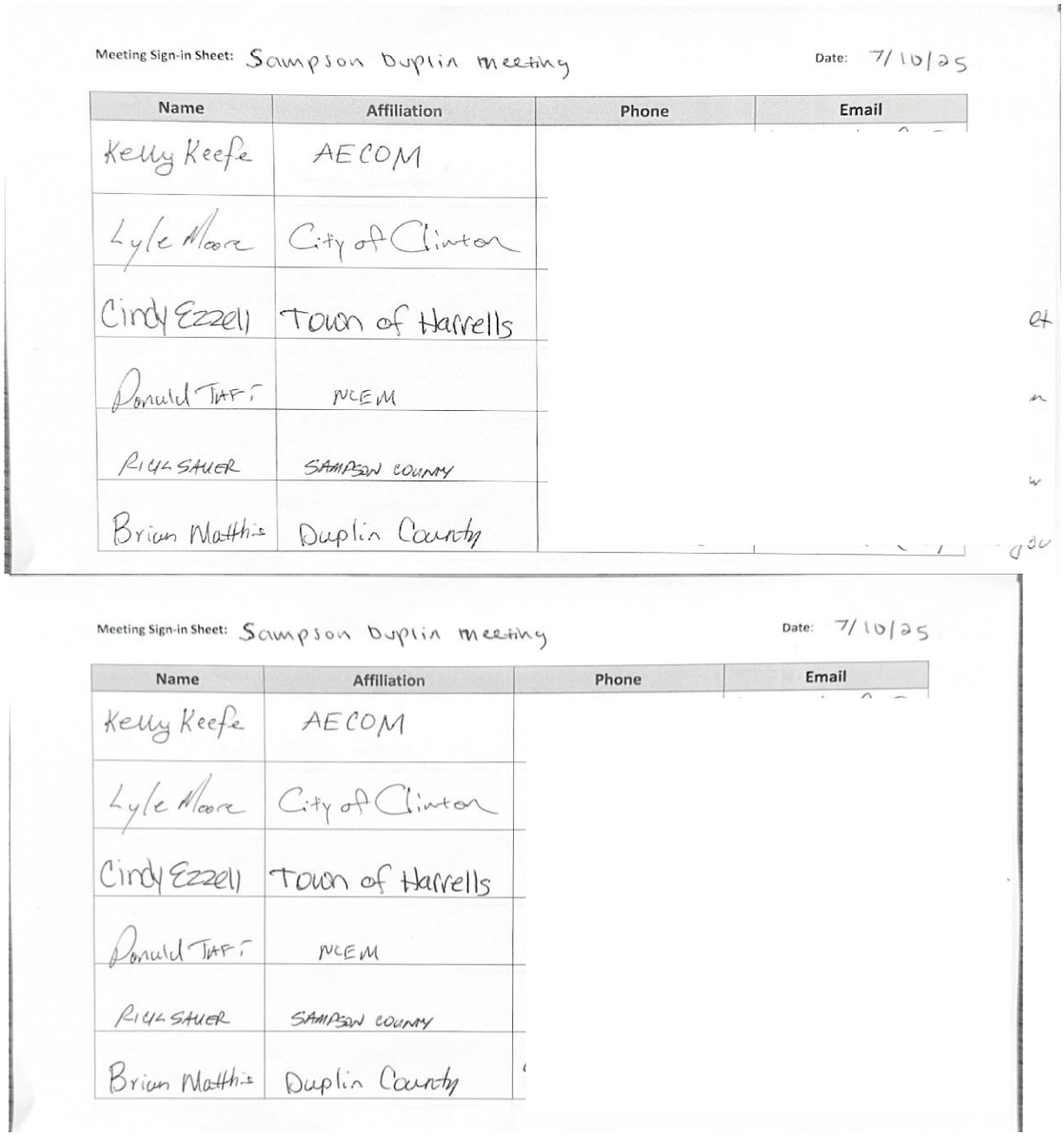
WUI – Functional Wildland Urban Interface

WWTP – Wastewater Treatment Plant

APPENDIX B: PARTICIPATION AND MEETINGS

***Table B-1**: Online Sign-in Sheet from July 10, 2025, Hazard Mitigation Planning Kick-Off Meeting*

Name	Organization/ Affiliation	Title	Role
Mckenzie Houston	AECOM	Resilience Planner	Organizer
Ashley Ervin	AECOM	Resilience Planner	Organizer
Peyton Campbell	AECOM	Resilience Planner	Organizer
Joshua Deaver	Sampson County	-	Attendee
Tana Faircloth	Town of Roseboro	Town Administrator	Attendee
Dawson McLamb	Sampson County	-	Attendee
James Duncan	City of Clinton	-	Attendee
Lori Williams	Town of Beulaville	Town Manager	Attendee
Steve Garrett	North Carolina Emergency Management	State NFIP Coordinator	Attendee
Emma Brinson	Town of Greenevers	Town Administrator	Attendee
Robert Taylor	Wallace	Town Manager	Attendee
John Mello	North Carolina Emergency Management	Hazard Mitigation Planner	Attendee
Jean Ko	Sampson County	PIO	Attendee
Lea Turner	Town of Warsaw	Town Manager	Attendee
Andrew Mitchell	Boykin Lake Dam	Boykin Lakes HOA President	Attendee
Teresa Smith	Salemburg	-	Attendee
Town Manager	Magnolia	-	Attendee



Meeting Sign-in Sheet: Sampson Duplin meeting Date: 7/10/25

Name	Affiliation	Phone	Email
Kelly Keefe	AECOM		
Lyle Moore	City of Clinton		
Cindy Ezzell	Town of Harrells		
Donald Taft	NCEM		
Rick Sauer	Sampson County		
Brian Matthis	Duplin County		

Meeting Sign-in Sheet: Sampson Duplin meeting Date: 7/10/25

Name	Affiliation	Phone	Email
Kelly Keefe	AECOM		
Lyle Moore	City of Clinton		
Cindy Ezzell	Town of Harrells		
Donald Taft	NCEM		
Rick Sauer	Sampson County		
Brian Matthis	Duplin County		

***Figure B-1**: In-Person Attendance Sign-in Sheet for Meeting on July 10, 2025, Hazard Mitigation Planning Kick-Off Meeting (contact information intentionally redacted)*

***Table B-2**: Risk Assessment Online Meeting Sign-in Sheet from August 14, 2025*

Name	Organization/ Affiliation	Title	Role
Mckenzie Houston	AECOM	Resilience Planner	Organizer
Peyton Campbell	AECOM	Resilience Planner	Organizer
Ashley Ervin	AECOM	Resilience Planner	Organizer
Kelly Keefe	AECOM	Resilience Planner	Organizer

Name	Organization/ Affiliation	Title	Role
Lori Williams	Town of Beulaville	Town Manager	Attendee
Mark Turlington	Sampson County	Public Works Director	Attendee
Donald Taft	North Carolina Emergency Management	Area 4 Coordinator	Attendee
Jean Ko	Sampson County	Public Information Officer	Attendee
Rick Sauer	Sampson County	Director of Emergency Services	Attendee
Carl Baker	North Carolina Emergency Management	Mitigation Plans Manager	Attendee
Brian Matthis	Duplin County	Emergency Management Planner/Fire Investigator	Attendee
Dawson McLamb	Sampson County	Emergency Management Coordinator	Attendee
Annette Ricketson	Town of Salemburg	Town Clerk/ Finance Officer	Attendee
Emma Brinson	Town of Greenevers	Town Administrator/ Clerk	Attendee
John Mello	North Carolina Emergency Management	Mitigation Plans Manager	Attendee
Lisa Jones	Town of Autryville	Town Clerk	Attendee
Cindy Ezzell	Town of Harrells	Town Clerk	Attendee
Robert Taylor	Town of Wallace	Town Manager	Attendee
Robert Moore	City of Clinton	Senior Planner	Attendee
Steve Garrett	North Carolina Emergency Management	State NFIP Coordinator	Attendee
Lea Turner	Town of Warsaw	Town Manager	Attendee
Andrew Mitchell	Boykin Lake Homeowners Association	HOA President	Attendee

***Table B-3**: Online Meeting Sign-in Sheet from September 18, 2025*

Name	Organization/ Jurisdiction	Title	Role
Houston, McKenzie M	AECOM	Resilience Planner	Organizer
Peyton Campbell	AECOM	Resilience Planner	Organizer
Kelly Keefe	AECOM	Lead Planner	Organizer
Annette Ricketson	Salemburg	-	Attendee

Name	Organization/ Jurisdiction	Title	Role
Autryville Town Clerk	Town of Autryville	Town Clerk	Attendee
Emma Brinson	Town of Greenevers	Town Administrator	Attendee
Carl Baker	North Carolina Emergency Management	Mitigation Plans Manager	Attendee
Lea Turner	Town of Warsaw	Town Manager	Attendee
John Mello	North Carolina Emergency Management	Hazard Mitigation Planner	Attendee
Ashley Ervin	AECOM	-	Attendee
Dawson McLamb	Sampson County	Emergency Management Coordinator	Attendee
Brian Matthis	Duplin County	Deputy Public Safety	Attendee
Donald Taft	NCDPS	-	Attendee
Lori Williams	Town of Beulaville	Town Manager	Attendee
Hannah Thompson	North Carolina Forest Service	Wildfire Mitigation Specialist	Attendee
Robert Moore	City of Clinton	Senior Planner	Attendee

Table B- 4: Online Meeting Sign-in Sheet from September 23, 2025

Name	Organization	Title	Role
Mckenzie Houston	AECOM	Resilience Planner	Organizer
Brian Matthis	Duplin County	Deputy Public Safety Director	Attendee
Ashley Ervin	AECOM	Resilience Planner	Organizer
Peyton Campbell	AECOM	Environmental Planner	Organizer
Kelly Keefe	AECOM	Resilience Planner	Organizer
Robert Taylor	Town of Wallace	Town of Manager	Attendee
Angela Smith	Town of Rose Hill	Town Administrator	Attendee

Table B- 5: Online Meeting Sign-in Sheet from September 24, 2025 (10:00am)

Name	Organization	Title	Role
Mckenzie Houston	AECOM	Resilience Planner	Organizer
Peyton Campbell	AECOM	Environmental Planner	Organizer
Kelly Keefe	AECOM	Resilience Planner	Organizer
Dawson McLamb	Sampson County	Emergency Management Coordinator	Attendee

Name	Organization	Title	Role
Annette Ricketson	Salemburg	-	Attendee
Cindy Ezzell	Town of Harrells	Town Clerk	Attendee
Rick Sauer	Sampson County	Director of Emergency Services	Attendee

Table B- 6: Online Meeting Sign-in Sheet from September 24, 2025 (2:30pm)

Name	Organization	Title	Role
Mckenzie Houston	AECOM	Resilience Planner	Organizer
Peyton Campbell	AECOM	Environmental Planner	Organizer
Kelly Keefe	AECOM	Resilience Planner	Organizer
Annette Ricketson	Salemburg	-	Attendee
Cindy Ezzell	Town of Harrells	Town Clerk	Attendee
Craig Warren	Town of Newton Grove	Mayor	Attendee
Dawson McLamb	Sampson County Emergency Services	Emergency Management Coordinator	Attendee
Ashley Ervin	AECOM	Planner	Attendee
Summer Thornton	Town of Garland	Deputy Clerk	Attendee
Teresa Frack	Town of Turkey	-	Attendee

Table B- 7: Online Meeting Sign-in Sheet from September 26, 2025

Name	Organization	Title	Role
McKenzie Houston	AECOM	Resilience Planner	Organizer
Lori Williams	Town of Beulaville	-	Presenter
Brian Matthis	Duplin County	-	Presenter
Lea Turner	Town of Warsaw	Town Manager	Presenter
Kelly Keefe	AECOM	Resilience Planner	Presenter
Peyton Campbell	AECOM	Environmental Planner	Presenter
Ashley Ervin	AECOM	Resilience Planner	Presenter
Emma Brinson	Town of Greenevers	-	Presenter
Robert Taylor	Town of Wallace	-	Presenter

***Table B-8**: Online Meeting Sign-in Sheet from October 30, 2025*

Name	Organization	Title	Role
Mckenzie Houston	AECOM	Resilience Planner	Organizer
Kelsey Peterson	AECOM	Resilience Planner	Organizer
Kelly Keefe	AECOM	Lead Planner	Organizer

Name	Organization	Title	Role
Peyton Campbell	AECOM	Environmental Planner	Organizer
Carl Baker	North Carolina Emergency Management	Mitigation Plans Manager	Attendee
David Tyndall	City of Calypso	-	Attendee
Charles Banks	Town of Magnolia	Town Manager	Attendee
Rick Sauer	Sampson County	Director	Attendee
Sampson County Emergency Services	Sampson County	-	Attendee
Lori Williams	Town of Beulaville	Town Manager	Attendee
Brian Matthis	Duplin County	Deputy Director	Attendee
Autryville Town Clerk	Town of Autryville	Town of Clerk	Attendee
John Mello	North Carolina Emergency Management	Hazard Mitigation Planner	Attendee
Janet Dunn	Town of Roseboro	Interim Town Clerk	Attendee
Robert Moore	City of Clinton	Planning Director	Attendee
Robert Taylor	Town of Wallace	Town Manager	Attendee
Jimmy Tyndall	Town of Faison	Executive Administrator	Attendee
Dawson McLamb	Sampson County	Emergency Management Coordinator	Attendee
Emma Brinson	Town of Greenevers	Town Administrator/Clerk	Attendee
Zachary LaFave	Teleco of Wilmington	Network Engineer	Attendee
Vickie Deaver	Town of Kenansville	Town Clerk	Attendee
Lea Turner	Town of Warsaw	Town Manager	Attendee
Steven Whitman	Town of Kenansville	Manager	Attendee
Lisa Jones	Town of Autryville	Town of Clerk	Attendee
Lisa Tyndall	Town of Calypso	Commissioner	Attendee
Joanne Wilson	Town of Calypso	Mayor	Attendee

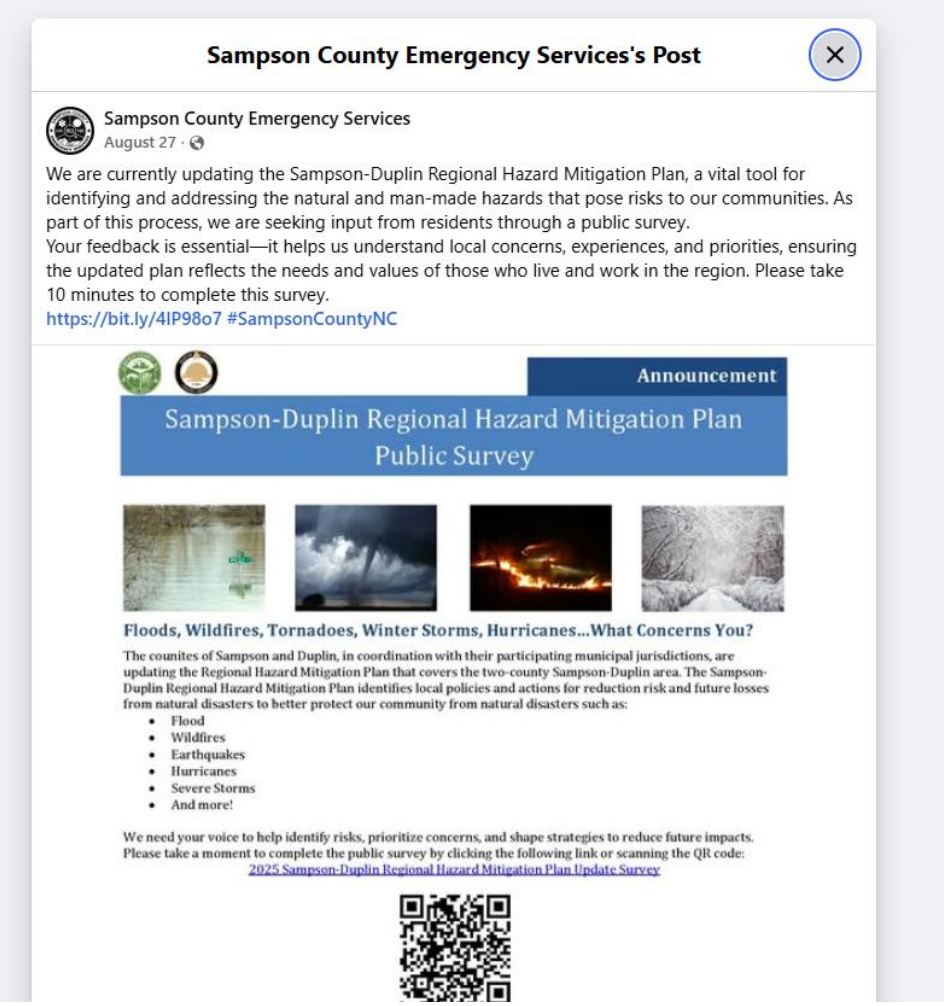


***Figure B-2**: Sampson County Emergency Services post about the Sampson Duplin Regional Hazard Mitigation Plan Public Survey, posted on August 27, 2025*

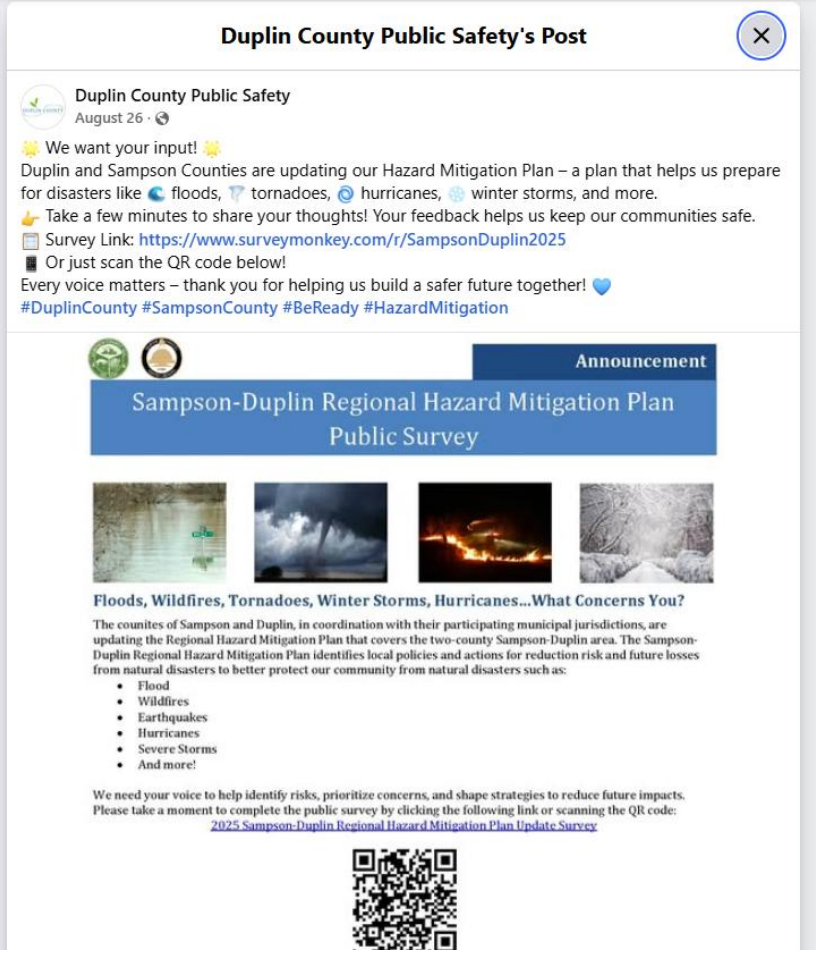


***Figure B-3**: Duplin County Public Safety Post about regional plan input posted on August 26, 2025*



***Figure B-4**: Town of Greenevers Notice of plan public comment period draft posted on October 30, 2025*



***Figure B-5**: Sampson County Government Facebook Post about the plan public comment period posted on October 30, 2025*

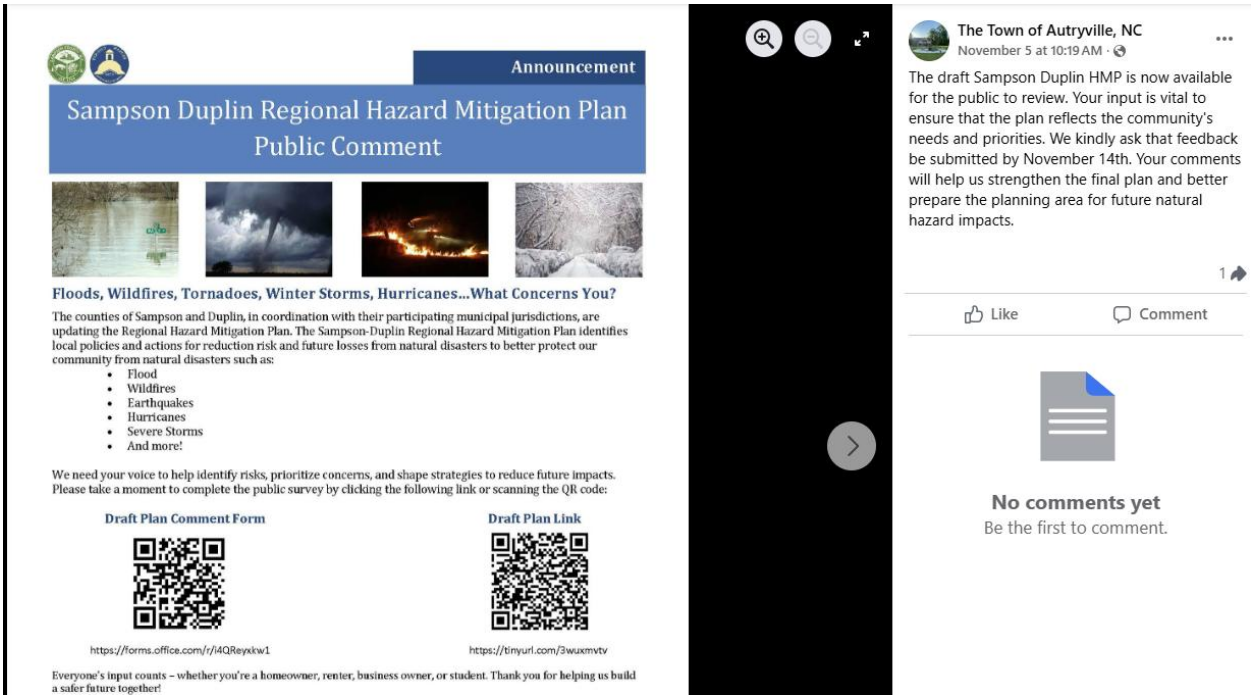


***Figure B-6**: Town of Autryville Facebook post about the Sampson Duplin HMP update public comment period posted on November 5, 2025*

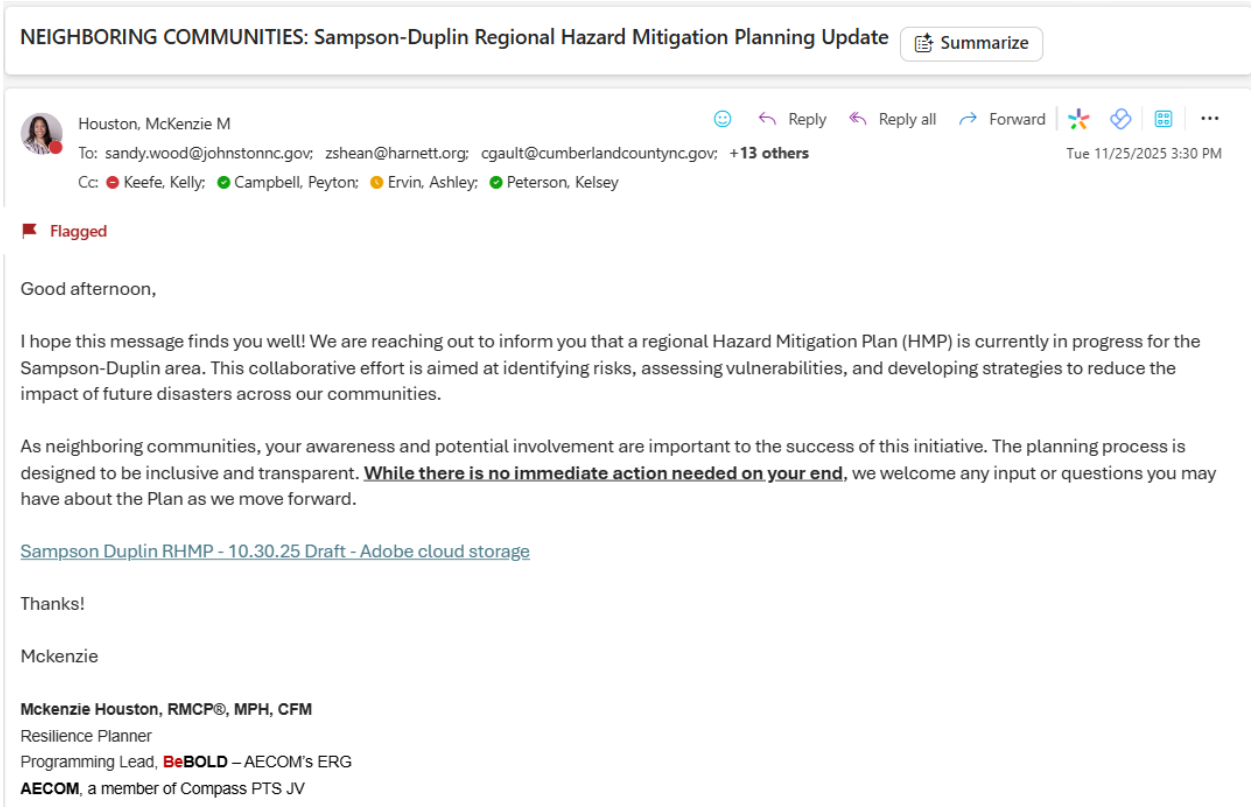
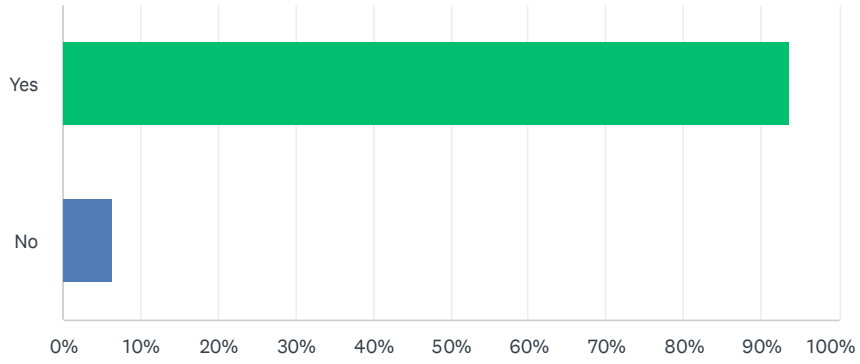


***Figure B-7**: Neighboring Communities Invitation to Participate in the Sampson Duplin HMP Update Process*

Q1 Have you ever experienced or been impacted by a natural disaster?

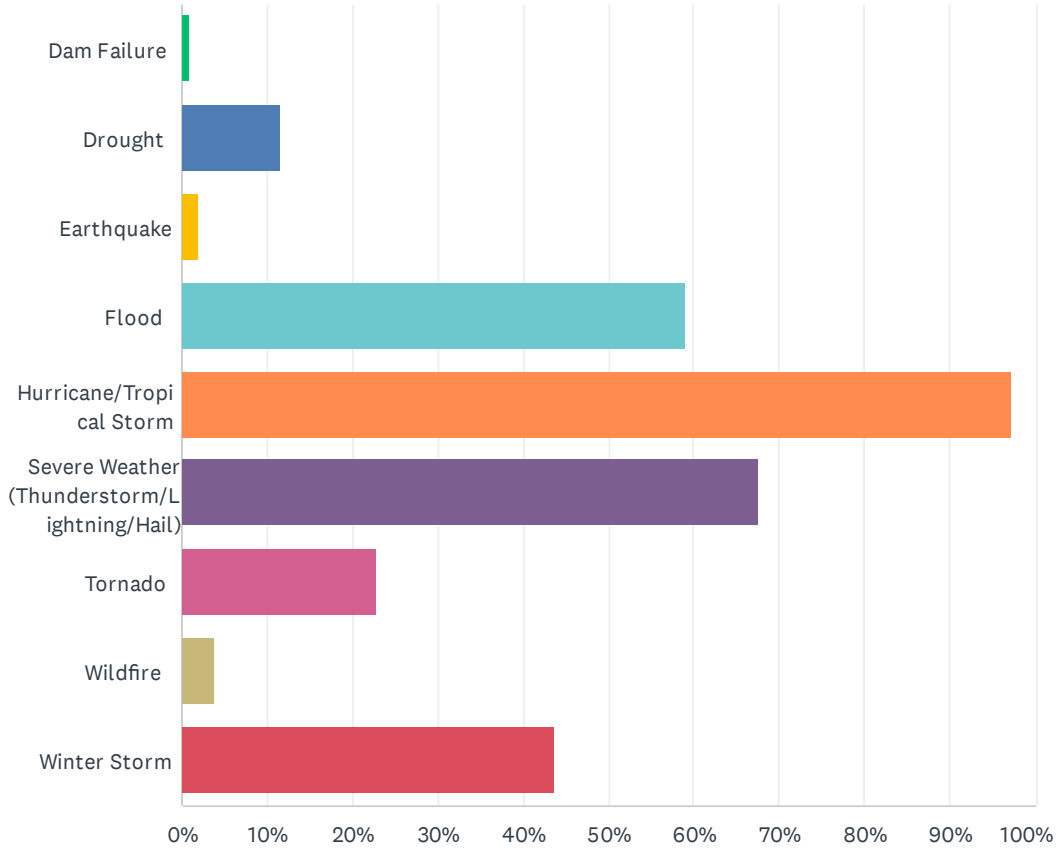
Answered: 109 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	93.58%	102
No	6.42%	7
TOTAL		109

Q2 If yes, Which of these natural hazards have you experienced or been impacted by? (Check all that apply.)

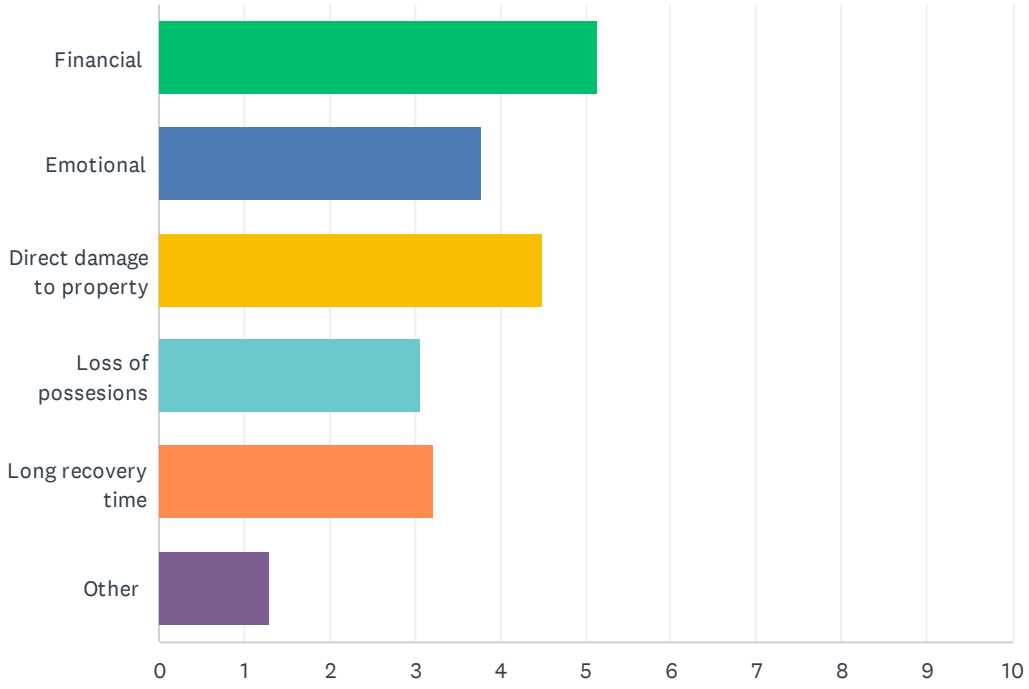
Answered: 105 Skipped: 5



ANSWER CHOICES	RESPONSES	
Dam Failure	0.95%	1
Drought	11.43%	12
Earthquake	1.90%	2
Flood	59.05%	62
Hurricane/Tropical Storm	97.14%	102
Severe Weather (Thunderstorm/Lightning/Hail)	67.62%	71
Tornado	22.86%	24
Wildfire	3.81%	4
Winter Storm	43.81%	46
Total Respondents: 105		

Q3 What was the most difficult part for you in recovering from past disasters that you have experienced? (1 being most difficult and 6 being least difficult.)

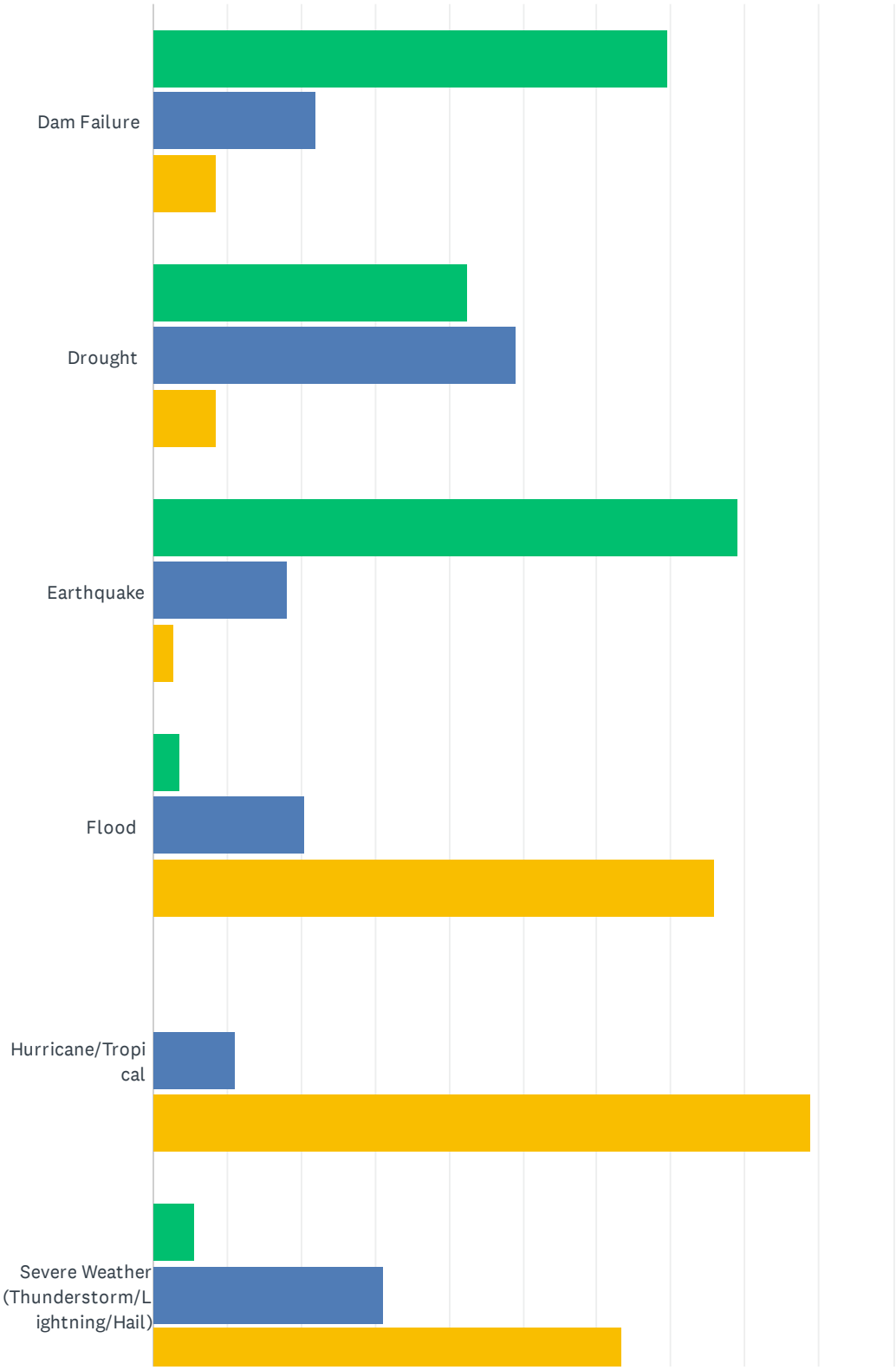
Answered: 106 Skipped: 4

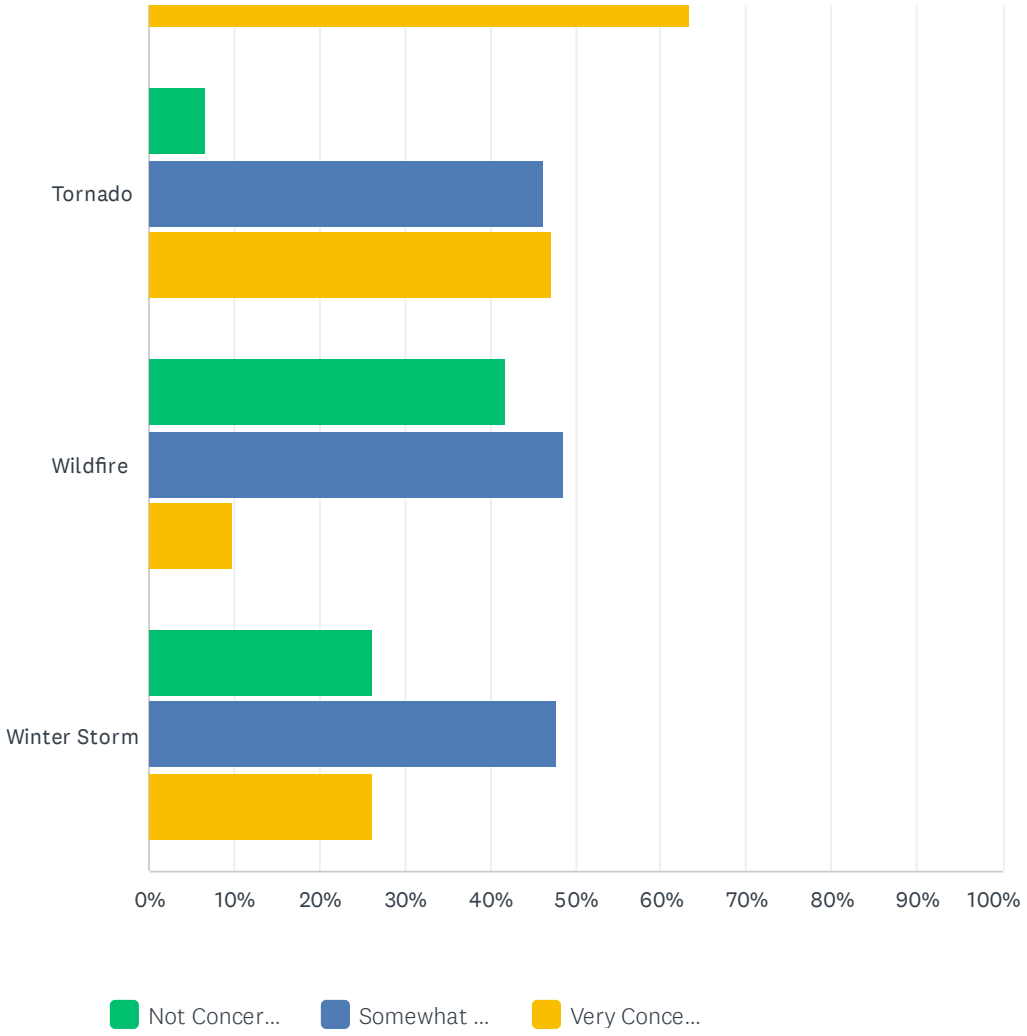


	1	2	3	4	5	6	TOTAL	SCORE
Financial	44.34% 47	33.96% 36	15.09% 16	4.72% 5	1.89% 2	0.00% 0	106	5.14
Emotional	16.98% 18	17.92% 19	22.64% 24	16.04% 17	20.75% 22	5.66% 6	106	3.77
Direct damage to property	27.36% 29	30.19% 32	18.87% 20	14.15% 15	7.55% 8	1.89% 2	106	4.50
Loss of possesions	0.00% 0	5.66% 6	23.58% 25	45.28% 48	22.64% 24	2.83% 3	106	3.07
Long recovery time	8.49% 9	12.26% 13	17.92% 19	17.92% 19	39.62% 42	3.77% 4	106	3.21
Other	2.83% 3	0.00% 0	1.89% 2	1.89% 2	7.55% 8	85.85% 91	106	1.31

Q4 How concerned are you about the possibility of your community being impacted by each of these natural hazards? (Check the corresponding circle for each natural hazard.)

Answered: 109 Skipped: 1

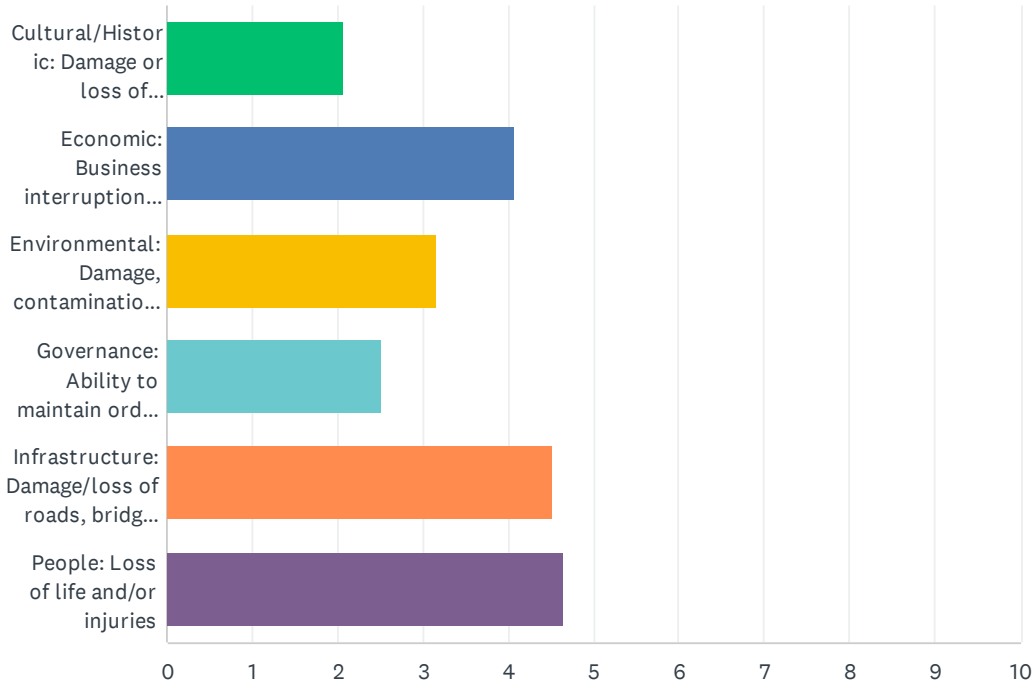




	NOT CONCERNED	SOMEWHAT CONCERNED	VERY CONCERNED	TOTAL	WEIGHTED AVERAGE
Dam Failure	69.52% 73	21.90% 23	8.57% 9	105	1.39
Drought	42.45% 45	49.06% 52	8.49% 9	106	1.66
Earthquake	79.05% 83	18.10% 19	2.86% 3	105	1.24
Flood	3.70% 4	20.37% 22	75.93% 82	108	2.72
Hurricane/Tropical	0.00% 0	11.01% 12	88.99% 97	109	2.89
Severe Weather (Thunderstorm/Lightning/Hail)	5.50% 6	31.19% 34	63.30% 69	109	2.58
Tornado	6.60% 7	46.23% 49	47.17% 50	106	2.41
Wildfire	41.75% 43	48.54% 50	9.71% 10	103	1.68
Winter Storm	26.17% 28	47.66% 51	26.17% 28	107	2.00

Q5 In your opinion, which of the following categories are most susceptible to natural hazards in your community? (Rank the community assets in order of vulnerability, 1 being most vulnerable and 6 being least vulnerable.) Please note, the list will automatically re-order itself as you make your selections. You can also drag and drop the items on the list to reorder them.

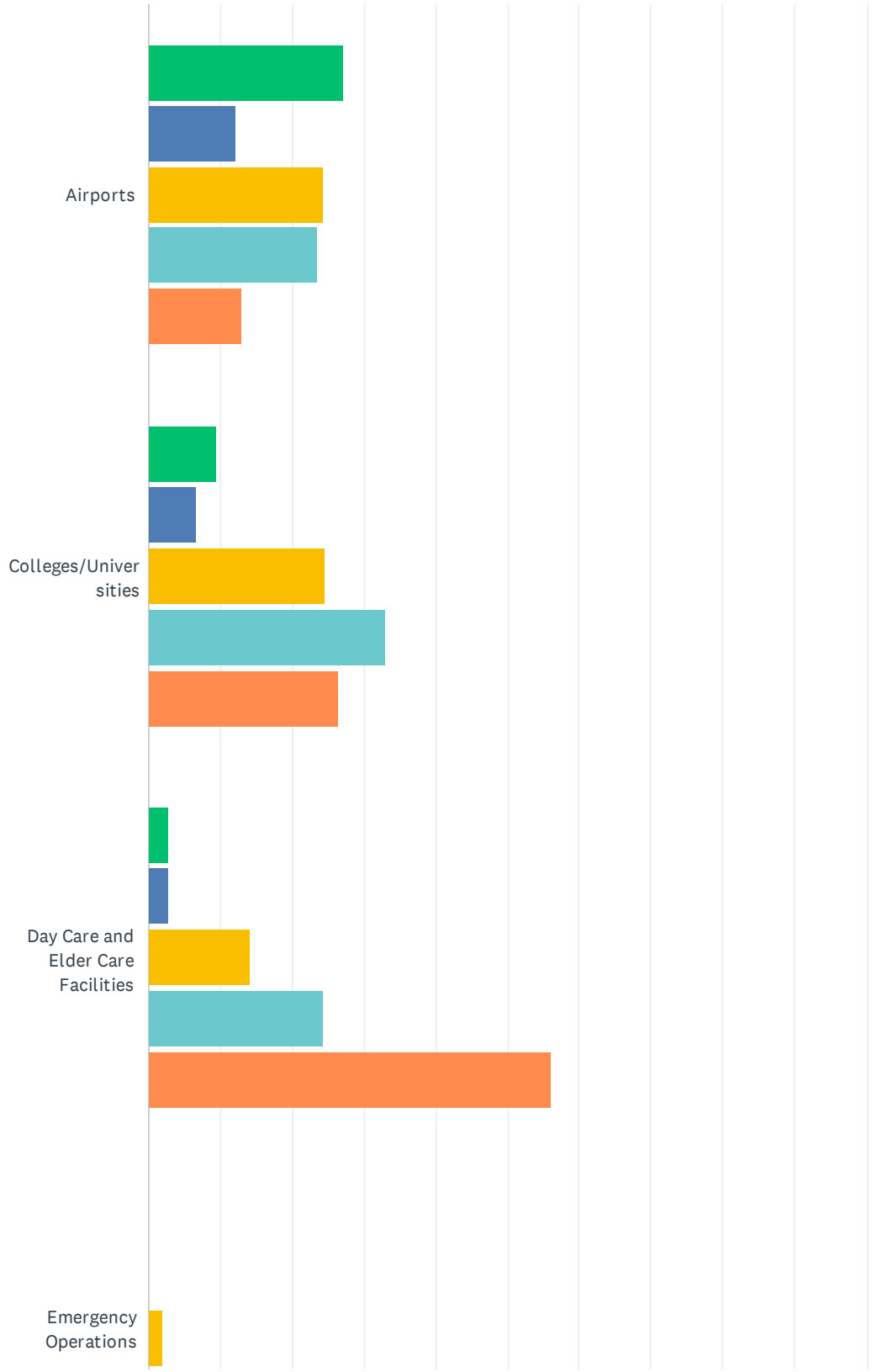
Answered: 107 Skipped: 3

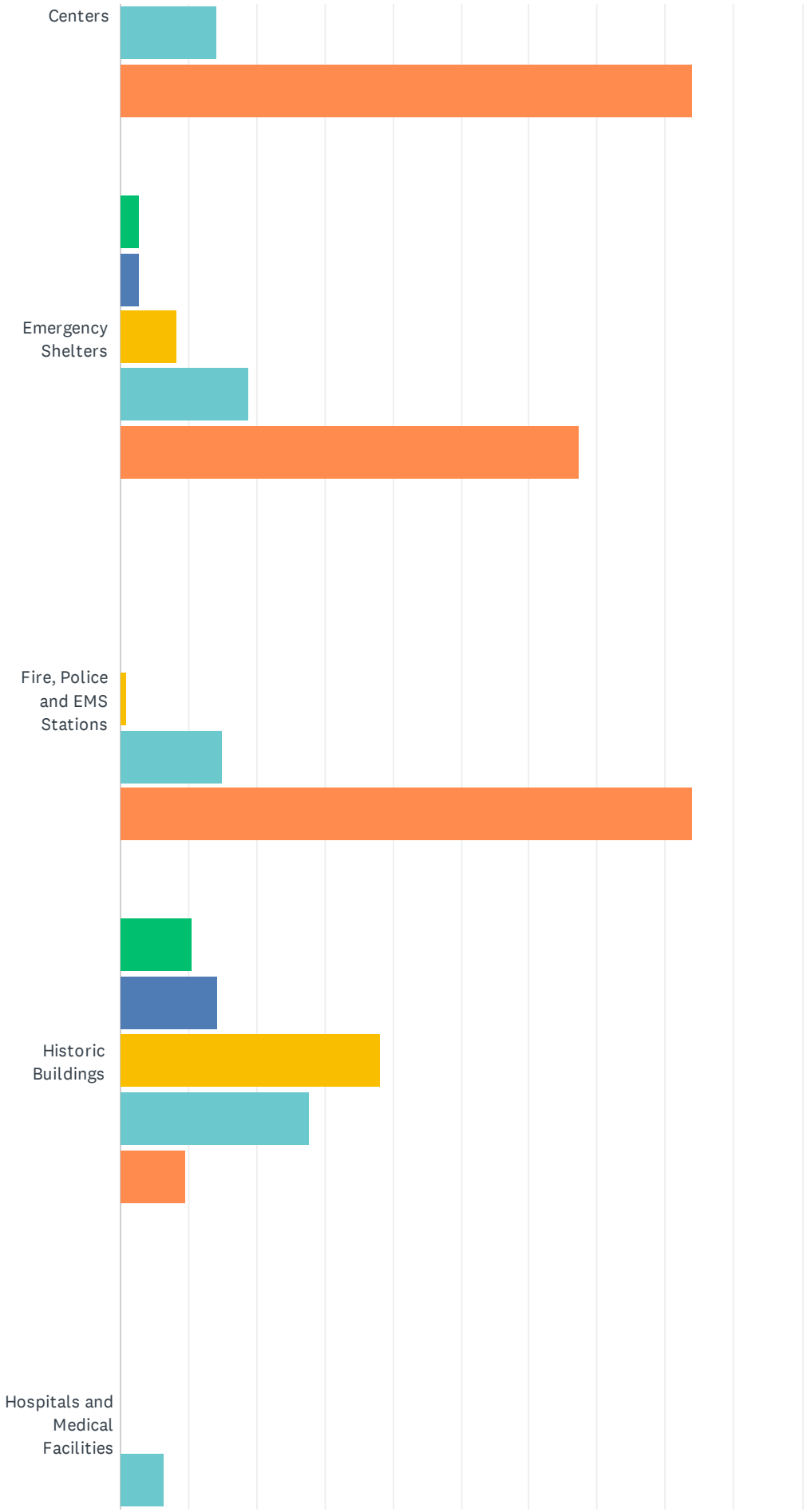


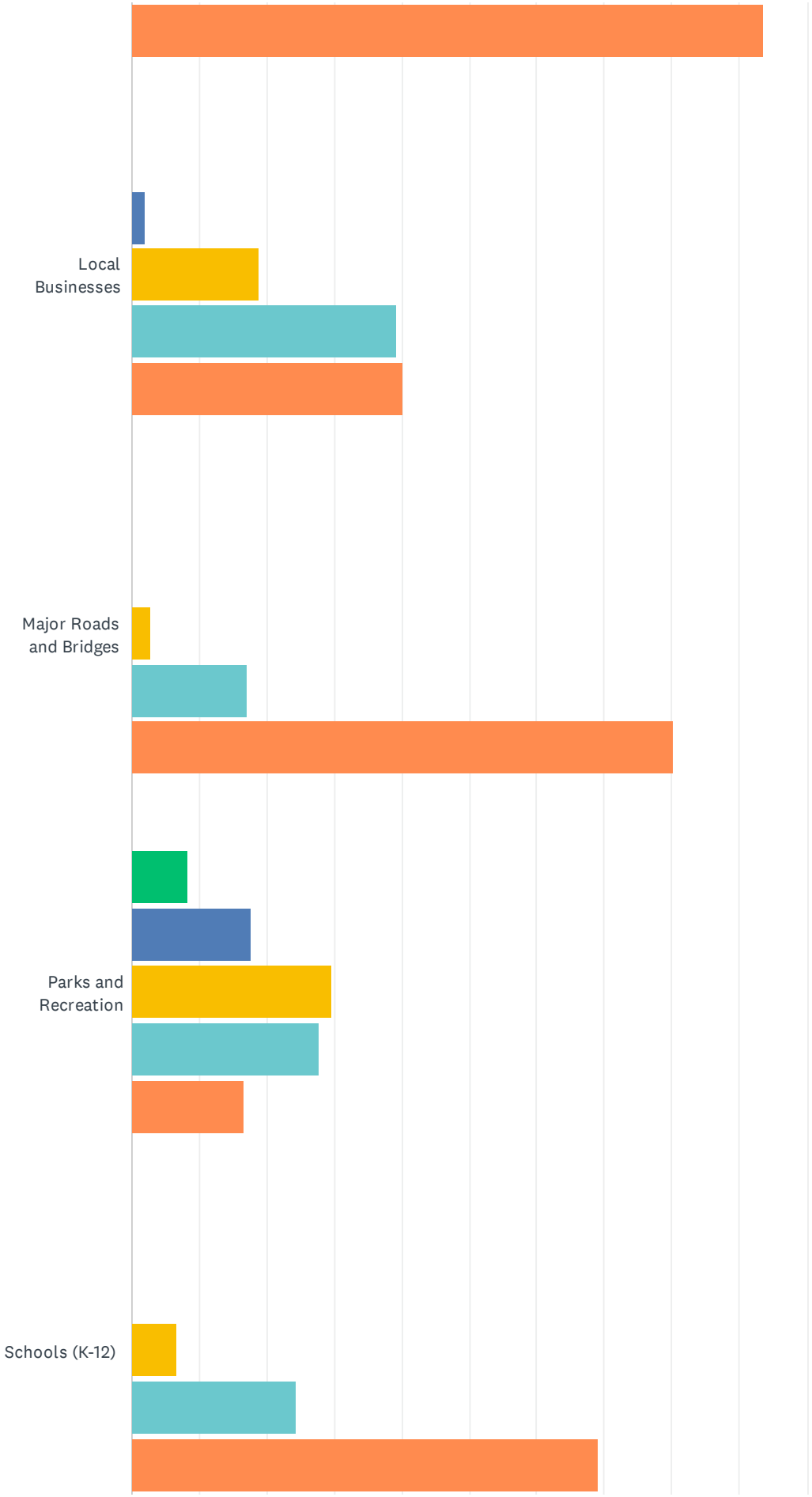
	1	2	3	4	5	6	TOTAL	SCORE
Cultural/Historic: Damage or loss of libraries, museums, historic properties, etc.	4.67% 5	5.61% 6	2.80% 3	10.28% 11	32.71% 35	43.93% 47	107	2.07
Economic: Business interruptions/closures, job losses, etc.	10.28% 11	28.04% 30	34.58% 37	15.89% 17	8.41% 9	2.80% 3	107	4.07
Environmental: Damage, contamination or loss of forests, wetlands, waterways, etc.	2.80% 3	14.95% 16	23.36% 25	28.04% 30	15.89% 17	14.95% 16	107	3.16
Governance: Ability to maintain order and/or provide public amenities and services	1.87% 2	1.87% 2	14.95% 16	30.84% 33	28.04% 30	22.43% 24	107	2.51
Infrastructure: Damage/loss of roads, bridges, utilities, schools, etc.	25.23% 27	40.19% 43	13.08% 14	9.35% 10	8.41% 9	3.74% 4	107	4.53
People: Loss of life and/or injuries	55.14% 59	9.35% 10	11.21% 12	5.61% 6	6.54% 7	12.15% 13	107	4.64

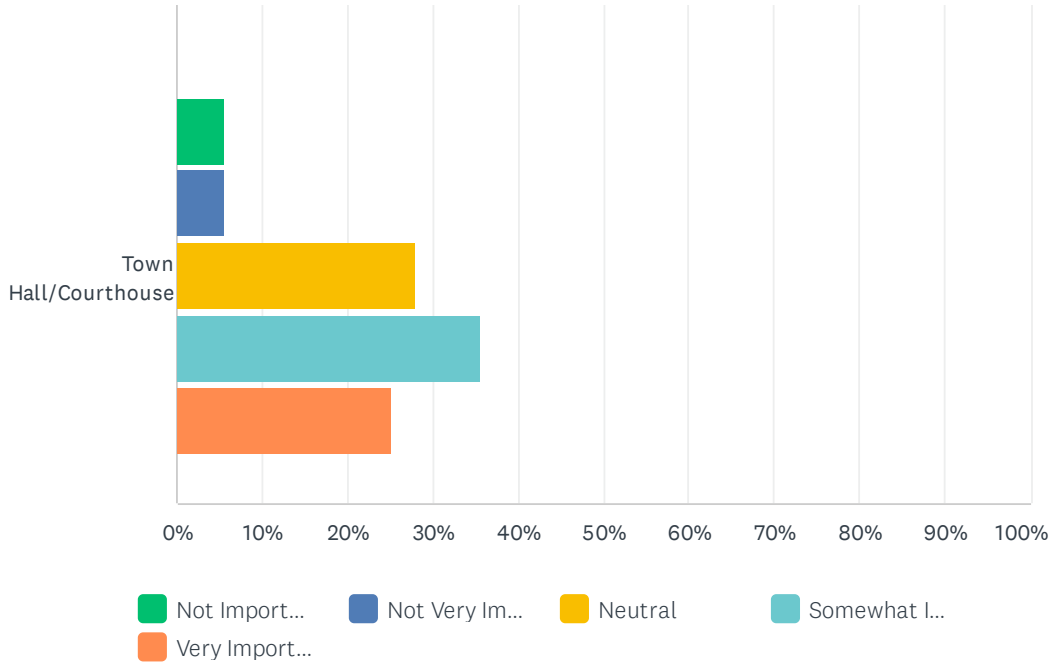
Q6 How important is each of the following specific community assets to you? (Check the appropriate circle for each asset.)

Answered: 108 Skipped: 2




Centers
Emergency Shelters
Fire, Police and EMS Stations
Historic Buildings
Hospitals and Medical Facilities

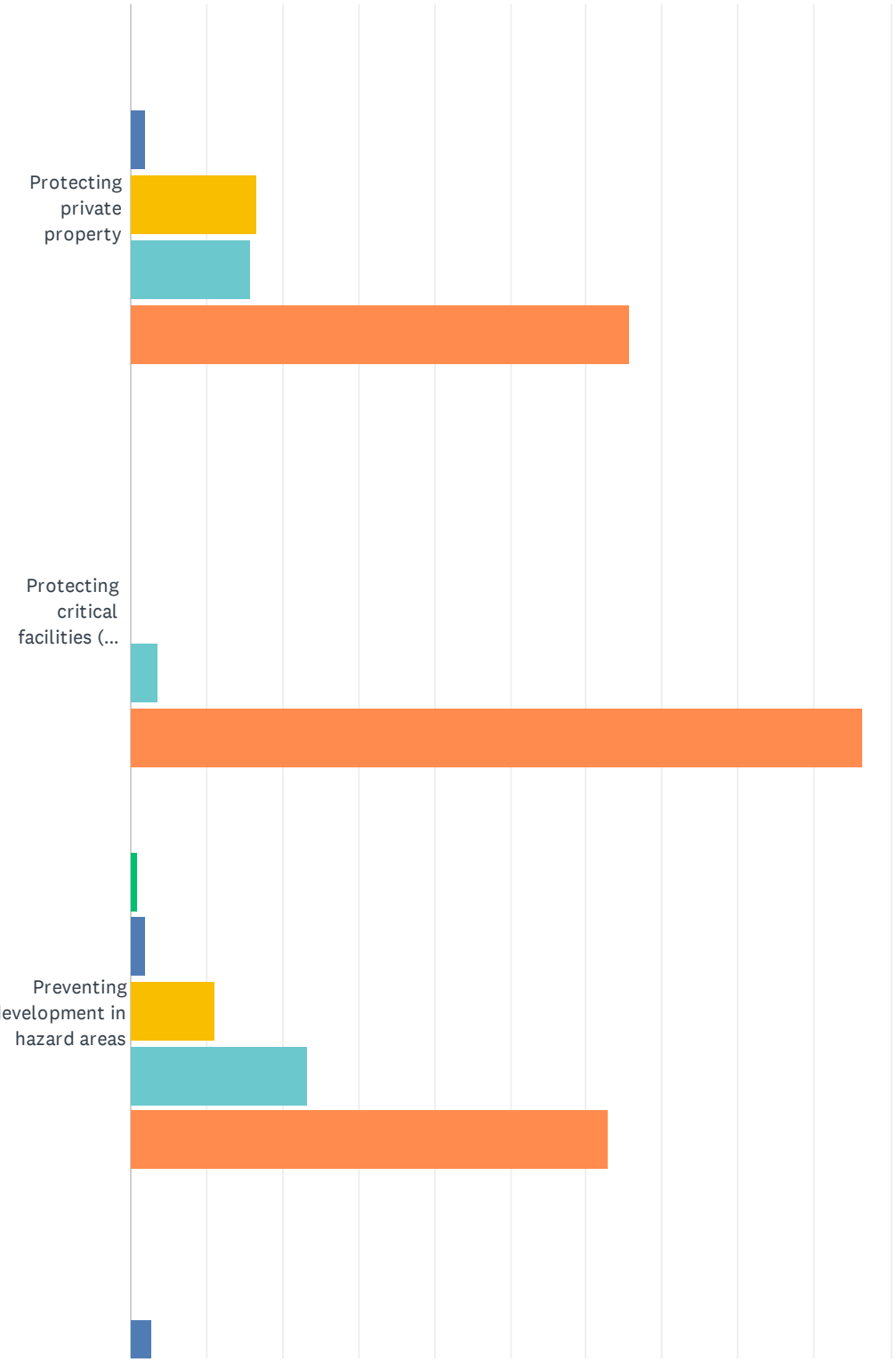

Local Businesses
Major Roads and Bridges
Parks and Recreation
Schools (K-12)

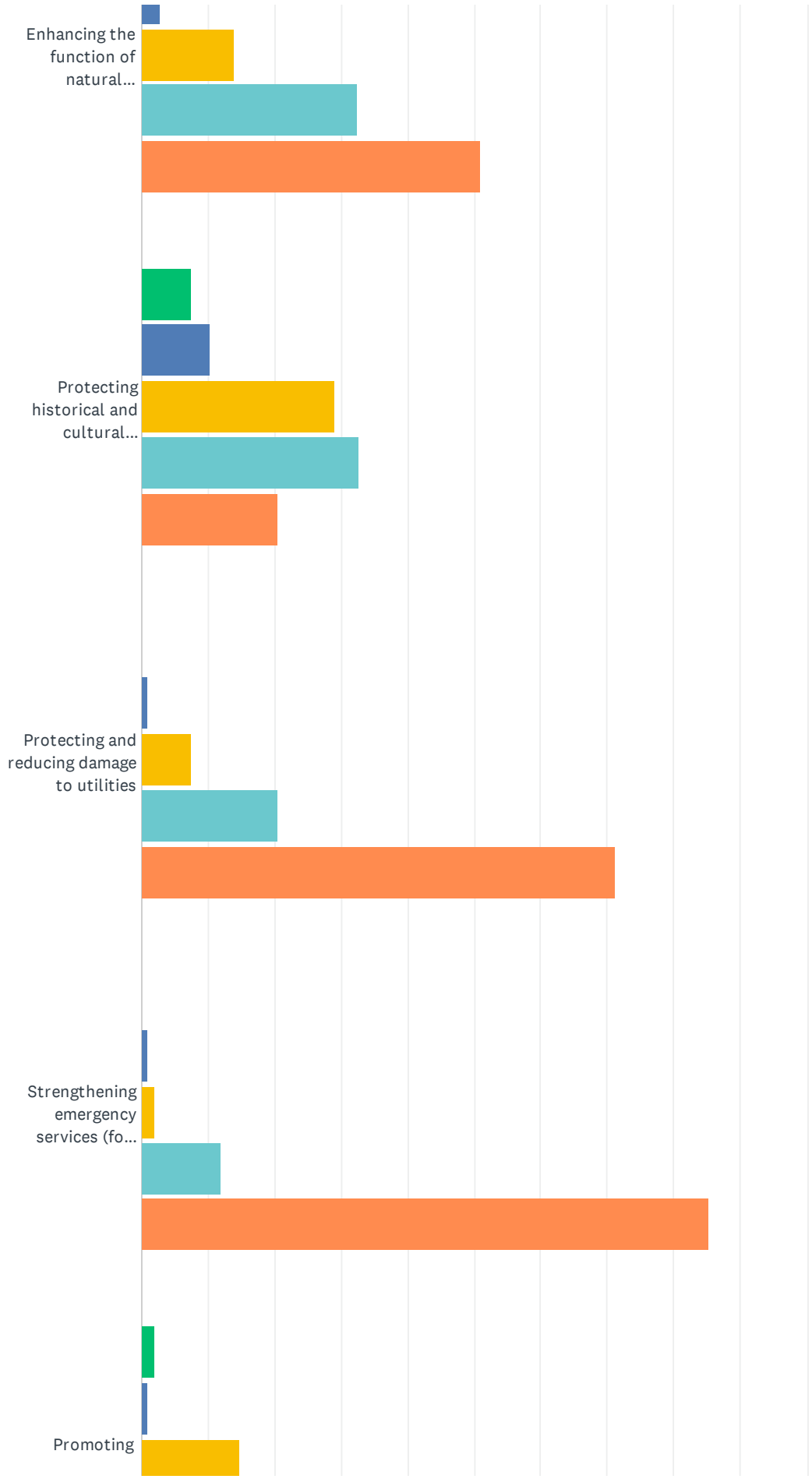


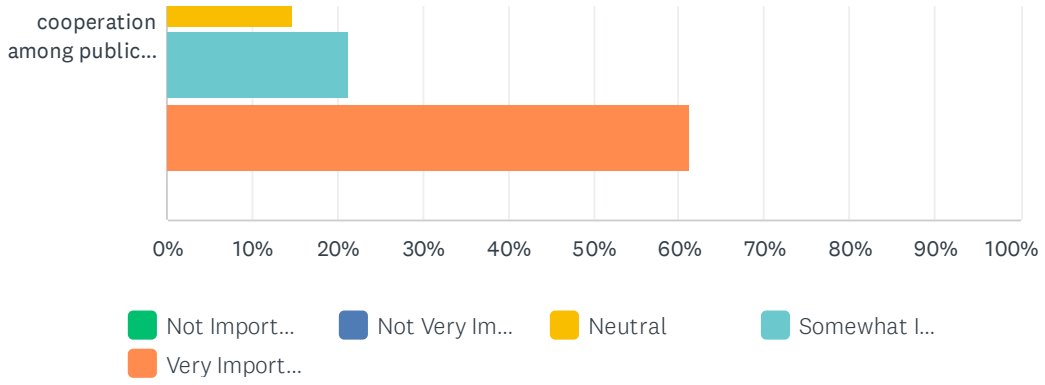
	NOT IMPORTANT	NOT VERY IMPORTANT	NEUTRAL	SOMEWHAT IMPORTANT	VERY IMPORTANT	TOTAL	WEIGHTED AVERAGE
Airports	27.10% 29	12.15% 13	24.30% 26	23.36% 25	13.08% 14	107	2.83
Colleges/Universities	9.43% 10	6.60% 7	24.53% 26	33.02% 35	26.42% 28	106	3.60
Day Care and Elder Care Facilities	2.80% 3	2.80% 3	14.02% 15	24.30% 26	56.07% 60	107	4.28
Emergency Operations Centers	0.00% 0	0.00% 0	1.87% 2	14.02% 15	84.11% 90	107	4.82
Emergency Shelters	2.80% 3	2.80% 3	8.41% 9	18.69% 20	67.29% 72	107	4.45
Fire, Police and EMS Stations	0.00% 0	0.00% 0	0.93% 1	14.95% 16	84.11% 90	107	4.83
Historic Buildings	10.48% 11	14.29% 15	38.10% 40	27.62% 29	9.52% 10	105	3.11
Hospitals and Medical Facilities	0.00% 0	0.00% 0	0.00% 0	6.48% 7	93.52% 101	108	4.94
Local Businesses	0.00% 0	1.87% 2	18.69% 20	39.25% 42	40.19% 43	107	4.18
Major Roads and Bridges	0.00% 0	0.00% 0	2.83% 3	16.98% 18	80.19% 85	106	4.77
Parks and Recreation	8.33% 9	17.59% 19	29.63% 32	27.78% 30	16.67% 18	108	3.27
Schools (K-12)	0.00% 0	0.00% 0	6.54% 7	24.30% 26	69.16% 74	107	4.63
Town Hall/Courthouse	5.61% 6	5.61% 6	28.04% 30	35.51% 38	25.23% 27	107	3.69

Q7 Natural hazards can have a significant impact on a community, but planning for these types of events can help lessen the impacts. Please tell us how important each statement is to you by checking the appropriate circle for each.

Answered: 108 Skipped: 2



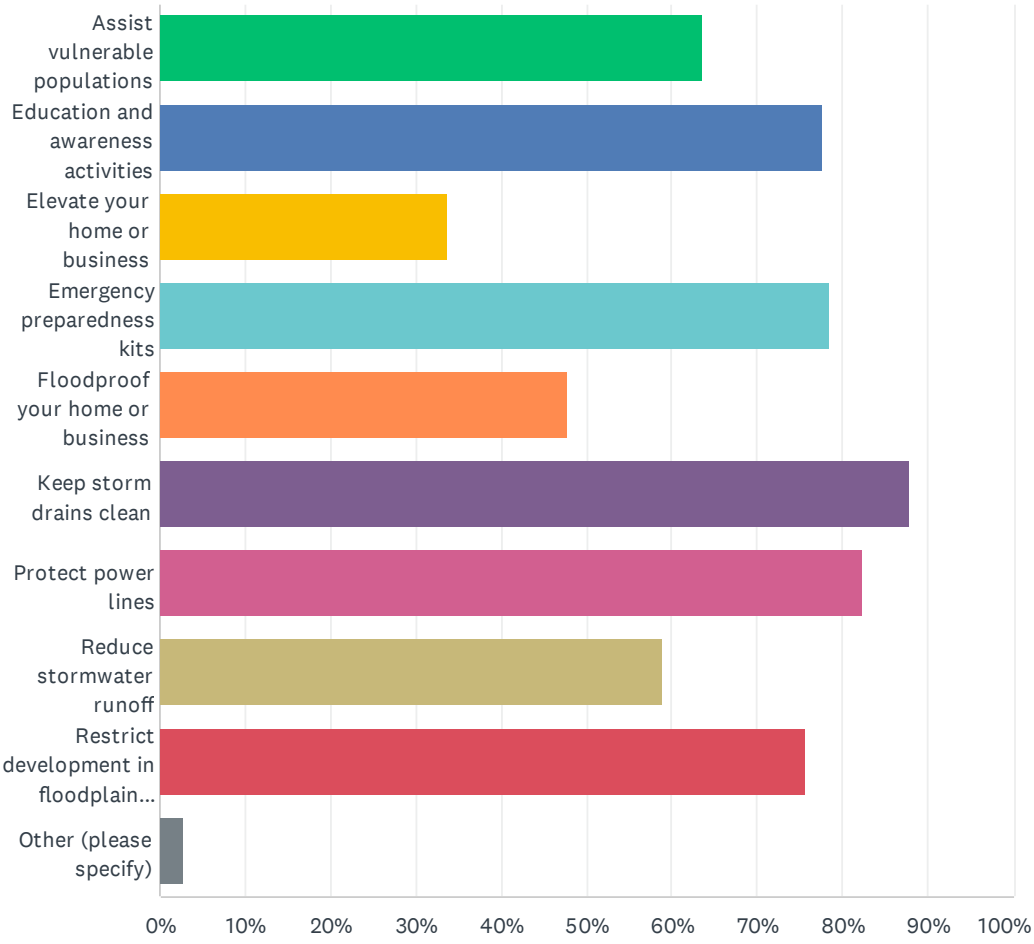

Enhancing the function of natural...
Protecting historical and cultural...
Protecting and reducing damage to utilities
Strengthening emergency services (fo...
Promoting



	NOT IMPORTANT	NOT VERY IMPORTANT	NEUTRAL	SOMEWHAT IMPORTANT	VERY IMPORTANT	TOTAL	WEIGHTED AVERAGE
Protecting private property	0.00% 0	1.85% 2	16.67% 18	15.74% 17	65.74% 71	108	4.45
Protecting critical facilities (for example, hospitals, police stations, fire stations, etc.)	0.00% 0	0.00% 0	0.00% 0	3.70% 4	96.30% 104	108	4.96
Preventing development in hazard areas	0.93% 1	1.85% 2	11.11% 12	23.15% 25	62.96% 68	108	4.45
Enhancing the function of natural features (for example, streams, wetlands, etc.)	0.00% 0	2.78% 3	13.89% 15	32.41% 35	50.93% 55	108	4.31
Protecting historical and cultural landmarks	7.48% 8	10.28% 11	28.97% 31	32.71% 35	20.56% 22	107	3.49
Protecting and reducing damage to utilities	0.00% 0	0.93% 1	7.41% 8	20.37% 22	71.30% 77	108	4.62
Strengthening emergency services (for example, police, fire, ambulance)	0.00% 0	0.93% 1	1.85% 2	12.04% 13	85.19% 92	108	4.81
Promoting cooperation among public agencies, citizens, non-profit organizations, and businesses	1.85% 2	0.93% 1	14.81% 16	21.30% 23	61.11% 66	108	4.39

Q8 What are some steps that you and/or your local government could take to reduce or eliminate the risk of future natural hazard damages in your neighborhood?

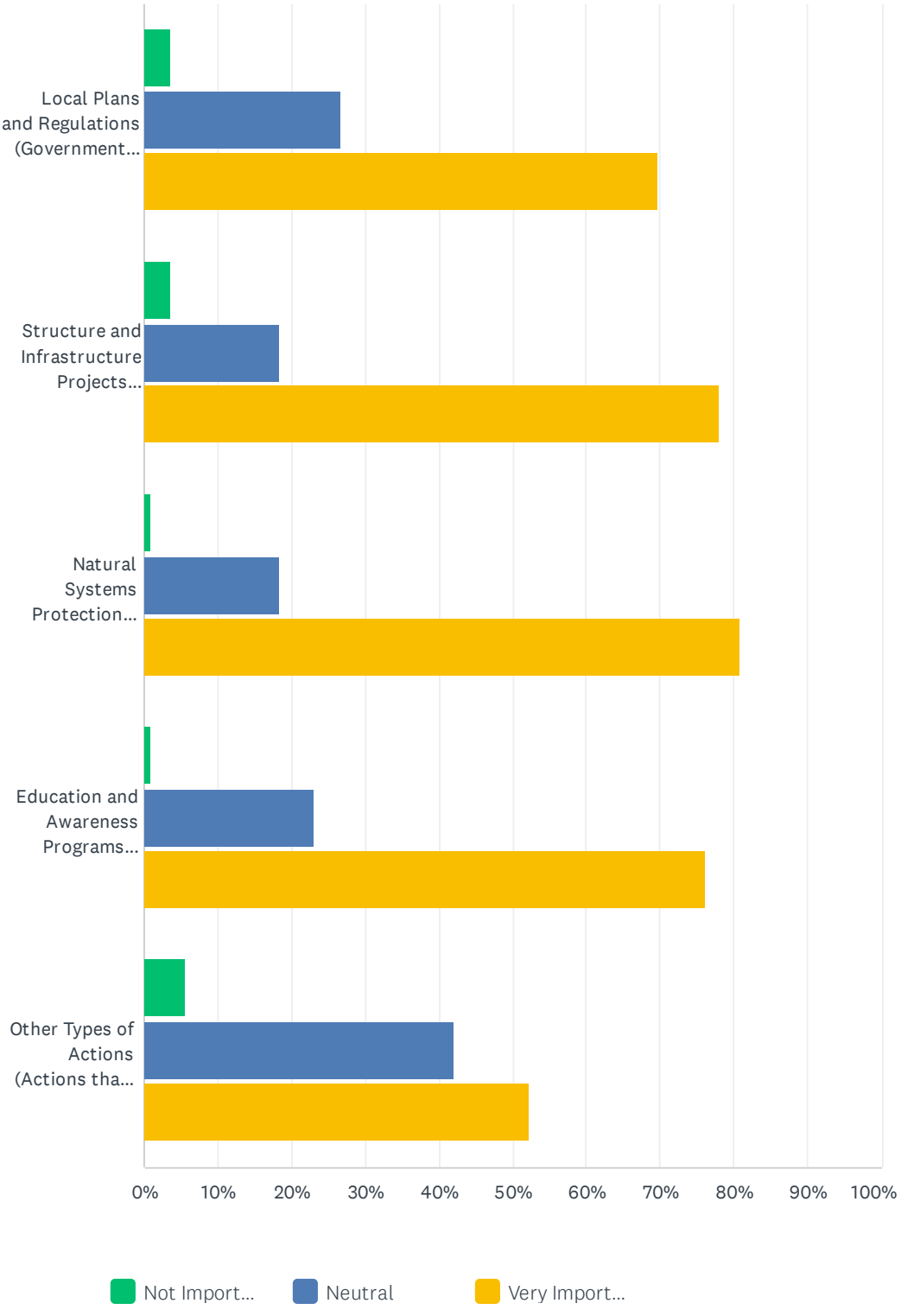
Answered: 107 Skipped: 3



ANSWER CHOICES	RESPONSES	
Assist vulnerable populations	63.55%	68
Education and awareness activities	77.57%	83
Elevate your home or business	33.64%	36
Emergency preparedness kits	78.50%	84
Floodproof your home or business	47.66%	51
Keep storm drains clean	87.85%	94
Protect power lines	82.24%	88
Reduce stormwater runoff	58.88%	63
Restrict development in floodplain areas	75.70%	81
Other (please specify)	2.80%	3
Total Respondents: 107		

Q9 A number of community-wide activities can reduce risk from natural hazards. Please tell us how important you think each one is for your community to consider pursuing.

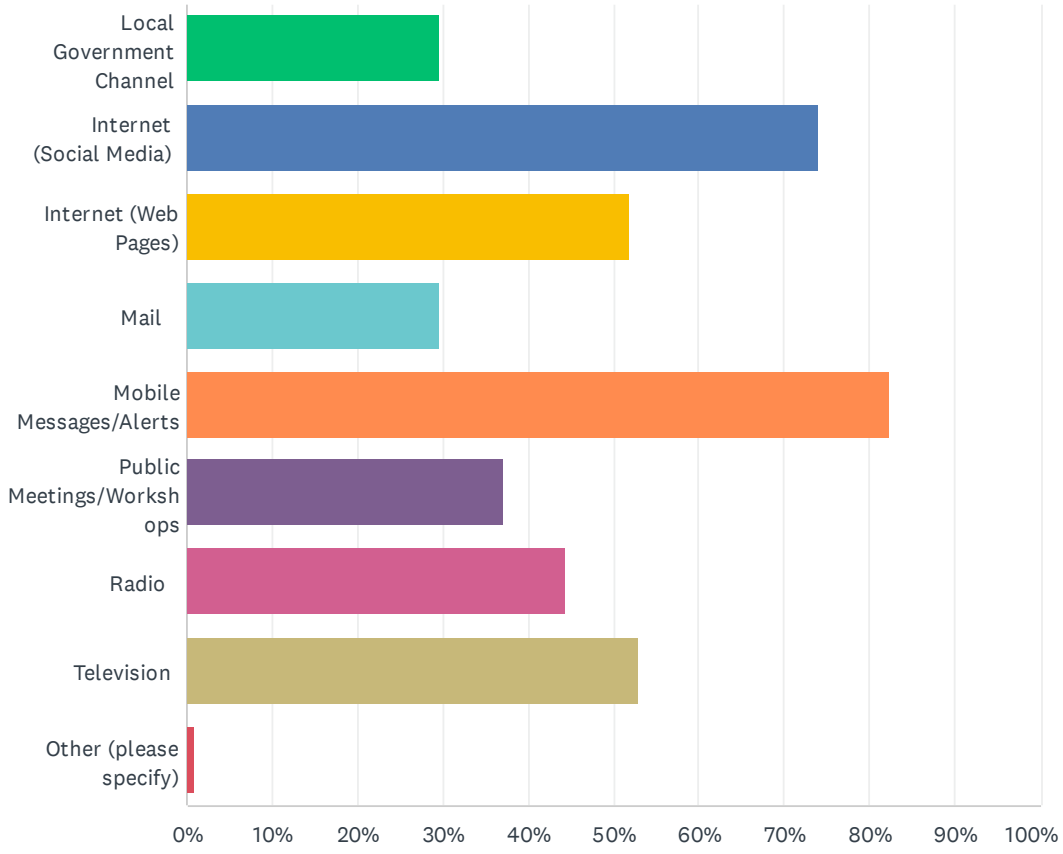
Answered: 109 Skipped: 1



	NOT IMPORTANT	NEUTRAL	VERY IMPORTANT	TOTAL	WEIGHTED AVERAGE
Local Plans and Regulations (Government policies or codes that influence the way land and buildings are developed and built.)	3.67% 4	26.61% 29	69.72% 76	109	2.66
Structure and Infrastructure Projects (Modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area.)	3.67% 4	18.35% 20	77.98% 85	109	2.74
Natural Systems Protection (Actions that minimize damage and losses and also preserve or restore the functions of natural systems.)	0.92% 1	18.35% 20	80.73% 88	109	2.80
Education and Awareness Programs (Actions that inform and educate citizens, elected officials and property owners about hazards and potential ways to mitigate them.)	0.92% 1	22.94% 25	76.15% 83	109	2.75
Other Types of Actions (Actions that are related to mitigation in ways that make sense to the local government that do not fall into one of the categories above.)	5.61% 6	42.06% 45	52.34% 56	107	2.47

Q10 What are the most effective ways for you to receive information about how to make your home and neighborhood more resistant to natural hazards?

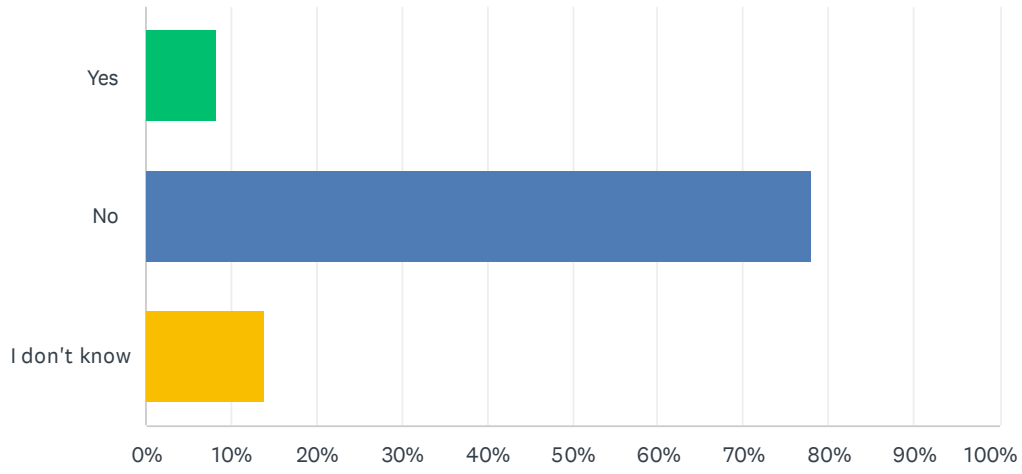
Answered: 108 Skipped: 2



ANSWER CHOICES	RESPONSES	
Local Government Channel	29.63%	32
Internet (Social Media)	74.07%	80
Internet (Web Pages)	51.85%	56
Mail	29.63%	32
Mobile Messages/Alerts	82.41%	89
Public Meetings/Workshops	37.04%	40
Radio	44.44%	48
Television	52.78%	57
Other (please specify)	0.93%	1
Total Respondents: 108		

Q11 Is your home located in a floodplain?

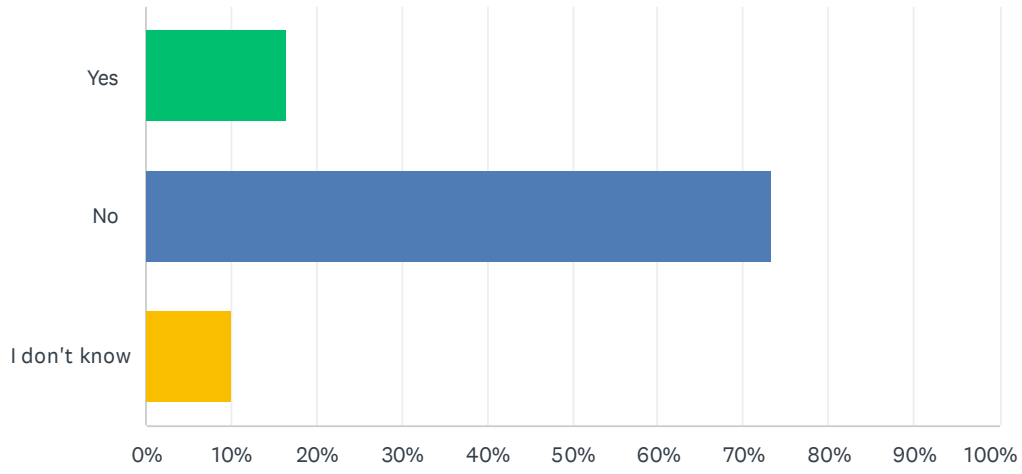
Answered: 109 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	8.26%	9
No	77.98%	85
I don't know	13.76%	15
TOTAL		109

Q12 Do you have flood insurance?

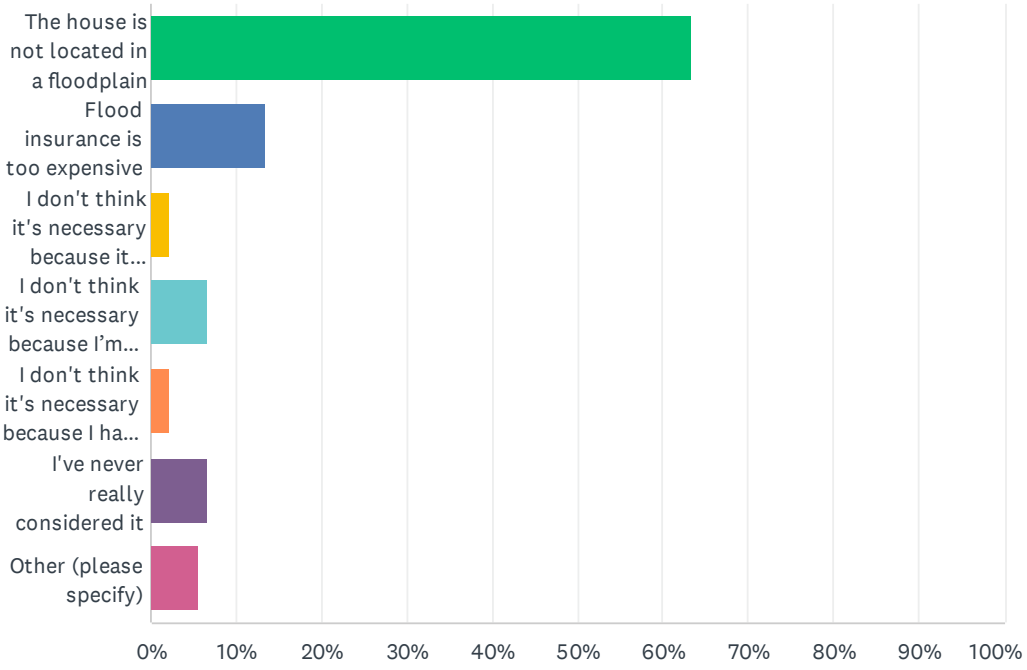
Answered: 109 Skipped: 1



ANSWER CHOICES	RESPONSES	
Yes	16.51%	18
No	73.39%	80
I don't know	10.09%	11
TOTAL		109

Q13 If “No,” why not?

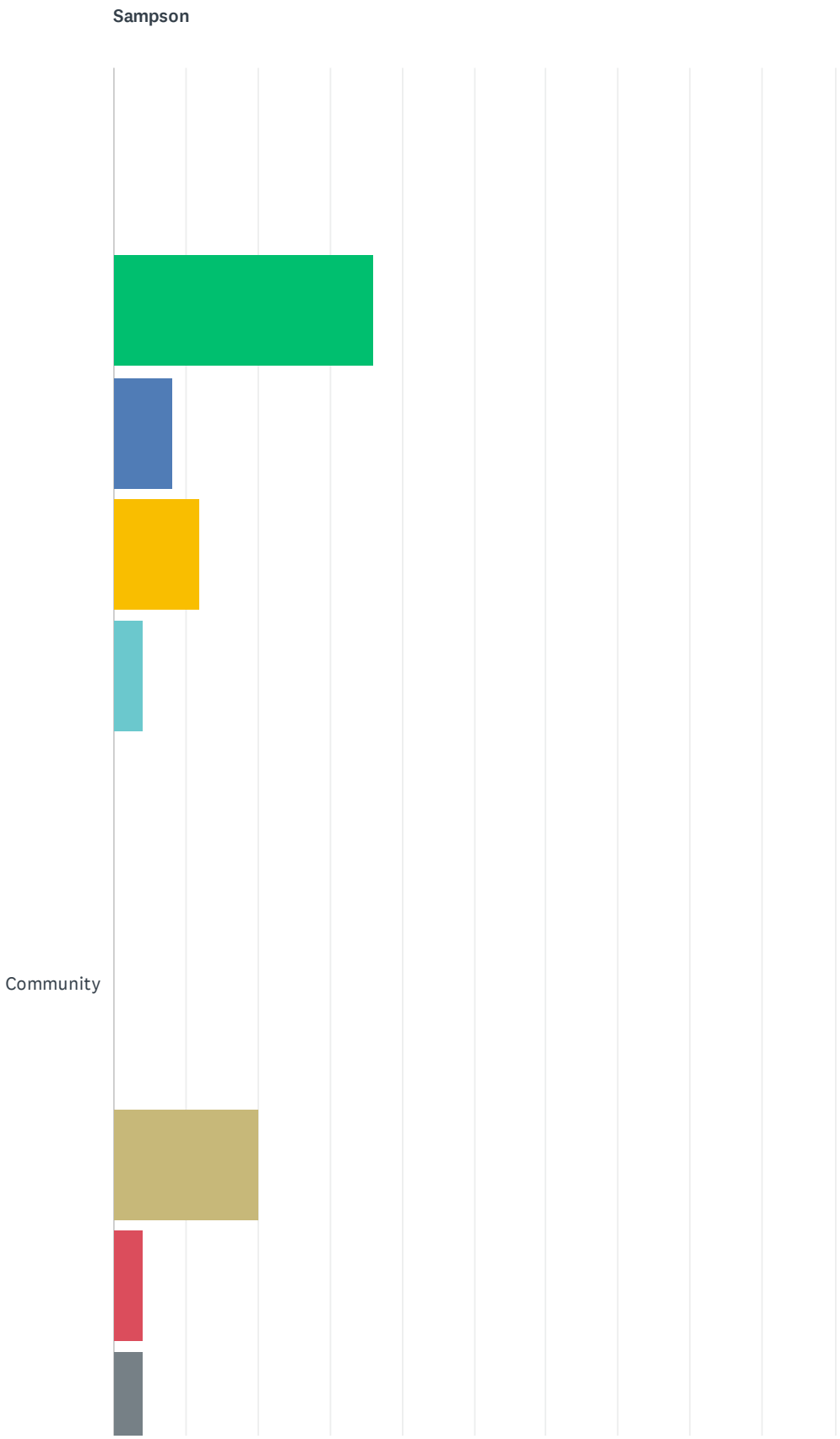
Answered: 90 Skipped: 20

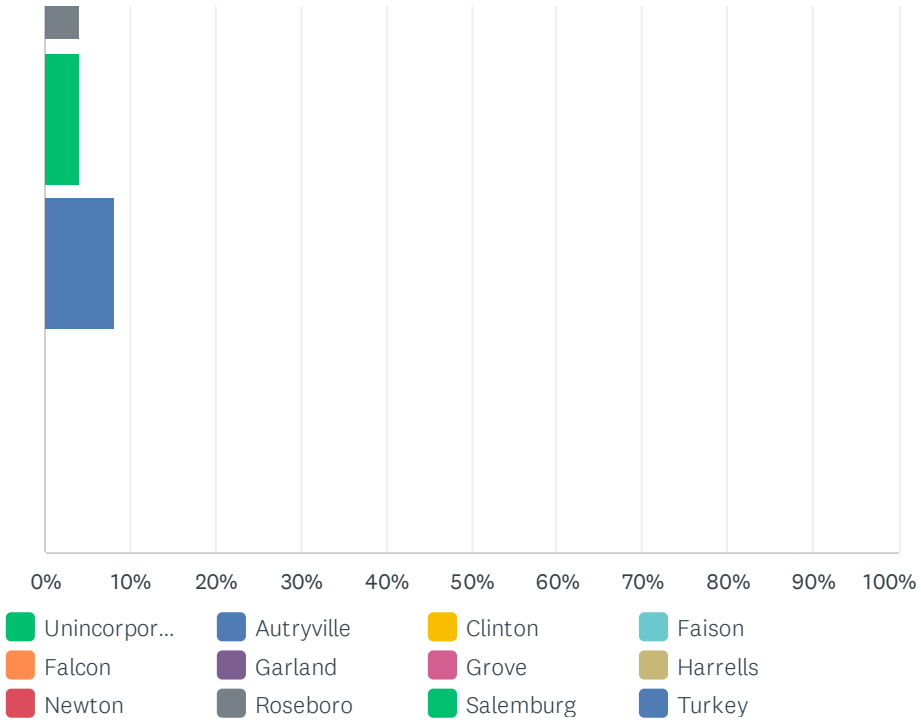


ANSWER CHOICES	RESPONSES	
The house is not located in a floodplain	63.33%	57
Flood insurance is too expensive	13.33%	12
I don't think it's necessary because it never floods	2.22%	2
I don't think it's necessary because I’m elevated or otherwise protected	6.67%	6
I don't think it's necessary because I have homeowners insurance	2.22%	2
I've never really considered it	6.67%	6
Other (please specify)	5.56%	5
TOTAL		90

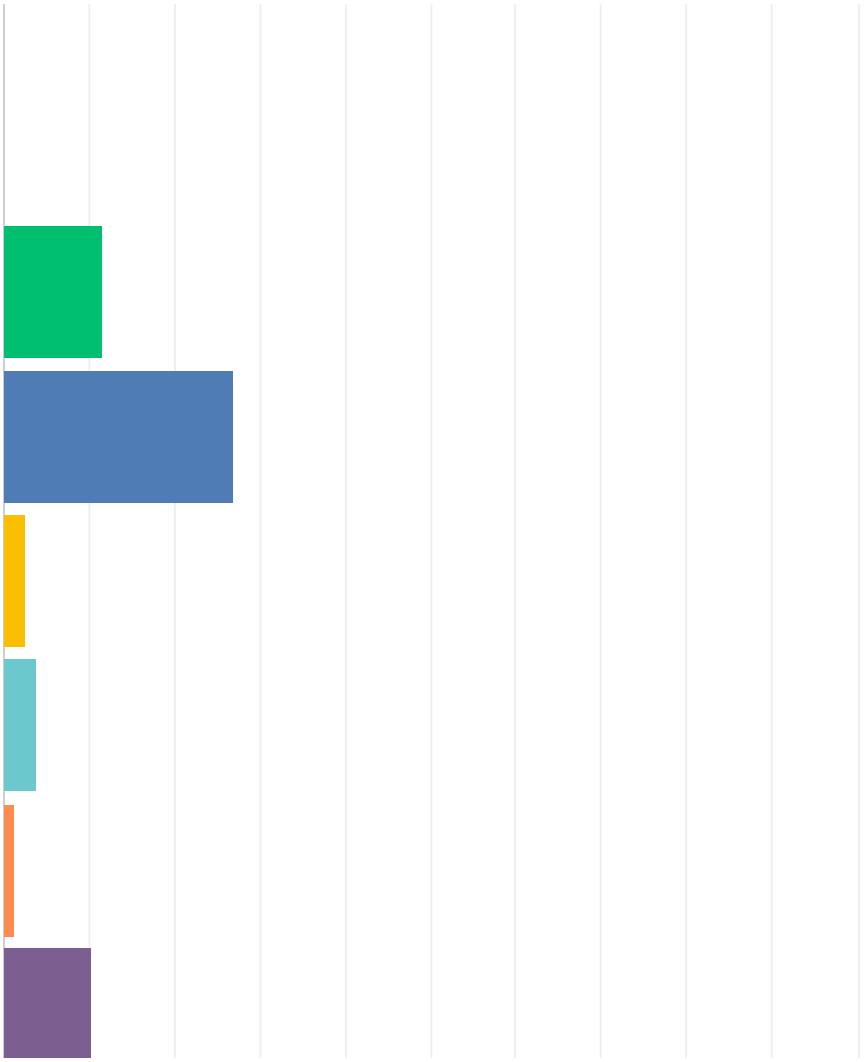
Q14 In which community do you live?

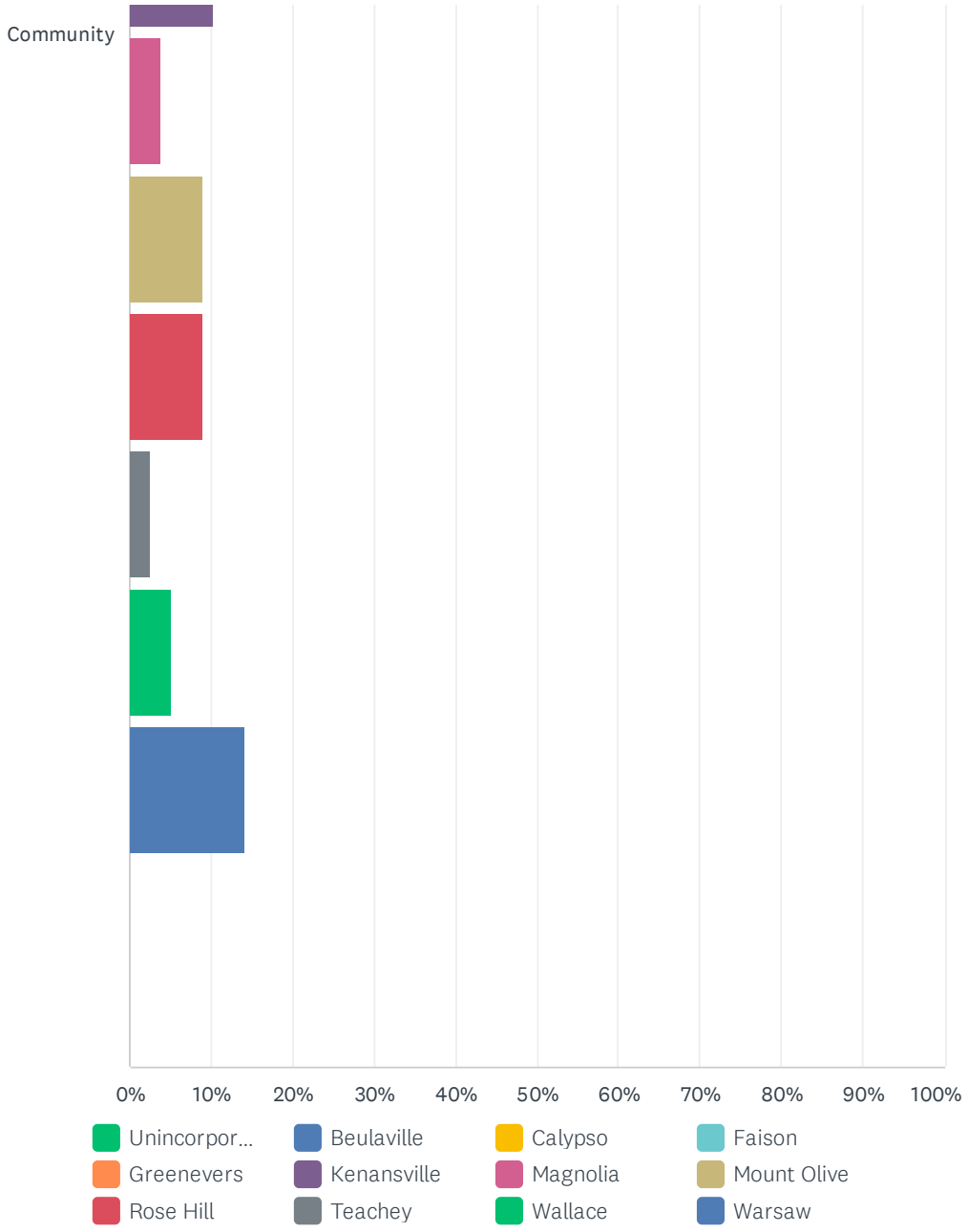
Answered: 97 Skipped: 13




0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Unincorpor...
Autryville
Clinton
Faison
Falcon
Garland
Grove
Harrells
Newton
Roseboro
Salemburg
Turkey

Duplin



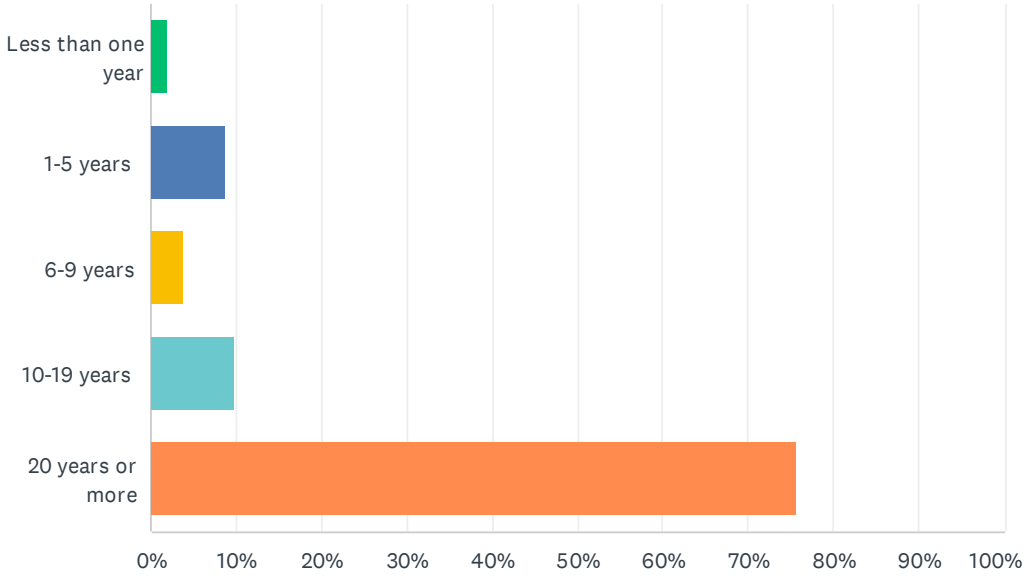


Sampson									
	UNINCORPORATED	AUTRYVILLE	CLINTON	FAISON	FALCON	GARLAND	GROVE	HARRELLS	NI
Community	36.00% 9	8.00% 2	12.00% 3	4.00% 1	0.00% 0	0.00% 0	0.00% 0	20.00% 5	

Duplin								
	UNINCORPORATED	BEULAVILLE	CALYPSO	FAISON	GREENEVERS	KENANSVILLE	MAGNOLIA	M C
Community	11.54% 9	26.92% 21	2.56% 2	3.85% 3	1.28% 1	10.26% 8	3.85% 3	

Q15 How long have you lived in the Sampson-Duplin region?

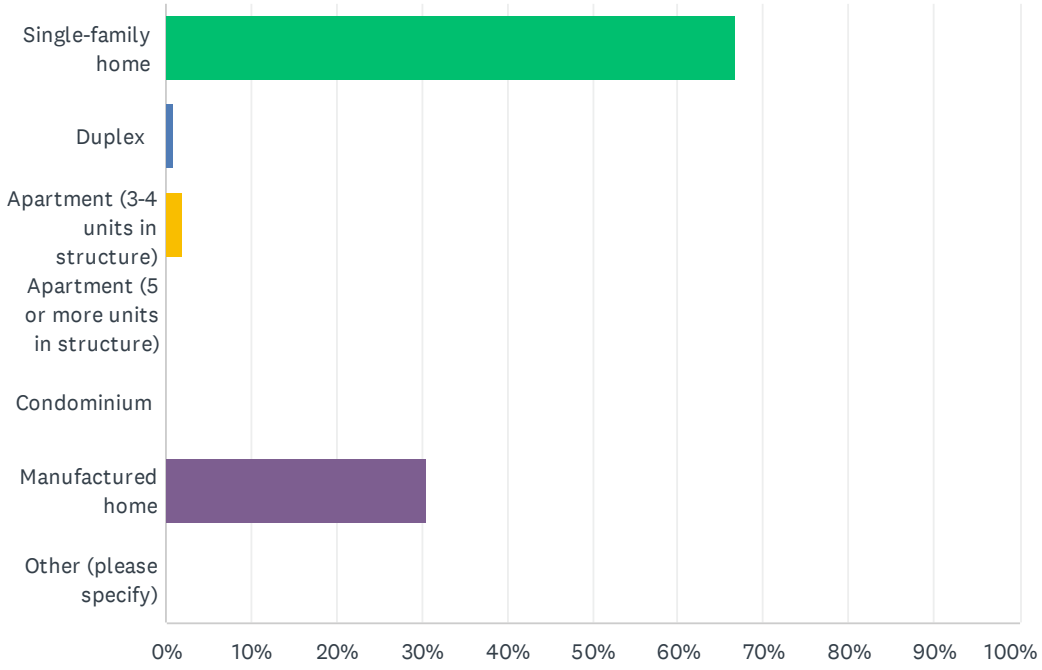
Answered: 103 Skipped: 7



ANSWER CHOICES	RESPONSES	
Less than one year	1.94%	2
1-5 years	8.74%	9
6-9 years	3.88%	4
10-19 years	9.71%	10
20 years or more	75.73%	78
TOTAL		103

Q16 What type of building do you live in?

Answered: 108 Skipped: 2



ANSWER CHOICES	RESPONSES	
Single-family home	66.67%	72
Duplex	0.93%	1
Apartment (3-4 units in structure)	1.85%	2
Apartment (5 or more units in structure)	0.00%	0
Condominium	0.00%	0
Manufactured home	30.56%	33
Other (please specify)	0.00%	0
TOTAL		108

Q17 Additional Comments

Answered: 14 Skipped: 96

APPENDIX D: CRITICAL FACILITIES

***Table D-1**: Critical facilities in the planning area*

Facility Name	Address	City	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Albertson Volunteer Fire Department	732 Sheep Pasture Rd	Albertson	28508	Duplin	Albertson Volunteer Fire Department	Fire Station	X
B F Grady Elementary	2627 N Nc 11 & 903	Albertson	28508	Duplin	Regular School	School	X
Autumn Village Incorporated	235 North Nc Highway 41	Beulaville	28518	Duplin	Homes For The Elderly Without Nursing Care	Nursing Home	X
Cedar Fork Mennonite School	1353 Cedar Fork Road	Beulaville	28451	Duplin	Cedar Fork Mennonite School	School	X
Champion Educational Center	318 East Main Street	Beulaville	28518	Duplin	Champion Educational Center	School	X
Rainbow World Christian School	204 Wagon Ford Road	Beulaville	28518	Duplin	Rainbow World Christian School	School	X
Beulaville Volunteer Fire Department, Inc.	205 N. Wilson St.	Beulaville	28518	Duplin	Beulaville Volunteer Fire Department, Inc.	Fire Station	X
Autumn Village, Inc.	P O Box 1140	Beulaville	28518	Duplin	Home For The Aged	Medical Facilities	X
Melvin's Therapeutic Home	P.O. Box 1021	Beulaville	28518	Duplin	Mental Health Homes	Medical Facilities	X
Duplin County Emergency Medical Services Medic 5	205 South Wilson Avenue	Beulaville	28518	Duplin	Ambulance Services, Air Or Ground	EMS	X
Beulaville Fire And Emergency Medical Services Incorporated	205 South Wilson Avenue	Beulaville	28518	Duplin	Ambulance And Fire Service Combined	EMS	X
East Duplin High	394 North Nc Highway 111	Beulaville	28518	Duplin	Regular School	School	X
Beulaville Elementary	138 Lyman Road	Beulaville	28518	Duplin	Regular School	School	X
Calypso Volunteer Fire Department, Inc.	109 S E Center St	Calypso	28325	Duplin	Calypso Volunteer Fire Department, Inc.	Fire Station	X
Fountaintown Fire Department	1698 Fountain Rd	Chinquapin	28521	Duplin	Fountaintown Fire Department	Fire Station	X
Lyman Volunteer Fire Department, Inc.	1528 Lyman Rd	Chinquapin	28521	Duplin	Lyman Volunteer Fire Department, Inc.	Fire Station	AE
Duplin County Emergency Medical Services Medic 3	2800 State Highway 41	Chinquapin	28521	Duplin	Ambulance Services, Air Or Ground	EMS	X

Facility Name	Address	City	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Chinquapin Volunteer Fire And Rescue	2800 State Highway 41	Chinquapin	28521	Duplin	Fire And Rescue Service	EMS	X
Chinquapin Elementary	3894 Nc 50 South	Chinquapin	28521	Duplin	Regular School	School	X
Providence Manor	314 E. Westbrook Street	Duplin	28466	Duplin	Mental Health Homes	Medical Facility	X
Faison Fire And Rescue, Inc.	108 South West Center St	Faison	28341	Duplin	Faison Fire And Rescue, Inc.	Fire Station	X
Faison Living #2	101 John Rouse	Faison	28341	Duplin	Mental Health Homes	Medical Facility	X
Duplin County Emergency Medical Services Medic 4	Southwest Center Street	Faison	28341	Duplin	Ambulance Services, Air Or Ground	EMS	X
Faison Fire And Rescue Incorporated	Southwest Center Street	Faison	28341	Duplin	Fire And Rescue Service	EMS	X
Howell Support Services, Llc	696-A North Spence Avenue	Goldsboro	27534	Duplin	Home Care	Medical Facilities	X
Hss Warsaw Apartment	696-A North Spence Avenue	Goldsboro	27534	Duplin	Mental Health Homes	Medical Facility	X
Hss Warsaw Apartment #2	Po Box 10946	Goldsboro	27532	Duplin	Mental Health Homes	Medical Facility	X
Rones Chapel Road Group Home	Po Box 11077	Goldsboro	27532	Duplin	Mental Health Homes	Medical Facility	X
Sci-Duplin House	P.O. Box 1664	Goldsboro	0	Duplin	Mental Health Homes	Medical Facility	X
Skill Creations Of Kenansville	Po Box 1664	Goldsboro	0	Duplin	Mental Health Homes	Medical Facility	AE
Southeast Day Program	Po Box 1664	Goldsboro	27533	Duplin	Mental Health Homes	Medical Facility	X
Kenansville Health And Rehabilitation Center	209 Beasley Street	Kenansville	28349	Duplin	Nursing Homes	Nursing Home	X
Windham Hall Incorporated	323 Cooper Street	Kenansville	28349	Duplin	Homes For The Elderly Without Nursing Care	Nursing Home	X
Kenansville Fire Department	105 W Hill St	Kenansville	28349	Duplin	Kenansville Fire Department	Fire Station	X
Sarecta Fire Department	1142 Sarectra Rd	Kenansville	28349	Duplin	Sarecta Fire Department	Fire Station	X
Duplin County Services For The Aged	P. O. Box 928	Kenansville	0	Duplin	Home Care	Medical Facilities	X

Facility Name	Address	City	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Duplin Home Care & Hospice, Inc.	Box 887	Kenansville	28349	Duplin	Home Care	Medical Facilities	X
Windham Hall Rest Home	P O Box 525	Kenansville	28349	Duplin	Home For The Aged	Medical Facility	X
Duplin General Hospital, Inc.	401 North Main St	Kenansville	0	Duplin	Hospital	Medical Facility	X
Cdteg-Duplin	Po Box 1015	Kenansville	28349	Duplin	Mental Health Homes	Medical Facility	X
Duplin-Sampson-Lenoir Area Mh/Dd/Sas	Po Box 599	Kenansville	28349	Duplin	Mental Health Homes	Medical Facility	X
Duplin-Sampson-Lenoir Area Mh/Dd/Sas	Po Box 599	Kenansville	28349	Duplin	Mental Health Homes	Medical Facility	X
Duplin-Sampson-Lenoir Area Mh/Dd/Sas	Po Box 599	Kenansville	28349	Duplin	Mental Health Homes	Medical Facility	X
Omega Enterprises	Po Box 599	Kenansville	28349	Duplin	Mental Health Homes	Medical Facility	X
Guardian Care Of Kenansville	209 Beasley Street	Kenansville	0	Duplin	Nursing Home Facility	Medical Facility	X
North Carolina State Highway Patrol Troop B District Iv	133 Routledge Street	Kenansville	28349	Duplin	Highway Patrols, Police	Law Enforcement	X
Duplin County Emergency Medical Services Medic 8	213 Duplin Street	Kenansville	28349	Duplin	Ambulance Services, Air Or Ground	EMS	X
Kenansville Fire Incorporated	105 West Hill Street	Kenansville	28349	Duplin	Ambulance And Fire Service Combined	EMS	X
E E Smith Middle	Hwy 24	Kenansville	28349	Duplin	Regular School	School	X
Kenansville Elementary	Hwy 50	Kenansville	28349	Duplin	Regular School	School	X
Duplin Early College High	212 James Sprunt Dr	Kenansville	28349	Duplin	Regular School	School	X
Pine Haven Home Health Care Services	1108 North Herritage Street	Kinston	28501	Duplin	Home Care	Medical Facilities	X
Magnolia Volunteer Fire Department, Inc.	110 Taylor St.	Magnolia	28453	Duplin	Magnolia Volunteer Fire Department, Inc.	Fire Station	X
Magnolia Group Home	P O Box 2	Magnolia	28453	Duplin	Mental Health Homes	Medical Facilities	X
Oak Wolfe Fire Department	2418 Summerlins Crossroads Rd	Mount Olive	28365	Duplin	Oak Wolfe Fire Department	Fire Station	X

Facility Name	Address	City	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Duplin County Emergency Medical Services Medic 6	1794 Red Hill Road	Mount Olive	28365	Duplin	Ambulance Services, Air Or Ground	EMS	X
Pleasant Grove Volunteer Fire Department	1794 Red Hill Road	Mount Olive	28365	Duplin	Ambulance And Fire Service Combined	EMS	X
Atkinson Care Home #2	235 Robert F. Hargrove Road	Mt. Olive	28365	Duplin	Mental Health Homes	Medical Facilities	X
The Mat Group Day Service	235 Robert F. Hargrove Road	Mt. Olive	28365	Duplin	Mental Health Homes	Medical Facilities	X
North Duplin Elementary	157 North Duplin School Road	Mt. Olive	28365	Duplin	Regular School	School	X
North Duplin Jr Sr High	1388 West Nc 403 Highway	Mt. Olive	28365	Duplin	Regular School	School	X
Nennings Therapeutic Home	Po Box 13126	New Bern	28561	Duplin	Mental Health Homes	Medical Facilities	X
Potters Hill Volunteer Fire Department	1307 N Nc Hwy 41	Pink Hill	28572	Duplin	Potters Hill Volunteer Fire Department	Fire Station	X
Joyner's Haven	3125 Poplarwood Court Ste. 300	Raleigh	27604	Duplin	Mental Health Homes	Medical Facilities	X
Rosemary Rest Home	535 South Sycamore Street	Rose Hill	28458	Duplin	Homes For The Elderly Without Nursing Care	Nursing Home	X
Greenevers Volunteer Fire Department, Inc.	317 E Charity Rd	Rose Hill	28458	Duplin	Greenevers Volunteer Fire Department, Inc.	Fire Station	X
Rose Hill Fire & Rescue Dept.	108 East Main St.	Rose Hill	28458	Duplin	Rose Hill Fire & Rescue Dept.	Fire Station	X
Bethel Care Home, Inc.	1051 Firetower Road	Rose Hill	28458	Duplin	Family Care	Medical Facilities	X
Moore Family Care Home #1	181 East Charity Road	Rose Hill	28458	Duplin	Family Care	Medical Facilities	X
Moore Family Care Home #2	171 East Charity Road	Rose Hill	28458	Duplin	Family Care	Medical Facilities	X
Rosemary Rest Home	P O Box 928	Rose Hill	28458	Duplin	Home For The Aged	Medical Facilities	X
Duplin County Emergency Medical Services Medic 7	305 West Charity Road	Rose Hill	28458	Duplin	Ambulance Services, Air Or Ground	EMS	X
Rose Hillmagnolia Elementary	1329 Brooks Quinn Road	Rose Hill	28458	Duplin	Regular School	School	X
Charity Middle	1333 West Charity Road	Rose Hill	28458	Duplin	Regular School	School	X

Facility Name	Address	City	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Crss Home Health	P. O. Box 1128	Roseboro	28382	Duplin	Home Care	Medical Facilities	X
Teachey Volunteer Fire Dept., Inc.	4875 Ransey St	Teachey	28464	Duplin	Teachey Volunteer Fire Dept., Inc.	Fire Station	X
Wallacerose Hill High	602 High School Road	Teachey	28464	Duplin	Regular School	School	X
Brian Center Health And Rehabilitation - Wallace	647 Southeast Railroad Street	Wallace	28466	Duplin	Nursing Homes	Nursing Home	X
Day Spring Assisted Living	4026 South Nc Highway 11	Wallace	28466	Duplin	Homes For The Elderly Without Nursing Care	Nursing Home	X
Golden Care	4002 South Nc Highway 41	Wallace	28466	Duplin	Homes For The Elderly Without Nursing Care	Nursing Home	0.2 PCT ANNUAL CHANCE FLOOD HAZARD
Wallace Gardens	1052 Northeast Railroad Street	Wallace	28466	Duplin	Homes For The Elderly Without Nursing Care	Nursing Home	X
New Hope Christian Academy	212 West Main Street	Wallace	28466	Duplin	New Hope Christian Academy	School	X
Wallace Christian Academy	4121 S. Nc Highway 11	Wallace	28466	Duplin	Wallace Christian Academy	School	X
Northeast Volunteer Fire Department, Inc.	4486 South Nc Hwy 41	Wallace	28466	Duplin	Northeast Volunteer Fire Department, Inc.	Fire Station	0.2 PCT ANNUAL CHANCE FLOOD HAZARD
Northeast Volunteer Fire Department, Inc.	5010 South Nc Highway 41	Wallace	28466	Duplin	Northeast Volunteer Fire Department, Inc.	Fire Station	X
Pin Hook Volunteer Fire Department, Inc.	1657 Deep Bottom Rd	Wallace	28466	Duplin	Pin Hook Volunteer Fire Department, Inc.	Fire Station	X
Wallace Fire Department	316 E. Murray St.	Wallace	28466	Duplin	Wallace Fire Department	Fire Station	X
Angola	1224 Angola Bay Road	Wallace	28466	Duplin	Family Care	Medical Facilities	X
Dayspring Assisted Living	Po Box 665	Wallace	28466	Duplin	Home For The Aged	Medical Facilities	X
Golden Care	4002 South Nc 41	Wallace	28466	Duplin	Home For The Aged	Medical Facilities	X

Facility Name	Address	City	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Wallace Gardens Of Wallace	Po Box 566	Wallace	28466	Duplin	Home For The Aged	Medical Facilities	X
Tri County Youth Services, Inc.	800 North Teachy Road	Wallace	28466	Duplin	Mental Health Homes	Medical Facilities	X
Brian Center Health & Rehabilitation/Wallace	647 South Railroad Street	Wallace	0	Duplin	Nursing Home Facility	Medical Facilities	X
Duplin County Emergency Medical Services Medic 2	308 East Murray Street	Wallace	28466	Duplin	Ambulance Services, Air Or Ground	EMS	X
Wallace Elementary	4266 Nc 11 S	Wallace	28466	Duplin	Regular School	School	X
Tri-County Academy	800 North Teachey Road	Wallce	28466	Duplin	Tri-County Academy	School	X
Glencare	214 Lanefield Road	Warsaw	28398	Duplin	Nursing Homes	Nursing Home	X
Higher Learning	987 Nc 24 And 50 Hwy	Warsaw	28398	Duplin	Higher Learning	School	X
West Duplin Christian Academy	987 Nc 24 & 50 Highways	Warsaw	28398	Duplin	West Duplin Christian Academy	School	X
Warsaw Fire Department, Incorporated	714 North Pine St.	Warsaw	28398	Duplin	Warsaw Fire Department, Incorporated	Fire Station	X
Warsaw Fire Department, Incorporated	116 W. Bay St.	Warsaw	28398	Duplin	Warsaw Fire Department, Incorporated	Fire Station	X
Parish Family Care Home	856 Claude Scott Road	Warsaw	28398	Duplin	Family Care	Medical Facilities	X
Faison Living #1	Po Box 586	Warsaw	28398	Duplin	Mental Health Homes	Medical Facilities	X
Faison Living #4	P.O. Box 586	Warsaw	28398	Duplin	Mental Health Homes	Medical Facilities	X
Faison Living #5	P.O. Box 586	Warsaw	28398	Duplin	Mental Health Homes	Medical Facilities	X
Warsaw Group Home	Po Box 563	Warsaw	28329	Duplin	Mental Health Homes	Medical Facilities	X
Glencare	P.O. Box 667	Warsaw	0	Duplin	Nursing Home Facility	Medical Facilities	X
Warsaw Fire Department	112 West Bay Street	Warsaw	28398	Duplin	Ambulance And Fire Service Combined	EMS	X
Duplin County Emergency Medical Services Medic 1	128 West Bay Street	Warsaw	28398	Duplin	Ambulance Services, Air Or Ground	EMS	X
Warsaw Elementary	158 Lane Field Road	Warsaw	28398	Duplin	Regular School	School	X

Facility Name	Address	City	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
James Kenan High	1241 Nc 24 & 50	Warsaw	28398	Duplin	Regular School	School	X
Warsaw Middle	738 W College Street Hwy 24	Warsaw	28398	Duplin	Regular School	School	X
Interim Healthcare	P. O. Box 2249	Whiteville	0	Duplin	Home Care	Medical Facilities	X
Autryville Area Fire Department, Inc.	305 North Hotel St.	Autryville	28318	Sampson	Autryville Area Fire Department, Inc.	Fire Station	X
Clement Volunteer Fire Department, Inc.	3384 Maxwell Road	Autryville	28318	Sampson	Clement Volunteer Fire Department, Inc.	Fire Station	X
Autryville Area Fire Department Incorporated	305 North Hotel Street	Autryville	28318	Sampson	Ambulance And Fire Service Combined	EMS	X
Clement Rescue And Emergency Medical Services	3400 Maxwell Road	Autryville	28318	Sampson	Rescue Services, Medical	EMS	X
Clement Elementary	3220 Maxwell Rd	Autryville	28318	Sampson	Regular School	School	X
Mary Gran Nursing Center	120 Southwood Drive	Clinton	28328	Sampson	Nursing Homes	Nursing Home	X
Southwood Nursing And Retirement Center	180 Southwood Drive	Clinton	28328	Sampson	Nursing Homes	Nursing Home	X
Clinton House	205 Martha Lane	Clinton	28328	Sampson	Homes For The Elderly Without Nursing Care	Nursing Home	X
Forest Trail Retirement Center - The Magnolia	213 Forest Trail	Clinton	28328	Sampson	Homes For The Elderly Without Nursing Care	Nursing Home	X
Sampson County Emergency Management	107 Underwood St	Clinton		Sampson	Emergency Operations Center	EOC	X
Academy Of Unique Learners	340 Northeast Blvd	Clinton	28328	Sampson	Academy Of Unique Learners	School	X
New Life Christian Academy	2605 Southeast Boulevard	Clinton	28328	Sampson	New Life Christian Academy	School	X
New Life Uplifted School	708 Sampson St.	Clinton	28328	Sampson	New Life Uplifted School	School	X
Plans To Prosper Academy	209 West Main St.	Clinton	28328	Sampson	Plans To Prosper Academy	School	X
Spirit Of Life Christian Academy	180 Overland Road	Clinton	28328	Sampson	Spirit Of Life Christian Academy	School	X
Clinton Fire Department	222 Wall St.	Clinton	28328	Sampson	Clinton Fire Department	Fire Station	X
Clinton Fire Department	1000 Beaman St	Clinton	28328	Sampson	Clinton Fire Department	Fire Station	AE

Facility Name	Address	City	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Halls Fire & Rescue Department, Inc.	7730 Hobbton Highway	Clinton	28328	Sampson	Halls Fire & Rescue Department, Inc.	Fire Station	X
Herring Volunteer Fire & Rescue, Inc.	2021 Rabbit St	Clinton	28328	Sampson	Herring Volunteer Fire & Rescue, Inc.	Fire Station	X
Taylors Bridge Fire Department	6825 Taylors Bridge Hwy	Clinton	28328	Sampson	Taylors Bridge Fire Department	Fire Station	X
Taylors Bridge Fire Department	871 Peterson Rd	Clinton	28328	Sampson	Taylors Bridge Fire Department	Fire Station	X
Pine Acre Family Care Home	186 Pine Acre Lane	Clinton	28328	Sampson	Family Care	Medical Facilities	X
Pine Acre Family Care Home #2	156 Pine Acre Lane	Clinton	28328	Sampson	Family Care	Medical Facilities	X
Companion Home Health Care-Unimed	210 Northeast Blvd.	Clinton	28328	Sampson	Home Care	Medical Facilities	X
Sampson Convalescent Medical Supply, Inc.	608 Beaman Street	Clinton	28328	Sampson	Home Care	Medical Facilities	X
Sampson County Department Of Aging-In-Home Services	371 Rowan Road	Clinton	28328	Sampson	Home Care	Medical Facilities	X
Sampson Home Health	508 Beaman Street	Clinton	28328	Sampson	Home Care	Medical Facilities	X
Forest Trail Retirement Center	213 Forest Trail	Clinton	28328	Sampson	Home For The Aged	Medical Facilities	X
Heritage Care Of Clinton	Po Box 1107	Clinton	28329	Sampson	Home For The Aged	Medical Facilities	X
Sampson Regional Medical Center	P O Box 260	Clinton	0	Sampson	Hospital	Medical Facilities	X
Garland Group Home	Po Box 656	Clinton	28441	Sampson	Mental Health Homes	Medical Facilities	X
Mccoy & Associates	409-D Cooper Drive	Clinton	28328	Sampson	Mental Health Homes	Medical Facilities	X
Mcdougald Home	245 President Lane	Clinton	28329	Sampson	Mental Health Homes	Medical Facilities	X
Powell, Inc.	4550 Hobbton Highway	Clinton	28328	Sampson	Mental Health Homes	Medical Facilities	X

Facility Name	Address	City	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Royal Lane Home	112 Royal Lane	Clinton	28328	Sampson	Mental Health Homes	Medical Facilities	X
Sampson Group Home	300 Jacobs Street	Clinton	28328	Sampson	Mental Health Homes	Medical Facilities	X
Mary Gran Nursing Center	120 Southwood Drive	Clinton	0	Sampson	Nursing Home Facility	Medical Facilities	X
Southwood Nursing And Retirement Center	P O Box 708	Clinton	0	Sampson	Nursing Home Facility	Medical Facilities	X
North Carolina State Highway Patrol Troop B District Ii	305 North Boulevard	Clinton	28328	Sampson	Highway Patrols, Police	Law Enforcement	0.2 PCT ANNUAL CHANCE FLOOD HAZARD
Herring Volunteer Fire And Rescue	2021 Rabbit Street	Clinton	28328	Sampson	Fire And Rescue Service	EMS	X
Taylors Bridge Fire Department	6825 Taylors Bridge Highway	Clinton	28328	Sampson	Ambulance And Fire Service Combined	EMS	X
Clinton Fire And Rescue Department	222 Wall Street	Clinton	28328	Sampson	Fire And Rescue Service	EMS	X
Sampson County Emergency Medical Services	107 Underwood Street	Clinton	28328	Sampson	Ambulance Services, Air Or Ground	EMS	X
Clinton-Sampson Rescue And Emergency Medical Services Incorporated	300 John Street	Clinton	28328	Sampson	Rescue Services, Medical	EMS	X
Union Middle	455 River Road	Clinton	28328	Sampson	Regular School	School	X
Union Elementary	10400 Taylors Bridge Hwy	Clinton	28328	Sampson	Regular School	School	X
Butler Avenue Elementary	301 Butler Ave	Clinton	28328	Sampson	Regular School	School	X
Clinton High	340 Indian Town Road	Clinton	28328	Sampson	Regular School	School	X
Langdon C Kerr Elementary	112 Kimbrough Rd	Clinton	28328	Sampson	Regular School	School	X
Sampson Middle	1201 W Elizabeth St	Clinton	28328	Sampson	Regular School	School	X
Sampson Early College High	1801 Sunset Ave	Clinton	28329	Sampson	Regular School	School	X
Sunset Avenue Elementary	505 Sunset Ave	Clinton	28328	Sampson	Regular School	School	X
Union Intermediate	1190 Edmond Matthis Road	Clinton	28328	Sampson	Regular School	School	X

Facility Name	Address	City	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Plain View Volunteer Fire Department, Inc.	5041 Plain View Hwy	Dunn	28334	Sampson	Plain View Volunteer Fire Department, Inc.	Fire Station	X
Christian Care #2	P O Box 1246	Dunn	28335	Sampson	Family Care	Medical Facilities	X
Christian Care #3	P.O. Box 1246	Dunn	28335	Sampson	Home For The Aged	Nursing Home	X
Plain View Emergency Medical Services	5055 Plain View Highway	Dunn	28334	Sampson	Ambulance Services, Air Or Ground	EMS	X
Plain View Fire Department/ Plain View Rescue Department	5041 Plain View Highway	Dunn	28334	Sampson	Fire And Rescue Service	EMS	X
Midway Elementary	1500 Midway Elem School Rd	Dunn	28334	Sampson	Regular School	School	X
Plain View Elementary	4140 Plain View Hwy	Dunn	28334	Sampson	Regular School	School	X
Midway Middle	1115 Roberts Grove Road	Dunn	28334	Sampson	Regular School	School	X
Piney Grove Volunteer Fire Department Of Sampson	471 Goshen Church Road	Faison	28341	Sampson	Ambulance And Fire Service Combined	EMS	X
Suttontown Rescue Squad	5680 Suttontown Road	Faison	28341	Sampson	Rescue Services, Medical	EMS	X
Hargrove Elementary	7725 Faison Hwy	Faison	28341	Sampson	Regular School	School	X
Community Home Care And Hospice	5301 Morganton Road	Fayetteville	28314	Sampson	Home Care	Medical Facilities	X
We Care Home Health Agency	333 Hay Street	Fayetteville	28301	Sampson	Home Care	Medical Facilities	X
Whitfield Homes Asp	Po Box 1021	Fayetteville	0	Sampson	Mental Health Homes	Medical Facilities	X
Garland Fire Department	190 South Church Avenue	Garland	28441	Sampson	Ambulance And Fire Service Combined	EMS	X
Garland Rescue And Emergency Medical Services	20 Rich Road	Garland	28441	Sampson	Rescue Services, Medical	EMS	X
Home Health And Hospice Care, Inc.	2402 Wayne Memorial Drive	Goldsboro	27534	Sampson	Home Care	Medical Facilities	0.2 PCT ANNUAL CHANCE FLOOD HAZARD

Facility Name	Address	City	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Skill Creations Of Clinton	P.O. Box 1664	Goldsboro	0	Sampson	Mental Health Homes	Mental Health Homes	X
Harrells Christian Academy	360 Tomahawk Highway	Harrells	28444	Sampson	Harrells Christian Academy	School	X
Harrells Volunteer Fire Department, Inc.	606 Tomahawk Hwy	Harrells	28444	Sampson	Harrells Volunteer Fire Department, Inc.	Fire Station	X
Harrells Volunteer Fire Department, Inc.	1881 Scronce Rd	Harrells	28444	Sampson	Harrells Volunteer Fire Department, Inc.	Fire Station	X
Harrells Rescue And Emergency Medical Services	891 Ward Road	Harrells	28444	Sampson	Rescue Services, Medical	EMS	X
Juniper Springs Center	153 Springs Lane	Ivanhoe	28447	Sampson	Homes For The Elderly Without Nursing Care	Nursing Home	X
Harrells Volunteer Fire Department, Inc.	4146 Ivanhoe Rd	Ivanhoe	28447	Sampson	Harrells Volunteer Fire Department, Inc.	Fire Station	X
Juniper Springs Center	153 Springs Lane	Ivanhoe	28447	Sampson	Home For The Aged	Medical Facilities	X
Duplin-Sampson-Lenoir Area Mh/Dd/Sas	Po Box 599	Kenansville	0	Sampson	Mental Health Homes	Medical Facilities	X
Mayflower House	Po Box 599	Kenansville	28349	Sampson	Mental Health Homes	Medical Facilities	X
Opportunities Unlimited Advp	Po Box 599	Kenansville	28328	Sampson	Mental Health Homes	Medical Facilities	X
White Oak Group Home Iii	550 Smith Chapel Road	Mt. Olive	28365	Sampson	Mental Health Homes	Medical Facilities	X
White Oak Group Home Viii	550 Smith Chapel Road	Mt. Olive	28365	Sampson	Mental Health Homes	Medical Facilities	X
Clinton Learning Center	Po Box 12189	New Bern	28561	Sampson	Mental Health Homes	Medical Facilities	X
Rolling Ridge Retirement Center Incorporated	700 Mount Olive Drive	Newton Grove	28366	Sampson	Homes For The Elderly Without Nursing Care	Nursing Home	X
Newton Grove Fire & Rescue	313 Weeksdale St	Newton Grove	28366	Sampson	Newton Grove Fire & Rescue	Fire Station	X
Vann Crossroads Fire Department, Inc.	4550 Church Rd	Newton Grove	28366	Sampson	Vann Crossroads Fire Department, Inc.	Fire Station	X

Facility Name	Address	City	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Rolling Ridge Retirement Center, Inc.	Po Box 130	Newton Grove	0	Sampson	Home For The Aged	Medical Facilities	X
Harvest House	P.O. Box 227	Newton Grove	28366	Sampson	Mental Health Homes	Medical Facilities	X
Vann Crossroads Fire Department Incorporated	4550 Church Road	Newton Grove	28366	Sampson	Ambulance And Fire Service Combined	EMS	X
Newton Grove Rescue	301 West Weeksdale Street	Newton Grove	28366	Sampson	Rescue Services, Medical	EMS	X
Hobbton Elementary	12361 Hobbton Hwy	Newton Grove	28366	Sampson	Regular School	School	X
Hobbton Middle	12081 Hobbton Hwy	Newton Grove	28366	Sampson	Regular School	School	X
Hobbton High	12201 Hobbton Hwy	Newton Grove	28366	Sampson	Regular School	School	X
Midway High	15274 Spiveys Corner Highway	Newton Grove	28366	Sampson	Regular School	School	X
Thompson Gardens Of Garland	2401 Pga Blvd, Ste. 155	Palm Bch. Garden	33410	Sampson	Home For The Aged	Medical Facilities	X
Health Care Connections Home Care	109 West Elwood Ave	Raeford	28376	Sampson	Home Care	Medical Facilities	X
Southeastern Health Care	Po Box 46775	Raleigh	0	Sampson	Home Care	Medical Facilities	X
Watkins Therapeutic Home	3125 Poplarwood Court Suite 300	Raleigh	27604	Sampson	Mental Health Homes	Medical Facilities	X
Union High	1189 Kader Merritt Road	Rose Hill	28458	Sampson	Regular School	School	X
Mintz Christian Academy	2741 Mintz Road	Roseboro	28382	Sampson	Mintz Christian Academy	School	X
Roseboro Fire Department	301 E. Pleasant St.	Roseboro	28382	Sampson	Roseboro Fire Department	Fire Station	X
Crss Home Health	Po Box 1128	Roseboro	28382	Sampson	Home Care	Medical Facilities	X
Guardian Angel Care Services, Inc.	Po Box 978	Roseboro	28382	Sampson	Home Care	Medical Facilities	X
Kemp Home	404 North Pine St.	Roseboro	28382	Sampson	Mental Health Homes	Mental Health Homes	X

Facility Name	Address	City	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Ratley Home	P.O. Box 1115	Roseboro	28382	Sampson	Mental Health Homes	Mental Health Homes	X
Roseboro Rescue Squad	400 East Howard Street	Roseboro	28382	Sampson	Rescue Services, Medical	EMS	X
Roseboro Elementary	180 Butler Island Road	Roseboro	28382	Sampson	Regular School	School	X
Roseborosalemburg Middle	305 West Pleasant Street	Roseboro	28382	Sampson	Regular School	School	X
The Point Christian Academy	300 Vandergrift Street	Salemburg	28385	Sampson	The Point Christian Academy	School	X
Salemburg Volunteer Fire Dept., Inc.	804 N. Main St	Salemburg	28385	Sampson	Salemburg Volunteer Fire Dept., Inc.	Fire Station	X
Salemburg Volunteer Fire Department Incorporated	804 North Main Street	Salemburg	28385	Sampson	Ambulance And Fire Service Combined	EMS	X
Salemburg Elementary	404 College Street	Salemburg	28385	Sampson	Regular School	School	X
Lakewood High	245 Lakewood School Rd	Salemburg	28385	Sampson	Regular School	School	X
Turkey Volunteer Fire Department, Inc.	390 Faison Rd	Turkey	28392	Sampson	Turkey Volunteer Fire Department, Inc.	Fire Station	X
Turkey Volunteer Fire Department	390 Faison Road	Turkey	28393	Sampson	Ambulance And Fire Service Combined	EMS	X
Interim Healthcare	P. O. Box 2249	Whiteville	0	Sampson	Home Care	Medical Facilities	X
Elderly Lodging Developmental Operations #2	P O Box 2028	Wilmington	28402	Sampson	Family Care	Medical Facilities	X

APPENDIX E: NFIP INFORMATION

***Table E-1**: Summarized flood ordinances and NFIP/CRS Information, including substantial damage and substantial improvement procedures*

Jurisdiction	Floodplain Management & NFIP Administration
Sampson County	1) The Head Building Inspector serves as the Floodplain Administrator for Sampson County. This individual is responsible for administering and enforcing all provisions of the Flood Damage Prevention Ordinance, including reviewing development permit applications, maintaining floodplain records, performing field inspections, and ensuring the County's compliance with the National Flood Insurance Program. 2) The Floodplain Administrator, who is also the Head Building Inspector, makes all determinations regarding substantial damage and substantial improvement. This involves reviewing damage assessments and comparing the cost of repairs or improvements to the structure's market value before the damage or construction. 3) After a flood event, the Floodplain Administrator inspects and evaluates all damaged structures within the Special Flood Hazard Area to determine if they meet the definition of substantial damage. If the cost to repair the structure equals or exceeds fifty percent of its pre-damage market value, the structure must be brought into full compliance with the standards for new construction. Residential buildings must be elevated so that the lowest floor is at or above the Regulatory Flood Protection Elevation, defined as the Base Flood Elevation plus two feet of freeboard. Nonresidential structures must either be elevated or floodproofed to the same elevation, with certification by a professional engineer or architect. These determinations and subsequent compliance requirements are implemented through the Floodplain Development Permit process, which requires the submission of elevation or floodproofing certificates at multiple construction stages to verify that reconstruction meets all flood protection standards. 4) Sampson County's ordinance meets and, in some cases, exceeds the state's minimum requirements by requiring a two-foot freeboard above the Base Flood Elevation for all new and substantially improved structures. The ordinance also prohibits new solid-waste disposal facilities, hazardous-waste management facilities, salvage yards, and chemical storage facilities within Special Flood Hazard Areas unless they are elevated or floodproofed to at least the Regulatory Flood Protection Elevation. In addition, encroachments within floodways are not allowed unless certified by an engineer as not increasing base flood levels, further strengthening the County's flood protection measures. 5) Any development proposed within a Special Flood Hazard Area must obtain a Floodplain Development Permit before construction begins. Applicants must provide detailed site plans identifying flood zone boundaries, Base Flood Elevations, building elevations, foundation plans, and utility information. The Floodplain Administrator reviews each application to ensure compliance with local, state, and federal regulations and confirms that all necessary permits, including those for water quality or sedimentation control, are secured. Construction is inspected at key stages, and elevation or floodproofing certificates must be submitted before a Certificate of Occupancy is issued.

Jurisdiction	Floodplain Management & NFIP Administration
	6) Compliance is monitored through the Floodplain Development Permit system, which requires applicants to submit detailed site plans, elevation information, and engineering documentation before receiving approval. The Floodplain Administrator conducts field inspections throughout construction and maintains permanent records of elevation and floodproofing certificates. If a violation occurs, the Administrator may issue a stop-work order, revoke permits, or take corrective action to bring the development into compliance. Continued violations are subject to fines, legal action, or misdemeanor charges, with each day of noncompliance considered a separate offense. 7) Sampson County has no (identified) outstanding compliance issues with the National Flood Insurance Program 8) Sampson County entered the Community Rating System (CRS) on October 1st, 1994. The County received an effective CRS class of 10 on October 1st, 1999, which has not changed since. A community participating in FEMA's Community Rating System (CRS) with a Class 10 rating does not receive any premium discounts on flood insurance because it either does not meet the minimum CRS participation requirements or its credited activities do not exceed those required for compliance with the National Flood Insurance Program (NFIP). Essentially, the community participates in name only, without qualifying for CRS benefits.
Autryville	1) The Building Inspector serves as the Local Administrator for the Town of Autryville. This individual is responsible for administering and enforcing the Flood Damage Prevention Ordinance, including reviewing permit applications, ensuring compliance with floodplain development standards, maintaining elevation and floodproofing records, and notifying state and federal agencies of watercourse alterations. 2) The Building Inspector, acting as the Local Administrator, is responsible for determining whether a structure meets the definition of Substantial Improvement or Substantial Damage. The ordinance defines substantial improvement as any repair, reconstruction, or improvement costing 50 percent or more of the structure's market value within twelve months, either before the improvement or before the damage occurred if the structure is being restored. 3) After a flood, the Building Inspector evaluates damaged structures in Special Flood Hazard Areas to determine whether they meet the definition of substantial damage based on the 50 percent rule. If a structure is substantially damaged or improved, it must be brought into compliance with all floodplain management standards. Residential buildings must have the lowest floor elevated at least one foot above the Base Flood Elevation, and non-residential structures must be elevated or floodproofed to the same elevation and certified by a professional engineer or architect. The community enforces these standards through its development permit process, which requires applicants to submit elevation or floodproofing certificates prepared by licensed professionals and to correct any deficiencies identified by the administrator before construction can proceed. 4) The Town of Autryville's ordinance meets and, in some cases, exceeds minimum state standards by requiring that the lowest floor of new and substantially improved structures be elevated at least one foot above the Base Flood Elevation and by establishing a two-foot elevation requirement above the highest adjacent grade where no Base

Jurisdiction	Floodplain Management & NFIP Administration
	Flood Elevation data exists. The ordinance also prohibits development that would increase flood levels within a designated floodway and requires professional engineering certification for projects that could alter watercourses, ensuring no rise in flood stages and no adverse impacts on adjacent properties. 5) All proposed developments within Special Flood Hazard Areas require a development permit issued by the Building Inspector. Applicants must submit site plans showing existing and proposed structures, elevations, and drainage details. When Base Flood Elevation data is available, the lowest floor elevation and floodproofing elevation must be shown relative to mean sea level; when not available, structures must be built at least two feet above the highest adjacent grade. The permit holder must submit an elevation or floodproofing certification within twenty-one days of establishing the lowest floor, and any deficiencies must be corrected before further construction continues. 6) Compliance is monitored through the development permit process administered by the Building Inspector, who reviews applications, performs field inspections, and verifies elevations for all new or substantially improved structures. The administrator maintains detailed records of permits, floodproofing certifications, and elevation data. Violations of the ordinance are considered misdemeanors, with each day of continued noncompliance constituting a separate offense, subject to fines, imprisonment for up to thirty days, or other lawful corrective actions as deemed necessary by the town. 7) Autryville has no (identified) outstanding compliance issues with the National Flood Insurance Program. 8) Autryville does not participate in the Community Rating System.
Clinton	1) The Planning and Zoning Director serves as the Floodplain Administrator for the City of Clinton. This individual is responsible for administering and enforcing the flood damage prevention regulations, including reviewing development permits, ensuring compliance with FEMA and state standards, and maintaining records of elevation and floodproofing certifications. The Administrator also performs site inspections, interprets flood hazard boundaries, and coordinates with state and federal agencies when required. 2) The Floodplain Administrator is responsible for making all substantial damage and substantial improvement determinations. These determinations are made by comparing the cost of repair, reconstruction, or improvement to the pre-damage market value of the structure. When the cost equals or exceeds fifty percent of that value, the structure is classified as substantially damaged or substantially improved, which means it must meet all floodplain development standards outlined in the ordinance. 3) After a flood event, the Floodplain Administrator inspects and evaluates structures within Special Flood Hazard Areas to determine whether the cost of restoring the structure equals or exceeds fifty percent of its pre-damage market value. When this threshold is met, the structure is deemed substantially damaged and must be brought into full compliance with the standards for new construction. Residential structures must have the lowest floor, including the

Jurisdiction	Floodplain Management & NFIP Administration
	basement, elevated to or above the Regulatory Flood Protection Elevation, which the City defines as the Base Flood Elevation plus two feet of freeboard. Nonresidential structures must be either elevated or floodproofed to the same elevation, and a registered engineer or architect must certify the design. The ordinance also applies these provisions to repetitive-loss properties that have incurred flood damage twice within ten years, with repair costs averaging at least twenty-five percent of their market value each time. Compliance is ensured through the Floodplain Development Permit process, which requires elevation and floodproofing certificates at designated construction stages and documentation of compliance before final approval. 4) Clinton's ordinance meets and, in some cases, exceeds state minimum standards by requiring a two-foot freeboard above the Base Flood Elevation for new and substantially improved structures. It prohibits new solid-waste disposal facilities, hazardous-waste management facilities, salvage yards, and chemical storage sites in Special Flood Hazard Areas unless elevated or floodproofed to at least the Regulatory Flood Protection Elevation. Additionally, the ordinance enforces strict no-rise standards for any encroachment within floodways, requiring professional certification to ensure no increase in base flood levels. 5) All proposed development within Special Flood Hazard Areas requires a Floodplain Development Permit before construction. Applicants must submit a site plan showing Base Flood Elevations, flood zone boundaries, building and utility elevations, and foundation details. The Floodplain Administrator reviews applications for compliance with all local, state, and federal regulations and verifies that any other required environmental or land-use permits have been obtained. Elevation and floodproofing certificates are needed at multiple construction stages to confirm compliance before final approval or occupancy. 6) Compliance is monitored through the Floodplain Development Permit system, which requires detailed site plans, Base Flood Elevation data, and construction certifications before approval. The Floodplain Administrator reviews all applications, conducts site inspections, and ensures that all required state and federal permits are obtained. Violations are subject to corrective action procedures, including written notice, stop-work orders, and permit revocation. Continued violations can result in fines, legal enforcement, or misdemeanor charges, with each day of noncompliance constituting a separate offense. 7) Clinton has no (identified) outstanding compliance issues with the National Flood Insurance Program. 8) Clinton entered the Community Rating System on October 1st, 1994, and received its currently effective class rating of 8 on May 1st, 2009. A community with a Class 8 rating in FEMA's Community Rating System has implemented floodplain management activities that exceed the minimum National Flood Insurance Program standards. As a result, policyholders in Special Flood Hazard Areas receive a 10% discount on their flood insurance premiums, recognizing the community's proactive efforts to reduce flood risk. Clinton receives credit for the following CRS mitigation activities:

Jurisdiction	Floodplain Management & NFIP Administration
	a. Elevation Certificates b. Map Information Service c. Outreach Projects d. Hazard Disclosure e. Open Space Preservation f. Higher Regulatory Standards g. Flood Data Maintenance h. Stormwater Management i. Floodplain Mgmt. Planning j. Acquisition and Relocation
Garland	Garland does not participate in the National Flood Insurance Program (NFIP). The NFIP sanctioned the jurisdiction on June 21st, 1975, and Garland has not participated in the NFIP since. However, Garland does have a Flood Insurance Rate Map, with an effective date of June 20th, 2018.
Harrells	Harrells does not participate in the National Flood Insurance Program.
Newton Grove	1) The Town Clerk serves as the Floodplain Administrator for the Town of Newton Grove. This official is responsible for administering and enforcing the Flood Damage Prevention Ordinance, reviewing development applications, ensuring compliance with state and federal floodplain standards, and maintaining permanent records of elevation and floodproofing certifications. The Floodplain Administrator also conducts site inspections, enforces corrective actions, and coordinates with FEMA and the North Carolina Division of Emergency Management regarding map revisions or watercourse alterations. The ordinance does not indicate any additional responsibilities beyond floodplain management. 2) The Floodplain Administrator is responsible for determining whether a structure meets the criteria for substantial damage or substantial improvement. These determinations are made by comparing the cost of repair, reconstruction, or improvement to the pre-damage market value of the structure. If costs equal or exceed fifty percent of the market value, the structure is classified as substantially damaged or improved and must meet all floodplain development standards for new construction. 3) After a flood event, the Floodplain Administrator conducts inspections of damaged structures within Special Flood Hazard Areas to determine whether repair costs meet or exceed fifty percent of the pre-damage market value. Structures meeting this threshold are deemed substantially damaged and must comply with the same standards as new construction. Residential structures must elevate the lowest floor to or above the Regulatory Flood Protection Elevation, which is defined as the Base Flood Elevation plus two feet of freeboard. Nonresidential structures must either elevate or floodproof to the same elevation, with certification from a professional engineer or architect. The

Jurisdiction	Floodplain Management & NFIP Administration
	ordinance also applies to repetitive-loss structures that sustain flood damage twice within ten years, with average repair costs equaling or exceeding twenty-five percent of their market value each time. Implementation occurs through the Floodplain Development Permit process, which requires elevation or floodproofing certifications at designated construction stages and verification of compliance before a Certificate of Occupancy is issued. 4) Newton Grove's ordinance meets and, in some cases, exceeds state minimum requirements by mandating a two-foot freeboard above Base Flood Elevation for all new and substantially improved structures. It prohibits new solid-waste disposal facilities, hazardous-waste management facilities, salvage yards, and chemical storage areas in Special Flood Hazard Areas unless elevated or floodproofed to the Regulatory Flood Protection Elevation. The ordinance also requires engineering certification for any proposed encroachments into floodways to ensure that development does not raise base flood levels. 5) All proposed development within Special Flood Hazard Areas requires a Floodplain Development Permit before construction begins. Applicants must provide site plans, elevation data, flood zone boundaries, and certification of compliance with applicable regulations. The Floodplain Administrator reviews applications to ensure that all local, state, and federal permits have been obtained. During construction, the applicant must submit an elevation certificate within twenty-one days of establishing the lowest floor, and deficiencies must be corrected immediately. A final inspection and certification are required before occupancy or use is authorized. 6) Compliance is monitored through the Floodplain Development Permit process, which requires submission of detailed site plans, flood zone information, and certified elevation or floodproofing documentation. The Floodplain Administrator reviews applications, conducts field inspections, and maintains permanent records of all permits and certifications. Violations may result in stop-work orders, permit revocation, or legal enforcement actions. Each day of continued violation constitutes a separate misdemeanor offense and may result in fines, imprisonment, or both until compliance is achieved. 7) Newton Grove has no (identified) outstanding compliance issues with the National Flood Insurance Program. 8) Newton Grove does not participate in the Community Rating System.
Roseboro	Roseboro has adopted Sampson County's Flood Damage Prevention Ordinance, and the County handles all floodplain administration activities. Please refer to the Sampson County entry for more details.
Salemburg	1) The Mayor, hereinafter referred to as the Floodplain Administrator, is appointed to administer and implement the provisions of Salemburg's Flood Damage Prevention Ordinance. The ordinance specifies that, even when the Floodplain Administrator receives assistance from others to complete tasks, the Floodplain Administrator remains responsible for coordinating those efforts and for the community's overall compliance with the National Flood Insurance Program and the provisions of the ordinance.

Jurisdiction	Floodplain Management & NFIP Administration
	2) The Floodplain Administrator is the official who reviews floodplain development permit applications and associated documentation and therefore makes the determinations as to whether a project constitutes substantial improvement or involves repair of substantial damage. In this role, the Floodplain Administrator evaluates the cost of proposed work relative to the market value of the structure, applies the ordinance's definitions and thresholds, and determines when a structure must be treated as substantially improved or substantially damaged and brought into compliance with current floodplain development requirements. 3) Salemburg implements its substantial improvement/substantial damage provisions through the Floodplain Development Permit process administered by the Mayor as Floodplain Administrator. After a flood event, the Floodplain Administrator assesses damaged structures within the Special Flood Hazard Area to determine whether the cost of repair equals or exceeds 50 percent of the structure's pre-damage market value, or meets any repetitive-loss criteria specified in the ordinance. If that threshold is reached, the structure is considered substantially damaged, and any reconstruction or repair must comply fully with the standards for new construction, including elevating the lowest floor to or above the Regulatory Flood Protection Elevation and meeting all applicable design, materials, and floodproofing requirements. These determinations are documented through required elevation or floodproofing certifications and must be satisfied before a final certificate of compliance or occupancy is issued. 4) Salemburg's ordinance meets and, in some cases, exceeds state minimum requirements by adopting a two-foot freeboard above the Base Flood Elevation as part of the Regulatory Flood Protection Elevation and by imposing stricter controls on development in Special Flood Hazard Areas. These controls include enhanced standards for the use of enclosures below elevated buildings, limitations on uses that involve hazardous materials, and restrictions on encroachments into floodways or non-encroachment areas unless supported by certified no-rise analyses. Together, these provisions provide a higher level of protection than the baseline state standards. 5) Any development proposed within a Special Flood Hazard Area must first obtain a Floodplain Development Permit from the Mayor serving as Floodplain Administrator. Permit applications must include a detailed plot plan showing existing and proposed structures, flood zone boundaries, floodways or non-encroachment areas, proposed grades, drainage features, and the intended elevations of the lowest floor and utilities relative to the Regulatory Flood Protection Elevation. The Floodplain Administrator reviews the application to verify compliance with the ordinance, ensures that any other required state and federal permits have been obtained, and requires submittal of elevation certificates (and floodproofing certificates for nonresidential projects) at prescribed stages of construction, typically prior to vertical construction, after the reference level is set, and at completion, before issuing final approval. 6) The community monitors compliance through the Floodplain Administrator's review of permit applications, required elevation and floodproofing certifications, and on-site inspections during and after construction to confirm that development adheres to all floodplain standards. Enclosures subject to use limitations or non-conversion provisions

Jurisdiction	Floodplain Management & NFIP Administration
	may also be monitored to ensure they remain in compliant use. When violations are identified, the ordinance authorizes the Floodplain Administrator to issue written notices of violation, stop-work orders, and corrective orders, and to withhold or revoke permits and certificates of compliance until the deficiencies are corrected. Continued noncompliance may be treated as a separate offense for each day the violation persists and can result in civil or criminal penalties as provided by the ordinance. 7) Salemburg does not have any (identified) outstanding compliance issues with the National Flood Insurance Program. 8) Salemburg does not participate in the Community Rating System.
Turkey	1) The Zoning Administrator serves as the Floodplain Administrator for the Town of Turkey. This official is responsible for administering and implementing all provisions of the Flood Damage Prevention Ordinance and ensuring community compliance with the National Flood Insurance Program (NFIP). The Floodplain Administrator may receive assistance from others but remains responsible for overall coordination and enforcement. 2) The Floodplain Administrator determines whether structures meet the criteria for substantial damage or substantial improvement. Working in coordination with the Building Official, the Floodplain Administrator compares repair or improvement costs to the structure's market value to determine whether they equal or exceed 50% of that value, thereby triggering compliance with flood-resistant construction standards. 3) After a flood event in the Town of Turkey, the Floodplain Administrator, working with the Building Official, evaluates damaged buildings in the Special Flood Hazard Area to determine whether they meet the ordinance's definitions of substantial improvement or substantial damage by comparing the estimated cost of repairs or proposed work to the structure's pre-damage market value; if the cost is 50 percent or more, or if the structure has experienced repetitive flood damage on two occasions within ten years with average repairs of at least 25 percent of its value, it is treated as substantially damaged and must be brought into full compliance with the standards for new construction. For residential structures, this means elevating the lowest floor (including basement) to or above the Regulatory Flood Protection Elevation, defined as the Base Flood Elevation plus two feet of freeboard, and in AO Zones or unmapped A Zones, using the mapped depth plus freeboard or a minimum elevation above the highest adjacent grade specified by the ordinance. Nonresidential structures must either be elevated to the same elevation or dry-floodproofed so that the building is watertight below the Regulatory Flood Protection Elevation, with a registered professional engineer or architect certifying that the design will resist flood forces and that an operation and maintenance plan is in place. 4) The Town of Turkey's ordinance meets and, in some cases, exceeds state minimum standards by requiring a two-foot freeboard above the Base Flood Elevation for all new and substantially improved structures. It also prohibits solid waste disposal facilities, hazardous waste management facilities, salvage yards, and chemical storage facilities in Special Flood Hazard Areas unless elevated or floodproofed to at least the RFPE and approved through a variance.

Jurisdiction	Floodplain Management & NFIP Administration
	Additionally, the ordinance incorporates repetitive-loss provisions and strict floodway encroachment restrictions requiring certification by a North Carolina-licensed engineer. 5) All proposed development within Special Flood Hazard Areas requires a Floodplain Development Permit before work begins. Applicants must submit site plans, elevation data, engineering certifications, and documentation of all other required federal and state permits. The Floodplain Administrator reviews applications and issues permits if compliant. Elevation or floodproofing certifications are required at both preconstruction and post-construction stages, and final approval is contingent upon submission of all required documentation. 6) The Floodplain Administrator reviews all floodplain development permit applications, conducts site inspections during construction, and maintains permanent records of all certifications. Violations are first addressed through written notice and hearings, after which the Administrator may issue corrective or stop-work orders or revoke permits. Continued violations can result in misdemeanor charges and fines of up to $100 per day until compliance is achieved. 7) Turkey has no (identified) outstanding compliance issues with the National Flood Insurance Program 8) Turkey does not participate in the Community Rating System
Duplin County	1) The Planning Director serves as the Floodplain Administrator for Duplin County. This individual is responsible for administering and enforcing all provisions of the Flood Damage Prevention Ordinance, including reviewing development permits, ensuring compliance with local and federal requirements, and maintaining elevation certificates. The Administrator also coordinates mapping needs with the State and FEMA, inspects sites, enforces violations, and issues stop-work orders when necessary. 2) The Floodplain Administrator makes all substantial damage and substantial improvement determinations. In coordination with the Building Official, the Administrator estimates or verifies the market value of structures, compares repair or improvement costs to determine whether the 50 percent threshold is met, and notifies applicants when compliance with flood-resistant construction standards is required. 3) The Floodplain Administrator enforces the substantial improvement and substantial damage provisions through the Floodplain Development Permit process. After a flood, structures are evaluated to determine whether the cost of restoration equals or exceeds 50 percent of the structure's market value before the damage occurred. If that threshold is met, or if repetitive flood damage has occurred twice in ten years with repair costs averaging at least 25 percent each time, the structure is deemed substantially damaged. Such structures must be brought into full compliance with floodplain standards for new construction, including elevation to the Regulatory Flood Protection Elevation, defined as the Base Flood Elevation plus two feet of freeboard. Residential structures must elevate the lowest floor above this elevation, while nonresidential structures may either elevate or floodproof to the same level.

Jurisdiction	Floodplain Management & NFIP Administration
	Elevation and floodproofing certificates are required during construction, and compliance is verified before a Certificate of Occupancy is issued. 4) Duplin County's ordinance meets and, in some cases, exceeds state minimum standards by requiring a two-foot freeboard above the Base Flood Elevation for all new and substantially improved structures. It prohibits new solid-waste disposal sites, hazardous-waste management facilities, salvage yards, and chemical storage facilities in Special Flood Hazard Areas unless elevated or floodproofed to the Regulatory Flood Protection Elevation. The County also prohibits any encroachment within designated floodways unless certified by a licensed engineer showing no rise in base-flood levels. 5) Before development begins in a Special Flood Hazard Area, a Floodplain Development Permit must be obtained. Applicants must provide detailed site plans showing flood zones, Base Flood Elevations, proposed foundation types, and certifications from engineers or surveyors. The Floodplain Administrator reviews applications to confirm compliance with all state and federal permits, issues stop-work orders when necessary, and requires elevation and floodproofing certificates at specified construction milestones. A final inspection and elevation certificate are required before the Certificate of Compliance or Occupancy is issued. 6) Compliance is ensured through a multi-stage permitting and inspection process administered by the Floodplain Administrator. Applicants must obtain a Floodplain Development Permit, provide certified elevation and floodproofing documentation, and undergo multiple construction-stage inspections. The Administrator maintains permanent records, issues stop-work orders for violations, and can revoke permits for noncompliance. Violations are subject to corrective actions, hearings, and potential penalties, including misdemeanor charges, fines, or imprisonment, with each day of violation considered a separate offense. 7) Duplin County has no (identified) outstanding compliance issues with the National Flood Insurance Program. 8) Duplin County does not participate in the Community Rating System.
Beulaville	1) The Beulaville Zoning Officer, referred to in the ordinance as the Floodplain Administrator, is appointed to administer and implement the provisions of the Flood Damage Prevention Ordinance. The ordinance states that when others assist with administrative tasks, the Zoning Officer remains responsible for coordinating all work and ensuring the community's overall compliance with the National Flood Insurance Program. 2) The Beulaville Zoning Officer, acting as the Floodplain Administrator, is the official responsible for reviewing all floodplain development permit applications and the submitted elevation, market value, and construction-cost information. Because the ordinance defines substantial damage and substantial improvement in the administrative section and assigns all permit review duties to the Floodplain Administrator, that official also makes SI/SD determinations.

Jurisdiction	Floodplain Management & NFIP Administration
	3) The Town implements SI/SD provisions through the Floodplain Development Permit process, where the Floodplain Administrator compares the cost of proposed repairs or improvements with the structure's market value using the ordinance's definitions: substantial damage is damage where repair costs equal or exceed 50 percent of market value within one year, or where a structure has two flood-related damages within ten years averaging 25 percent or more of market value per event; substantial improvement applies when cumulative costs within one year meet or exceed 50 percent of the structure's market value. After a flood, any structure meeting these thresholds must be elevated or brought into full compliance with new-construction standards. These determinations occur before permits are issued and must be satisfied before the structure receives final approval or a certificate of compliance. 4) The ordinance meets and, in some cases, exceeds state minimum requirements by requiring structures to be elevated to the Regulatory Flood Protection Elevation, defined as the Base Flood Elevation plus two feet of freeboard. The ordinance also contains restrictive provisions for floodways and non-encroachment areas, requiring certified engineering analyses or FEMA map revisions for any encroachment, and applies strict limits on development within Special Flood Hazard Areas through elevated construction standards and required certifications. 5) Before any development begins in a Special Flood Hazard Area, applicants must obtain a Floodplain Development Permit, submitting a scaled plot plan showing the boundaries of the Special Flood Hazard Area, the flood zone designation, floodways or non-encroachment areas, Base Flood Elevation, the location of any altered watercourse, and all existing and proposed development details. The Floodplain Administrator reviews these materials and ensures all requirements are met, including elevation data and any required certifications. The permit must be issued before construction begins, and all development must comply fully with the ordinance and any additional applicable regulations. 6) Compliance is monitored through permit review, submission of required elevation certifications, and verification that development meets all ordinance requirements before a certificate of compliance is issued. Enforcement actions for violations include Class I misdemeanor penalties, fines up to $100, imprisonment up to 30 days, and the possibility of additional lawful actions to prevent or remedy violations. The ordinance states that each day a violation continues constitutes a separate offense, giving the Town strong enforcement authority. 7) Beulaville has no (identified) outstanding compliance issues with the National Flood Insurance Program 8) Beulaville does not participate in the Community Rating System.
Calypso	1) The ordinance states that the Town of Calypso Commissioner for Streets and Ditches, hereinafter referred to as the Floodplain Administrator, is appointed to administer and implement the provisions of the Flood Damage Prevention Ordinance. The Floodplain Administrator is responsible for carrying out all assigned duties and, even when receiving

Jurisdiction	Floodplain Management & NFIP Administration
	assistance from others, remains responsible for coordinating those tasks and ensuring the Town's overall compliance with the National Flood Insurance Program and the requirements of the ordinance. 2) Because the ordinance assigns the Floodplain Administrator responsibility for administering and implementing all provisions of the ordinance, including reviewing floodplain development permits and the information required to make compliance determinations, the Commissioner for Streets and Ditches acting as Floodplain Administrator is the person who makes substantial damage and substantial improvement determinations. The same individual evaluates construction costs, market values, and repetitive-loss information in accordance with the ordinance's definitions. 3) The Town implements its substantial improvement and substantial damage provisions by requiring the Floodplain Administrator to evaluate whether repair or improvement costs meet the ordinance's definition of substantial improvement or substantial damage, including the one-year cumulative calculation and the repetitive-loss provision where two flood-related damages within ten years averaging at least twenty-five percent of the structure's market value trigger substantial damage. When a structure is determined to be substantially damaged after a flood, the ordinance requires that any repairs be treated as substantial improvement regardless of the extent of actual repair work, and the building must be brought into full compliance with the elevation, floodproofing, materials, utilities, and design requirements applicable to new construction. These determinations occur through the floodplain development permit process and must be satisfied before any final approval or certificate of compliance is issued. 4) The ordinance meets and, in some cases, exceeds state minimum requirements by requiring non-conversion agreements for enclosed areas below the lowest floor that must be recorded with the Register of Deeds and are subject to annual inspections to ensure they have not been modified or converted. It also includes a cumulative substantial improvement provision and a repetitive-loss substantial damage provision, both of which are stricter than state minimums. In addition, the ordinance requires multiple elevation certifications at different construction stages. It mandates that no encroachments be permitted in floodways or non-encroachment areas without certified engineering analyses demonstrating compliance with no-rise requirements. 5) The permitting process requires an applicant to obtain a Floodplain Development Permit before any development begins within the Special Flood Hazard Area. The permit must include detailed descriptions of the proposed development, determinations of the Special Flood Hazard Area, required elevations for the reference level and utilities, and all certifications and timelines identified in the ordinance. The permit must also include statements regarding floodway or non-encroachment area limitations and requirements for the use of flood-resistant materials. The applicant must submit elevation certificates before construction begins, after the reference level has been established, and after construction is completed. All development must comply fully with the ordinance before a certificate of compliance or occupancy is issued.

Jurisdiction	Floodplain Management & NFIP Administration
	6) The Floodplain Administrator monitors compliance by reviewing required elevation certifications, conducting inspections at different construction stages, and performing annual inspections of enclosed areas subject to non-conversion agreements. Enforcement occurs through the ability to deny permits, issue stop-work orders, withhold certificates of compliance or occupancy, and require applicants to correct any deficiencies in submitted documentation. The ordinance also states that work performed before the submission and approval of required certifications is done at the permit holder's risk, which reinforces the community's ability to enforce compliance through procedural controls. 7) Calypso has no (identified) outstanding compliance issues with the National Flood Insurance Program. 8) Calypso does not participate in the Community Rating System.
Faison	1) Faison's Public Works Director serves as the Floodplain Administrator, responsible for administering and implementing the Flood Damage Prevention Ordinance and coordinating the town's overall compliance with the National Flood Insurance Program. Even when assisted by others, the Public Works Director retains responsibility for ensuring compliance with all regulatory requirements. 2) Since the Public Works Director serves as the Floodplain Administrator and is required to review all floodplain development applications, elevation information, permit materials, and compliance documentation, they are also the official who determines whether proposed construction or post-flood repairs constitute substantial improvement or substantial damage in accordance with the ordinance's definitions and thresholds. 3) Substantial improvement and substantial damage requirements are implemented through the Floodplain Development Permit process, during which the Floodplain Administrator evaluates the cost of proposed work or post-flood repairs against the structure's pre-damage market value using the ordinance's 50-percent threshold or the repetitive-loss provision of two events within ten years, averaging 25 percent or more of the building's value. After a flood, any structure meeting the definition of substantial damage must be brought into full compliance with the standards for new construction, including elevation of the reference level to the Regulatory Flood Protection Elevation, flood-resistant materials, and appropriate foundation systems. These provisions are enforced through required elevation certificates, floodproofing certificates for nonresidential buildings, engineering documentation, and mandatory inspections before final approval is granted. 4) Faison's ordinance meets and, in some cases, exceeds state minimum requirements by adopting a two-foot freeboard above the Base Flood Elevation as part of the Regulatory Flood Protection Elevation, applying strict floodway and non-encroachment area restrictions requiring certified engineering analyses, and limiting the use of enclosed spaces below the lowest floor to parking, building access, and limited storage. It also imposes heightened

Jurisdiction	Floodplain Management & NFIP Administration
	requirements for hazardous materials storage, wastewater facilities, and other critical infrastructure within the Special Flood Hazard Area, all of which provide higher protection than the baseline state standards. 5) Before any development occurs in a Special Flood Hazard Area, applicants must submit a detailed Floodplain Development Permit application to the Floodplain Administrator. Required materials include a certified plot plan with the boundary of the Special Flood Hazard Area, Base Flood Elevation, flood zone designation, watercourse changes, foundation plans, utility protection plans, usage details for enclosures, floodproofing documentation where applicable, and certification that all other necessary local, state, and federal permits have been obtained. The permit itself must specify the applicable regulatory flood protection elevation, required certifications, floodway limitations, and enclosure restrictions. Elevation certificates are required before construction, after the reference level is set, and at completion to ensure compliance before final approval is issued. 6) Compliance is monitored through the Floodplain Administrator's review of required certifications, site inspections during construction, and verification of all flood-resistant construction standards before issuing certificates of compliance. Any violation triggers corrective procedures, beginning with written notice and an opportunity to remedy deficiencies; if violations persist, the Administrator may issue stop-work orders, revoke permits, or initiate further enforcement actions. The ordinance establishes penalties as a Class I misdemeanor, with fines, possible imprisonment, and the provision that each day a violation continues constitutes a separate offense, enabling the town to address noncompliance through multiple legal pathways. 7) Faison has no (identified) outstanding compliance issues with the National Flood Insurance Program. 8) Faison does not participate in the Community Rating System.
Greenevers	1) The Mayor is designated as the Floodplain Administrator for Greenevers. This individual is responsible for administering and implementing the Flood Damage Prevention Ordinance, including reviewing applications, issuing Floodplain Development Permits, maintaining records, conducting site inspections, and ensuring compliance with all local, state, and federal floodplain regulations. 2) The Floodplain Administrator (Mayor) is the person responsible for making determinations of substantial improvement and substantial damage. This includes reviewing the cost of proposed work or flood-related repairs and comparing it to the structure's market value to determine whether it meets the 50% threshold, as well as evaluating repetitive-loss situations that may trigger substantial damage requirements. 3) The Floodplain Administrator evaluates whether proposed repairs, reconstructions, additions, or improvements meet the ordinance's definition of substantial improvement or substantial damage by comparing the cost of the work (including cumulative improvements within one year) to the building's pre-damage market value. If repairs equal or exceed 50% of the structure's market value, or if the building has sustained repetitive flood damage twice in ten

Jurisdiction	Floodplain Management & NFIP Administration
	years, averaging 25% or more per event, the structure must be brought into full compliance with standards for new construction, including elevation to the Regulatory Flood Protection Elevation. After a flood, any structure determined to be substantially damaged must meet all new-construction requirements before a permit or certificate of compliance is issued. 4) Greenevers' ordinance meets and, in some cases, exceeds state minimum standards. It requires two feet of freeboard above the Base Flood Elevation for all new and substantially improved structures. It also requires non-conversion agreements for any enclosed area below the lowest floor and mandates annual inspections of those spaces. Additionally, the ordinance prohibits certain high-risk land uses in Special Flood Hazard Areas unless elevated or floodproofed and includes strict "no-rise" requirements for floodway encroachments, all of which exceed North Carolina's minimum standards. 5) Applicants must obtain a Floodplain Development Permit from the Floodplain Administrator before beginning any development in the Special Flood Hazard Area. The application must include a detailed plot plan showing elevations, flood zone boundaries, floodways, proposed grading and structures, utility locations, and any proposed watercourse alterations. The Administrator verifies BFEs, determines the Regulatory Flood Protection Elevation, and ensures all certification requirements are met, including initial, intermediate, and final elevation certificates or floodproofing certificates. No work may proceed without corrected and complete documentation, and the Administrator may issue stop-work orders if submittals are deficient. 6) Compliance is monitored through required plan review, field inspections, elevation and floodproofing certifications, and annual inspections of enclosed areas subject to non-conversion agreements. The ordinance authorizes the Floodplain Administrator to issue violation notices, hold hearings, order corrective actions, and enforce compliance through stop-work orders and deadlines for remedying violations. Failure to comply may result in a Class 1 misdemeanor, fines, imprisonment, and each day of continued violation constitutes a separate offense, in addition to any lawful corrective action the Town deems necessary. 7) Greenevers has no (identified) outstanding compliance issues with the National Flood Insurance Program. 8) Greenevers does not participate in the Community Rating System.
Kenansville	1) The Chief Building Inspector serves as the Floodplain Administrator for the Town of Kenansville. This individual is responsible for administering and enforcing all provisions of the Flood Damage Prevention Ordinance, including reviewing floodplain development applications, issuing permits, maintaining elevation certificates, conducting inspections, and coordinating with FEMA and the North Carolina Division of Emergency Management. The ordinance does not identify additional duties beyond those directly related to floodplain management.

Jurisdiction	Floodplain Management & NFIP Administration
	2) The Floodplain Administrator is responsible for determining whether a structure meets the criteria for substantial improvement or substantial damage, defined as repairs, reconstruction, or improvements equaling or exceeding fifty percent of the structure's market value. The Administrator evaluates cost estimates and property values to ensure compliance with elevation or floodproofing requirements once a structure is found to meet the substantial threshold. 3) The Town implements its substantial improvement and substantial damage provisions through the Floodplain Development Permit process. Following a flood, the Floodplain Administrator inspects damaged structures in Special Flood Hazard Areas and determines whether the cost of repair equals or exceeds fifty percent of the pre-damage market value. Structures meeting this threshold are considered substantially damaged and must comply with the construction standards for new buildings, including elevating the lowest floor to or above the Regulatory Flood Protection Elevation, defined as the Base Flood Elevation plus at least two feet of freeboard. Nonresidential structures must either be elevated or be floodproofed to the same elevation and certified by a professional engineer or architect. The Administrator ensures compliance through inspections, permit reviews, and the issuance of required elevation or floodproofing certificates before occupancy. 4) Kenansville's ordinance meets and, in some cases, exceeds state minimum standards by requiring a two-foot freeboard above the Base Flood Elevation for all new and substantially improved structures. It prohibits solid-waste disposal sites, hazardous-waste management facilities, salvage yards, and chemical storage facilities in Special Flood Hazard Areas unless elevated or floodproofed to the regulatory elevation. The ordinance also enforces a strict no-rise policy for encroachments in floodways or non-encroachment areas, unless a professional engineer certifies that no increase in base-flood levels will occur. 5) All development within Special Flood Hazard Areas requires a Floodplain Development Permit before work begins. Applicants must submit detailed plans showing existing and proposed structures, flood zones, base flood elevations, foundation methods, and drainage layouts. The Floodplain Administrator reviews applications to verify compliance with elevation and floodproofing requirements, ensures other state and federal permits are secured, and requires elevation certificates at various stages of construction. No Certificate of Compliance or Occupancy is issued until all final certifications are approved. 6) The Floodplain Administrator monitors compliance through permit review, field inspections, and recordkeeping of all elevation and floodproofing certifications. The Administrator issues stop-work orders when violations occur and may revoke permits for noncompliance. Violations must be corrected within a specified timeframe, or the property owner may face hearings and penalties. Each day a violation continues is treated as a separate misdemeanor offense, punishable by fines or imprisonment. 7) Kenansville has no (identified) outstanding compliance issues with the National Flood Insurance Program. 8) Kenansville does not participate in the Community Rating System.

Jurisdiction	Floodplain Management & NFIP Administration
Magnolia	1) According to Magnolia's ordinance, the Mayor or the Mayor's designee is appointed as the Floodplain Administrator, and this individual is responsible for administering and implementing all provisions of the ordinance. The Floodplain Administrator acts on behalf of the Town of Magnolia, as the ordinance is enacted and enforced by the Town Council. 2) Because the ordinance designates the Mayor or designee as the Floodplain Administrator, and all floodplain development review, permitting, and compliance responsibilities are assigned to the Floodplain Administrator, this same official is responsible for evaluating whether proposed repairs or improvements meet the definitions of substantial damage or substantial improvement. The ordinance does not identify any separate authority for SI/SD determinations, so the responsibility remains with the Floodplain Administrator. 3) Magnolia implements substantial improvement (SI) and substantial damage (SD) procedures by requiring that any repair, reconstruction, rehabilitation, addition, or improvement to a structure that equals or exceeds 50 percent of the structure's market value during any one year must comply with standards for new construction. Structures that incur substantial damage, defined the same way, must also meet all requirements for new construction, regardless of the scope of repair. After a flood event, a damaged structure is evaluated based on the cost to restore it to its pre-damage condition relative to its market value; if this cost exceeds 50 percent of the structure's market value, the Floodplain Administrator must treat the repair as a substantial improvement and require full ordinance compliance. 4) The ordinance states that all provisions "shall be considered as minimum requirements" and that where it overlaps with other regulations, the more stringent restriction applies, indicating that Magnolia's rules may exceed state minimums when stricter. The ordinance also adopts the full range of FEMA floodplain management requirements, including mandatory permits for all development, elevation and floodproofing requirements, watercourse alteration controls, and non-encroachment standards, which together demonstrate compliance at or above typical state minimums. 5) Magnolia requires a Floodplain Development Permit before any development in the Special Flood Hazard Area. Applicants must submit a detailed plot plan, show flood zone designations, provide proposed and existing elevations, document foundation details, supply floodproofing certifications if applicable, and identify any watercourse alterations. The Floodplain Administrator reviews all documentation to determine compliance with the ordinance before issuing a permit. 6) The ordinance requires full compliance with all provisions and states that any structure lacking required elevation certificates or documentation is presumed to be in violation. Violations constitute a misdemeanor and may result in fines up to $50 per day, imprisonment up to 30 days, or both, with each day considered a separate offense. Additionally, the Town of Magnolia may take "other lawful action" necessary to prevent or remedy violations, giving the community multiple enforcement mechanisms.

Jurisdiction	Floodplain Management & NFIP Administration
	7) Magnolia has no (identified) outstanding compliance issues with the National Flood Insurance Program. 8) Magnolia does not participate in the Community Rating System.
Rose Hill	1) The Town Administrator serves as the Floodplain Administrator for the Town of Rose Hill. This official is responsible for implementing and enforcing the Flood Damage Prevention Ordinance, reviewing permit applications, ensuring that all local, state, and federal permits are obtained, maintaining records of elevation and floodproofing certifications, and conducting site inspections. The Administrator also coordinates with FEMA and the North Carolina Division of Emergency Management on map revisions and notifications of watercourse alterations. 2) The Floodplain Administrator determines whether development or repairs qualify as substantial damage or substantial improvement, using cost estimates and pre-damage market values. The ordinance defines substantial damage as repairs equaling or exceeding 50 percent of a structure's market value or repetitive flood damage totaling an average of 25 percent or more of the structure's market value over two events in ten years. 3) Following a flood, the Floodplain Administrator inspects damaged structures within Special Flood Hazard Areas to determine whether the cost of repair equals or exceeds 50 percent of the structure's pre-damage market value. When a structure meets this threshold, it is deemed substantially damaged and must comply with all requirements for new construction. Residential structures must elevate the lowest floor to or above the Regulatory Flood Protection Elevation, the Base Flood Elevation plus two feet of freeboard. Nonresidential buildings must either be elevated or floodproofed to the same elevation, certified by a professional engineer or architect. Repetitive-loss properties meeting the ordinance's 25 percent x 2 rule are also subject to these standards. The community enforces compliance through its Floodplain Development Permit process, requiring elevation and floodproofing certificates at key construction stages and before issuing an occupancy permit. 4) Rose Hill's ordinance meets and, in some cases, exceeds state minimum standards by requiring a two-foot freeboard above Base Flood Elevation for all new and substantially improved structures. It prohibits solid-waste disposal sites, hazardous-waste management facilities, salvage yards, and chemical storage areas in Special Flood Hazard Areas unless such uses are elevated or floodproofed to the regulatory flood protection elevation. The town also enforces no-rise provisions for development in floodways and non-encroachment areas, requiring professional engineering certification that no increase in flood levels will result. 5) Any development within a Special Flood Hazard Area requires a Floodplain Development Permit before beginning work. Applicants must submit plot plans showing boundaries, Base Flood Elevations, flood zones, and proposed construction elevations. The Floodplain Administrator reviews all applications for compliance with local, state, and federal requirements and ensures that all necessary permits, such as environmental or water-quality approvals, are

Jurisdiction	Floodplain Management & NFIP Administration
	obtained. The Administrator conducts multiple inspections, requires elevation and floodproofing certificates during construction, and withholds the Certificate of Occupancy until all documentation is verified and compliant. 6) Compliance is monitored through the Floodplain Development Permit system administered by the Floodplain Administrator. Applicants must provide site plans, elevation data, and engineering certifications, which are reviewed and verified through field inspections. The Administrator conducts periodic site visits and maintains permanent records of all permits and certifications. Enforcement actions include written violation notices, stop-work orders, and hearings. Continued violations may result in civil penalties, misdemeanor charges, or permit revocation until compliance is achieved. 7) Rose Hill has no (identified) outstanding compliance issues with the National Flood Insurance Program. 8) Rose Hill does not participate in the Community Rating System.
Teachey	Teachey has adopted Duplin County's Flood Damage Prevention Ordinance, and the County handles all floodplain administration activities. Please refer to the Duplin County entry for more details.
Wallace	1) The Building Inspector serves as the Local Floodplain Administrator for the Town of Wallace. This official is responsible for administering and enforcing all provisions of the Flood Damage Prevention Ordinance, including reviewing and approving development permits, maintaining elevation and floodproofing certificates, inspecting construction sites, and notifying the state and FEMA of any proposed alterations to watercourses. 2) The Building Inspector, acting as the Local Administrator, is responsible for making determinations of substantial improvement and substantial damage. These determinations are based on whether the cost of repair, reconstruction, or improvement equals or exceeds 50% of the structure's market value before the improvement or damage. 3) The Town implements the substantial improvement and substantial damage provisions of its ordinance through its development permitting process. After a flood, the Building Inspector reviews and inspects structures in the Special Flood Hazard Area to determine if repair or reconstruction costs meet or exceed fifty percent of the pre-damage market value. Structures determined to be substantially damaged must comply with all new construction standards. Residential structures are required to have the lowest floor, including basements, elevated at least two feet above the Base Flood Elevation. Nonresidential structures must be elevated or floodproofed to the same elevation, with certification by a professional engineer or architect. The Building Inspector requires applicants to provide elevation or floodproofing certificates and conducts site inspections to ensure that all construction meets the ordinance's requirements before occupancy is approved. 4) Wallace's ordinance meets and, in some cases, exceeds state minimum standards by requiring two feet of freeboard above the Base Flood Elevation for all new and substantially improved structures. It prohibits encroachments within floodways that could cause any rise in flood levels, unless a professional engineer certifies otherwise. It also includes

Jurisdiction	Floodplain Management & NFIP Administration
	additional restrictions for developments along small streams without mapped floodways, requiring setbacks of at least twenty feet or twice the stream width, whichever is greater, and a professional engineering certification that such encroachments will not increase flood levels. 5) A development permit is required for any proposed construction or alteration within Special Flood Hazard Areas. Applicants must submit scaled plans showing the location and elevation of structures, the extent of fill or grading, and any proposed changes to watercourses. The Building Inspector reviews applications for compliance with flood protection standards, ensures that all required state and federal permits have been obtained, and monitors construction through inspections. Within twenty-one days of setting the lowest floor elevation or floodproofing level, the applicant must submit a certified elevation or floodproofing certificate prepared by a professional engineer or surveyor. Any deficiencies identified must be corrected immediately before further construction continues. 6) Compliance is monitored through the development permit and inspection process administered by the Building Inspector. Applicants must submit plans showing elevations, structures, and proposed drainage, as well as post-construction elevation or floodproofing certifications. The Inspector verifies submitted data, identifies deficiencies, and requires immediate correction before additional work can proceed. Enforcement includes the authority to issue stop-work orders and withhold permits or certificates of occupancy until full compliance is demonstrated. Violations of the ordinance constitute a misdemeanor, punishable by fines of up to fifty dollars, imprisonment for up to thirty days, or both, with each day of violation considered a separate offense. 7) Wallace has no (identified) outstanding compliance issues with the National Flood Insurance Program. 8) Wallace does not participate in the Community Rating System.
Warsaw	1) The Warsaw Town Manager or their designee is appointed as the Floodplain Administrator and is responsible for administering and implementing the ordinance, including all duties related to floodplain management. The Floodplain Administrator oversees all tasks associated with administering the ordinance and retains responsibility for coordinating Warsaw's overall compliance with the National Flood Insurance Program, even when receiving assistance from others. 2) The Floodplain Administrator, the Town Manager or their designee, is required to review all floodplain development permit applications, evaluate market value and cost-of-repair information, and determine whether proposed repairs or improvements meet the ordinance's definitions of substantial improvement (SI) or substantial damage (SD). The ordinance explicitly states that the Floodplain Administrator must compare repair costs with market value, document determinations, and notify applicants when their project qualifies as SI/SD. 3) Warsaw implements its SI/SD provisions through the Floodplain Development Permit process, where the Floodplain Administrator, in coordination with the Building Official, evaluates whether proposed work or post-flood repairs equal

Jurisdiction	Floodplain Management & NFIP Administration
	or exceed 50 percent of the structure's market value or meet the cumulative 25-percent repetitive-loss criteria. After a flood, the Administrator reviews damage assessments, compares estimated repair costs to pre-damage market value, and determines whether the structure is substantially damaged. If it is, all repairs must comply with requirements for new construction, including elevation of the reference level to the Regulatory Flood Protection Elevation and meeting all flood-resistant materials, foundation, utility, and opening requirements. The Administrator documents SI/SD determinations, requires elevation or floodproofing certifications, and withholds final approval until all requirements are met. 4) Warsaw's ordinance meets and, in some cases, exceeds state minimum standards by adopting a two-foot freeboard above the Base Flood Elevation, requiring recorded non-conversion agreements for enclosed areas below the lowest floor with annual inspections, prohibiting hazardous waste facilities, solid waste disposal facilities, salvage yards, and chemical storage facilities in Special Flood Hazard Areas, and mandating certified no-rise analyses for any floodway or non-encroachment encroachments. These stronger provisions reduce risk beyond the state baseline and provide enhanced protection for structures and public safety. 5) Before any development occurs in a Special Flood Hazard Area, applicants must obtain a Floodplain Development Permit, which requires detailed submittals including a certified plot plan showing flood zones, floodways, BFEs, grades, utilities, and any watercourse alterations; proposed elevation information for the reference level and utilities; foundation plans; floodproofing documentation for nonresidential structures; and evidence that all other required local, state, and federal permits have been secured. The Floodplain Administrator reviews all materials, issues the permit with required conditions, and enforces mandatory certification at three stages: pre-construction, reference-level set, and final finished construction. No Certificate of Compliance/Occupancy is issued until all materials are submitted and compliant. 6) Compliance is monitored through required elevation and floodproofing certifications, on-site inspections at multiple stages of construction, and periodic inspections throughout the Special Flood Hazard Area. The Floodplain Administrator may issue stop-work orders, revoke permits, or order corrective action when violations occur. If an owner fails to correct violations, the Administrator holds a hearing and may order alteration, removal, or demolition of noncompliant development. Continued noncompliance constitutes a Class 1 misdemeanor, with fines, imprisonment, and each day of violation treated as a separate offense. 7) Warsaw has no (identified) outstanding compliance issues with the National Flood Insurance Program 8) Warsaw does not participate in the Community Rating System.

APPENDIX G: HIGH-HAZARD POTENTIAL DAM (HHPD) REPORT FOR BOYKIN LAKE DAM

Dam Characteristics

The Boykin Lake Dam, also known as the Johnson Pond Dam, is a private, earthen dam used primarily for recreation, and the listed owner is Martin D. Adams. The surface area of the dam is 37.7 acres, and the drainage area is 3.41 mi². It has a maximum storage capacity of 510 acre-feet and a normal storage capacity of 271-acre-feet. The dam does not have any incidents listed on the Association of Dam Safety Officials Incident Database,[1] but it is listed as a High Hazard Dam in Poor condition, as of April 29, 2024. Boykin Lake Dam is listed as having an Emergency Action Plan, which was last revised on October 1, 2022, but these are not made available to the public for confidentiality reasons. The last listed inspection was on April 29, 2024, and the condition and hazard level have remained the same, but the next inspection date is listed as April 29, 2025.

- **Alternate Name:** Johnson Pond Dam
- **State Dam ID:** SAMPS-010
- **Owner Type:** Private
- **Emergency Action Plan (EAP) Date:** October 1, 2022
- **Dam Status:** Impounding
- **Dam Hazard:** High
  - **Dam Hazard Date:** Not Listed
- **Dam Condition:** Poor
  - **Condition Assessment Date:** April 29, 2024
- **Next Inspection:** April 29, 2025
  - **Last Inspection:** April 29, 2024

***Table G-1**: Dam ID, type, purpose, hydraulic height, structural height, maximum storage (acre feet), drainage area (square miles), surface area (acres), and normal storage (acre feet).*

NID ID	Dam Type	Dam Purpose	Hydraulic Height (ft)	Structural Height (ft)	NID Height	Max Storage (Acre Ft)	Drainage Area (Mi^2)	Surface Area (Acres)	Normal Storage (Acre ft)
NC04128	Private	Recreation	18	22	22	510	3.41	37.7	271

[1] Association of State Dam Safety Officials [ASDSO]. (n.d.). Dam Incident Database [Dataset]. In Association of State Dam Safety Officials. ASDSO. https://damsafety.org/incidents

Inundation Modeling Methodology

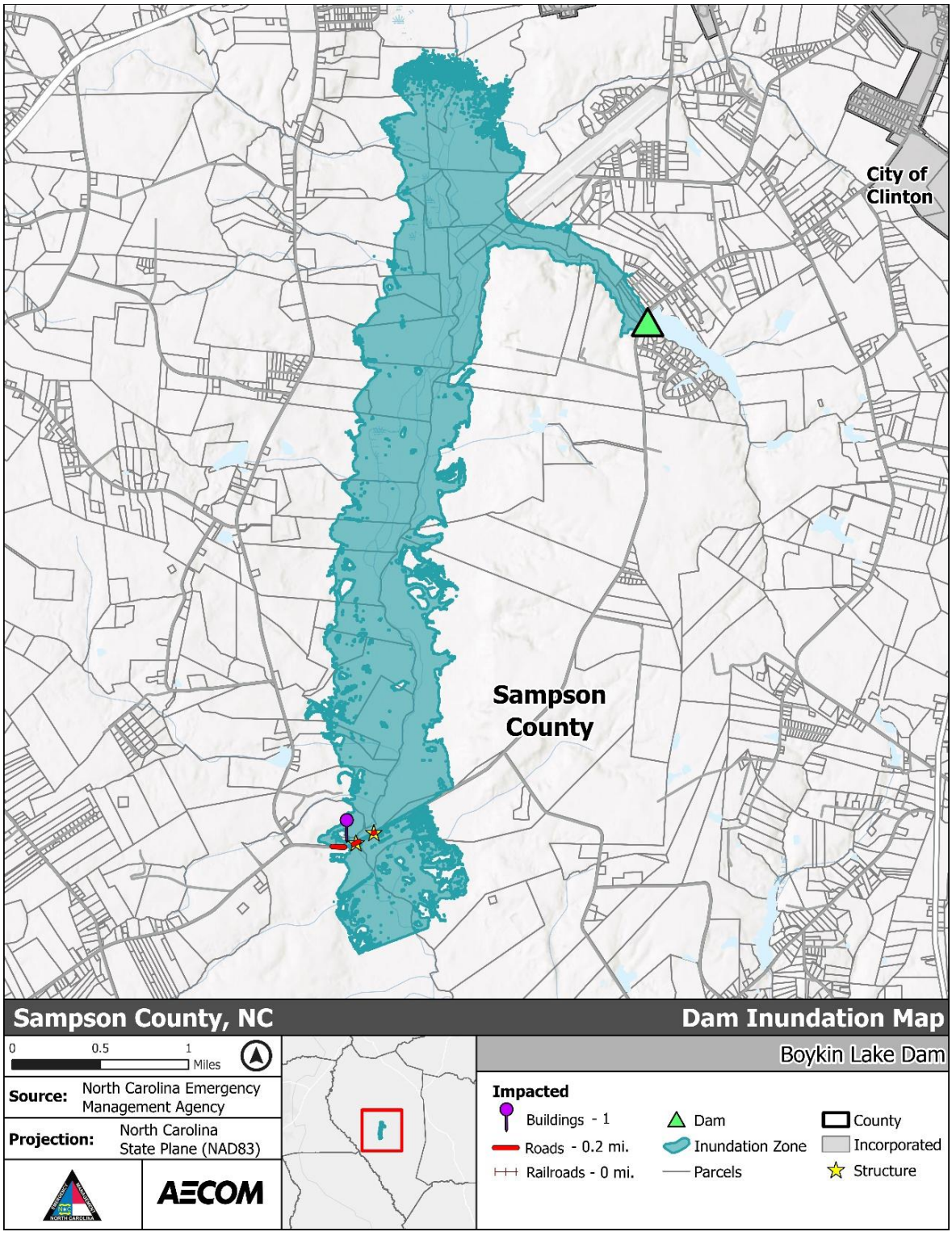


***Figure G-1**: Dam Inundation Map for the Boykin Lake Dam*

The model used to evaluate the impacts of potential dam failure was based on Full Pond, Overtopping Failure, and 100-year baseflow provided by the North Carolina Division of Emergency Management (NCEM) and the North Carolina Department of Environmental Quality (NCDEQ). Not all dams in NC have mapped inundation areas, and not all mapped inundation areas are readily accessible to the public. Using the inundation-area raster provided by NCDEQ, ArcGIS was used to identify properties that intersect the inundation area. The types of facilities and infrastructure evaluated to determine which assets are at risk of inundation in the event of a dam failure included fire stations, medical facilities, law enforcement locations, nursing homes, schools, emergency medical services, roads, North Carolina Department of Transportation (NCDOT) facilities, railroads, and buildings.

***Table G-2**: Critical facilities in the dam failure inundation area*

Facility/Infrastructure Type	In the Inundation Area	Source	Count of Facilities in the Inundation Area
Fire Stations	No	NC OneMap	0
Medical Facilities	No	NC OneMap	0
Law Enforcement Locations	No	NC OneMap	0
Nursing Homes	No	NC OneMap	0
Public Schools	No	NC OneMap	0
Private Schools	No	NC OneMap	0
Emergency Medical Services	No	NC OneMap	0
Roads	Yes	NCDOT	1
NCDOT Facilities	Yes	NCDOT	2
Railroads	No	NCDOT	0
Buildings	Yes	NCEM Spatial Data Downloads	1

Infrastructure, Buildings, and People at Risk

Buildings at Risk

There is one residential building in the inundation area. The total replacement value is $123,196, but the building value is not specified. Because this building is residential, its residents are especially vulnerable to the impacts of dam failure, including loss of life and property damage. Residential structures that are constructed with inadequate anchoring, inadequate foundations, and low-quality construction materials may experience a disproportionate impact in the event of a dam failure. The buildings that are at risk are highlighted in Figure G-1.

***Table G-3**: Buildings at risk of Dam inundation*[2]

Occupancy Type	Building Type	Building Value	Building Replacement Value	Foundation Type	Number of Stories	First Floor Elevation	Lowest Adjacent Grade (Lidar Determined)
Residential	Wood	0	$123,196	Crawl Space	1	77.23	74.02

Recommendations for Buildings at Risk

To reduce the vulnerability of structures within the inundation areas, the planning area should consider the following mitigation actions:

- Evaluate building(s) in inundation areas and ensure that all buildings are adequately anchored and built to reduce dam failure impacts on the structure.
- Assist residents of the building(s) at risk to understand the potential impacts of dam failure and determine whether they require assistance to evacuate safely in the event of dam failure.
- Determine whether residents in structures can receive emergency alerts and evacuate in a timely manner.
- Prohibit new development of residential structures within the inundation area and ensure that any future development in or around the inundation area is built with adequate construction methods that reduce potential damage to structures.

Population at Risk

The inundation area overlaps three census tracts, with a population of approximately 11,687 people as of 2020.[3] The NCDOT structures support 950 Average Annual Daily Traffic. In the event of dam failure, residents in or around the inundation area may experience disruptions to day-to-day activities involving infrastructure, buildings, or facilities located within or around the inundation area.

***Table G-4**: Population of Census Tracts Overlapping the Inundation Area*

Total Population	Under 18	Between 18 and 64	Over 64
11,688	3,159	6,884	1,645

[2] North Carolina Emergency Management [NCEM]. (n.d.). 2020-2022 Building Footprints [Dataset]. In Spatial Data Download. NCEM Spatial Data Download. https://sdd.nc.gov/DownloadFiles.aspx?path=BuildingFootprintsbyCounty/2020-2022
[3] U.S. Census Bureau. (2021). 2020 Census results [Data set]. U.S. Department of Commerce. https://www.census.gov/programs-surveys/decennial-census/decade/2020/2020-census-results.html

Recommendations to Reduce Vulnerability of Populations at Risk

To reduce the vulnerability of residents who rely on critical facilities, infrastructure, buildings, businesses, and critical infrastructure in the planning area, the planning area should consider the following mitigation actions:

- Consider developing an early warning system for the planning area for dam failure, such as text alerts, sirens, or automatic warning notifications
- Restrict development in inundation areas to ensure that future development won't place residents in vulnerable areas.

Roads and Bridges at Risk

0.165 miles of road overlap the dam inundation area, which is part of Boykin Bridge Rd, and two bridge structures that are within the inundation area that carry Boykin Bridge Rd, or SR-1214. Boykin Bridge Road, located in the inundation area, supports an Annual Average Daily Traffic of 950 vehicles and has an arrival time of 548 minutes, according to the State Emergency Response Application (SERA).

***Table G-5**: Roads in the inundation area*

Street Name	Route Name	Route Class	Feet of Road at risk	Miles at risk	Annual Average Daily Traffic	Arrival Time (Minutes)[4]
Boykin Bridge Rd	SR-1214	Secondary Route (State Maintained)	873	0.165	950	548

***Table G-6**: Bridges in the inundation area*

Bridge Number	Feature Intersected	Route Carried	Functional Class	Substructure	Annual Average Daily Traffic
810084	Great Coharie Creek	SR-1214	Minor Collector, Rural	Prestressed Concrete Cored Slab	--
810085	Great Coharie Overflow	SR-1214	Minor Collector, Rural	Rc Deck On Timber Joists	--

Recommendations for Roads and Bridges at Risk

To reduce the vulnerability of roads and bridges, the planning area should consider the following mitigation actions:

[4] Arrival Time from the SERA Database

- Evaluate and implement projects that will protect roadways and bridges from potential dam failure events to improve the resiliency of roadways and reduce potential dam failure impacts and damage.
- Coordinate with NCDOT to prioritize road and bridge improvement projects to improve the resilience of roadways and bridges in the inundation areas.
- Evaluate and implement bridge retrofitting and improvement projects to improve bridge resilience in the event of dam failure.

Mitigation Actions

To reduce vulnerability of the planning area to dam failure impacts, the following mitigation actions were added to the mitigation action plan:

- Ensure that residents living in buildings within the inundation area are aware of dam-failure hazards and encourage them to develop personal or household emergency plans to ensure timely evacuation in the event of dam failure.
- Ensure that any residents in the inundation area who require assistance evacuating are assisted in the event of a dam failure.
- Develop inundation modeling for any dams within the planning area that do not already have updated inundation data.
- Ensure that emergency action plans are developed and shared with emergency management and incorporated into other emergency management plans.

Cascading Impacts

In the context of high-hazard dams, cascading impacts refer to a chain reaction of different disasters. For example, a drought can cause vegetation loss, leading to additional stormwater runoff and erosion, which can result in dam overtopping and/or silting. Due to a lack of available data and software modeling capabilities, the probability of the other 12 hazards identified in this plan having a cascading impact leading to a dam failure was not quantitatively analyzed. Cascading impacts are briefly discussed in the list below for each hazard covered by this plan. The list indicates whether the planning committee and the relevant literature consider a hazard unlikely to have a significant cascading impact on dams.

Drought: a prolonged drought can weaken a dam's foundation or cause cracks, potentially leading to structural failure when water levels rise again.

Earthquake: earthquakes can weaken a dam’s structural integrity or trigger landslides in the reservoir, increasing the risk of dam failure.

Extreme Heat: prolonged extreme heat can exacerbate structural weaknesses in dam components, increasing the risk of dam failure. This may lead to downstream flooding and severe water-quality degradation, which can affect ecosystems and public health.

Hurricane/Tropical Storm: hurricane winds can cause significant structural damage or increase water inflow from heavy rainfall, raising the risk of dam failure.

Inland Flood: river flooding can increase water pressure on a dam, potentially causing overtopping or structural failure and creating a cascading impact.

Severe Weather: thunderstorm winds alone are unlikely to cause cascading impacts leading to dam failure, though associated heavy rain could increase the risk. Hail alone is unlikely to cause cascading impacts leading to dam failure, as it does not significantly affect water levels or structural integrity. Lightning strikes can disrupt dam monitoring systems and damage critical infrastructure, potentially impairing emergency response and increasing the risk of unmonitored or uncontrolled dam breaches.

Tornado: tornadoes could damage a dam's infrastructure or surrounding vegetation, but are less likely to trigger a cascading impact that would directly cause dam failure.

Wildfire: wildfires can remove vegetation, increasing runoff and erosion, which may contribute to dam overtopping or silting, leading to potential failure.

Winter Storm: rapid snowmelt can lead to increased runoff, potentially causing overtopping and dam failure. Ice buildup can block spillways or cause structural damage, increasing the likelihood of overtopping or dam failure.

APPENDIX H: COMPLETED MITIGATION ACTIONS

The following table contains mitigation actions that participating jurisdictions have completed since the last Sampson-Duplin Regional Hazard Mitigation Plan update (2020). Participating jurisdictions indicated that a mitigation action had been completed during the mitigation action planning step of the plan update process in the Fall of 2025. The completed mitigation action details are included in the table below, accompanied by implementation details (where provided by jurisdictions).

***Table H-1**: Mitigation Actions Completed Between 2020 and 2025*

Jurisdiction	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Status	Implementation Details
Sampson	Prevention	Continue to enforce NC state building codes for wind restrictions and ensure that mobile/ manufactured homes are installed and secured properly. (CRS 430)	Tornado, Hurricane/ Tropical Storm	High	Clinton-Sampson Planning Department Municipal Inspections Departments	General Fund	Low; Local Staff Time	Complete	--
Sampson	Property Protection	Expand the beaver management program to mitigate stream debris and property loss if funding is available. If funding is unavailable, alternative approaches will be developed to address stream/drainage clearance.	Inland Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	Medium	Sampson County Administration	General Fund, NCDEQ, HMGP	Low; Local Staff Time	Complete	--
Sampson	Emergency Services	Maintain a joint planning office with the City of Clinton to coordinate day-to-day implementation of land-use policies and regulatory ordinances. (CRS 320, 440)	All Hazards	High	Clinton and Sampson Planning Departments Sampson County Administration	General Fund	Low; Local Staff Time	Complete	The County and City of Clinton Planning Departments separated in July 2018.

Jurisdiction	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Status	Implementation Details
Sampson	Prevention	Revise/update regulatory floodplain maps (Statewide Floodplain Mapping Initiative) as required by the NFIP program. The County will assist all participating jurisdictions through the review process. (CRS 410)	Flooding, Dam Failures, Severe Weather, Hurricane/Tropical Storm	High	Clinton-Sampson Planning Department Municipal Administration	General Fund	Low	Complete	--
Sampson	Public Education	Work closely with real estate agents to ensure that prospective buyers are educated about development within a flood hazard area. The County will prepare materials for dissemination to local real estate agents to assist in this education process. (CRS 450)	Inland Flooding, Hurricane/Tropical Storm, Severe Weather	Medium	Clinton-Sampson Planning Department Municipal Administration	General Fund, NCDPS	Low	Complete	GIS mapping of flood plain areas completed.
Sampson	Prevention	Work in cooperation with Sampson County to provide one point of contact for zoning requirements.	All Hazards	Medium	Salemburg Administration Sampson County Administration	General Fund	Low; Local Staff Time	Complete	--
Duplin County	Property Protection	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) from future flooding events. The County will maintain a list of RLPs and, on an annual basis, apply for funding for	Inland Flooding, Hurricane/Tropical Storm, Tornado, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund, PDM, HMGP, SR	Medium: Local Staff Time	Complete	Properties have been acquired through the HMGP program for Hurricane Florence. Working on closeout for expedited and non-expedited grants. This action status will be updated as needed or during the next HMP update process.

Jurisdiction	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Status	Implementation Details
		all structures that meet FEMA-defined cost-benefit thresholds. The County will assist all municipal jurisdictions in working through the structural mitigation grant funding process. (CRS 330)							
Duplin County		Provide safety warning radio broadcasts, determining the approximate time and area where a tornado, Hurricane/Tropical Storm, or winter storm is likely to hit.	Severe Weather, Hurricane/Tropical Storm, Tornado, Winter Storm	High	Duplin County Emergency Services Municipal Administration	General Fund; UHMA	Medium	Complete	The NWS is sending messages via Wireless Emergency Alerts (WEA).
Duplin County		Revise Mobile Home Park and Subdivision Ordinances to prohibit development in the 100-year floodplain. (CRS 430)	Inland Flooding, Hurricane/Tropical Storm, Tornado, Severe Weather	Medium	Duplin County Administration	General Fund	Low: Local Staff Time	Complete	--
Duplin County		Work with NCDOT to improve ditches along NC 24 and NC 241. (Keith Eason, NCDOT)	Inland Flooding, Dam Failures, Severe Weather	High	Duplin County Administration Municipal Administration	General Fund	Medium: Local Staff Time	Complete	DOT has completed this project and moved on to other areas of the county, now targeting backroads and secondary roads.
Wallace	Prevention	Develop, implement, and update a Continuity of Operations Plan (COOP) or a similar plan. This plan should focus on establishing seamless operations following a disaster event.	All Hazards	High	Duplin County Emergency Services Municipal Administration	General Fund	Medium: Local Staff Time	Complete	The Town updated its Emergency Management Plan in June 2025. Will continue to maintain the emergency management plan as needed. This action will be updated as

Jurisdiction	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Status	Implementation Details
									needed or during the next HMP update process.
Wallace		Install generators at the WTP and WWTP to meet current plant demands during power outages.	Severe Weather, Hurricane/Tropical Storm, Tornado, Winter Storm	High	Wallace Administration	General Fund	Medium	Complete	A generator is installed at WWTP, and two new wells have generator backups.

APPENDIX I: MITIGATION ACTION IMPLEMENTATION AND MONITORING

Worksheet 8: Mitigation Action Implementation

This worksheet will help you identify all the components you need to successfully carry out your mitigation actions. You can do this by looking at previous worksheets that were used in the planning process.

Describing the Action	
Action description Be as specific as you can with what you want to accomplish. Include potential locations where applicable.	
Assessing the Risk	
Risk(s) addressed Describe how the action connects to the risk assessment.	
Implementing the Action	
Cost estimate This can be a rough number. You do not need a quote.	
Potential funding sources Example: FEMA Hazard Mitigation Grant Program (HMGP), local budget for match.	
Responsible party Who from the planning team is responsible for carrying out the action?	
Partner agencies (optional) Can any stakeholders help to carry out the action?	

Describing the Action	
Estimated timeline for completion Consider adding specific start and end dates, as applicable. **Short Term** For example, the period for hazard mitigation planning, capital improvements, or jurisdictions budget cycles. **Medium Term** For example, the period for structural projects, regulation, education and outreach, natural systems protections, or comprehensive plans. **Long Term** For example, the period for comprehensive plans, economic development plans, transportation plans or the lifetime of infrastructure assets.	
Prioritizing the Action (Use only one of the options below. Planning teams should decide which one to use and decide on criteria.)	
Qualitative: This option has you describe the costs, benefits, and how each action fits in with other (for example, high, medium, or low). **Quantitative:** Choose criteria to rank your hazard and assign them a rank (such as +1 or -1).	
Integrating and Aligning the Action	
Integration opportunity Could this action support other local plans or planning mechanisms? Refer to the Hazard Information Integration Worksheet to fill out this section.	

Describing the Action	
Integration status Has this action been worked into any other local plans or planning mechanisms? Refer to the Hazard Information Integration Worksheet to fill out this section.	
Aligning with the state plan Does the action align with any goals or objectives outlined in the state hazard mitigation plan?	

Worksheet 9: Action Monitoring Form

Use this form to help identify the status of each action in the plan. This can help you find out if you need other resources to complete it. Completed actions also give you a chance to celebrate the plan's success.

Table 1. Example of Action or Project Evaluation Matrix

Progress Report Period	
Describe the action or project.	
Who is responsible for the action?	
Project status:	☐ Complete ☐ In progress, anticipated completion date: _____ ☐ Not started ☐ Canceled
Has there been any progress with this project so far?	
Are there any obstacles or challenges with this action so far?	
What steps do you need to take to complete this project?	
Other comments:	