

Tar River Regional Hazard Mitigation Plan

Franklin County, Granville County, Vance County, Warren County

Prepared by:

Tar River Regional Hazard Mitigation Planning Committee

With Professional Planning Assistance from

AECOM

2026 Update

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SECTION 1: INTRODUCTION

Section 1 introduces the Tar River Regional Hazard Mitigation Plan (RHMP). 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 Tar River 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 Regional Hazard Mitigation Plan for Franklin, Granville, Vance, and Warren Counties in North Carolina.

The jurisdictions participating in this Plan are the Unincorporated Areas of Franklin County; the Town of Bunn; the Town of Franklinton; the Town of Louisburg; the Town of Youngsville; the Unincorporated Areas of Granville County; the Town of Butner; the City of Creedmoor; the City of Oxford; the Town of Stem; the Town of Stovall; the Unincorporated Areas of Vance County; the City of Henderson; the Town of Kittrell; the Town of Middleburg; the Unincorporated Areas of Warren County; the Town of Macon; the Town of Norlina; and the Town of Warrenton.

Table 1-1: Jurisdictions Participating in the Tar River Regional Hazard Mitigation Plan (Update)

Franklin County	Granville County	Vance County	Warren County
Town of Bunn	Town of Butner	City of Henderson	Town of Macon
Town of Franklinton	City of Creedmoor	Town of Kittrell	Town of Norlina
Town of Louisburg	City of Oxford	Town of Middleburg	Town of Warrenton
Town of Youngsville	Town of Stem	--	--
--	Town of Stovall	--	--

1.4. Authority

Franklin, Granville, Vance, and Warren 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 (NFIA) 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 House Bill 251: An Act to Make Various Reforms Related to Disaster Response and Recovery (2025).
- Also utilized the Local Mitigation Planning Handbook, June 2025. The Handbook was used together with the Local Mitigation Plan Review Guide, June 2025. The handbook offers practical approaches and examples for how communities can engage in effective planning to reduce long-term risk from natural hazards and disasters.

1.5. Organization of the Plan

The Tar River 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
- Appendix A – Acronyms
- Appendix B – Participation and Meetings
- Appendix C – Public Survey Results
- Appendix D – Critical Facilities
- Appendix E – NFIP Information
- Appendix F – Adoption Resolutions
- Appendix G – HHPD Report(s)
- Appendix H – Completed Mitigation Actions
- Appendix I – Mitigation Action Implementation and Monitoring
- Appendix J – Local Mitigation Plan Review Tool

SECTION 2: PLANNING PROCESS

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

- 2.1 Overview of Hazard Mitigation Planning
- 2.2 History of Hazard Mitigation Planning in the Tar River 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 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 Tar River Region

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

- Franklin County
  - Bunn
  - Franklinton
  - Louisburg
  - Youngsville
- Granville County
  - Butner
  - Creedmoor
  - Oxford
  - Stem
  - Stovall
- Vance County
  - Henderson
  - Kittrell
  - Middleburg
- Warren County
  - Macon
  - Norlina
  - Warrenton

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 Franklin, Granville, Vance, and Warren 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 (June 2025)[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 plan.

The process used to prepare this Plan included 12 major steps completed over about eight months, beginning in August 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] *FEMA Publication Series 386: Tools for Successful Mitigation*. (2002). FEMA. https://emilms.fema.gov/is_0552/groups/110.html
[2] *Local Mitigation Plan Review Guide*. (2011). FEMA. https://www.fema.gov/sites/default/files/2020-06/fema-local-mitigation-plan-review-guide_09_30_2011.pdf
[3] Title 44 Code of Federal Regulations Part 201—Hazard Mitigation Planning, Code of Federal Regulations § 201 (2024). https://www.ecfr.gov/current/title-44/part-201

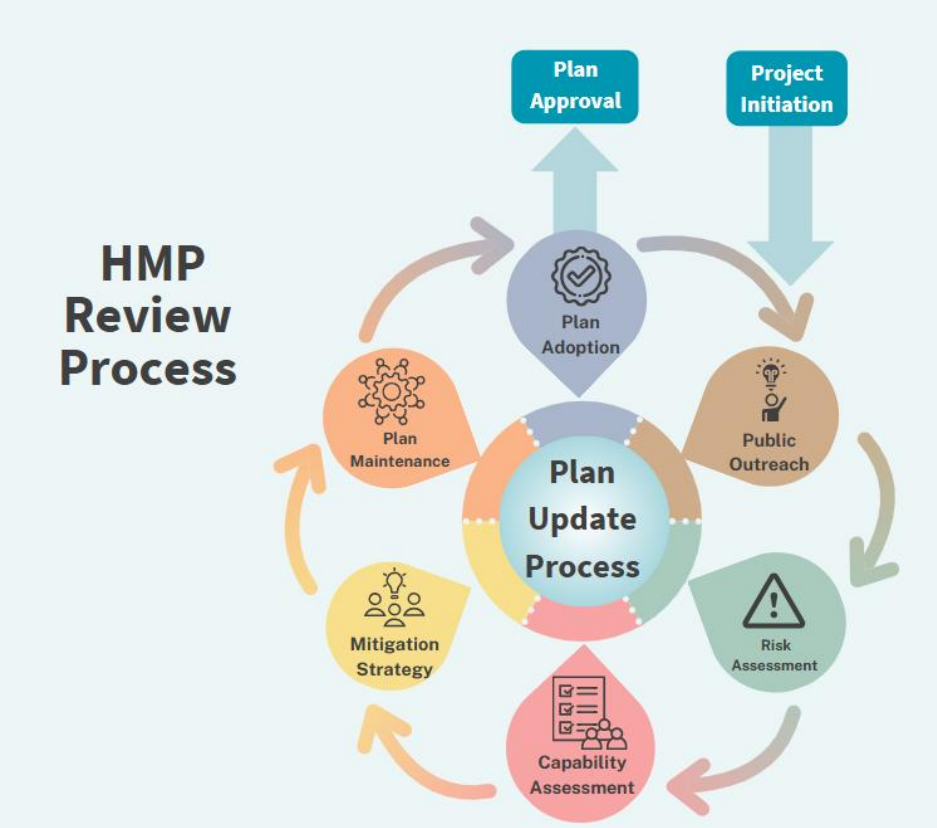


Figure 2-1: Mitigation Planning Process

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*.

As detailed below, the planning process was conducted through Hazard Mitigation Planning Committee (HMPC) meetings, which included 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 to contribute to the plan update by attending scheduled meetings and were involved in the planning process by actively participating in the plan's development. For individuals who preferred one-on-one communication, the representative of the participating jurisdictions provided input and edits to the plan content.

Table 2-1: Tar River Hazard Mitigation Planning Participation Details **indicates jurisdiction that were represented at meetings (proxy) by the county*

Jurisdiction	Meeting Attendance	Capability Assessment Update Changes	Mitigation Actions Update Changes
Franklin County	**Yes**	**Yes**	**Yes**
Bunn*	Yes	No	Yes
Franklinton*	Yes	Yes	Yes
Louisburg	Yes	No	Yes
Youngsville	Yes	Yes	Yes
Granville County	**Yes**	**Yes**	**Yes**
Butner	Yes	Yes	Yes
Creedmoor	Yes	Yes	Yes
Oxford	Yes	Yes	Yes
Stem	Yes	Yes	Yes
Stovall	Yes	Yes	Yes
Vance County	**Yes**	**Yes**	**Yes**
Henderson	Yes	Yes	Yes
Kittrell*	Yes	No	Yes
Middleburg*	Yes	No	Yes
Warren County	**Yes**	**Yes**	**Yes**
Macon	Yes	Yes	Yes
Norlina	Yes	No	Yes
Warrenton	Yes	Yes	Yes

2.4. Hazard Mitigation Planning Committee

To guide the development of this Plan, Franklin, Granville, Vance, and Warren Counties, along with their jurisdictions, created the 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 August 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 Hazard Mitigation Planning Committee with County Leads Indicated in Bold. *[+] indicates County Leads acting as proxy for jurisdictions unable to participate in meetings *indicates jurisdiction that were represented at meetings (proxy) by the county*

Tar River Regional Hazard Mitigation Planning Committee		
Name	**Title**	**Jurisdiction/Agency**
Nicholas Thorpe[+]	**Emergency Management Director**	**Franklin County**
Janet Snotherly	Emergency Management Specialist – Planning	Franklin County
Jason Rogers	Planning & Inspections Director	Franklin County
Spencer Pernell	Solid Waste Director	Franklin County
Quinton Cooper	District Director of Soil and Water Department	Franklin County
James Hicks	Public Information Officer	Franklin County
Chris Doherty	Director of Public Utilities	Franklin County
Michelle Bryant*	Records Clerk	Bunn
Zachary Steffey*	Town Manager	Franklinton
Sean Medlin	Town Administrator	Louisburg
Will Doerfer	Town Manager	Youngsville
Robin Edwards	**Emergency Management Coordinator**	**Granville County**
Carlton Thornton	**Assistant Planning Director**	**Granville County**
Barry Baker	Planning Director/Floodplain Administrator	Granville County

Tar River Regional Hazard Mitigation Planning Committee		
Jason Reavis	Emergency Management Coordinator	Granville County
Jennifer Ganser, AICP, CZO	Planning Director	Butner
Katie Rhyne, CZO	Senior Planner	Butner
Michael Fargos	Community Development Director	Creedmoor
Dallas Baker	Planner	Creedmoor
Cheryl Hart	Planning Director	Oxford
Tyrelle Evans	Planner	Oxford
Casey Dover	Mayor	Stem
Roman Acosta	Planner	Stem
Tim Karan	Town Administrator	Stem
Jeff Stovall	Mayor Pro Tem	Stovall
Janet Parrott	Administrator	Stovall
Willie Kearney+	**Emergency Manager**	**Vance County**
Marvin Harrison	Fire Chief	Vance County
Timothy Twisdale	Fire Chief	Henderson
Joel Bartholomew	Deputy Fire Chief	Henderson
Amy Colbert	Senior Administrative Support Specialist	Henderson
David Woodlief*	Fire Chief	Kittrell
Tony Dement Jr.*	Fire Chief, Kitrell Fire Department	Kittrell
Ray Bullock*	Mayor	Middleburg
Christopher Tucker	**Emergency Management Coordinator**	**Warren County**
Ken Krulik	**Emergency Services Director**	**Warren County**
Karen Solomon	Senior Administrative Assistant	Warren County
Mark Bloomer	Planning and Zoning Director	Warren County
Katherine Hilliard	Mayor	Macon
Blaine Reese	Director of Operations	Norlina
Mark Perskinson	Public Works Director	Norlina
Tyrone Simes	Zoning Commissioner	Norlina
Wayne Aycock	Mayor	Norlina

Tar River Regional Hazard Mitigation Planning Committee		
Walter Gardner Jr.	Mayor	Warrenton
Robert Davie	Town Administrator	Warrenton
Jason Young	Zoning Commissioner	Warrenton

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 (indicated with a +), 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 Franklin, Granville, Vance, and Warren Counties, along with their 15 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 monitoring and regularly updating the Plan.

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 Tar River planning area can be reviewed in Figure 2-1. Please see Appendix B for sign-in sheets and flyers for meetings and workshops throughout the planning process.

2.5.1. Pre-Kickoff Meeting (August 28th, 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 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 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 (September 25th, 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 – 22%

  - Strong winds – 33%
  - Other – 44%

- Which populations or areas in your county/jurisdiction are more at-risk disasters?
  - “Low-income housing/homeless”
  - “Senior citizens and individuals in a low economic status”
  - “Whole county”
  - “Along streams in all parts of the county”
  - “Rural farmers”
  - “Seniors, children, those without transportation”

- Have you worked with any nearby counties or cities on mitigation projects before?
  - Yes – 33%
  - No – 66%

- How will you engage vulnerable populations in your planning process?
  - “Social media/public events”
  - “Surveys and community meetings”
  - “Planning meetings”
  - “Through non-profit organizations that specialize in understanding the needs of vulnerable populations to include public town hall meetings”
  - “Communications”

- Have you had success applying for FEMA or state mitigations grants?
  - Yes – 25%
  - No – 75%

- What will help you stay engaged and active in this regional effort?
  - “Consistent communication”
  - “Communication and showing a path forward on how to mitigation these issues”
  - “Having regional meetings”
  - “E-mail reminders”
  - “Being part of the process”
  - “Feedback and consistent communications on the information we provide in supporting the planning process
  - “This meeting and future meetings”

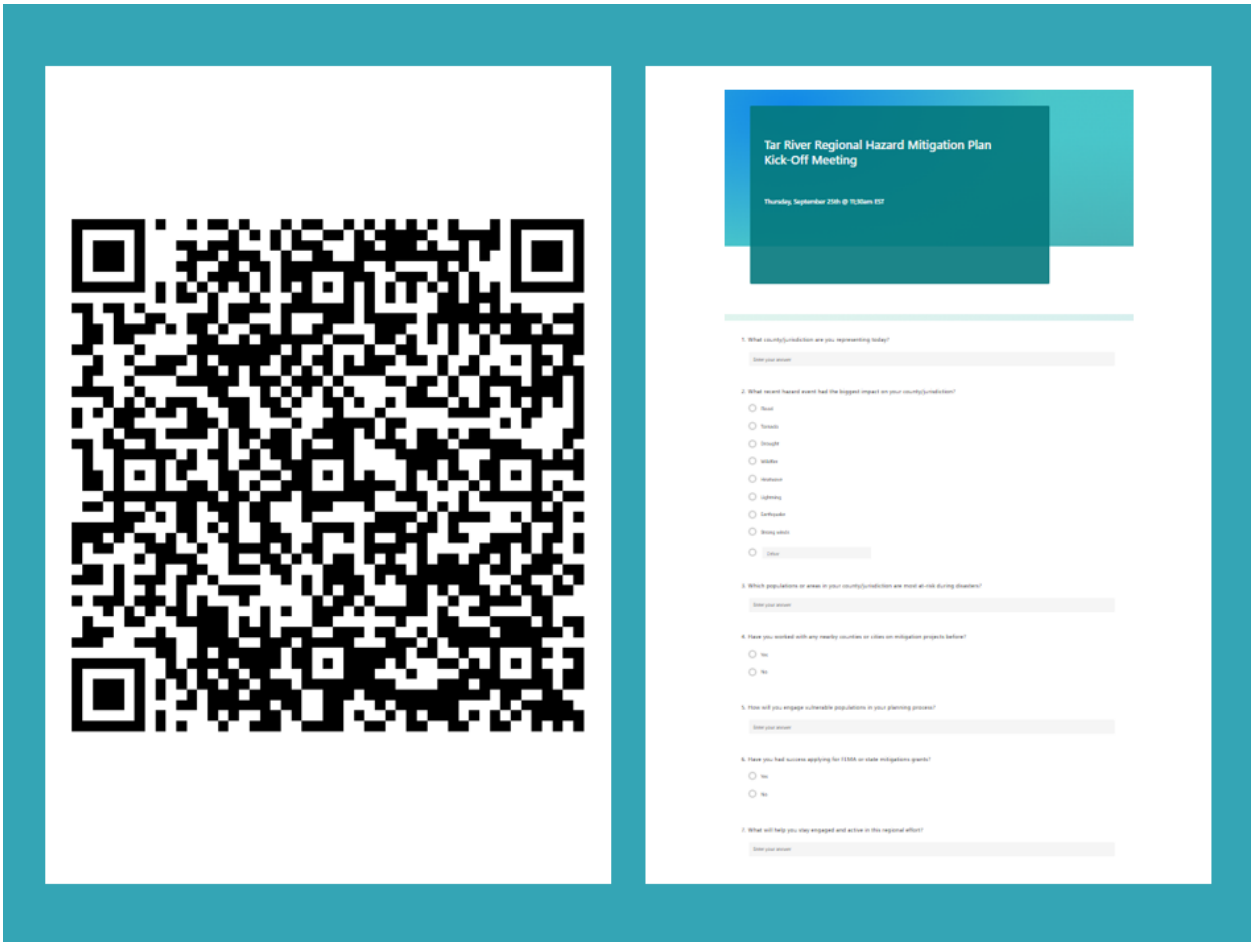


Figure 2-2: Tar River Regional Hazard Mitigation Plan Kick-off Survey and QR Code

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. A list of jurisdictions participating in the planning process was presented to confirm its accuracy and to ensure it does not omit any newly incorporated or unincorporated cities or towns.

Next, the minimum criteria for the planning process were presented, including risk assessment, maintenance of the mitigation strategy plan, adoption, and review by the state and federal governments. This included specific tasks for the project, the planning process, risk and capability assessments, the mitigation strategy, the mitigation action plan, and plan maintenance procedures. The plan update process was outlined, including the initial assessments, planning phase, plan development phase, and plan finalization.

The hazards identified in the previous plan were presented, and attendees were given an opportunity to comment on the hazards included in the previous update and to suggest new natural hazards to include. The previous hazards included dam failure, drought, earthquake, extreme heat, hurricane/tropical storm, flooding, severe weather, thunderstorm wind, lightning, hail, tornado, wildfire, and winter storms.

Attendees were introduced to the capabilities assessment portion of the plan update, which covered planning, regulatory, administrative, technical, financial, educational, outreach, mitigation, and political capabilities. This included a walk-through of the capabilities assessment form, information on how to access it, and the due date of October 16th, 2025.

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. Ms. Keefe stated that the next Regional Hazard Mitigation Planning Committee meeting would be scheduled for October 23rd, 2025, to discuss the findings of the risk and capability assessments, which are due on October 16th, to begin proposing mitigation actions.

2.5.3. HMPC Capabilities Assessment Meeting (October 23rd, 2025)

The risk assessment meeting on October 23rd, 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. An introduction to the AECOM planning team was then provided, followed by a brief overview of the purpose of the meetings. The participating jurisdictions were listed aloud so attendance could be taken, and the presenters knew which jurisdictions could be used in demonstrating mitigation actions. Next, the most recent participation table was shown so attendees could indicate which items were still missing and which jurisdictions had or had not attended meetings so far. The attendees were reminded that capabilities assessments were due on October 16th, 2025, and that any missing assessments should be submitted as soon as possible.

Next, the AECOM team demonstrated how to access, update, and add new mitigation actions to the plan. This included a demonstration of Excel, explaining which categories need to be updated and how to access definitions for reference while completing the updates. Attendees were given links to access the mitigation actions via the meeting chat and were reminded that the mitigation action spreadsheet would be emailed to the HMPC after the meeting.

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 plan to invite to public meetings and to participate in the planning process.

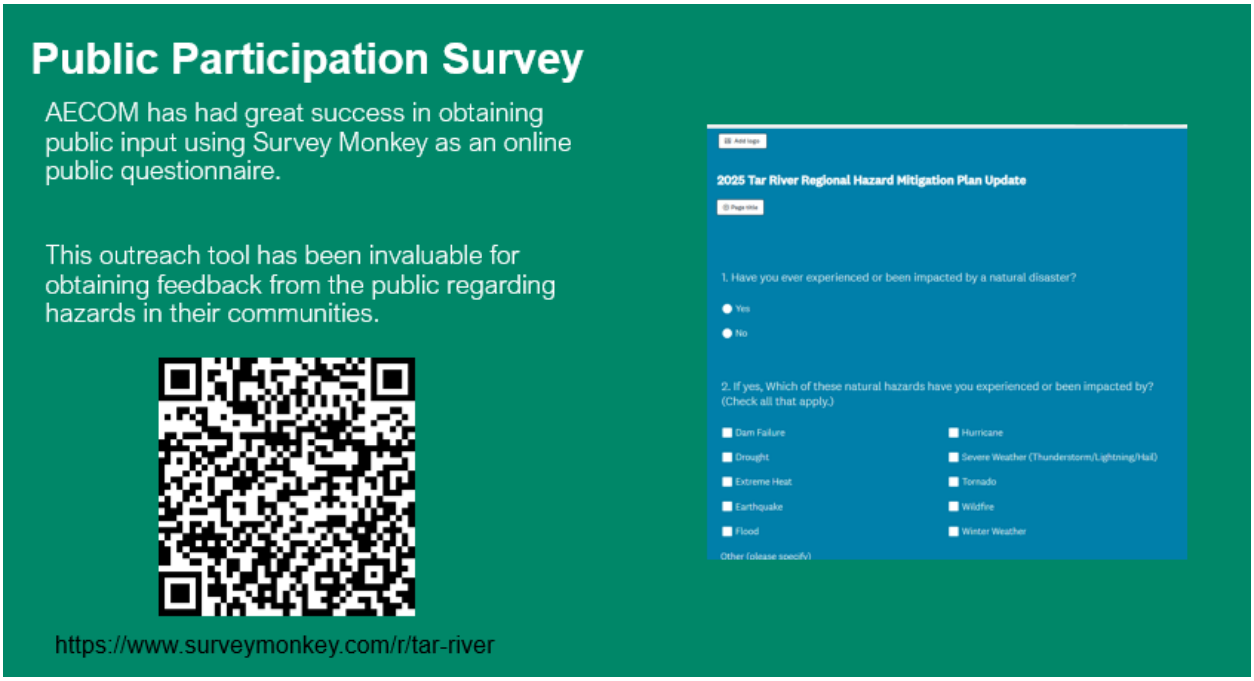


Figure 2-3: Public Participation Survey distributed for the Planning Area

Attendees were asked to provide critical facilities information, repetitive loss property data, dam information, floodplain administration information, hazard history, and photos or documentation of hazard damage and mitigation projects.

The next meeting date was given to attendees: November 20th, 2025, for the mitigation action strategy meeting. The HMPC draft meeting and public meeting dates were also provided as a reminder, tentatively set for early 2026. Since the capabilities assessment deadline had passed, jurisdictions that had not yet submitted their assessments were asked to do so as soon as possible. The due date for the mitigation action updates was set for November 20th, 2025, so the planning team could review the updates and answer questions at the next meeting. However, due to scheduling conflicts, the Mitigation Action Strategy Meeting was rescheduled for December 18th, 2025.

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

The risk assessment meeting 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.

The summary of capabilities assessment and mitigation actions received was presented. The due date for the mitigation actions was set for December 18th, 2026, but due to the number of outstanding mitigation actions, the AECOM team asked anyone with outstanding mitigation action updates to complete them as soon as possible.

Next, the hazard risk summary was presented, which included major hazards identified, vulnerable geographic areas, historical data and impacts, and mitigation prioritizations. The mitigation goals from the previous plan update were presented to get feedback from the HMPC, which include the following:

1. Reduce the risk of loss of life and personal injury from natural hazards.
2. Reduce the risk and impact of future natural disasters by regulating development in known high-hazard areas and enhancing existing or creating new policies and ordinances that will help reduce the damaging effects of natural hazards and prevent vulnerability from increasing.
3. Pursue funds to reduce the risk of natural hazards to existing developments where such hazards are clearly identified, and the mitigation efforts are cost-effective.
4. Ensure that hazard mitigation is considered when redevelopment occurs after a natural disaster and expedite post-disaster reconstruction.
5. Protect the public health, safety, and welfare by increasing public awareness of hazards, providing education on protection from hazards, and encouraging collective and individual responsibility for mitigating hazard risks.
6. Protect the fragile natural and scenic areas of the region, particularly those areas that protect drinking water supplies.
7. Protect the most vulnerable populations, buildings, infrastructure, and critical facilities through the implementation of cost-effective and technically feasible mitigation actions.
8. Enhance emergency response during times of disaster.
9. Improve technical capability to respond to hazards and to improve the effectiveness of hazard mitigation actions.

The AECOM team demonstrated how to access the mitigation actions again for anyone on the call who had not completed the mitigation actions updates required for the HMP update process. This included sending links to access the spreadsheet, going over the mitigation action prioritization categories, and navigating the mitigation actions Excel spreadsheet. The AECOM team then 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:

In the planning area, 0.9% households in Franklin County, 1.4% households in Granville County, 1.4% households in Vance County, and 1.4% households in Warren County do not have telephone service.

- Households without reliable telephone service may miss emergency alerts and warnings, including evacuation orders and emergency advisories. Additionally, residents without telephone service may have trouble contacting emergency services, community support, or family during a natural hazard emergency.
- In areas with limited cellular coverage, residents may be unable to receive emergency alerts in a timely manner or to contact emergency services during natural hazards.

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.

The status of National Flood Insurance Program (NFIP) information forms was presented, and jurisdictions that had not yet provided NFIP participation information were asked to complete the form as soon as possible so the draft could be assembled. 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 submit capability assessments and mitigation action updates as soon as possible and to note the tentative date for the draft plan meeting, expected to be scheduled for early 2026.

2.5.5. HMPC Draft Review Meeting and Public Draft Review Meeting (February 19th, 2026)

This meeting was held virtually to show attendees how to provide input and access the draft Tar River Regional Hazard Mitigation Plan. All attendees were asked to sign in and provide their name and the jurisdiction that they represent. During this time, Franklin County served as a proxy for the Towns of Bunn and Franklinton. Next, the participation status of each jurisdiction in the planning area was reviewed, including the status of the capabilities assessment and mitigation actions. 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 Tar River Regional Hazard Mitigation Plan were reviewed along with the hazards addressed in preparation for distributing the draft. Next, a few map examples were shown to highlight the plan's map layouts. The attendees were notified that the link for the draft Plan, 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. 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.

Attendees were asked to provide comments by March 5, 2026, to allow time to incorporate them into the final draft. The HMPC was asked to provide proof that the public had an opportunity to comment on the Tar River Draft HMP by March 19, 2026, so that it could be incorporated into the next draft. Attendees were informed of the next steps in the planning process, including submitting the plan for FEMA review and securing jurisdictional adoption of the HMP.

2.6. Involving the Public

Public participation was a vital component of the mitigation planning process. 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 to make 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 October 23rd, 2025, to the HMPC meeting until February 9th, 2026. There were 50 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?**
   a) **Yes:** 88%
   b) **No:** 12%

2) **If yes, which of these natural hazards have you experienced or been impacted by? (Check all that apply)**
   a) **Dam Failure:** 0%
   b) **Drought:** 37.21%
   c) **Extreme Heat:** 46.51%
   d) **Earthquake:** 4.65%
   e) **Flood:** 37.21%
   f) **Hurricane:** 79.07%
   g) **Severe Weather (Thunderstorm/Lightning/Wind):** 79.07%
   h) **Tornado:** 48.84%
   i) **Wildfire:** 18.6%
   j) **Winter Weather**: 69.77%

3) **How concerned are you about the possibility of your community being impacted by each of these natural hazards?:** Majority of participants responded with the following level of concern (Check the corresponding circle for each natural hazard.)
   a) **Dam Failure:** Not Concerned (67.35%)
   b) **Drought:** Somewhat Concerned (52.08%)
   c) **Extreme Heat:** Somewhat Concerned (53.06%)
   d) **Earthquake:** Not Concerned (64.58%)

e) **Flood:** Somewhat Concerned (53.06%)
f) **Hurricane:** Somewhat Concerned (51.02%)
g) **Severe Weather (Thunderstorm/Light/Wind):** Very Concerned (56%)
h) **Tornado:** Very Concerned (48.98%)
i) **Wildfire:** Somewhat Concerned (52.08%)
j) **Winter Weather:** Somewhat Concerned (53.06%)
k) **Other**
    i) *"Ice storm"*
    ii) *"Extreme cold"*
    iii) *"Note: the slightest tremors from an earthquake, no damage. Flash flooding of low-lying streets"*

4) Community assets are features, characteristics, or resources that either make a community unique or allow the community to function. In your opinion, which of the following categories are most at risk of the impacts caused by natural hazards within the county? (Please rank the community assets in order of vulnerability, 1 being most at risk and 6 least at risk.)

Table 2-3: Responses to Question 4 of the Public Survey

Category	1	2	3	4	5	6
Cultural/ Historic: Damage or loss of libraries, museums, historic properties, etc.	2.04%	4.08%	2.04%	8.16%	16.33%	67.35%
Economic: Business interruptions/ closures, job losses, etc.	8.16%	32.65%	20.41%	24.49%	14.29%	0%
Environmental: Damage, contamination, or loss of forests, wetlands, waterways, etc.	10.2%	22.45%	18.37%	16.33%	28.57%	4.08%
Governance: Ability to maintain order and/or provide public amenities and services	14.29%	10.2%	14.29%	18.37%	24.49%	18.37%
Infrastructure: Damage/loss of roads, bridges, utilities, schools, etc.	22.45%	24.49%	22.45%	12.24%	14.29%	4.08%

Category	1	2	3	4	5	6
People: Loss of life and/or injuries	42.86%	6.12%	22.45%	20.41%	2.04%	6.12%

5) **How important are the following community assets to you?: (majority of respondents reported this level of concern)**
   a) **Airports:** Somewhat Important (27.08%)
   b) **Colleges and universities:** Very Important (32.61%) & Somewhat Important (32.61%)
   c) **Day Care and Elder Care Facilities:** Very Important (54.17%)
   d) **Emergency Operations Centers:** Very Important (84%)
   e) **Emergency Shelters:** Very Important (69.39%)
   f) **Fire, Police, and Emergency Medical Services (EMS) Stations:** Very Important (90%)
   g) **Historic Buildings:** Neutral (36.73%) & Somewhat Important (36.73%)
   h) **Hospitals and Medical Facilities:** Very Important (93.88%)
   i) **Local Businesses:** Somewhat Important (51.02%)
   j) **Major Roads and Bridges:** Very Important (76%)
   k) **Parks and Recreation:** Somewhat Important (38.78%)
   l) **Schools (K-12):** Very Important (59.18%)
   m) **Town Hall/Courthouse:** Somewhat Important (42.86%)

6) **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: (majority of respondents reported this level of concern)**
   a) **Protecting Private Property:** Very Important (65.96%)
   b) **Protecting Critical Facilities:** Very Important (92%)
   c) **Preventing Development in Hazard Areas:** Very Important (62%)
   d) **Enhancing the Function of Natural Features:** Very Important (46.94%)
   e) **Protecting Historical and Cultural Landmarks:** Somewhat Important (48%)
   f) **Protecting and Reducing Damage to Utilities:** Very Important (78%)
   g) **Strengthening Emergency Services:** Very Important (76%)
   h) **Promoting Cooperation Among Public Agencies, Citizens, Non-profit organizations, and Businesses:** Very Important (52%)

7) **What are some steps that you and/or your local government could take to reduce or eliminate the risk of future natural hazard damage in your neighborhood? Check all that apply:**
   a) **Assist Vulnerable Populations:** 67.35%
   b) **Education and Awareness Activities:** 53.06%
   c) **Elevate your Home or Business:** 18.37%
   d) **Emergency Preparedness Kits:** 63.27%
   e) **Floodproof your Home or Business:** 18.37%
   f) **Keep Storm Drains Clean:** 71.43%
   g) **Protect Power Lines:** 73.43%

h) **Reduce Stormwater Runoff:** 57.14%
i) **Restrict Development in Floodplain Areas:** 79.59%
j) **Other:** 12.24%
   i) *"More emergency shelters available for everyone"*
   ii) *"Stop Development – preserve the natural surroundings"*
   iii) *"County ordinances to preserve natural environmental protections in high-risk areas (instead of over-developing and putting low-quality replacements in, which will ultimately result in lost buildings and economic turmoil). Duke Energy should be responsible for power line maintenance."*
   iv) *"Southern Granville has a lot of rock and pretty non-existent mitigation for storm water. We need to get better at dealing with intense rain."*
   v) *"Clean log jams from streams and rivers"*
   vi) *"Stop over building in this area"*

8) What are the most effective ways for you to receive information about how to make your home and neighborhood more resistant to natural hazards? (Check all that apply):

a) **Local Government Channel:** 16%
b) **Internet (Social Media):** 86%
c) **Internet (Web Pages):** 60%
d) **Mail:** 34%
e) **Mobile Messages/Alerts:** 62%
f) **Newspaper:** 18%
l) **Other:** 4%
g) **Public Meetings/Workshops:** 36%
h) **Radio Programs:** 8%
i) **Radio Ads:** 16%
j) **Television News:** 26%
k) **Television Ads:** 18%

9) Is your home located in a floodplain?

a) **Yes:** 4%
b) **No:** 86%
c) **I Don't Know:** 12%

10) Do you have flood insurance?

a) **Yes:** 4%
b) **No:** 90%
c) **I Don't Know:** 6%

11) If you answered "no" to the previous question, why not?

a) **The house is not located in a floodplain**: 72.92%
b) **Flood insurance is too expensive:** 0%
c) **I don't think it's necessary because it never floods**: 8.33%
d) **I don't think it's necessary because I'm elevated or otherwise protected:** 8.33%
e) **I don't think it's necessary because I have homeowners' insurance:** 0%
f) **I've never really considered it**: 6.25%
g) **Other (please specify)**: 4.17%
   i) *"Not in a floodplain, no water sources nearby"*

12) In the following list, please check the activities that you have done in your household, plan to do in the near future, have not done, or are unable to do. (Please check one response for each preparedness activity.)

Table 2-4: Responses to Question 12 of the Public Survey

Activity Type	Have Done	Plan To Do	Not Done	Unable To Do
Attended meetings or received written information on natural disasters or emergency preparedness?	66%	6%	28%	0%
Talked with members in your household about what to do in case of a natural disaster or emergency?	82%	0%	16%	2%
Developed a "Household/Family Emergency Plan" to decide what everyone would do in the event of a disaster?	54%	20%	26%	0%
Prepared a "Disaster Supply Kit" (stored extra food, water, batteries or other emergency supplies)?	56%	20%	24%	0%
In the last year, has anyone in your household been trained in First Aid or Cardio-Pulmonary Resuscitation (CPR)?	65.31%	0%	32.65%	2.04%
Prepared your home by installing smoke detectors on each level of the house?	92%	6%	2%	0%
Discussed or created a utility shutoff procedure in the event of a natural disaster?	34%	14%	50%	2%

13) In which community do you live?

Table 2-5: Responses to Question 13 of the Public Survey

Community	Percentage of Respondents
Franklin County	
Bunn	0%
Centerville	0%

Community	Percentage of Respondents
Franklin	10%
Louisburg	0%
Youngsville	10%
Unincorporated	80%
Granville County	
Butner	14.29%
Creedmoor	17.86%
Oxford	39.29%
Stem	7.14%
Stovall	0%
Unincorporated	21.43%
Vance County	
Henderson	66.67%
Kittrell	0%
Middleburg	33.33%
Unincorporated	0%
Warren County	
Macon	0%
Norlina	0%
Warrenton	0%
Unincorporated	100%

14) How long have you lived in the Tar River Region?

a) **Less than one year:** 4.08%
b) **1-5 Years:** 8.16%
c) **6-9 Years:** 8.16%
d) **10-19 Years:** 6.12%
e) **20 Years or More:** 73.47%

15) What type of building do you live in?

a) **Single Family Home:** 88%
b) **Duplex:** 4%
c) **Apartment (3-4 Units in Structure):** 0%
d) **Apartment (5 or more units in structure):** 0%
e) **Condominium:** 0%
f) **Manufactured Home:** 6%
g) **Other:** 2%

2.7. Involving the Stakeholders

At the beginning of the planning process for the Tar River 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.[4] 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 Person, Durham, Wake, Nash, Halifax, and Northampton.

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

[4] *National Response Framework (Fourth Edition)*. (2019). FEMA. https://www.fema.gov/sites/default/files/documents/NRF_FINALApproved_2011028.pdf

Table 2-6: Example list of stakeholders invited to participate in the Hazard Mitigation Planning Process. When the email addresses of specific individuals were unavailable, general information emails were used; these are indicated below when no name is provided.

Name	Stakeholder Group	Organization	Title	County, Jurisdiction, or Affiliation
Tony Lowery	Public Works	Town of Bunn Public Works	Public Works Supervisor	Franklin County
Cindy H. Jones	Health and Human Services	Franklin County Department of Aging Services	Aging Services Director	Franklin County
Alyssa Blair Zimmerman	Economic Development	Franklin County Department of Economic Development	Economic Development Specialist	Franklin County
Ricky May	Environmental Preservation	Franklin County Soil & Water Conservation	Chairman	Franklin County
Charles Mitchell	Community Organization	Franklin County Cooperative Extension	Extension Director	Franklin County
Scott LaVigine	Health and Human Services	Franklin County Health Department	Health Director	Franklin County
Emily Lockamy-Gilarranz	Parks and Recreation	Franklin County Parks and Recreation	Interim Parks & Recreation Director	Franklin County
Jason Rogers	Planning/Inspections	Franklin County Planning and Inspections	Planning & Inspections Director	Franklin County
Chris Doherty	Public works	Franklin County Public Utilities	Director	Franklin County
Franklin County Department of Social Services	Social Services	Franklin County Department of Social Services	-	Franklin County
Quinton Cooper	Public works	Franklin County Soil & Water Department	District Director	Franklin County
James Wilkins	GIS department	Franklin County Department of GIS, Mapping, & Land Records	GIS Coordinator	Franklin County
Brenda Wilkins	Health and Human Services	Franklin County Department of Veterans Services	Veterans Services Director	Franklin County
NC Safe Space	Nonprofit	NC Safe Space	-	Franklin County

Name	Stakeholder Group	Organization	Title	County, Jurisdiction, or Affiliation
Karen Wilson	Nonprofit	Care and Share of Franklin County	Pantry Manager	Franklin County
Angie Rizzo	Nonprofit	Franklin County Coalition	Volunteer Engagement Coordinator	Franklin County
Chris George	Planning/Inspections	Town of Franklinton Planning and Zoning	Town Planner & Code Enforcement	Franklin County
Destiny Russell	Parks and Recreation	Town of Franklinton Parks & Recreation	Parks & Recreation Director	Franklin County
Brad Kearney	Public works	Town of Franklinton Public Works	Public Works Director	Franklin County
Louisburg College	Colleges/Universities	Louisburg College	-	Franklin County
Paws for Life NC	Nonprofit	Paws for Life NC	-	Franklin County
SPCA of Franklin County	Nonprofit	SPCA of Franklin County	-	Franklin County
Town of Butner Planning Department	Planning/Inspections	Town of Butner Planning Department	-	Granville County
City of Creedmoor Code Enforcement	Planning/Inspections	City of Creedmoor Code Enforcement	-	Granville County
City of Creedmoor Community Development Office	Community Development Departments	City of Creedmoor Community Development Office	-	Granville County
City of Creedmoor Parks and Recreation	Parks and Recreation	City of Creedmoor Parks and Recreation	-	Granville County
City of Creedmoor Public Works	Public works	City of Creedmoor Public Works	-	Granville County

Name	Stakeholder Group	Organization	Title	County, Jurisdiction, or Affiliation
Scott Phillips	Planning/Inspections	Granville County Building Code Enforcement Department	Development Services Director	Granville County
Selena McKoy	Community Organization	Granville County Cooperative Extension	County Extension Director	Granville County
Charla Duncan	Economic Development	Granville County Economic Development	Economic Development Director	Granville County
Sandy Woody	GIS department	Granville County GIS Department	Addressing Coordinator	Granville County
Will Robinson	Community Organization	Granville County Libraries	Library Director	Granville County
Raymond Allen	Parks and Recreation	Granville County Parks and Grounds	Parks & Grounds Supervisor	Granville County
Barry Baker	Planning/Inspections	Granville County Planning & Zoning	Planning Director	Granville County
Kathy May	Health and Human Services	Granville County Senior Services	Senior Services Director	Granville County
Vanness Taylor	Social Services	Granville County Social Services	Interim Social Services Director	Granville County
Albert Spiess	Health and Human Services	Granville County Veteran Services	Veteran Services Officer	Granville County
Granville County Historical Society and Museum	Historic Preservation Groups	Granville County Historical Society and Museum	-	Granville County
Granville County Chamber of Commerce	Chambers of Commerce	Granville County Chamber of Commerce	-	Granville County
Ann Riley	Nonprofit	Area Congregations in Ministry (AICM)	Executive Director	Granville County
Town of Stem Planning, Zoning, and Watershed	Planning/Inspections	Town of Stem Planning, Zoning, and Watershed	-	Granville County

Name	Stakeholder Group	Organization	Title	County, Jurisdiction, or Affiliation
Piedmont Electric Cooperative	Private Utilities	Piedmont Electric Cooperative	-	Granville County
Earvin Doyle	Planning/Inspections	City of Henderson Code Compliance Department	Code Compliance Inspector	Vance County
Tracy Madigan	Community Development Departments	City of Henderson Downtown Development	Manager of Downtown Development	Vance County
Lee Owen	Public works	City of Henderson Public Works Department	Public Works Director	Vance County
Kendrick Vann	Parks and Recreation	City of Henderson Recreation and Parks Department	Director of Recreation and Parks	Vance County
Ferdinand Rouse	Economic Development	Henderson-Vance County Economic Development Commission	Director	Vance County
Vaya Health	Health and Human Services	Vaya Health	-	Vance County
Sherry Moss	Planning/Inspections	Vance County Planning and Inspections Department	Planning and Development Director	Vance County
Bob Rosch	Planning/Inspections	Vance County Planning and Inspections Department	Chief Building Code Enforcement Officer	Vance County
Vance County Department of Social Services	Social Services	Vance County Department of Social Services	-	Vance County
United Way of Vance County	Nonprofit	United Way of Vance County	-	Vance County
Mark Perkinson	Public works	Town of Norlina Public Works	Public Works Director	Warren County
Sarah Walker	Nonprofit	Loaves & Fishes Ministries	Pantry Manager	Warren County
Tanika T. Alston	Community Organization	Warren County Libraries	Warren County Library Director	Warren County
Warren County Senior Center	Health and Human Services	Warren County Senior Center	-	Warren County

Name	Stakeholder Group	Organization	Title	County, Jurisdiction, or Affiliation
Warren County Department of Social Services	Social Services	Warren County Department of Social Services	-	Warren County
Rose Ponton	Economic Development	Warren County Community & Economic Development	Community Development Manager	Warren County
Warren County Habitat for Humanity	Nonprofit	Warren County Habitat for Humanity	-	Warren County
United Way of Warren County	Nonprofit	United Way of Warren County	-	Warren County
Bill Perkinson	Public works	Town of Warrenton Public Works	Director of Public Works	Warren County
Breanna Elliott	Colleges/Universities	Vance Granville Community College	Administrative Assistant	All of Planning Area
Dawn Neighbors	Nonprofit	NC Community Foundation	Community Leadership Officer – Central NC	All of Planning Area
Kerr-Tar Regional Council of Governments	Community Organization	Kerr-Tar Regional Council of Governments	-	All of Planning Area
Kerr Area Transportation Authority	Transportation	Kerr Area Transportation Authority	-	All of Planning Area
Dr. Tony W. Cozart	Nonprofit	Franklin Granville Vance Smart Start	Executive Director	All of Planning Area
Wake Electric Cooperative	Private Utilities	Wake Electric Cooperative	-	All of Planning Area
First in Families of NC	Nonprofit	First in Families of NC	Administrative Assistant	All of Planning Area

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 local hazard mitigation. 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, 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, and technical information, including 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,

businesses, academia, and nonprofits were invited to participate 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 Tar River County Mitigation Planning Committee, as lead agents, and included the following:

- **Franklin County**: Nicholas Thorpe, Emergency Management Director
- **Granville County**: Robin Edwards, Emergency Management Coordinator

  Carlton Thornton, Assistant Planning Director
- **Vance County**: Willie Kearney, Emergency Manager
- **Warren County**: Christopher Tucker, Emergency Management Coordinator

  Ken Krulik, Emergency Services Director

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.

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

The Tar River Region is in the north-central portion of North Carolina. All four counties are part of the Kerr-Tar Regional Council of Governments. For the purposes of this plan, the Tar River Region includes the counties of Franklin, Granville, Vance, and Warren. An orientation map is provided in Figure 3-1.

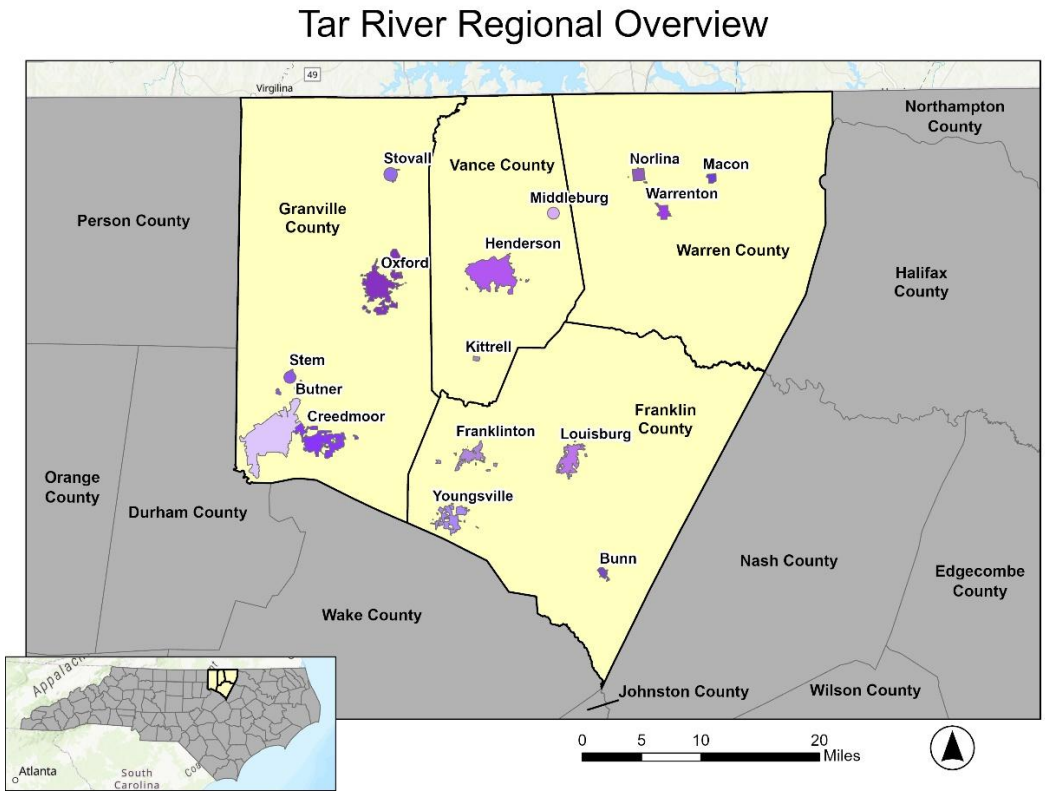


Figure 3-1: Tar River Regional Base Map Overview

The Tar River Region lies between the Appalachian Mountains and the Atlantic Ocean in the Central Piedmont. This area features rolling hills and is home to several lakes and water features, including Kerr Lake and Falls Lake.

Kerr Lake, officially named John H. Kerr Reservoir, is in parts of Vance, Granville, and Warren Counties. This 50,000-acre lake extends 39 miles and continues into Virginia. Kerr Lake is the largest reservoir east of the Mississippi River and was created by one of seven dams along the Roanoke River. A hydroelectric plant, owned and operated by the U.S. Army Corps of Engineers (USACE), is located on the east end of the reservoir.

3.2. Climate

The Tar River Region gets an average of 24.9 inches of rainfall per year. The United States (US) average is 37 inches per year. The average snowfall in the Region is 4-6 inches per year. The average US city gets 25 inches of snow per year. The average July high temperature is around 89 degrees Fahrenheit. The average low temperature in January is around 27 degrees Fahrenheit. The US average on the comfort index is 44. Table 3-1 provides basic statistics on annual climatic conditions across the Tar River Region.

Table 3-1: Tar River Region's Climate Conditions[1 & 2]

Climate Conditions	Tar River Region
Rainfall (inches)	24.9
Snowfall (inches)	4-6 inches
Average July High (1985-2025)	89.01
Average January Low (1985-2025)	27.36
Highest Elevation Above Sea Level (in feet)	566.5 – Franklin County 742.2 – Granville County 569.2 – Vance County 485.2 – Granville County

3.3. History

3.3.1. Franklin County[3, 4]

Franklin County, located in the northeastern Piedmont region of North Carolina, was created in 1779 during the American Revolutionary War from the southern portion of the now-defunct Bute County and was named in honor of Benjamin Franklin, the noted statesman and founding father.

[1] *My Cardinal Requests*. (2025). North Carolina State Climate Office. https://products.climate.ncsu.edu/cardinal/user/
[2] NC Center for Geographic Information and Analysis, & NC Department of Public Safety. (2025, April 15). *NC Digital Elevation Model (3ft)*. NC OneMap. NC OneMap. https://www.nconemap.gov/
[3] Allyson C., C. (2006). *Franklin County*. NCpedia; State Library of NC. https://www.ncpedia.org/geography/franklin
[4] Srikanth, S. (2016). Franklin County (1779). *North Carolina History Project*. https://northcarolinahistory.org/encyclopedia/franklin-county-1779/

The county seat, Louisburg, was chartered in the same year and is said to have been named for King Louis XVI of France, reflecting the era's recognition of France's support in the Revolution. Native peoples, including the Tuscarora, inhabited the area prior to European settlement, and early settlers of English, Irish, and German descent established farms and communities along fertile land and near waterways such as the Tar River, which supported agricultural and trade activities. Within the county, Louisburg College, founded in 1805 as Franklin Academy, stands as the oldest junior college in the United States, and historic homes like the Person Place illustrate the region's early architectural heritage.

Historically rural, Franklin County's economy has been grounded in agriculture, lumber, and textiles. However, in recent decades, its proximity to the Research Triangle has spurred residential growth as many residents commute to neighboring Wake County and Raleigh for employment. Other communities, such as Bunn, Centerville, Franklinton, and Youngsville, developed around transportation routes and local commerce, contributing to the county's evolving social and economic landscape. Today, the county's blend of historical institutions, scenic terrain, and expanding residential areas reflects both its deep roots in North Carolina's early history and its ongoing integration into the broader regional economy.

3.3.2. Granville County[5, 6]

Granville County was formed in 1746 from the western portion of Edgecombe County during the colonial period and was named in honor of John Lord Carteret, the second Earl Granville, reflecting his extensive proprietary landholdings in the region known as the Granville District. The original county seat was at Granville Court House, and in 1811, the seat was moved to Oxford, which was later incorporated and became the central civic and commercial town. Prior to European settlement, the area was occupied by Indigenous peoples, dominated by the Tuscarora and Saponi tribes. After the Tuscarora War of 1711–1713, settlers, many from Virginia, moved into the area, developing farms and plantations and using tobacco as the principal commodity crop. In the antebellum era, tobacco agriculture was heavily dependent on enslaved labor, with the county among those in the colony with large enslaved populations by the mid-nineteenth century.

In the decades following the Civil War, agriculture continued to shape the county's economy, buoyed by the development of bright leaf tobacco, which thrived in the Piedmont's sandy soils and sustained commercial tobacco production after the end of slavery. Oxford and surrounding communities expanded with schools, literary institutions, and social organizations tied to the tobacco economy. Over time, Granville County's economy diversified beyond agriculture as manufacturing industries, including textiles, tires, cosmetics, and other goods, grew through the mid-twentieth century. The county's boundaries also evolved, contributing portions of land to the creation of neighboring counties such as Orange, Bute, and Vance. Today, Granville County's history is reflected in its blend of agricultural heritage, historic towns, and evolving economic base in north central North Carolina.

[5] Allyson C., C. (2006). *Granville County*. NCpedia; State Library of NC. https://www.ncpedia.org/geography/granville
[6] Martin, J. (2016). Granville County (1746). *North Carolina History Project*. https://northcarolinahistory.org/encyclopedia/granville-county-1746/

3.3.3. Vance County[7, 8]

Vance County was formed in 1881 in the Piedmont region of North Carolina from portions of Granville, Warren, and Franklin Counties, and it was named in honor of Zebulon Baird Vance, who served as Governor of North Carolina and later as a U.S. Senator. The county seat, Henderson, had been incorporated in 1841 and became the administrative center upon the county's establishment. The earliest known inhabitants of the area were the Occaneechi Indians, and European settlement in the region included Germans, English, and Scotch-Irish settlers drawn to the land before formal county formation. The Tar River, along with local creeks and ponds, shaped early settlement patterns and supported agriculture and local trade.

During the late nineteenth and early twentieth centuries, Vance County's economy was based on agriculture, especially tobacco and cotton, and later diversified into manufacturing. The creation of Kerr Lake and recreational areas contributed to tourism and local outdoor activities. Historic buildings such as the Vance County courthouse and architectural landmarks in Henderson reflect the county's development since its founding. Cultural institutions, annual fairs, and regional festivals continue to highlight local heritage. While the county was one of North Carolina's later county formations, its identity has been shaped by its blended origins from neighboring counties and its central community in Henderson.

3.3.4. Warren County[9, 10]

Warren County was established in 1779 from the now-extinct Bute County by the North Carolina colonial legislature and was named in honor of Dr. Joseph Warren, a Revolutionary War patriot killed at the Battle of Bunker Hill. Its county seat, Warrenton, was laid out that same year and named after Dr. Warren. Before European settlement and the formation of the county, the region was home to Indigenous peoples, including the Tuscarora, Haliwa, and Saponi, who were gradually displaced as English colonists migrated inland. During the late eighteenth and early nineteenth centuries, tobacco and cotton plantations flourished in Warren County, supporting some of the wealthiest agricultural interests in the state. The town of Macon, another community in the county, was named for Nathaniel Macon, a prominent early U.S. political leader who served as Speaker of the U.S. House and U.S. Senator.

In the antebellum period, Warren County also had one of the largest free Black populations in North Carolina, and its Black residents became politically active during Reconstruction, with John A. Hyman becoming the first African American from the state elected to the U.S. Congress. Following the Civil War, the county's plantation economy declined, and the region remained largely rural with limited industrial growth. In the twentieth century, efforts to diversify the local economy included the development of Soul City, a planned community intended to foster Black economic opportunity. However, it did not achieve its original ambitions. Today, Warren County

[7] Mazzocchi, J. (2006). *Vance County*. NCpedia; State Library of NC. https://www.ncpedia.org/geography/vance
[8] Martin, J. (2016). Vance County (1881). *North Carolina History Project*. https://northcarolinahistory.org/encyclopedia/vance-county-1881/
[9] Bangma, P. (2006). *Warren County*. NCpedia; State Library of NC. https://www.ncpedia.org/geography/warren
[10] Martin, J. (2016). Warren County (1779). *North Carolina History Project*. https://northcarolinahistory.org/encyclopedia/warren-county-1779/

is known for its historic architecture in Warrenton, outdoor recreation around Lake Gaston and Kerr Lake, and its enduring cultural legacy in northeastern North Carolina.

3.4. Population and Demographics

The planning area experienced an overall increase in population between 2010 and 2023, with Franklin County increasing by 18.7%, Granville County increasing by 2.5%, Vance County decreasing by 6.7%, and Warren County decreasing by 10.6%, according to the 2023 American Community Survey (ACS) population estimates.[11] The estimated population of the planning area in 2023 was approximately 194,513, an increase of around 4.1% from an estimated 2010 population of 189,929.[12] The jurisdictions with the most significant population growth from 2010 to 2023 were Stem, Youngsville, Bunn, Middleburg, and Franklinton, with increases of 129.8%, 123.1%, 36.0%, 34.6%, and 26.6%, respectively. The jurisdictions with the smallest population growth, or negative population growth, are Kittrell, Stovall, Macon, Louisburg, and Norlina, with percentage population change of -88.7%, -34.0%, -33.6%, -6.9%, and -6.1%, respectively. The largest jurisdiction in Franklin County is Louisburg (3,128); the largest jurisdiction in Granville County is Oxford (8,897); the largest jurisdiction in Vance County is Henderson (14,922); and the largest jurisdiction in Warren County is Norlina (1,050).

Table 3-2: Population in the Planning Area

Jurisdiction	2010 Census Population[13]	2020 Census Population[14]	2023 ACS Population Estimate[15]	% Change 2010-2023
Franklin County	**60,619**	**68,573**	**71,962**	**18.7%**
Bunn	344	327	468	36.0%
Franklinton	2,023	2,456	2,562	26.6%
Louisburg	3,359	3,064	3,128	-6.9%
Youngsville	1,157	2,016	2,581	123.1%
Granville County	**59,916**	**60,992**	**61,439**	**2.5%**
Butner	7,591	8,397	7,996	5.3%
Creedmoor	4,124	4,866	4,957	20.2%
Oxford	8,461	8,628	8,897	5.2%
Stem	463	960	1,064	129.8%
Stovall	418	324	276	-34.0%

[11] U.S. Census Bureau. (2023). *ACS Demographic and Housing Estimates* (No. ACSDP5Y2023.DP05; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSDP5Y2023.DP05
[12] U.S. Census Bureau. (2010). *Total Population* (No. DECENNIALSF12010.P1; Version Decennial Census) [Dataset]. data.census.gov. https://data.census.gov/table/DECENNIALSF12010.P1
[13] U.S. Census Bureau. (2010). *Total Population* (No. DECENNIALSF12010.P1; Version Decennial Census) [Dataset]. data.census.gov. https://data.census.gov/table/DECENNIALSF12010.P1
[14] U.S. Census Bureau. (2020). *Total Population* (No. DECENNIALSF12020.P1; Version Decennial Census) [Dataset]. data.census.gov. https://data.census.gov/table/DECENNIALPL2020.P1
[15] U.S. Census Bureau. (2023). *ACS Demographic and Housing Estimates* (No. ACSDP5Y2023.DP05; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSDP5Y2023.DP05

Jurisdiction	2010 Census Population[13]	2020 Census Population[14]	2023 ACS Population Estimate[15]	% Change 2010-2023
Vance County	**45,422**	**42,578**	**42,361**	**-6.7%**
Henderson	15,368	15,060	14,922	-2.9%
Kittrell	467	132	53	-88.7%
Middleburg	133	101	179	34.6%
Warren County	**20,972**	**18,642**	**18,751**	**-10.6%**
Macon	119	110	79	-33.6%
Norlina	1,118	920	1,050	-6.1%
Warrenton	862	851	859	-0.3%

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 show 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 disabilities or independent living difficulties can help show 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 show 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[16]		Disability Characteristics[17]		Limited English–speaking household[18]	Economic Characteristics[19]		
	Median age	65 years or older	People with a disability	People with an independent living difficulty		Median household income	Unemployment rate	Mean travel time to work (minutes)
Franklin County	**40.9**	**17.1%**	**16.5%**	**7.8%**	**1.5%**	**$71,386**	**5.5%**	**34.4**
Bunn	45.0	18.8%	29.3%	7.3%	10.6%	$53,750	1.2%	23.0
Franklinton	35.4	13.3%	13.3%	8.0%	0.0%	$64,053	9.4%	31.7
Louisburg	36.4	23.3%	26.9%	13.1%	2.4%	$31,827	26.6%	38.2
Youngsville	30.6	8.0%	11.8%	5.8%	0.9%	$61,813	3.5%	29.4
Granville County	**42.5**	**17.3%**	**16.2%**	**6.3%**	**0.9%**	**$70,975**	**4.4%**	**30.6**
Butner	41.4	15.8%	19.7%	10.0%	3.3%	$72,917	5.3%	25.8
Creedmoor	43.2	18.4%	16.3%	4.5%	1.0%	$77,799	6.1%	33.3
Oxford	43.1	23.6%	16.0%	7.5%	0.8%	$48,135	7.2%	26.5
Stem	30.4	9.7%	11.9%	5.7%	0.0%	$85,385	2.1%	32.0
Stovall	43.4	24.3%	31.9%	5.7%	0.0%	$46,250	6.4%	35.7
Vance County	**39.9**	**18.8%**	**18.9%**	**9.0%**	**0.5%**	**$46,943**	**6.8%**	**26.4**
Henderson	36.6	17.9%	22.4%	11.4%	0.8%	$38,780	5.3%	21.9
Kittrell	58.5	35.8%	13.2%	7.8%	0.0%	$98,750	0.0%	30.0
Middleburg	27.8	17.3%	22.3%	8.2%	0.0%	-	0.0%	37.1
Warren County	**48.6**	**26.9%**	**21.2%**	**9.6%**	**1.2%**	**$45,279**	**8.0%**	**27.9**
Macon	30.9	22.8%	11.4%	8.2%	0.0%	$79,464	27.3%	27.2
Norlina	48.5	23.6%	25.9%	9.7%	0.0%	$34,659	5.7%	26.0
Warrenton	57.8	35.7%	24.1%	5.7%	0.0%	$37,188	8.4%	16.5

[16] U.S. Census Bureau. (2023). *Age and Sex* (No. ACSST5Y2023.S0101; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S0101
[17] U.S. Census Bureau. (2023). *Disability Characteristics* (No. ACSST5Y2023.S1810; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S1810
[18] U.S. Census Bureau. (2023). *Limited English Speaking Households* (No. ACSST5Y2023.S1602; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S1602
[19] U.S. Census Bureau. (2023). *Selected Economic Characteristics* (No. ACSDP5Y2023.DP03; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSDP5Y2023.DP03

Table 3-4: Planning Area Demographics

Jurisdiction	Decennial Census Profile of General Population and Housing Characteristics (2020)[20]							
	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)
Franklin County	**23.3%**	**63.4%**	**0.7%**	**0.7%**	**0.0%**	**6.0%**	**5.8%**	**10%**
Bunn	26.0%	58.7%	0.9%	0.6%	0.0%	6.4%	7.3%	11%
Franklinton	42.0%	47.1%	0.2%	0.9%	0.1%	2.8%	6.9%	7%
Louisburg	41.5%	48.0%	0.6%	1.3%	0.0%	5.0%	3.6%	6%
Youngsville	24.4%	62.3%	0.5%	0.9%	0.0%	2.4%	9.5%	10%
Granville County	**30.2%**	**56.7%**	**0.6%**	**0.6%**	**0.1%**	**6.4%**	**5.4%**	**10%**
Butner	31.9%	42.2%	1.3%	0.6%	0.0%	17.3%	6.8%	23%
Creedmoor	37.7%	47.8%	0.5%	1.3%	0.0%	5.0%	7.7%	10%
Oxford	54.6%	35.6%	0.2%	1.0%	0.0%	4.3%	4.3%	7%
Stem	21.7%	64.2%	0.5%	0.4%	0.2%	6.9%	6.1%	12%
Stovall	48.1%	49.7%	0.0%	0.3%	0.0%	0.9%	0.9%	2%
Vance County	**49.9%**	**39.2%**	**0.4%**	**0.7%**	**0.0%**	**5.9%**	**4.0%**	**9%**
Henderson	65.0%	23.8%	0.4%	1.1%	0.0%	5.8%	3.9%	8%
Kittrell	28.0%	58.3%	0.0%	0.8%	1.5%	0.8%	10.6%	2%
Middleburg	69.3%	21.8%	2.0%	0.0%	0.0%	1.0%	5.9%	7%
Warren County	**48.9%**	**38.9%**	**5.2%**	**0.3%**	**0.0%**	**2.7%**	**3.9%**	**4%**
Macon	14.5%	78.2%	0.9%	0.0%	0.0%	2.7%	3.6%	2%
Norlina	51.5%	39.6%	0.7%	0.2%	0.1%	4.2%	3.7%	4%
Warrenton	41.6%	47.7%	1.5%	0.1%	0.0%	3.5%	5.5%	7%

3.4.1. Franklin County

The population of Franklin County increased by 29.8% from 1990 to 2000 and by 28.3% from 2000 to 2010. Franklin County experienced an 18.7% increase in population from 2010 to 2023. The jurisdictions with the highest population growth between 2010 and 2023 were Youngsville and Bunn, which grew by 123.1% and 36.0%, respectively. The largest jurisdiction in Franklin County is Louisburg, with an estimated 3,128 residents in 2023, followed by Youngsville and Franklinton, with 2,581 and 2,562 residents, respectively, according to 2023 ACS estimates.

[20] U.S. Census Bureau. (2020). *Total Population* (No. DECENNIALSF12020.P1; Version Decennial Census) [Dataset]. data.census.gov. https://data.census.gov/table/DECENNIALPL2020.P1

Franklin County has a median age of 40.9 years, with 17.1% of the residents aged 65 years or older. 16.5% of the population in Franklin County is reported to have a disability, and 7.8% have an independent living difficulty. In 2023, Louisburg had the highest percentage of residents aged 65 or older, at 23.3%, followed by Bunn, Franklinton, and Youngsville, with estimated percentages of 18.8%, 13.3%, and 8.0%, respectively. The jurisdictions with the highest proportions of residents with an independent living difficulty in 2023 were Louisburg, Franklinton, and Bunn, with 13.1%, 8.0%, and 7.3%, respectively.

Approximately 1.5% 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 Franklin County was $71,386, and the unemployment rate was 5.5%.

3.4.2. Granville County

The population of Granville County increased by 26.5% from 1990 to 2000 and by 23.5% from 2000 to 2010. Granville County experienced a 2.5% increase in population from 2010 to 2023. The jurisdictions with the highest population growth between 2010 and 2023 were Stem and Creedmoor, with increases of 129.8% and 20.2%, respectively. The largest jurisdiction in Granville County is Oxford, with an estimated 8,897 residents in 2023, followed by Butner and Creedmoor, with 7,996 and 4,957 residents, respectively, according to 2023 ACS estimates.

Granville County has a median age of 42.5 years, with 17.3% of the residents aged 65 years or older. 16.2% of the population in Granville County is reported to have a disability, and 6.3% have an independent living difficulty. In 2023, Stovall had the highest percentage of residents aged 65 or older, with an estimated 24.3% of residents aged 65 years or older, followed by Oxford, Creedmoor, and Butner, which had an estimated population of 65 years or older of 23.6%, 18.4%, and 15.8%, respectively. The jurisdictions with the highest proportions of residents with an independent living difficulty in 2023 were Butner (10.0%), Oxford (7.5%), and both Stem and Stovall (5.7%).

Approximately 0.9% 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 Granville County was $70,975, and the unemployment rate was 4.4%.

3.4.3. Vance County

The population of Vance County increased by 10.4% from 1990 to 2000 and by 5.7% from 2000 to 2010. Vance County experienced a 6.7% decline in population from 2010 to 2023. The only jurisdiction in the County that experienced positive population growth between 2010 and 2023 was Middleburg, which grew by 34.6%. The largest jurisdiction in Vance County is Henderson, with an estimated 14,922 residents in 2023, followed by Middleburg and Kittrell, with 179 and 53 residents, respectively, according to 2023 ACS estimates.

Vance County has a median age of 39.9 years, with 18.8% of the residents aged 65 years or older. 18.9% of the population in Vance County is reported to have a disability, and 9.0% have an independent living difficulty. In 2023, Kittrell had the highest percentage of residents aged 65

or older, at 35.8%, followed by Henderson and Middleburg, with estimated shares of 17.9% and 17.3%, respectively. The jurisdictions with the highest proportions of residents with an independent living difficulty in 2023 were Henderson and Middleburg, with 11.4% and 8.2%, respectively.

Approximately 0.5% 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 Vance County was $46,943, and the unemployment rate was 6.8%.

3.4.4. Warren County

The population of Warren County increased by 15.7% from 1990 to 2000 and by 5.0% from 2000 to 2010. However, after two decades of growth, Warren County experienced a 10.6% decline in population from 2010 to 2023. No jurisdictions in the County experienced population growth between 2010 and 2023. The largest jurisdiction in Warren County is Norlina, with an estimated 1,050 residents in 2023, followed by Warrenton and Macon, with 859 and 79 residents, respectively, according to 2023 ACS estimates.

Warren County has a median age of 48.6 years, with 26.9% of the residents aged 65 years or older. 21.2% of the population in Warren County is reported to have a disability, and 9.6% have an independent living difficulty. In 2023, Warrenton had the highest percentage of residents aged 65 or older, at 35.7%, followed by Norlina and Macon, with estimated shares of 23.6% and 22.8%, respectively. The jurisdictions with the highest proportions of residents with an independent living difficulty in 2023 were Norlina and Macon, with 9.7% and 8.2%, respectively.

Approximately 1.2% 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 Warren County was $45,279, and the unemployment rate was 8.0%.

3.5. Housing, Infrastructure, and Land Use

Several housing characteristics can show 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: Housing Characteristics of the Planning Area

Jurisdiction	Housing Units (2013)[21]	ACS 2023 Selected Housing Characteristics 5-Year Estimates						
		Housing Units (2023)[22]	Change in Housing Units (2013-2023)	Renter Occupied	Owner Occupied	Occupied Housing Units	Vacant Housing Units	Median Home Value (owner-occupied) (2023)
Franklin County	**26,515**	**30,790**	**16.12%**	**21.9%**	**78.1%**	**27,442**	**3,348**	**$240,900**
Bunn	237	247	4.22%	41.2%	58.8%	216	31	$212,500
Franklinton	1,012	1,091	7.81%	32.6%	67.4%	919	172	$195,800
Louisburg	1,507	1,220	-19.04%	67.7%	32.3%	1,081	139	$217,400
Youngsville	677	1,011	49.34%	43.9%	56.1%	979	32	$404,500
Granville County	**22,885**	**24,582**	**7.42%**	**23.4%**	**76.6%**	**22,176**	**2,406**	**$235,700**
Butner	2,800	3,049	8.89%	28.2%	71.8%	2,625	424	$225,600
Creedmoor	1,700	2,121	24.76%	22.1%	77.9%	2,121	0	$260,000
Oxford	3,773	4,041	7.10%	47.5%	52.5%	3,636	405	$177,200
Stem	269	401	49.07%	3.0%	97.0%	372	29	$207,600
Stovall	130	145	11.54%	27.6%	72.4%	123	22	$163,400
Vance County	**19,977**	**19,423**	**-2.77%**	**42.6%**	**57.4%**	**16,081**	**3,342**	**$146,300**
Henderson	6,699	7,148	6.70%	60.4%	39.6%	6,103	1,045	$116,800
Kittrell	86	49	-43.02%	11.5%	88.5%	26	23	$102,100
Middleburg	129	51	-60.47%	27.7%	72.3%	47	4	$82,200
Warren County	**11,745**	**11,543**	**-1.72%**	**30.3%**	**69.7%**	**7,930**	**3,613**	**$124,700**
Macon	83	44	-46.99%	11.4%	88.6%	35	9	$162,500
Norlina	577	503	-12.82%	41.6%	58.4%	421	82	$88,200
Warrenton	736	580	-21.20%	40.8%	59.2%	483	97	$164,300

Vehicles Available

Lack of vehicle availability before, during, and after a natural disaster can limit residents' ability to evacuate, leaving them stranded or reliant 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, flooding, hurricanes, or wildfires, in which residents may be stranded or unable to evacuate the

[21] U.S. Census Bureau. (2013). *Selected Housing Characteristics* (No. ACSDP5Y2013.DP04; Version 2013 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSDP5Y2013.DP04
[22] U.S. Census Bureau. (2023). *Selected Housing Characteristics* (No. ACSDP5Y2023.DP04; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSDP5Y2023.DP04

projected area of impact. The county with the highest estimated percentage of residents without vehicles available in their housing unit is Warren County, 8.3%, followed by Vance County at 8.2%. The jurisdictions with the highest percentages of households without vehicle access are estimated to be Louisburg (28.4%), Warrenton (16.8%), Henderson (13.5%), and Kittrell (11.5%).

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 may indicate limited capacity to store and prepare food during natural hazard events, when power outages and supply disruptions can limit the ability to serve and prepare food. The estimated percentage of housing units without plumbing and complete kitchen facilities in the planning area's counties 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. Lack of computing devices or internet access 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.

Granville, Vance, and Warren Counties are estimated to have the same percentage of housing units without telephone service (1.4%), followed by Franklin County (0.9%). The three jurisdictions with the highest percentages of housing units without telephone service are Louisburg (9.9%), Stovall (3.3%), and Oxford (2.4%), all of which exceed the North Carolina (NC) average of 0.9% for housing units with telephone service. An estimated 5.9% of households in NC lack access to a computing device, and 11.4% lack an internet subscription. Compared with the state average of 11.4% of households without an internet subscription, Franklin, Granville, Vance, and Warren Counties have lower rates of residents without internet subscriptions: 3.9%, 4.1%, 6.8%, and 10.6%, respectively. Jurisdictions with the highest percentages of households without an internet subscription include Macon (10.1%), Middleburg (8.9%), and Henderson (8.4%). 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, Recreational Vehicles (RVs), and Vans as 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 tornadoes. 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%. Franklin, Granville, Vance, and Warren Counties have higher percentages of mobile homes than the state average, with 23.20%, 17.9%, 25.0%, and 39.7%, respectively.

Table 3-6: Alternative Housing Characteristics of the Planning Area

Jurisdiction	ACS Selected Housing Characteristics Estimates[23]							ACS Types of Computers and Internet Estimates[24]	
	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
Franklin County	**3.6%**	**0.6%**	**0.5%**	**0.9%**	**23.2%**	**0.2%**	4.2%	**4.7%**	**3.9%**
Bunn	6.0%	0.0%	6.5%	0.5%	2.8%	0.0%	0.0%	10.7%	4.3%
Franklinton	2.0%	0.0%	0.4%	0.9%	6.8%	0.0%	1.9%	5.7%	2.0%
Louisburg	28.4%	0.0%	0.2%	9.9%	5.0%	0.0%	1.2%	9.3%	1.8%
Youngsville	0.6%	0.0%	0.0%	0.0%	1.4%	0.0%	4.5%	1.8%	0.4%
Granville County	**3.5%**	**0.2%**	**0.5%**	**1.4%**	**17.9%**	**0.0%**	**2.0%**	**3.5%**	**4.1%**
Butner	4.5%	0.0%	0.0%	1.4%	22.8%	0.0%	1.0%	3.3%	4.8%
Creedmoor	5.8%	0.0%	0.5%	0.0%	1.7%	0.0%	0.4%	0.8%	0.0%
Oxford	6.1%	0.0%	1.8%	2.4%	0.9%	0.0%	1.7%	6.2%	3.4%
Stem	0.0%	0.0%	0.0%	0.8%	0.5%	0.0%	1.0%	1.1%	0.8%
Stovall	5.7%	3.3%	0.0%	3.3%	11.7%	0.0%	0.0%	13.0%	8.0%
Vance County	**8.2%**	**0.0%**	**0.6%**	**1.4%**	**25.0%**	**0.0%**	**0.7%**	**6.3%**	**6.8%**
Henderson	13.5%	0.0%	1.5%	1.1%	3.6%	0.0%	0.5%	8.1%	8.4%
Kittrell	11.5%	3.8%	0.0%	0.0%	18.4%	0.0%	0.0%	18.9%	0.0%
Middleburg	0.0%	0.0%	0.0%	0.0%	27.5%	0.0%	0.0%	14.5%	8.9%
Warren County	**8.3%**	**0.8%**	**0.7%**	**1.4%**	**39.7%**	**0.1%**	**1.2%**	**9.5%**	**10.6%**
Macon	0.0%	0.0%	0.0%	0.0%	20.5%	0.0%	0.0%	2.5%	10.1%
Norlina	10.9%	0.0%	0.0%	2.1%	26.0%	0.0%	0.0%	7.3%	3.5%
Warrenton	16.8%	0.0%	0.0%	0.0%	4.3%	0.0%	0.0%	8.1%	5.1%

[23] U.S. Census Bureau. (2023). *Selected Housing Characteristics* (No. ACSDP5Y2023.DP04; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSDP5Y2023.DP04

[24] U.S. Census Bureau. (2023). *Types of Computers and Internet Subscriptions* (No. ACSDP5Y2023.S2801; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S2801

3.5.1. Franklin County

The number of occupied housing units in the County, as reported in the 2013 American Community Survey, was 23,313, or 87.9% of the total housing units. As of 2023, the ACS reported approximately 30,790 housing units in Franklin County, of which 78.1% were owner-occupied, and 21.9% were rented. Franklin County experienced a 16.1% increase in housing units, from 26,515 in 2013 to approximately 30,790 in 2023. The median home value of owner-occupied housing in Franklin County was $240,900 in 2023. There were approximately 3,348 vacant housing units in the County in 2023. As of 2023, Franklinton had the highest vacancy rate at 15.8%, followed by Bunn (12.6%) and Louisburg (11.4%). At least 78.1% of all occupied housing units in Franklin 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. Granville County

The number of occupied housing units in the County, as reported in the 2013 American Community Survey, was 19,953, or 87.2% of the total housing units. As of 2023, according to the ACS, there were an estimated 24,582 housing units in Granville County, with 22,176 occupied and 2,406 vacant, for a 90.2% occupancy rate. Between 2013 and 2023, the number of housing units increased from 22,885 to 24,582. Stem and Creedmoor experienced the largest increases in the number of housing units, at 49.1% and 24.8%, respectively, followed by Stovall (11.5%), Butner (8.9%), and Oxford (7.1%). Of these housing units, the median home value for owner-occupied units was $235,700; 76.6% were owner-occupied, and 23.4% were renter-occupied. The jurisdictions in Granville County with the highest vacancies in 2023 are estimated to be Stovall (15.2%), Butner (13.9%), and Oxford (10.0%). Given the high proportion of owner-occupied housing units, residents in the planning area may be more likely to participate in home mitigation projects, such as elevating homes, participating in mitigation grant programs, and purchasing flood insurance.

3.5.3. Vance County

The number of occupied housing units in the County, as reported in the 2013 ACS, was 16,640, or 83.3% of the total housing units. As of 2023, the ACS reported approximately 19,423 housing units in Vance County, of which 57.4% were owner-occupied, and 42.6% were rented. Vance County experienced a 2.8% decrease in housing units, from 19,977 in 2013 to approximately 19,423 in 2023. The median home value of owner-occupied housing in Vance County was $146,300 in 2023. There were approximately 3,342 vacant housing units in the County in 2023. As of 2023, Kittrell had the highest vacancy rate at 46.9%, followed by Henderson (14.6%) and Middleburg (7.8%). At least 57.4% of all occupied housing units in Vance 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.

3.5.4. Warren County

The number of occupied housing units in the County, as reported in the 2013 American Community Survey, was 7,731, or 65.8% of the total housing units. As of 2023, the ACS

reported approximately 11,543 housing units in Warren County, of which 69.7% were owner-occupied, and 30.3% were rented. Warren County experienced a 1.72% decrease in housing units, from 11,745 in 2013 to approximately 11,542 in 2023. The median home value of owner-occupied housing in Warren County was $124,700 in 2023. There were approximately 3,613 vacant housing units in the County in 2023. As of 2023, Macon had the highest vacancy rate at 20.5%, followed by Warrenton (16.7%) and Norlina (16.3%). At least 69.7% of all occupied housing units in Warren 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.

3.5.5. Transportation

Several major roadways cross the Tar River Region. Interstate 85 runs across the region from north to south through Granville, Vance, and Warren Counties. The four-county region has many U.S. highways running through it, including Routes 1, 15, 64, 158, and 401. Numerous North Carolina state highways also cross the region, providing additional transportation routes.

The Kerr-Tar Rural Planning Organization (KTRPO) functions as the regional transportation planning body for Franklin, Granville, Person, Vance, and Warren Counties, as well as 12 municipalities within those counties.[25] It oversees development of the five-county Planning Work Program (PWP), which addresses a range of transportation systems, including highways, pedestrian facilities, rail, airports, and related infrastructure. Working in coordination with the North Carolina Department of Transportation (NCDOT) and the U.S. Department of Transportation, the KTRPO supports an ongoing, cooperative transportation planning process that enables local communities to guide transportation investments to advance economic vitality and community development.

The KTRPO was established following the North Carolina General Assembly's ratification of the Board of Transportation Reform Bill (House Bill 1304) in 2000, which directed the North Carolina Board of Transportation to create Rural Transportation Planning Organizations as counterparts to Metropolitan Planning Organizations.

In partnership with NCDOT, KTRPO develops long-range, multimodal transportation plans at both the local and regional levels; provides opportunities for public engagement in transportation planning; identifies and prioritizes project recommendations for inclusion in the State Transportation Improvement Program (STIP); and serves as a source of transportation-related information for local governments and other stakeholders. The organization is governed by two committees: the Transportation Advisory Committee (TAC), composed of local elected officials and a representative from the North Carolina Board of Transportation, and the Technical Coordinating Committee (TCC), which meets jointly, regularly, to support transportation planning across the region.

In addition to KTRPO's efforts, supplemental research for the capability assessment identified additional transportation plans in the Town of Franklinton (Franklin County) and the Town of

[25] KTRPO. (2026). *Kerr-Tar Regional Transportation Planning Organization (KTRPO)*. Kerr Tar Regional Council of Governments. Kerr Tar Regional Council of Governments. https://www.kerrtarcog.org/regional-planning/kerr-tar-regional-transportation-planning-organization-ktrpo

Warrenton (Warren County). Franklinton maintains a Comprehensive Transportation Plan (2025)[26] and a Bicycle & Pedestrian Plan (2024)[27], while Warrenton has a Bicycle & Pedestrian Plan (2020)[28] and a Downtown Streetscape Master Plan (2017).[29]

The Tar River Region is served by Raleigh-Durham International Airport (RDU), which is in Raleigh. The airport currently offers direct flights to cities around the country and around the world on 17 airlines. This airport served over 11.8 million passengers and transported over 113,000 tons of cargo in 2022.[30] No large airports are located directly in the region, but there are a few small private and public airports. Triangle North Executive Airport in Franklin County is a county-owned public-use airport with general aviation facilities and aircraft. Henderson-Oxford Airport, located in Granville County, offers general aviation services and supports several corporate companies. In Vance County, Deer Run Airport is a privately owned airport that provides local access.

NCDOT is evaluating passenger rail service along the S-Line corridor between Raleigh, NC, and Richmond, Virginia. This evaluation assesses development impacts and infrastructure needs within the S-Line Transit-Oriented Development Study. For the Tar River region, the proposed route would pass through Franklin County and the Town of Franklinton, Vance County and the City of Henderson, and Warren County and the Town of Norlina. As part of this effort, NCDOT has developed S-Line Route Maps and implementation Playbooks for Franklinton, Henderson, and Norlina that depict the proposed rail line locations and include an assessment of market readiness, existing infrastructure, and implementation recommendations.[31]

[26] Town of Franklinton. (2025, February 21). *Town of Franklinton Comprehensive Transportation Plan*. Town of Franklinton, NC. https://www.franklintonnc.gov/_files/ugd/39f7fd_4fe519890780475b8cfc9e87d465d6d0.pdf
[27] Town of Franklinton. (2024, March 4). *Franklinton Bicycle and Pedestrian Plan*. Town of Franklinton, NC. https://www.franklintonnc.gov/planning-inspections
[28] Town of Warrenton. (2020, February). *Town of Warrenton Bicycle and Pedestrian Plan*. Town of Warrenton, NC. https://www.warrenton.nc.gov/page/open/377/0/Warrenton_BikePedPlan_Plan_20Feb2020.pdf
[29] Town of Warrenton. (2017, February 4). *Warrenton Downtown Streetscape Master Plan Report*. Town of Warrenton, NC.
[30] Raleigh-Durham International Airport. (n.d.). RDU Facts. *Raleigh-Durham International Airport*. Retrieved https://www.rdu.com/facts/
[31] NCDOT. (2023). *NCDOT: S-Line Transit-Oriented Development Study—Reports & Maps*. North Carolina Department of Transportation. North Carolina Department of Transportation. https://www.ncdot.gov:443/divisions/integrated-mobility/innovation/s-line-study/Pages/reports-maps.aspx

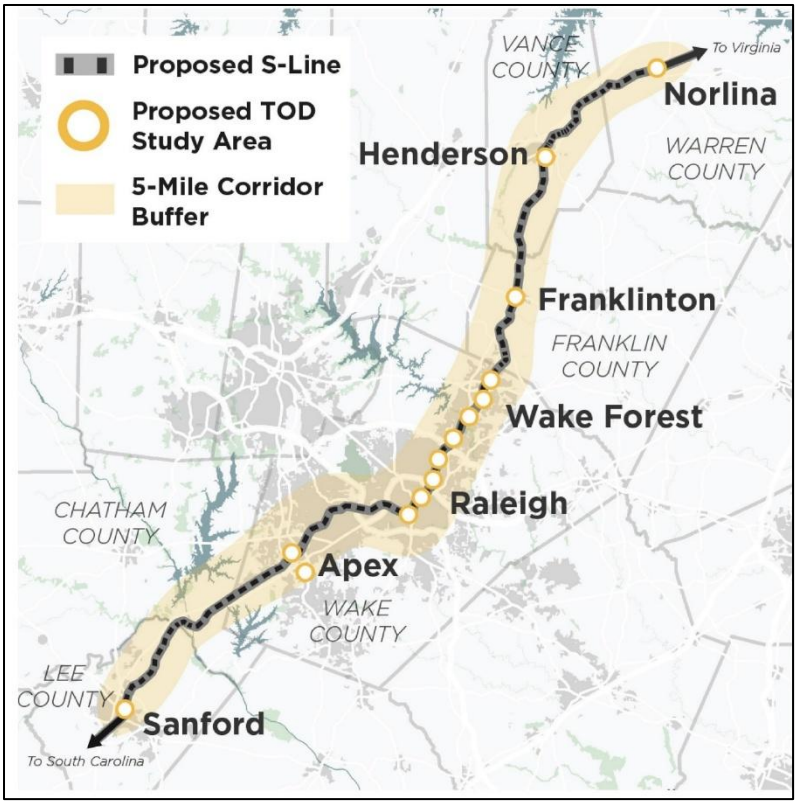


Figure 3-2: NCDOT Proposed S-Line (Rail) Study Areas[32]

Table 3-7: Miles of Railway in the Planning Area that are Active, Not Active, Passenger Routes, or a non-Passenger Route

County	No Passenger Service	Passenger Service
Franklin	**23.91**	**0**
Active Railway	14.33	-
Preserved Corridor	9.58	-
Granville	**45.95**	**0**
Active Railway	26.75	-
Inactive Railway	19.20	-
Vance	**28.92**	**0**
Active Railway	28.52	-
Inactive Railway	0.40	-
Warren	**14.9**	**0**
Active Railway	5.96	-
Preserved Corridor	8.94	-
Planning Area Total	**113.68**	**0**

[32] Warren County Planning, Zoning, & Enforcement Department. (2022). *Warren County Comprehensive Development Plan* [PDF]. Warren County, NC. https://www.warrencountync.com/DocumentCenter/View/5281/Warren-County-Comprehensive-Development-Plan-2022

Table 3-8: Miles of Road in Flood Hazard Areas in the Planning Area[33]

County	Jurisdiction	Miles of Road in Flood Hazard Areas					
		0.2% Annual Chance Flood Hazard	A	AE	AO	X	Total
Franklin County	Bunn	-	-	-	-	6.40	6.4
	Franklinton	-	-	-	-	24.61	24.61
	Louisburg	0.86	-	0.40	-	34.33	35.59
	Youngsville	-	-	0.04	-	17.17	17.21
	Unincorporated Area	1.98	-	10.96	-	1,199.98	1,212.92
Franklin Total		**2.84**	**0**	**11.4**	**0**	**1,282.49**	**1,296.73**
Granville County	Butner	0.38	-	0.13	-	80.56	81.07
	Creedmoor	-	-	0.03	-	30.77	30.8
	Oxford	0.26	-	0.66	-	60.59	61.51
	Stem	0.01	-	0.05	-	7.82	7.88
	Stoval	-	-	-	-	6.86	6.86
	Unincorporated Area	3.76	-	12.24	-	1,073.91	1,089.91
Granville Total		**4.41**	**0**	**13.11**	**0**	**1,260.51**	**1,278.03**
Vance County	Henderson	0.53	-	0.54	-	131.18	132.25
	Kittrell	-	-	-	-	2.97	2.97
	Middleburg	-	-	-	-	5.59	5.59
	Unincorporated Area	0.71	-	20.40	-	635.91	657.02
Vance Total		**1.24**	**0**	**20.94**	**0**	**775.65**	**797.83**
Warren County	Macon	-	-	-	-	3.22	3.22
	Norlina	-	-	-	-	13.83	13.83
	Warrenton	-	-	0.16	-	11.45	11.61
	Unincorporated Area	0.78	-	10.62	-	868.14	879.54
Warren Total		**0.78**	**0**	**10.78**	**0**	**896.64**	**908.2**
Planning Area Total		**9.27**	**0**	**56.23**	**0**	**4,215.29**	**4,280.79**

[33] North Carolina Department of Transportation. (2025). *Statewide System & Non-System Road Routes* (Version 2025 Quarter 2) [Geodatabase]. Connect NCDOT. https://connect.ncdot.gov/resources/gis/Pages/GIS-Data-Layers.aspx

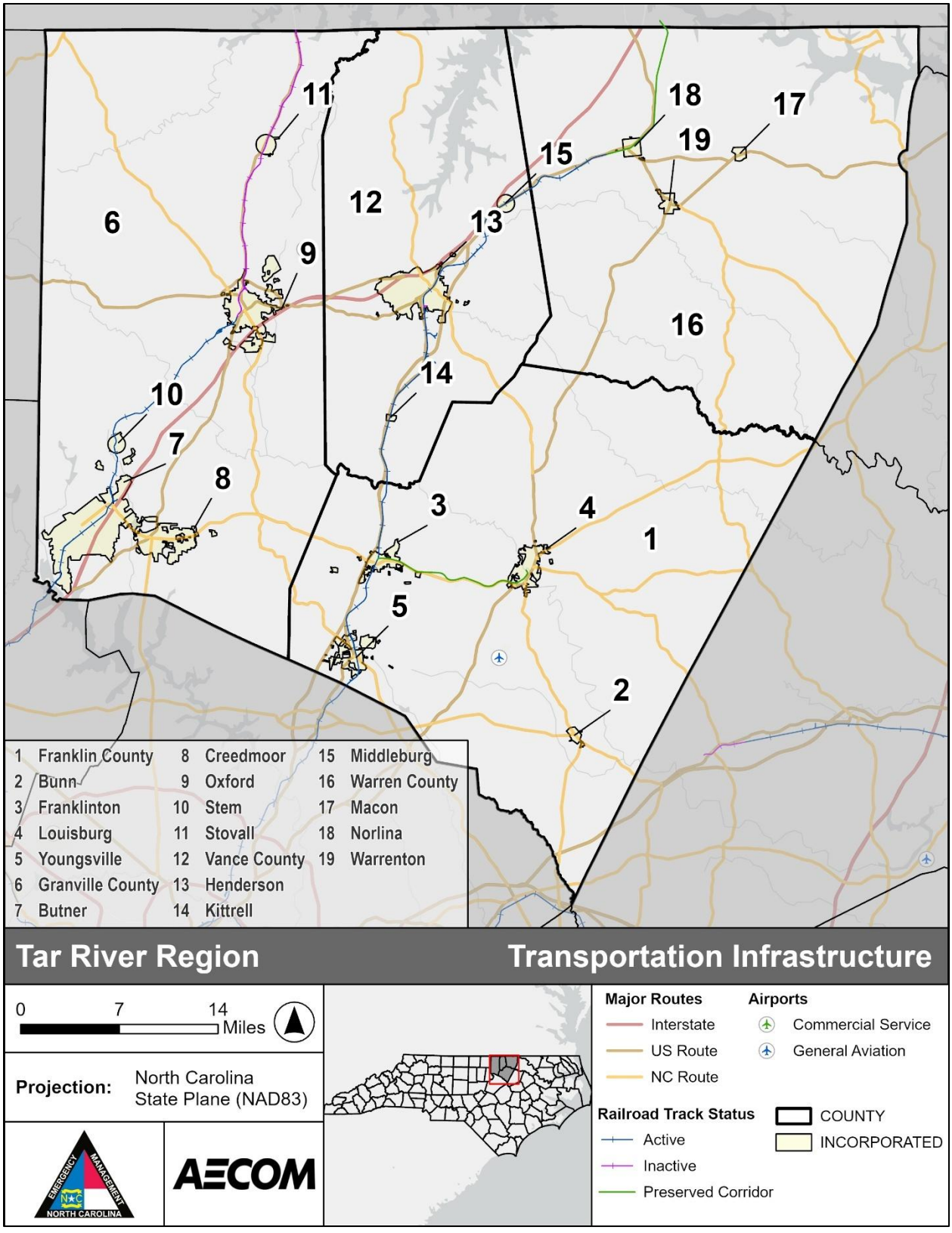


Figure 3-3: Transportation Infrastructure in the Planning Area

3.5.6. Utilities

Franklin County

Franklin County Public Utilities (FCPU) operates the County's Water and Wastewater Treatment systems. During the County's Comprehensive Development Plan update in 2020, it was estimated that FCPU oversees approximately 7,000 water and 3,261 sewer connections as well as 170 miles of water and 45 miles of sewer mains.[34] In 2020, the water infrastructure system was estimated to have a capacity of 4.32 million gallons per day (MGD), with 52% of current capacity in use, an average daily demand of 2.23 MGD, and a maximum daily demand of 2.86 MGD. The sewer infrastructure system was estimated to have a capacity of three MGD, with 31% of current capacity in use, an average daily demand of 0.92 MGD, and a maximum daily demand of 1.94 MGD.

Franklin County's Economic Development Department lists the electric utilities that serve the County, including: Duke Energy Progress, Wake Electric Membership Corporation, and Electric Cities.[35] Similarly, the Department lists Enbridge as the natural gas utility serving the County.

Granville County

Two water and sewer utilities serve Granville County: the City of Oxford, which maintains its own water and sewer system, and the southern part of the county, which is served by the South Granville Water and Sewer Authority (SGWASA).[36] Oxford's water system includes 4 MGD of capacity from Kerr Lake. The City of Oxford sewer system has a treatment capacity of 3.5 MGD and an average daily use of 1.35 MGD. SGWASA, which provides water and sewer service to the southern portion of the County, operates a water treatment plant with a capacity of 7.5 MGD. Maximum daily water use is 4.4 MGD. Water quality has been an issue in the south, and plans are underway to address this through upgrades to the treatment and distribution systems. SGWASA's sewer treatment capacity is limited due to nutrient limits for Falls Lake. The wastewater treatment plant is permitted for 3.6 MGD and has an average daily discharge of 1.55-2.63 MGD.

According to the North Carolina Sustainable Energy Association, Granville County is served by four electric utility providers: Duke Energy Progress, Duke Energy Carolina, Piedmont Electric Membership Corporation, and Wake Electric Membership Corporation.[37] Dominion Energy North Carolina serves as the natural gas provider in the county.[38]

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[34] Franklin County. (2020). *Comprehensive Plan for Franklin County, North Carolina* [PDF]. Franklin County, NC. https://www.franklincountync.gov/DocumentCenter/View/436/Comprehensive-Development-Plan-PDF?bidId=

[35] Franklin County Economic Development. (2026). *Connectivity & Utilities*. Franklin County Economic Development. Franklin County Economic Development. https://discoverfranklincountync.com/connectivity-utilities.php

[36] Granville County. (2018). *Granville County, NC Comprehensive Plan* [PDF]. Granville County, NC. https://www.granvillecounty.org/DocumentCenter/View/2696/Granville-County-2018-Comprehensive-Plan-PDF

[37] North Carolina Sustainable Energy Association. (2026). *North Carolina Electric Service Territories*. North Carolina Sustainable Energy Association. North Carolina Sustainable Energy Association. https://ncseamaps.maps.arcgis.com/apps/webappviewer/index.html?id=d142d97344df494aa20a519c74876e53

[38] North Carolina Utilities Commission. (2022). *Natural Gas Service Areas in North Carolina* [PDF]. North Carolina Utilities Commission. https://www.ncuc.gov/Industries/naturalgas/gasmap.pdf

Vance County

The Vance County Water District (VCWD) is a public water system that provides potable water to several townships throughout Vance County.[39] These townships include:

- Sandy Creek Township (Phase 1A) – Water served as of October 2013;
- Dabney/Williamsboro Township (Phase 2) – Water served as of February 2015;
- NC 39 South (Phase 3) – Water served as of November 2019;
- Kittrell Water Association – Vance County purchased the system and began operating in October 2018; and
- Phase 1B – Kittrell Expansion Phase – The County is developing plans with intentions of building this system soon.

The City of Henderson Public Works Department provides water and sewer services, including potable water, through the Kerr Lake Regional Water System (KLRWS).[40] The city maintains approximately 10,000 water/sewer taps, with 195 miles of water and 165 miles of sewer lines. There is abundant freshwater storage capacity with 1,500,000 gallons in elevated tanks.

According to the Henderson-Vance County Economic Development Commission, Duke Energy Progress is the primary electric service provider in Vance County.[40] In addition to Duke Energy, the Wake Electric Membership Corporation may also serve the western portions of Vance County, and Dominion Energy serves as the county's natural gas provider.[37] The county is served by more than a dozen internet providers, with most services offered by CenturyLink and Spectrum.

Warren County

Warren County residents are served by private wells or by the KLRWS.[41] KLRWS provides drinking water for municipal and county systems in portions of Vance, Granville, Franklin, and Warren Counties. It is owned by the City of Henderson, the City of Oxford, and Warren County. The North Carolina Division of Water Resources approves the water system to produce up to 13.97 MGD of drinking water as of 2022. KLRWS has been approved for a 10 MGD plant upgrade and expansion. Upon completion of the project, Warren County's water allocation will increase from two to four MGD.

The primary method of wastewater disposal in the county is either private septic tank systems or public sewer lines. The wastewater treatment plant is in Warrenton and owned by Warren County. In 2022, the plant operated at 60 percent capacity, with an average flow of 400,000 to 500,000 gallons per day.

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[39] Vance County Water District. (2026). *County Water System*. Vance County Water District. Vance County, North Carolina. https://www.vancecounty.org/county-water-system/

[40] Henderson-Vance County Economic Development Commission. (2026). *Utilities*. Vance County Economic Development Corporation. Vance County Economic Development Corporation. https://vancecountyedc.com/regional-assets/utilities

[41] Warren County Planning, Zoning, & Enforcement Department. (2022). *Warren County Comprehensive Development Plan* [PDF]. Warren County, NC. https://www.warrencountync.com/DocumentCenter/View/5281/Warren-County-Comprehensive-Development-Plan-2022

Warren County relies on two electricity providers, including Duke Energy Progress and the Halifax Electric Membership Corporation.[37] Warren County is the only county in the Tar River Region that relies on the Frontier Natural Gas Company for natural gas utility services.[38] As of 2022, nine internet service providers in the county offer digital subscriber line, cable, fiber, and wireless services. However, in the same year, it was estimated that over 45 percent of the population north of Norlina lacked internet access, and the southern region of the County and the western regions of Warrenton had 40-45 percent of households without internet access.[41]

3.5.7. Critical Facilities

According to NC OneMap data, there are two critical facilities in an AE Zone, which have a 1% annual chance of flooding, also known as the 100-year floodplain. There are two critical facilities within the 0.2% annual chance flood hazard zone, also known as the 500-year floodplain. For more information about the critical facilities in flood zones, see Appendix D.

Table 3-9: Critical Facilities in the Planning Area by County

County	Medical Facility	EMS*	EOC*	Fire Station	Law Enforcement	Schools*	Public Library	Total
Franklin	37	15	1	16	5	20	4	98
Granville	37	9	1	13	9	22	4	95
Vance	46	8	1	11	4	25	1	96
Warren	8	10	1	15	3	10	1	48
Total	**128**	**42**	**4**	**55**	**21**	**77**	**10**	**337**

*EMS = Emergency Medical Services; EOC = Emergency Operations Center; Schools = Public Schools, Non-Public Schools, and Colleges & Universities

Table 3-10: Critical Facilities in the Planning Area and Their Flood Hazard Area[42, 43, 44, 45, 46, 47]

Jurisdiction	Facility Type	Regulatory Flood Hazard Area		
		0.2% Annual Chance	AE	X
Bunn	Medical Facilities	-	-	-
	EMS	-	-	1
	EOC	-	-	-

[42] North Carolina State Center for Health Statistics, & North Carolina Department of Health and Human Services Division of Facility Services. (2023). *Medical Facilities* [Shapefile]. NC OneMap. https://www.nconemap.gov/datasets/nconemap::medical-facilities/about
[43] State of North Carolina. (2023). *Emergency Medical Services* [Shapefile]. NC OneMap. https://www.nconemap.gov/datasets/nconemap::emergency-medical-services/about
[44] North Carolina Office of State Fire Marshal, & North Carolina Department of Insurance. (2025). *Fire Stations* [Geodatabase]. NC OneMap. https://www.nconemap.gov/datasets/6f4fe0c55b0d4cbb92877e461d698c29_0/about
[45] State of North Carolina. (2023). *Law Enforcement Locations* [Shapefile]. NC OneMap. https://www.nconemap.gov/datasets/nconemap::law-enforcement-locations/about
[46] North Carolina Department of Public Instruction. (2023). *Public Schools* [Shapefile]. NC OneMap. https://www.nconemap.gov/datasets/nconemap::public-schools/about
[47] NC State Property Office. (2025). *NC Non-Public Schools* (Latest Version) [Shapefile]. NC OneMap. https://www.nconemap.gov/datasets/ncdoa::nc-non-public-schools-latest-version/about

Jurisdiction	Facility Type	Regulatory Flood Hazard Area		
		0.2% Annual Chance	AE	X
	Fire Stations	-	-	1
	Law Enforcement	-	-	-
	Public Library	-	-	1
	Colleges & Universities	-	-	-
	Public Schools	-	-	1
	Non-Public Schools	-	-	-
Franklinton	Medical Facilities	-	-	3
	EMS	-	-	1
	EOC	-	-	-
	Fire Stations	-	-	1
	Law Enforcement	-	-	1
	Public Library	-	-	1
	Colleges & Universities	-	-	-
	Public Schools	-	-	1
	Non-Public Schools	-	-	-
Louisburg	Medical Facilities	-	-	11
	EMS	-	-	2
	EOC	-	-	-
	Fire Stations	-	-	1
	Law Enforcement	-	-	1
	Public Library	-	-	1
	Colleges & Universities	-	-	1
	Public Schools	-	-	4
	Non-Public Schools	-	-	-
Youngsville	Medical Facilities	-	-	-
	EMS	-	-	2
	EOC	-	-	-
	Fire Stations	-	-	1
	Law Enforcement	-	-	1
	Public Library	-	-	1
	Colleges & Universities	-	-	-
	Public Schools	-	-	1

Jurisdiction	Facility Type	Regulatory Flood Hazard Area		
		0.2% Annual Chance	AE	X
	Non-Public Schools	-	-	1
Unincorporated Area	Medical Facilities	-	1	22
	EMS	-	-	9
	EOC	-	-	1
	Fire Stations	-	-	12
	Law Enforcement	-	-	2
	Public Library	-	-	-
	Colleges & Universities	-	-	-
	Public Schools	-	-	9
	Non-Public Schools	-	-	2
Franklin County Total		**0**	**1**	**97**
Butner	Medical Facilities	-	-	1
	EMS	-	-	2
	EOC	-	-	-
	Fire Stations	-	-	1
	Law Enforcement	-	-	2
	Public Library	-	-	-
	Colleges & Universities	-	-	-
	Public Schools	-	-	4
	Non-Public Schools	-	-	-
Creedmoor	Medical Facilities	-	-	8
	EMS	-	-	1
	EOC	-	-	-
	Fire Stations	-	-	1
	Law Enforcement	-	-	1
	Public Library	-	-	1
	Colleges & Universities	-	-	-
	Public Schools	-	-	4
	Non-Public Schools	-	-	1
Oxford	Medical Facilities	-	-	19
	EMS	-	-	2
	EOC	-	-	1
	Fire Stations	-	-	1

Jurisdiction	Facility Type	Regulatory Flood Hazard Area		
		0.2% Annual Chance	AE	X
	Law Enforcement	-	-	2
	Public Library	-	-	1
	Colleges & Universities	-	-	-
	Public Schools	-	-	2
	Non-Public Schools	-	-	-
Stem	Medical Facilities	-	-	-
	EMS	-	-	-
	EOC	-	-	-
	Fire Stations	-	-	1
	Law Enforcement	-	-	1
	Public Library	-	-	-
	Colleges & Universities	-	-	-
	Public Schools	-	-	-
	Non-Public Schools	-	-	-
Stovall	Medical Facilities	-	-	1
	EMS	-	-	1
	EOC	-	-	-
	Fire Stations	-	-	1
	Law Enforcement	-	-	1
	Public Library	-	-	1
	Colleges & Universities	-	-	-
	Public Schools	-	-	-
	Non-Public Schools	-	-	-
Unincorporated Area	Medical Facilities	-	1	7
	EMS	-	-	3
	EOC	-	-	-
	Fire Stations	-	-	8
	Law Enforcement	-	-	2
	Public Library	-	-	1
	Colleges & Universities	-	-	-
	Public Schools	-	-	10
	Non-Public Schools	-	-	1

Jurisdiction	Facility Type	Regulatory Flood Hazard Area		
		0.2% Annual Chance	AE	X
Granville County Total		**0**	**1**	**94**
Henderson	Medical Facilities	2	-	33
	EMS	-	-	2
	EOC	-	-	1
	Fire Stations	-	-	3
	Law Enforcement	-	-	2
	Public Library	-	-	1
	Colleges & Universities	-	-	-
	Public Schools	-	-	6
	Non-Public Schools	-	-	1
Kittrell	Medical Facilities	-	-	-
	EMS	-	-	1
	EOC	-	-	-
	Fire Stations	-	-	1
	Law Enforcement	-	-	-
	Public Library	-	-	-
	Colleges & Universities	-	-	-
	Public Schools	-	-	-
	Non-Public Schools	-	-	-
Middleburg	Medical Facilities	-	-	-
	EMS	-	-	-
	EOC	-	-	-
	Fire Stations	-	-	-
	Law Enforcement	-	-	-
	Public Library	-	-	-
	Colleges & Universities	-	-	-
	Public Schools	-	-	1
	Non-Public Schools	-	-	-
Unincorporated Area	Medical Facilities	-	-	11
	EMS	-	-	5
	EOC	-	-	-
	Fire Stations	-	-	7
	Law Enforcement	-	-	2

Jurisdiction	Facility Type	Regulatory Flood Hazard Area		
		0.2% Annual Chance	AE	X
	Public Library	-	-	-
	Colleges & Universities	-	-	1
	Public Schools	-	-	11
	Non-Public Schools	-	-	5
Vance County Total		**2**	**0**	**94**
Macon	Medical Facilities	-	-	-
	EMS	-	-	1
	EOC	-	-	-
	Fire Stations	-	-	1
	Law Enforcement	-	-	-
	Public Library	-	-	-
	Colleges & Universities	-	-	-
	Public Schools	-	-	-
	Non-Public Schools	-	-	-
Norlina	Medical Facilities	-	-	1
	EMS	-	-	-
	EOC	-	-	-
	Fire Stations	-	-	2
	Law Enforcement	-	-	1
	Public Library	-	-	-
	Colleges & Universities	-	-	-
	Public Schools	-	-	-
	Non-Public Schools	-	-	1
Warrenton	Medical Facilities	-	-	6
	EMS	-	-	2
	EOC	-	-	1
	Fire Stations	-	-	1
	Law Enforcement	-	-	1
	Public Library	-	-	1
	Colleges & Universities	-	-	-
	Public Schools	-	-	3
	Non-Public Schools	-	-	-

Jurisdiction	Facility Type	Regulatory Flood Hazard Area		
		0.2% Annual Chance	AE	X
Unincorporated Area	Medical Facilities	-	-	1
	EMS	-	-	7
	EOC	-	-	-
	Fire Stations	-	-	11
	Law Enforcement	-	-	1
	Public Library	-	-	-
	Colleges & Universities	-	-	-
	Public Schools	-	-	5
	Non-Public Schools	-	-	1
Warren County Total		**0**	**0**	**48**
Regional Total		**2**	**2**	**333**

Critical Facilities: Franklin County

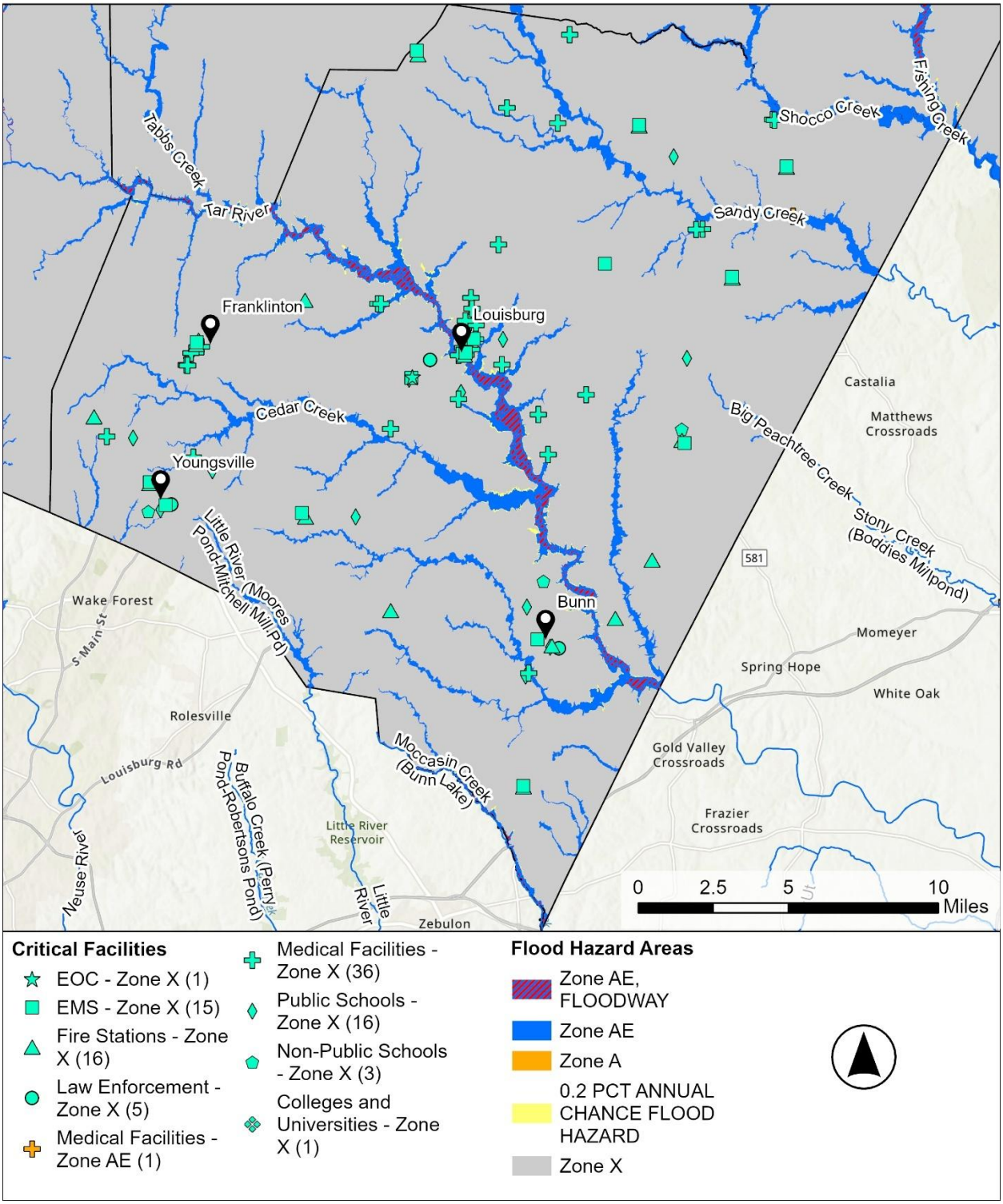


Figure 3-4: Critical Facilities - Franklin County

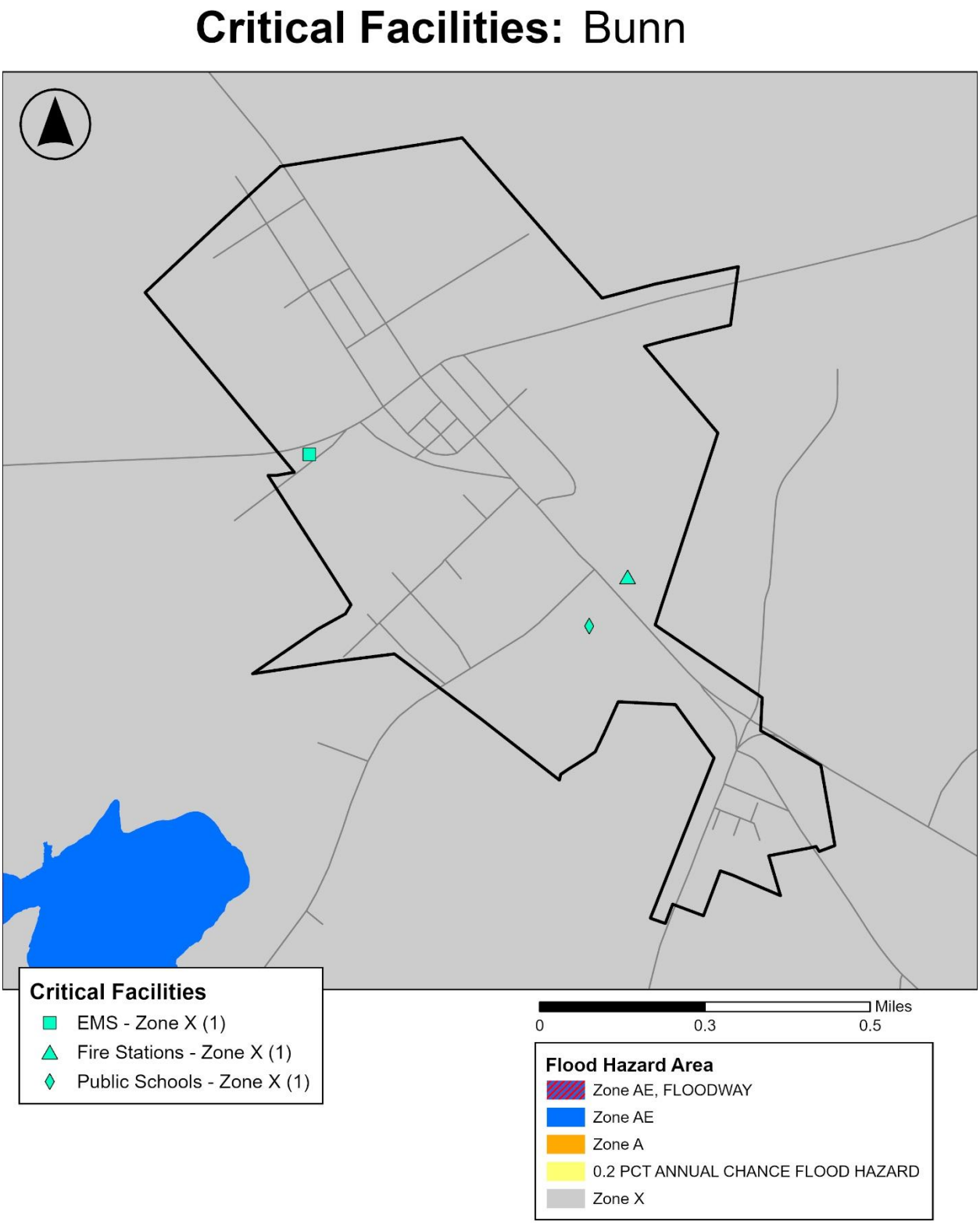


Figure 3-5: Critical Facilities – Bunn

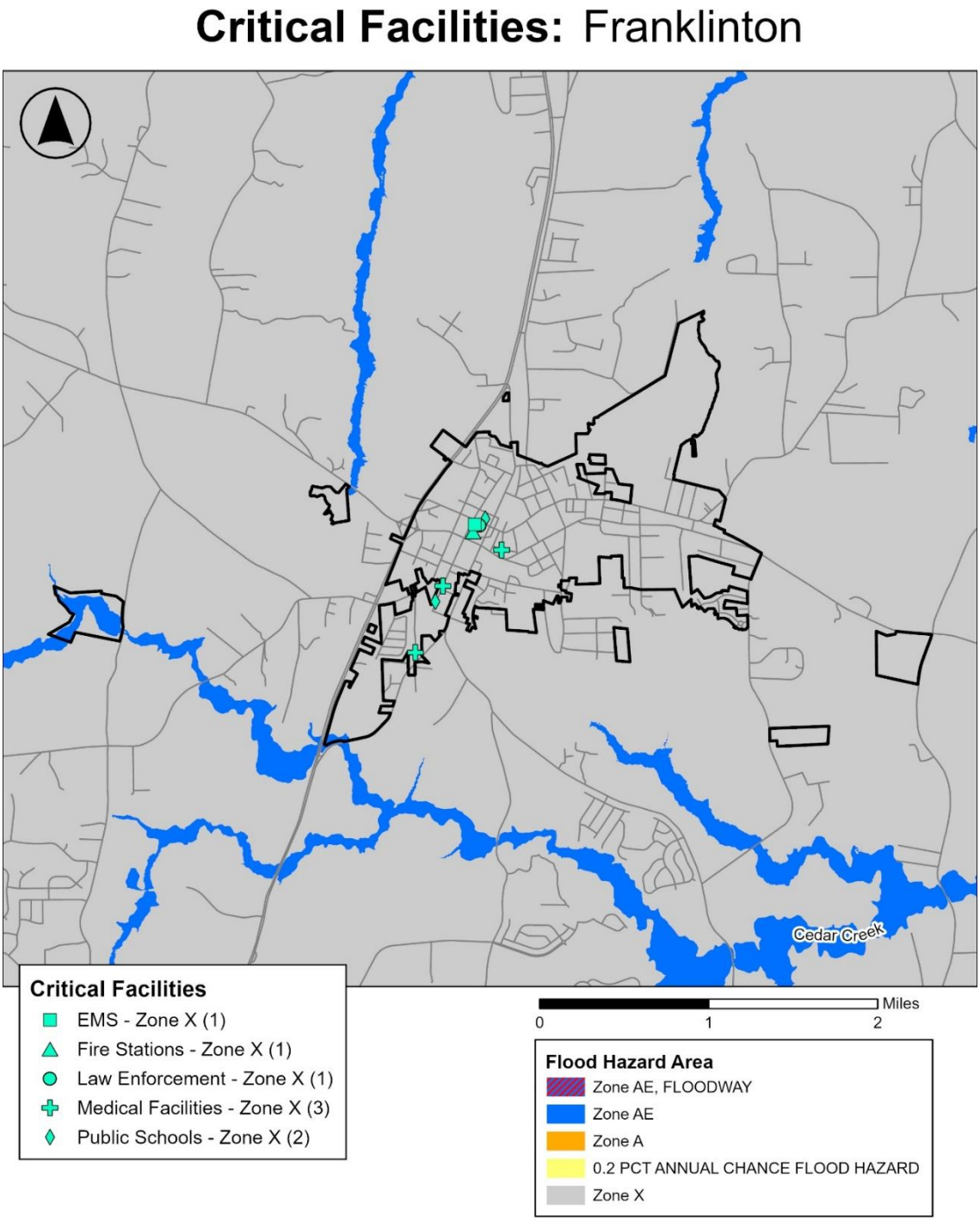


Figure 3-6: Critical Facilities – Franklinton[48]

[48] The Municipal Boundaries (2025) GIS layer obtained from NCDOT and used for the maps in this plan contained slightly outdated jurisdictional boundaries for the Town of Franklinton due to recent annexations between 2023 and 2025. However, given the map scale, hazard data can still be viewed for the missing incorporated areas of Franklinton. Please see Figure 3-29 for the Town of Franklinton's up-to-date boundary map, based on the incorporated boundary corrections from the U.S. Census Boundary and Annexations Survey (BAS).

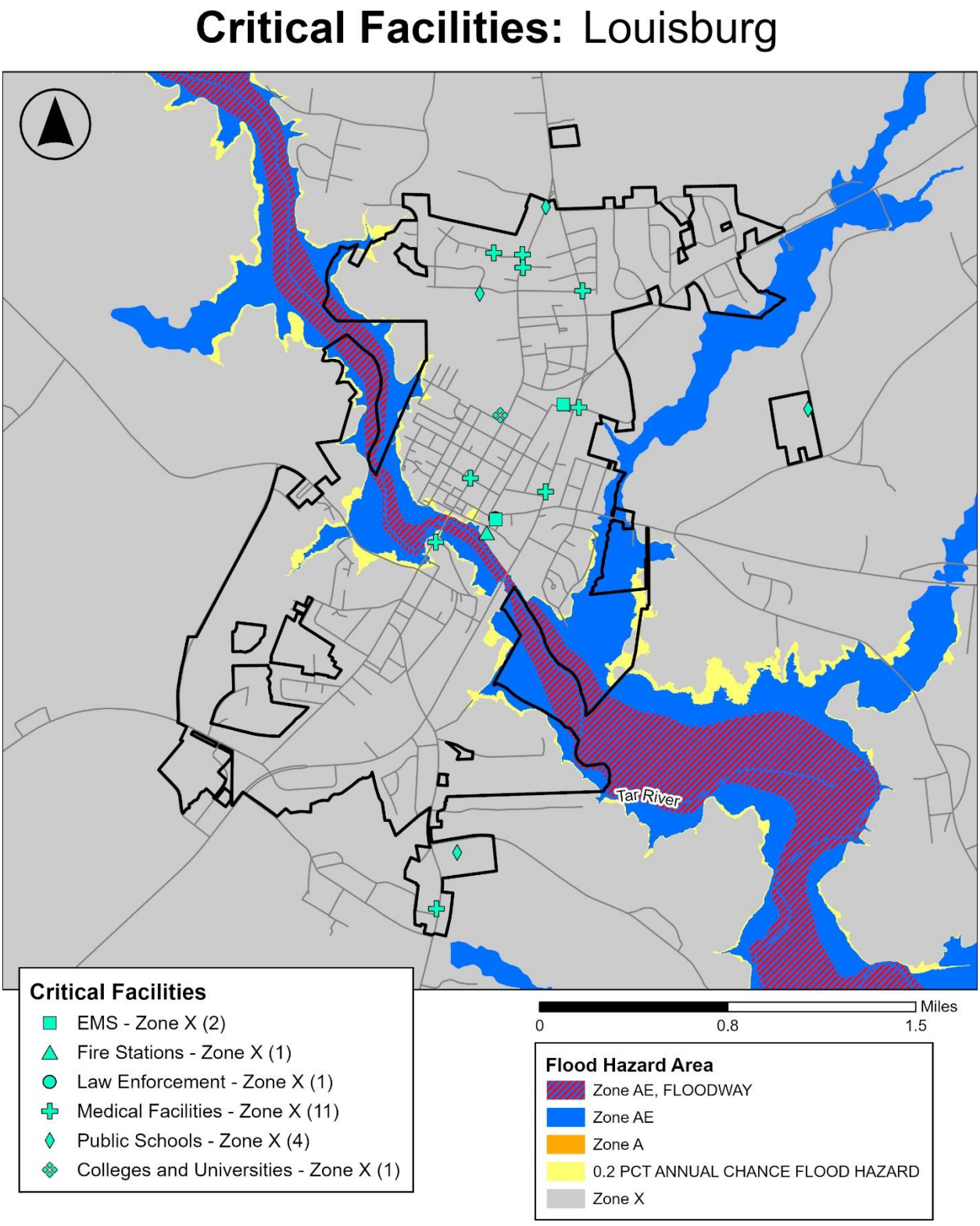


Figure 3-7: Critical Facilities – Louisburg

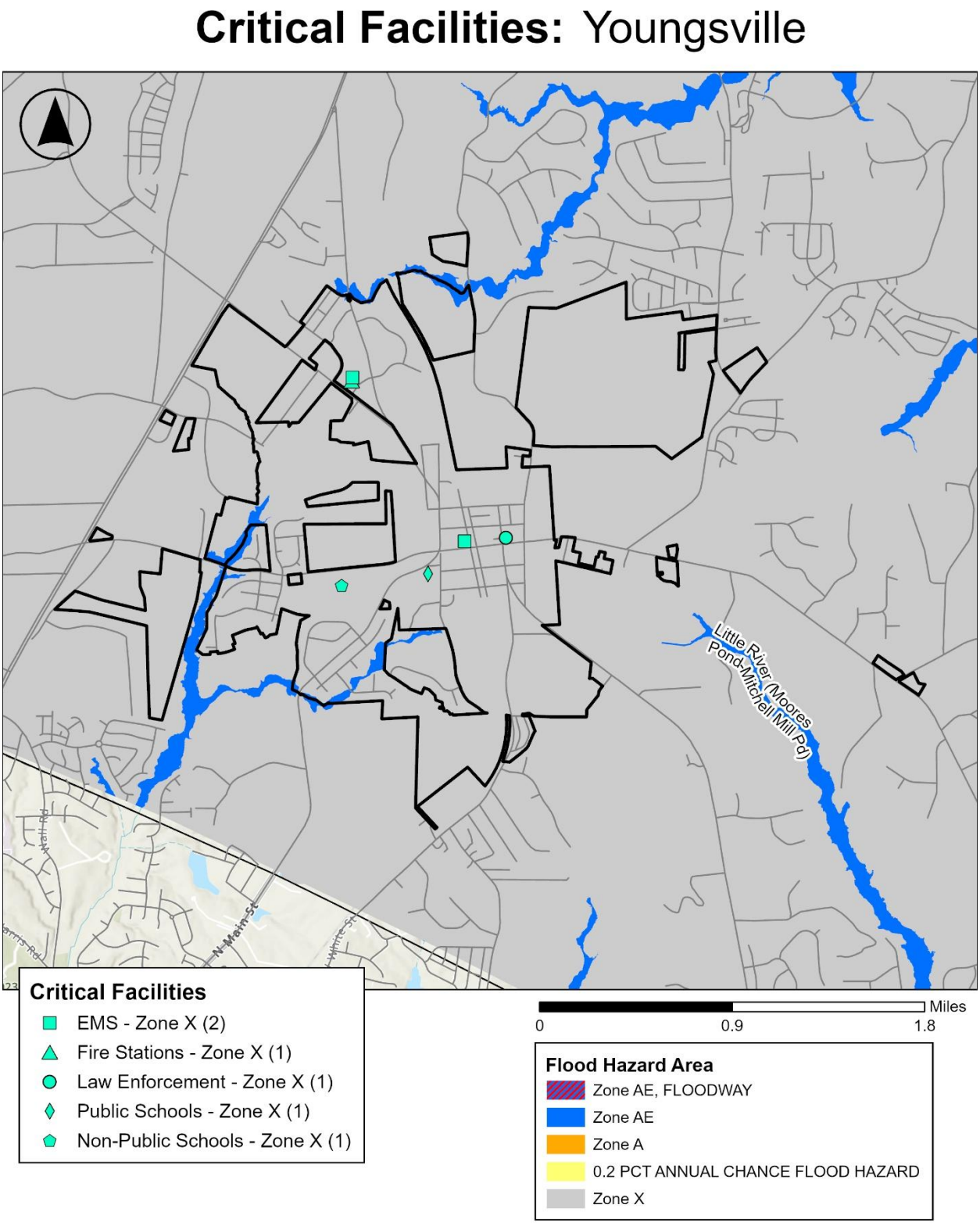


Figure 3-8: Critical Facilities – Youngsville

Critical Facilities: Granville County

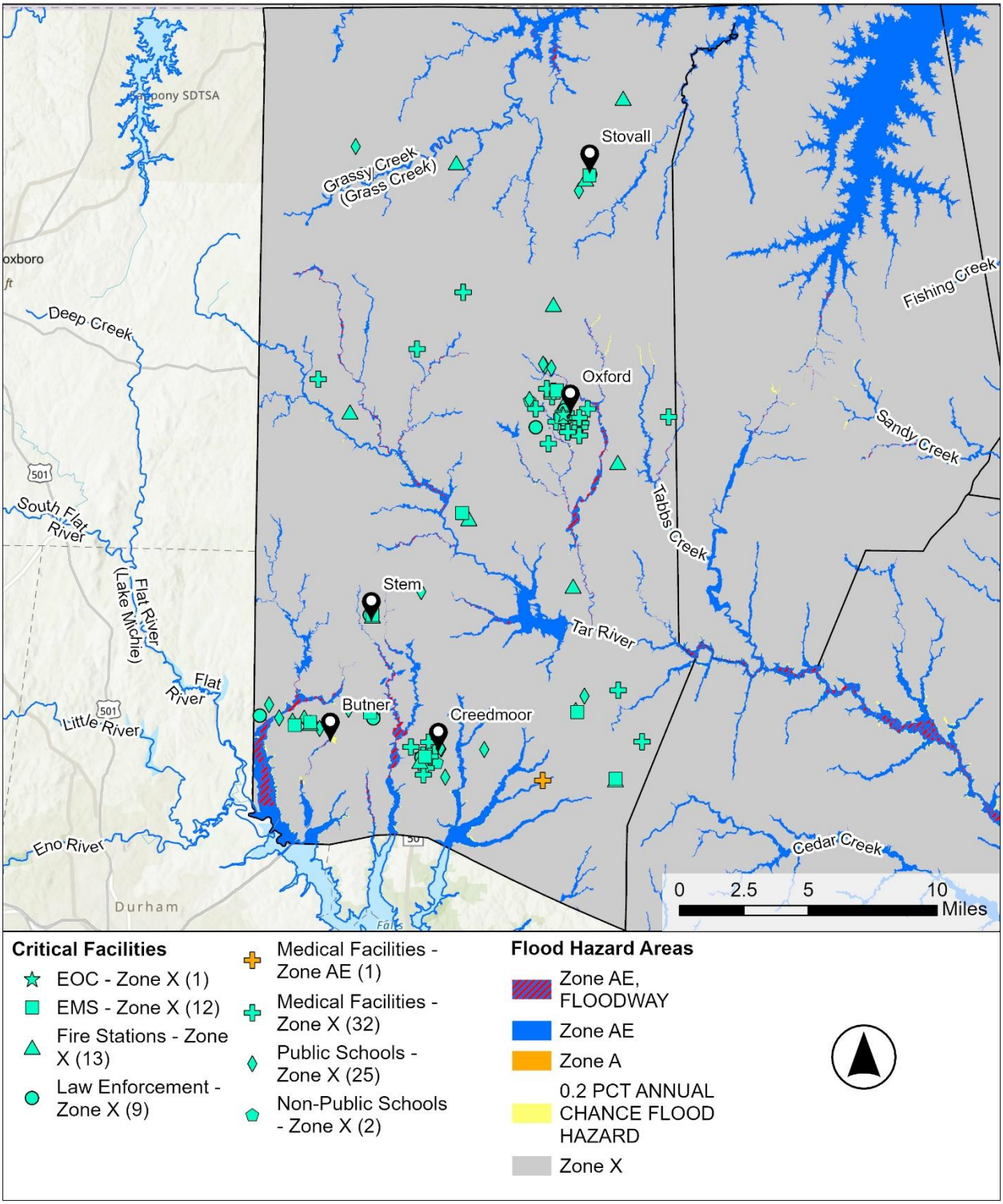


Figure 3-9: Critical Facilities - Granville County

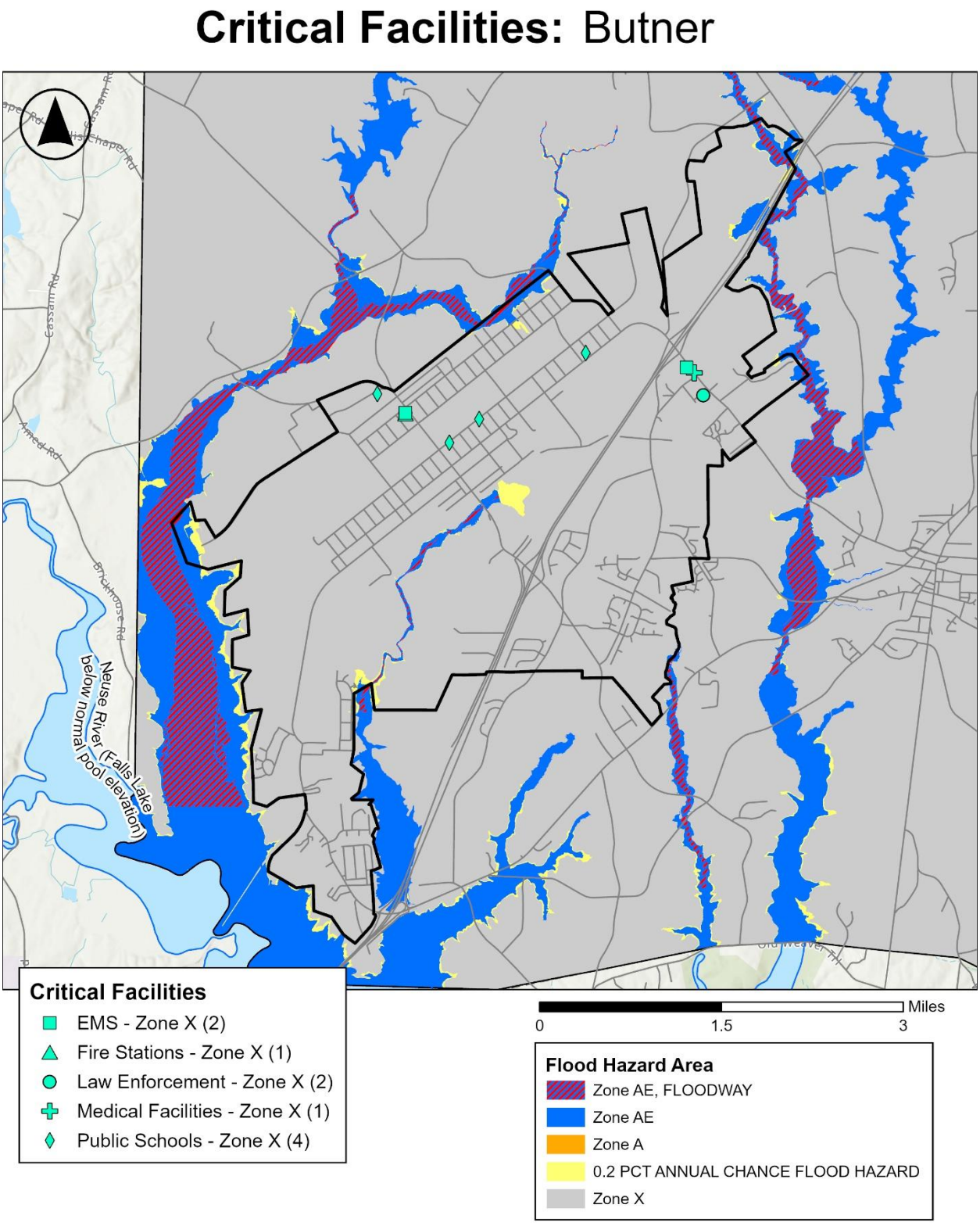


Figure 3-10: Critical Facilities - Butner

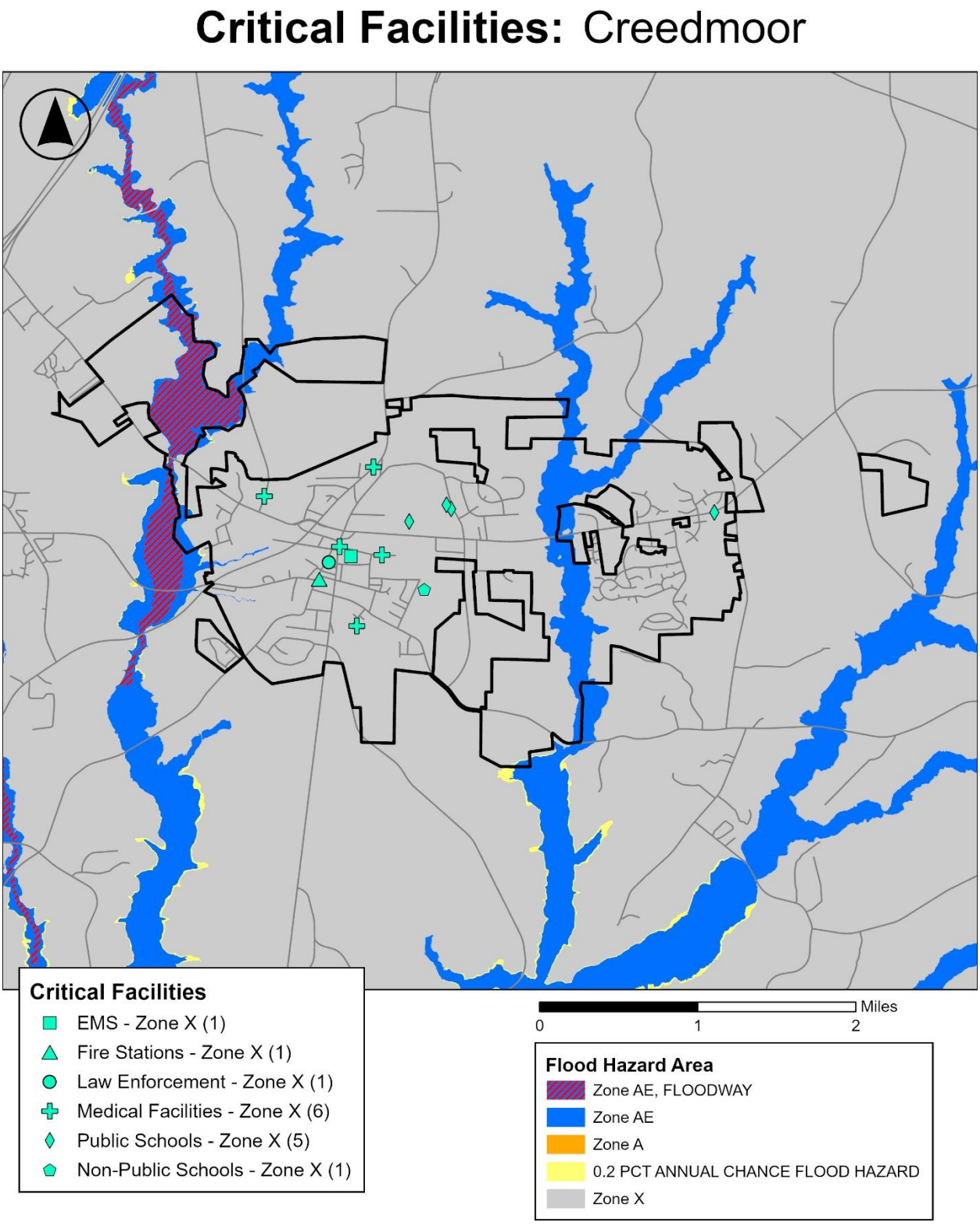


Figure 3-11: Critical Facilities - Creedmoor

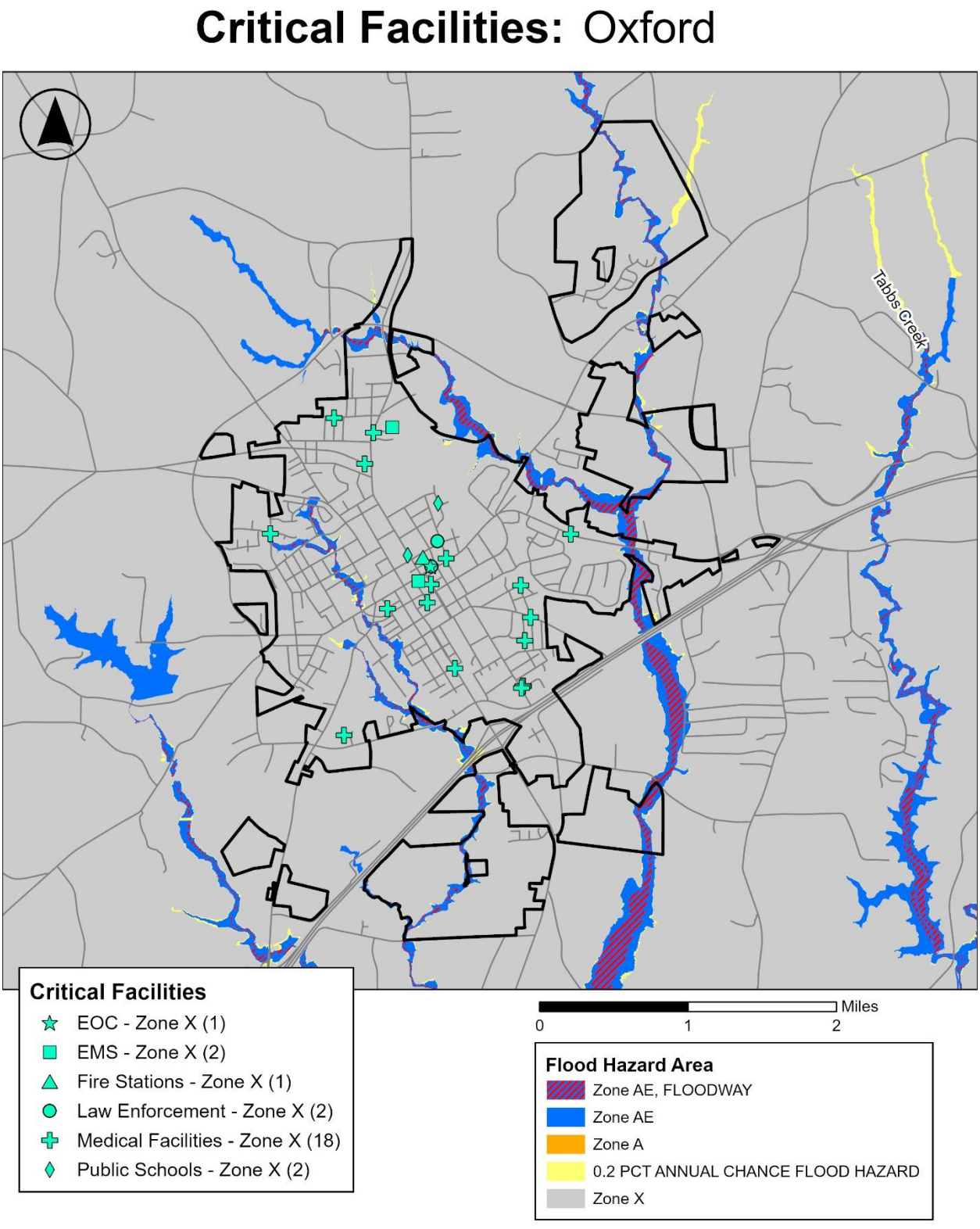


Figure 3-12: Critical Facilities - Oxford

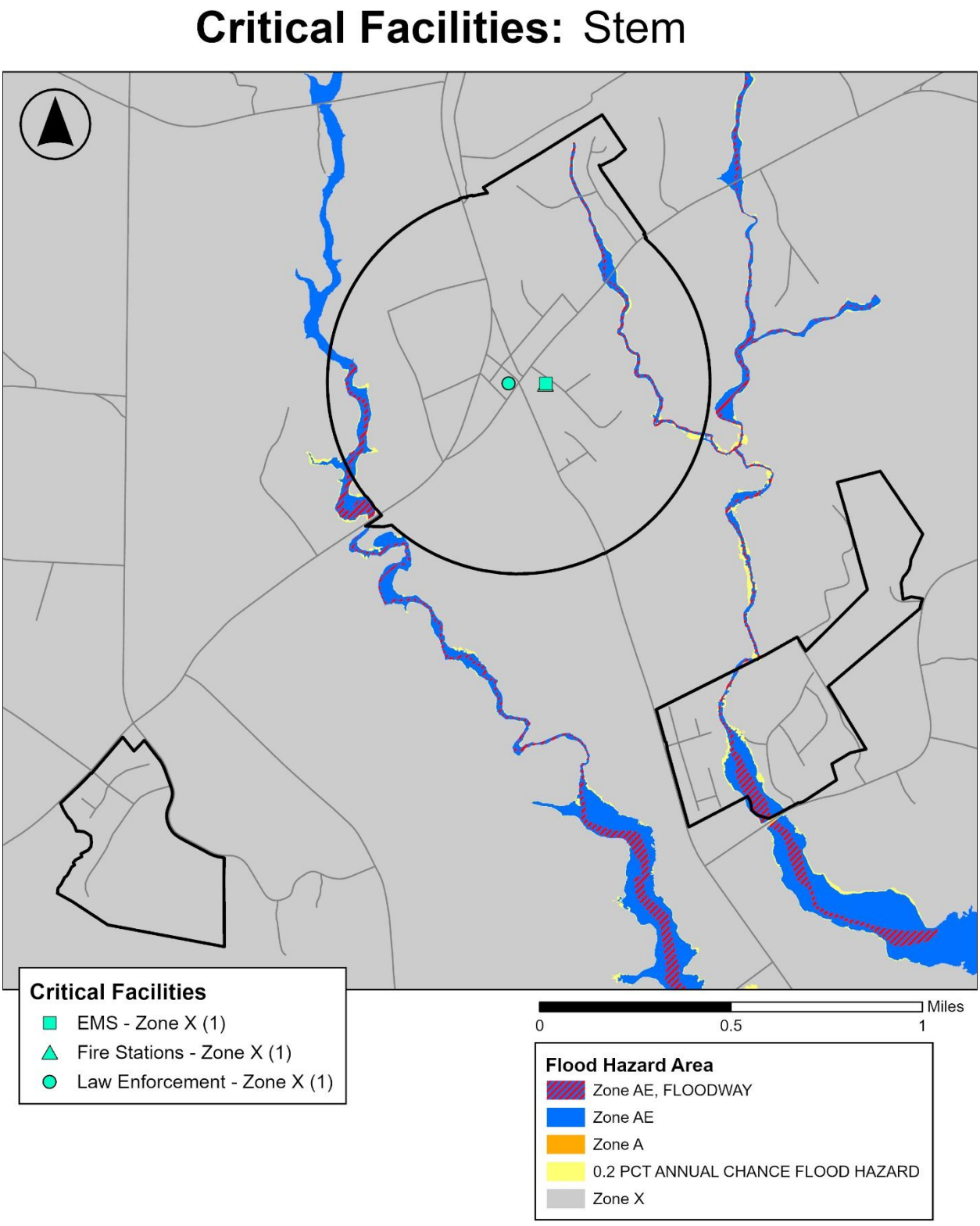


Figure 3-13: Critical Facilities - Stem

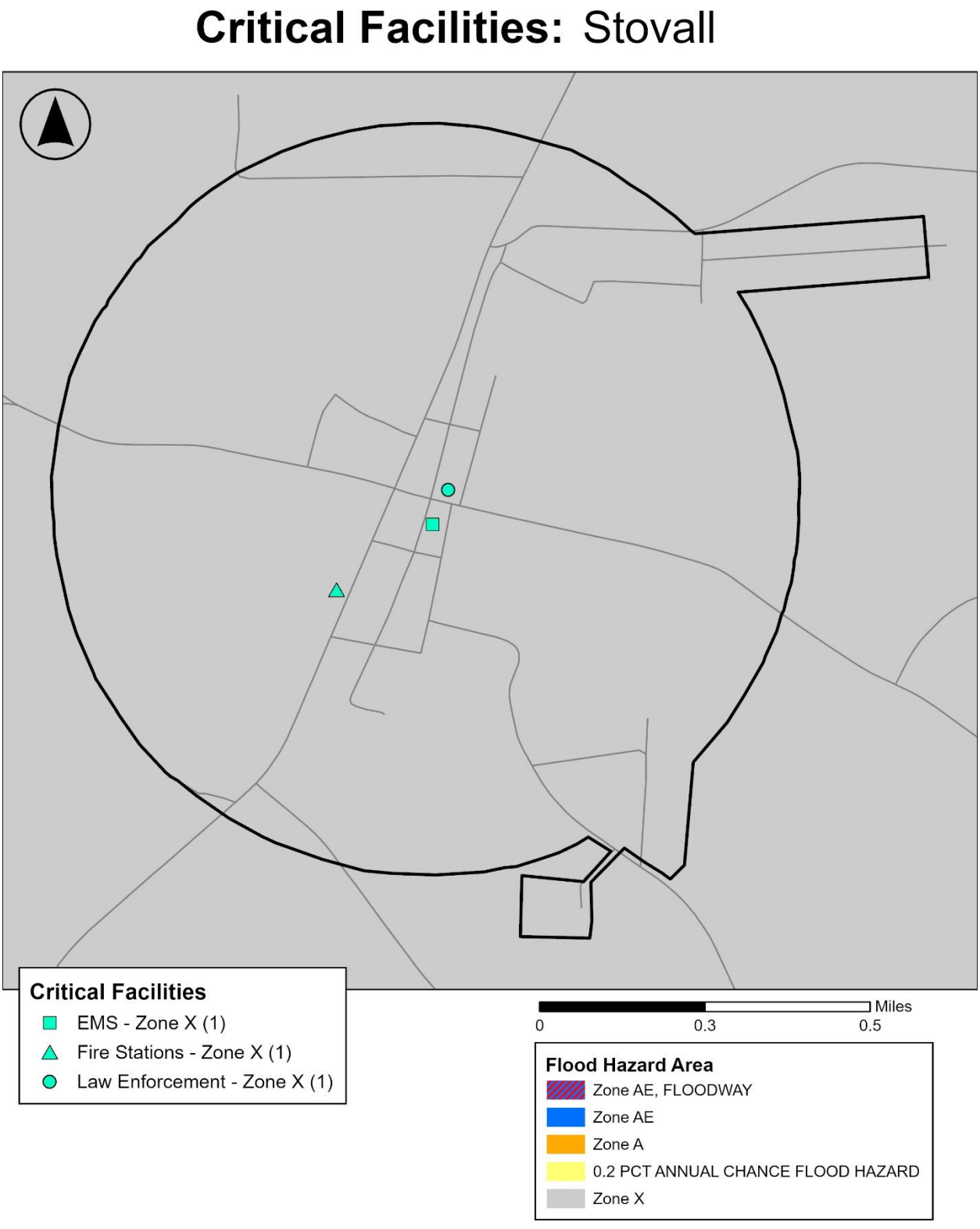


Figure 3-14: Critical Facilities – Stovall

Critical Facilities: Vance County

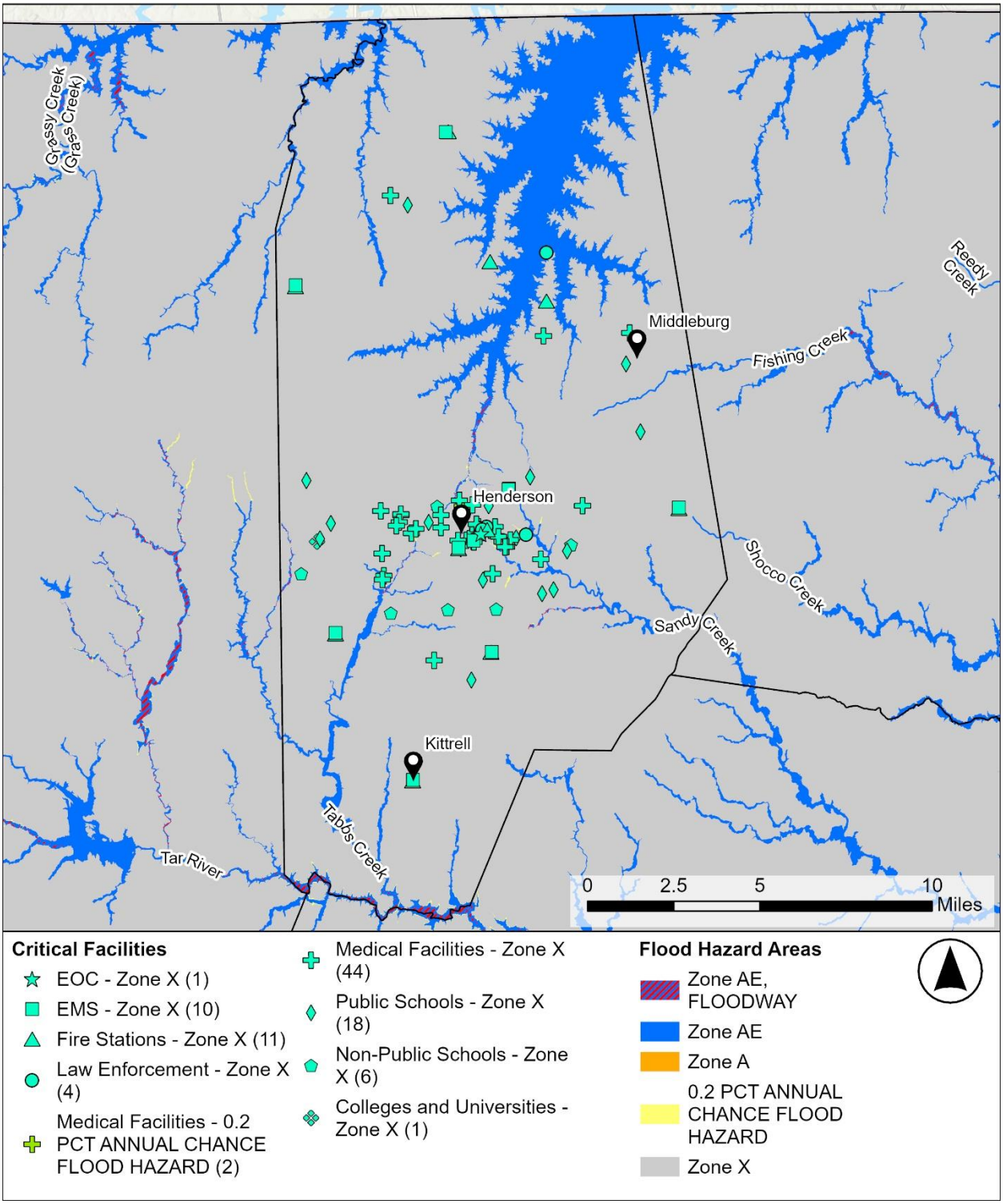


Figure 3-15: Critical Facilities - Vance County

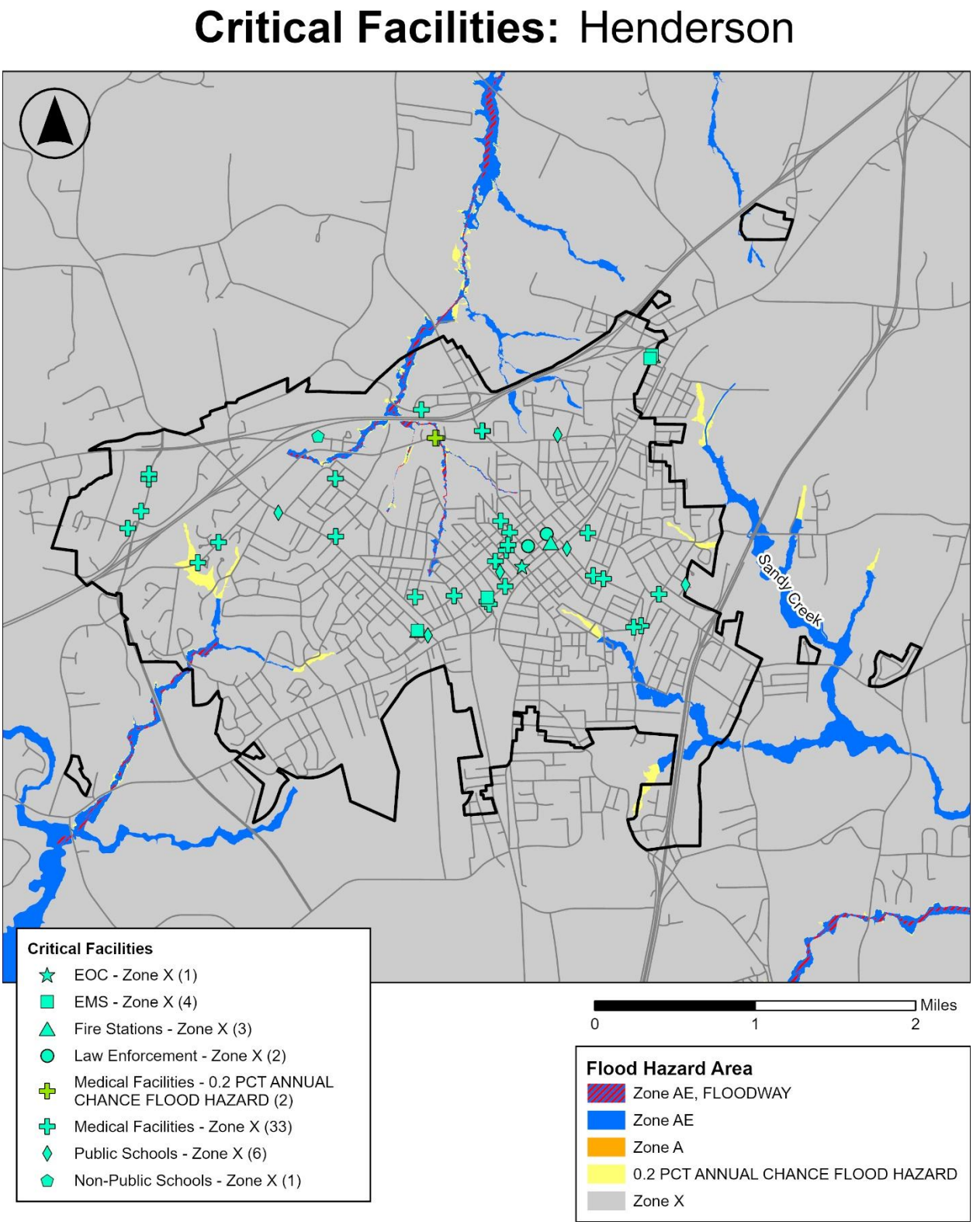


Figure 3-16: Critical Facilities - Henderson

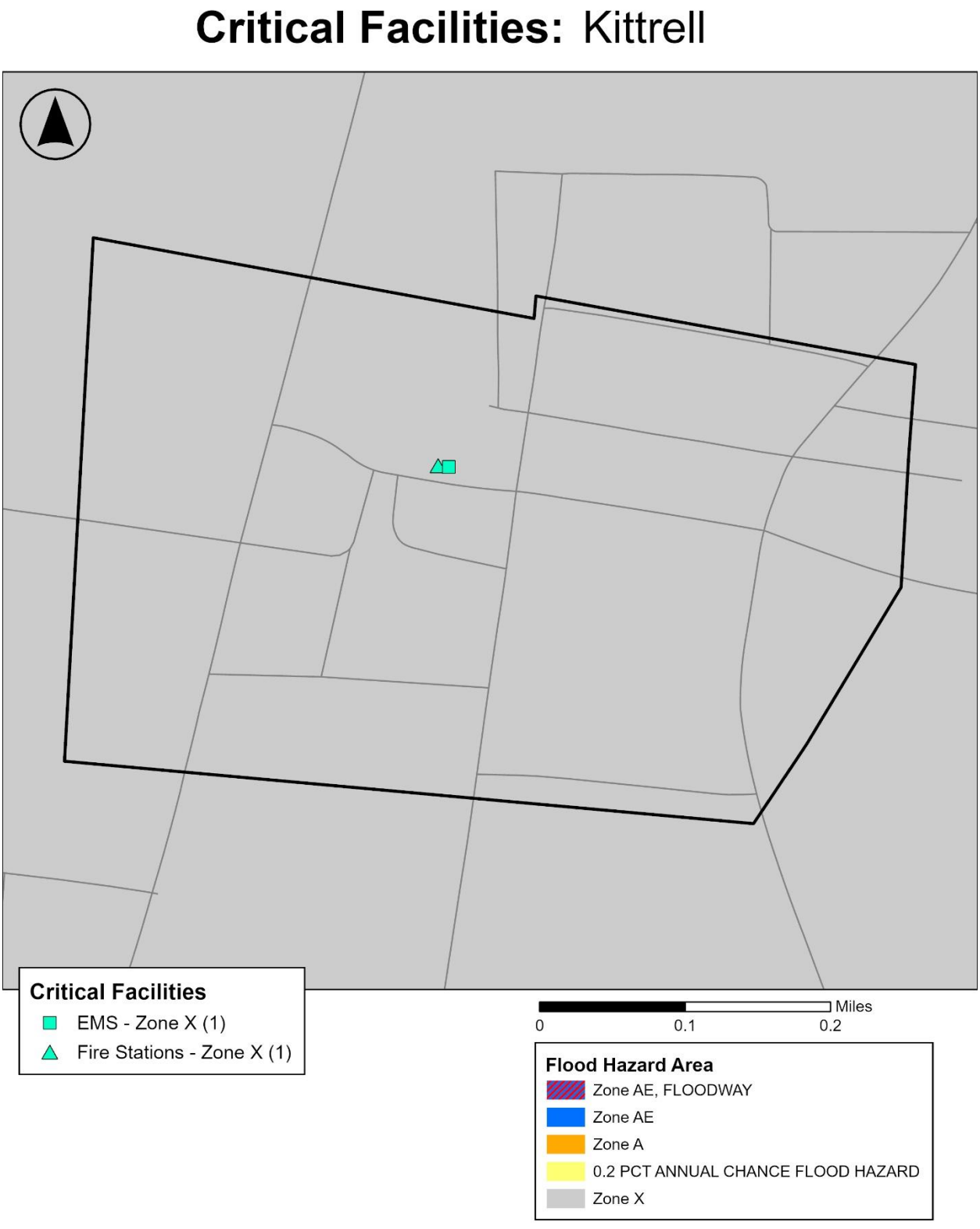
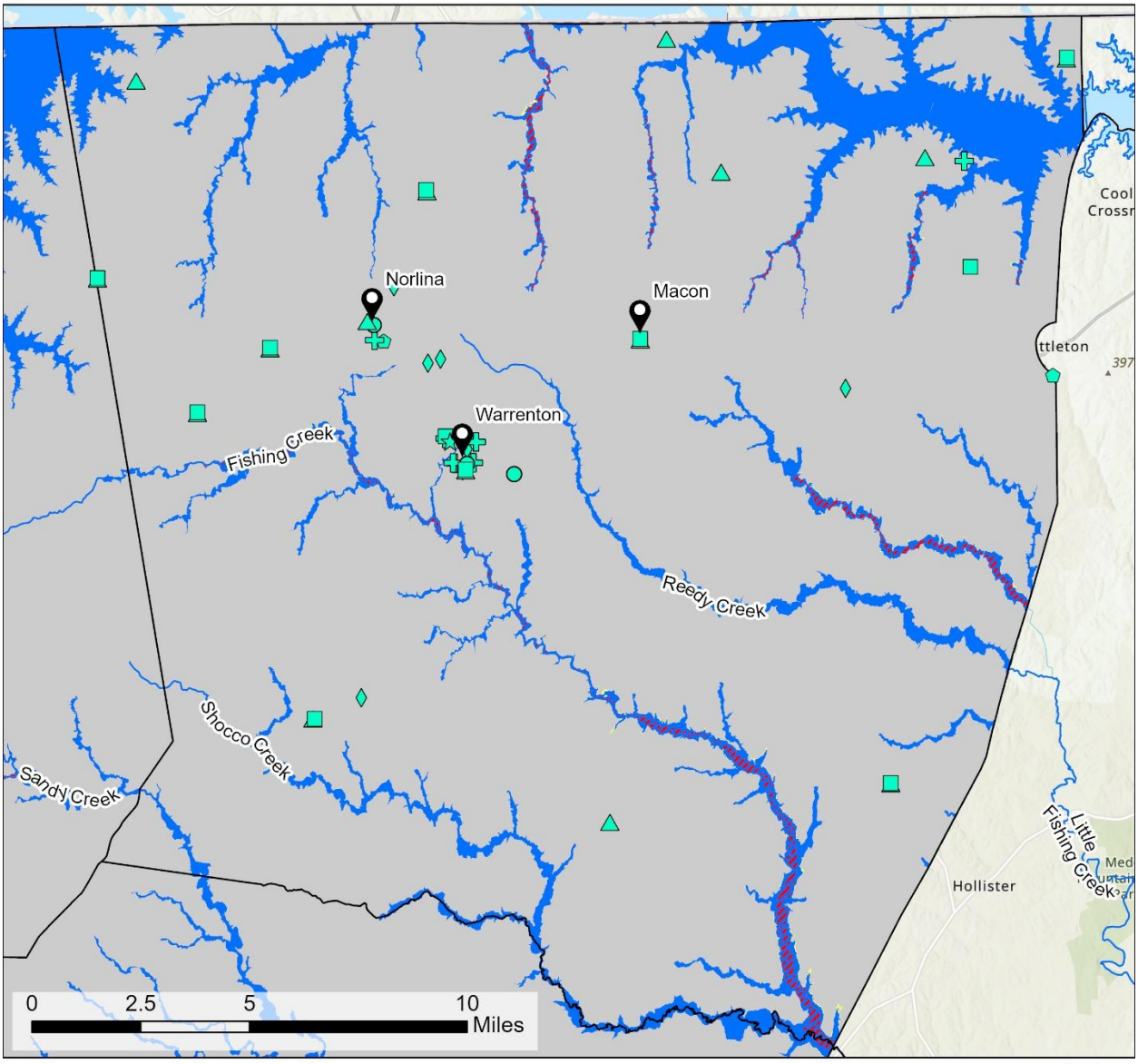


Figure 3-17: Critical Facilities - Kittrell



Figure 3-18: Critical Facilities – Middleburg

Critical Facilities: Warren County



Critical Facilities

- EOC - Zone X (1)
- EMS - Zone X (11)
- Fire Stations - Zone X (15)
- Law Enforcement - Zone X (3)
- Medical Facilities - Zone X (8)
- Public Schools - Zone X (8)
- Non-Public Schools - Zone X (2)

Flood Hazard Area

- AE, FLOODWAY
- AE
- A
- 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
- X

Figure 3-19: Critical Facilities - Warren County

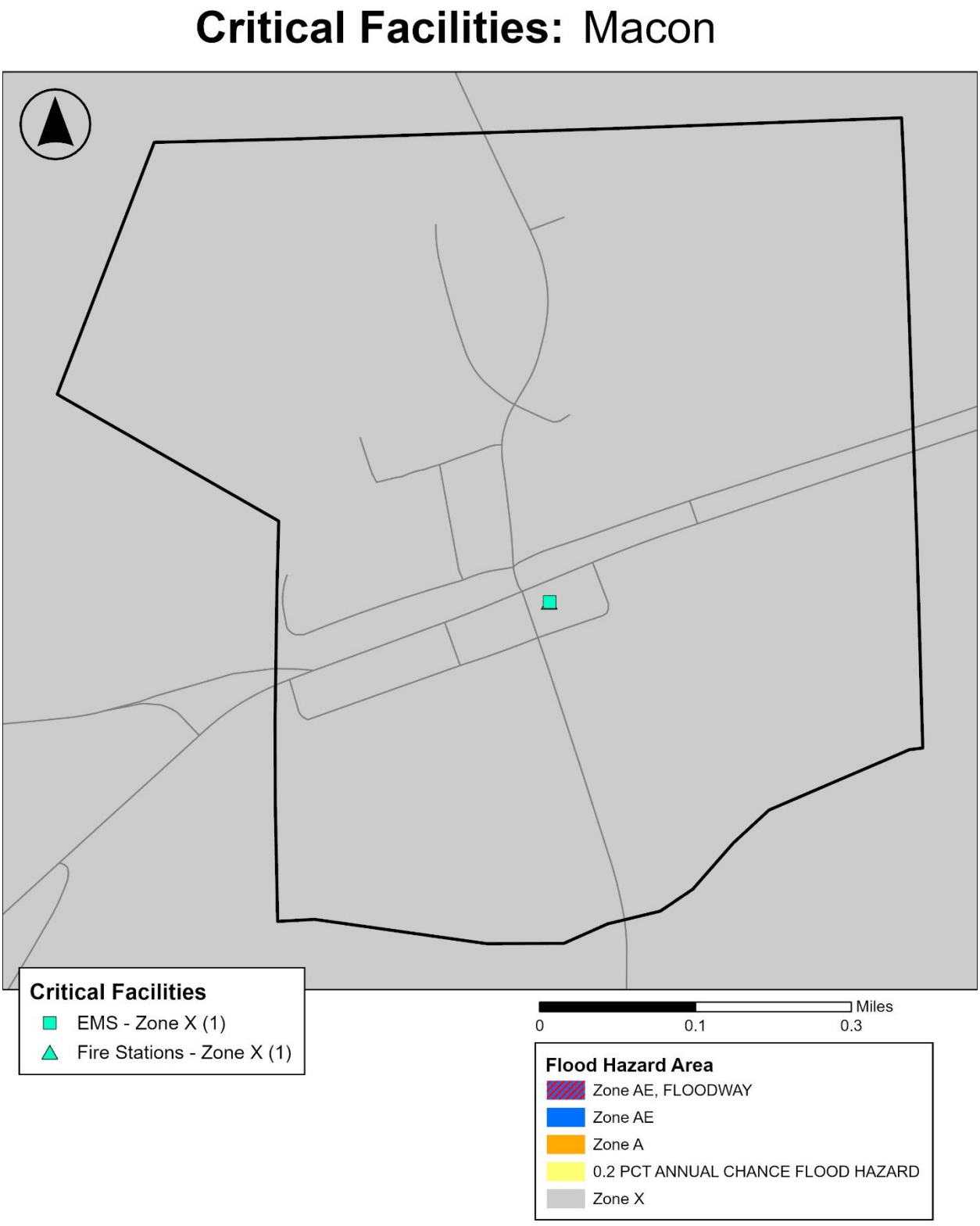


Figure 3-20: Critical Facilities - Macon

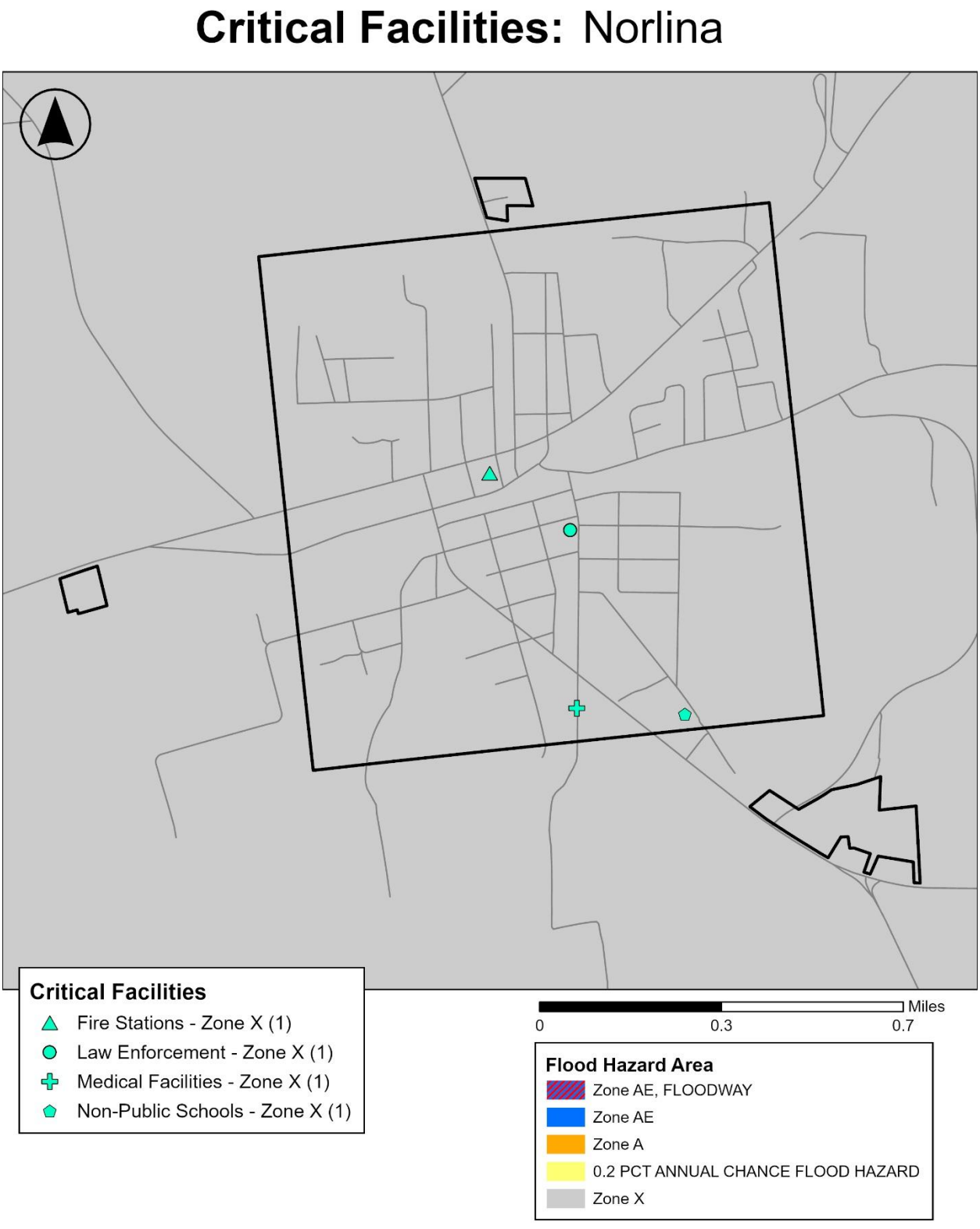


Figure 3-21: Critical Facilities - Norlina

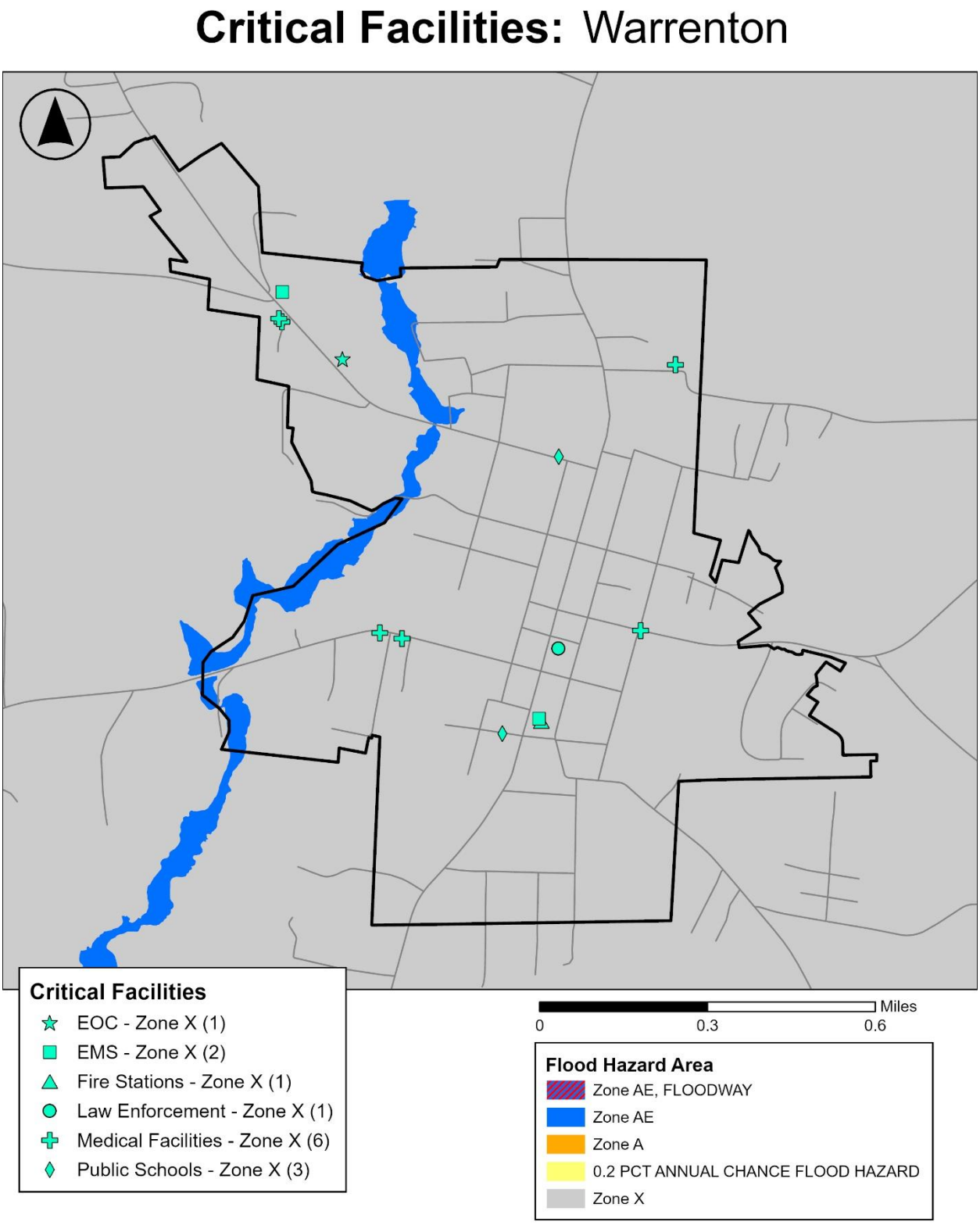


Figure 3-22: Critical Facilities - Warrenton

3.5.8. Land Use

Franklin County adopted its most recent Comprehensive Development Plan, named Franklin Next, in June 2020.[49] The Plan outlines how a majority (82%) of the County's existing land use is devoted to agriculture, as shown in Table 3-11 and Figure 3-23, with the next-highest land-use percentage being residential (9%). The Plan also contains several growth scenarios, including a Growth Allocation Map, shown in Figure 3-24depicting a scenario where the County emphasizes job creation and quality of life, with policy focused on supporting mixed uses and diverse housing choices.

Table 3-11: Franklin County Existing Land Use (2020) Statistics[49]

Franklin County Existing Land Use	Percent Area of Franklin County
Agriculture	82%
Residential	9%
Vacant	3%
Open Space	3%
Civic	2%
Mixed Use	0.5%
Right-of-Way	0.5%
Commercial	0.5%
Industrial	0.5%

In addition to Franklin County's plan, the jurisdictions listed in the following table were found to have publicly available land-use plans.

Jurisdiction	Plan	Year Adopted
Bunn	2040 Land Use Plan[50]	2022
Franklinton	Franklinton Comprehensive Land Use Plan *(Under Development 2026)*[51]	2026
Louisburg	Louisburg 2030 Comprehensive Plan[52]	2022
Youngsville	Youngsville 2050: Comprehensive Land Use and Transportation Plan[53]	2023

[49] Franklin County. (2020). *Comprehensive Plan for Franklin County, North Carolina* [PDF]. Franklin County, NC. https://www.franklincountync.gov/DocumentCenter/View/436/Comprehensive-Development-Plan-PDF?bidId=
[50] Town of Bunn. (2022). *2040 Land Use Plan*. Town of Bunn, NC. https://townofbunn.org/wp-content/uploads/2022/07/scanned2040landuse.pdf
[51] Town of Franklinton, NC. (2026). *Franklinton Comprehensive Land Use Plan*. Town of Franklinton. https://www.franklintonnc.gov/comprehensivelanduseplan
[52] Town of Louisburg. (2022). *Louisburg 2030 Comprehensive Plan*. Town of Louisburg, NC. https://townoflouisburg.org/wp-content/uploads/2022/06/Louisburg_Comp_Plan_Public_Comment_Draft.pdf
[53] Town of Youngsville. (2023). *Comprehensive Land Use & Transportation Plan*. Town of Youngsville, NC. Youngsville, North Carolina. https://www.townofyoungsville.org/departments/planning_and_zoning/comprehensive_land_use_and_transportation_plan.php

Granville County adopted its most recent Comprehensive Plan, named Planning Granville's Future, in 2018.[54] A majority (60.8%) of the County's land use is classified as agriculture or forestry, as shown in Table 3-12, with the next most significant class being institutional (church, government, school, club), with 13.9% of the area's land use. The Plan also contains several growth scenarios and a Future Land Use Map, shown in Figure 3-25, that the County will use to achieve its stated land-use goals and guide future development.

Table 3-12: Granville County Existing Land Use (2018) Statistics[54]

Granville County Existing Land Use	Percent Area of Granville County
Agriculture or Forestry	60.8%
Institutional (Church, Gov't, School, Club)	13.9%
Park, Public Land, or Cemetery	8.9%
Vacant	6.6%
Rural Residential (>3 Acres)	5.2%
Residential	3.8%
Commercial/Industrial	0.8%

In addition to Granville County's plan, the jurisdictions listed in the following table were found to have publicly available land-use plans.

Jurisdiction	Plan	Year Adopted
Butner	2040 Land Use Plan and Map[55]	2021
Creedmoor	City of Creedmoor City Plan2040[56]	2022
Oxford	City of Oxford Comprehensive Land Use Plan[57]	2023
Stem	Town of Stem Town Plan 2040[58]	2020

Vance County originally adopted its Land Use Plan in 1996 and most recently amended it in August of 2010.[59] The County developed an existing Vance County Land Use Map (2010), shown in Figure 3-26, that also depicts different types of structures in the floodplain, as well as in watershed and surface-water areas. The Plan sets five primary land use planning goals, including:

[54] Granville County. (2018). *Granville County, NC Comprehensive Plan* [PDF]. Granville County, NC. https://www.granvillecounty.org/DocumentCenter/View/2696/Granville-County-2018-Comprehensive-Plan-PDF
[55] Town of Butner. (2021). *2040 Land Use Plan and Map*. Town of Butner, NC. https://www.butnernc.org/media/6681
[56] City of Creedmoor. (2022). *City of Creedmoor CityPlan2040*. City of Creedmoor, NC. https://www.cityofcreedmoor.org/home/showpublisheddocument/7751/637873341047344876
[57] City of Oxford. (2023). *City of Oxford Comprehensive Land Use Plan*. City of Oxford, NC. https://cms8.revize.com/revize/cityofoxford/Oxford_LUP_Final_20230426_reduced.pdf
[58] Town of Stem. (2020). *Town of Stem Town Plan 2040*. Town of Stem, NC. https://storage.googleapis.com/juniper-media-library/107/2024/07/Master-Plan-Final-PB-Draft.pdf
[59] Vance County Planning & Development Department. (2010). *Vance County Land Use Plan*. Vance County, NC. https://www.vancecounty.org/wp-content/uploads/2020/07/LandusePlan_updated2010.pdf

1. To encourage development at a rate and in a pattern that can be efficiently and effectively served by existing and planned services and facilities.
2. To provide and maintain adequate county services and facilities that will accommodate economic development and growth and will protect the environment, public health, and general welfare.
3. To promote, encourage, and stimulate the conservation of existing housing stock, rehabilitation or replacement of substandard housing, and the construction of new housing stock.
4. To promote, expand, and diversify the economic base in Vance County to maximize the use of human resources while protecting important natural features and community values.
5. To conserve, protect, and encourage the wise and prudent use of Vance County's natural and cultural resources.

In addition to Vance County's plan, the City of Henderson is the only other jurisdiction with a publicly available land-use plan in the County. Henderson adopted its Comprehensive Plan 2022 in June 2022.[60]

Warren County adopted its most recent Comprehensive Development Plan in August 2022.[61] The Plan shows that agriculture is the predominant land use, accounting for 48% of the County's land area, as depicted in Table 3-13 and Figure 3-27, followed by vacant land (31%) and rural residential (11%). Warren County also developed a Future Land Use Map, shown in Figure 3-28 that highlights employment opportunities; respects drivers of development, including towns and infrastructure locations; and encourages new housing and commercial investment in appropriate areas.

In addition to Warren County's plan, the Town of Warrenton is the only other jurisdiction with a publicly available land-use plan in the County. Warrenton published its Comprehensive Plan in January 2022.[62]

Table 3-13: Warren County Existing Land Use (2022) Statistics[61]

Warren County Existing Land Use	Percent Area of Warren County
Agriculture	48%
Vacant	31%
Rural Residential	11%
Park or Conservation	4%
Residential	3%

[60] City of Henderson. (2022). *Comprehensive Plan 2022*. City of Henderson, NC. https://webgen1files1.revize.com/hendnc/Documents/Departments/Development%20Services/Comprehensive%20Plan/Henderson%20Comprehensive%20Plan_Adopted%206%2013%202022_compressed.pdf

[61] Warren County Planning, Zoning, & Enforcement Department. (2022). *Warren County Comprehensive Development Plan* [PDF]. Warren County, NC. https://www.warrencountync.com/DocumentCenter/View/5281/Warren-County-Comprehensive-Development-Plan-2022

[62] Town of Warrenton. (2022). *Comprehensive Plan*. Town of Warrenton, NC. https://www.warrenton.nc.gov/page/open/377/0/Town%20of%20Warrenton%20Comprehensive%20Plan

Warren County Existing Land Use	Percent Area of Warren County
Other	1%
Exempt/Institutional	1%
Industrial	0.5%
Commercial	0.5%

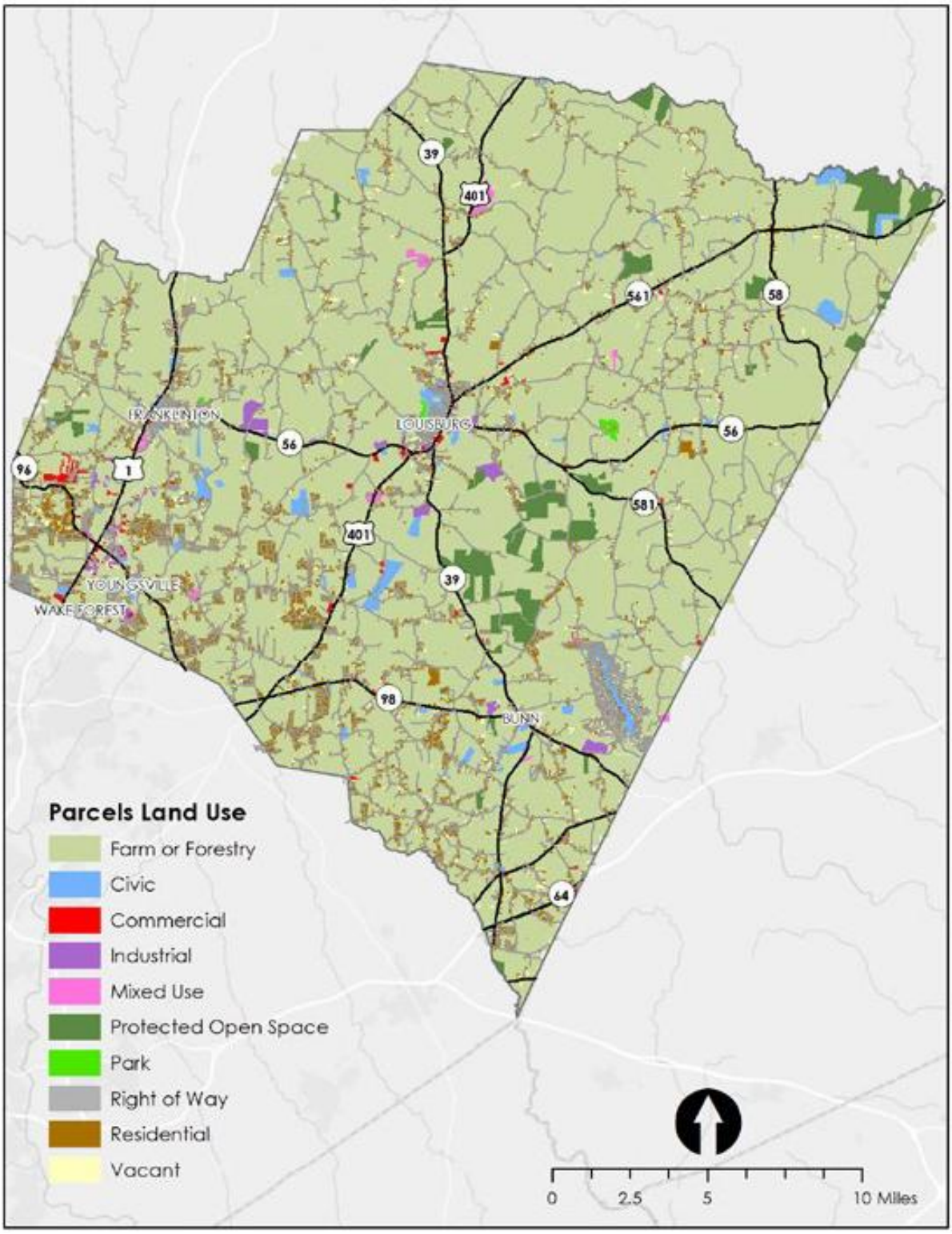


Figure 3-23: Franklin County Existing Parcel Land Use[63]

[63] Franklin County. (2020). *Comprehensive Plan for Franklin County, North Carolina* [PDF]. Franklin County, NC. https://www.franklincountync.gov/DocumentCenter/View/436/Comprehensive-Development-Plan-PDF?bidId=

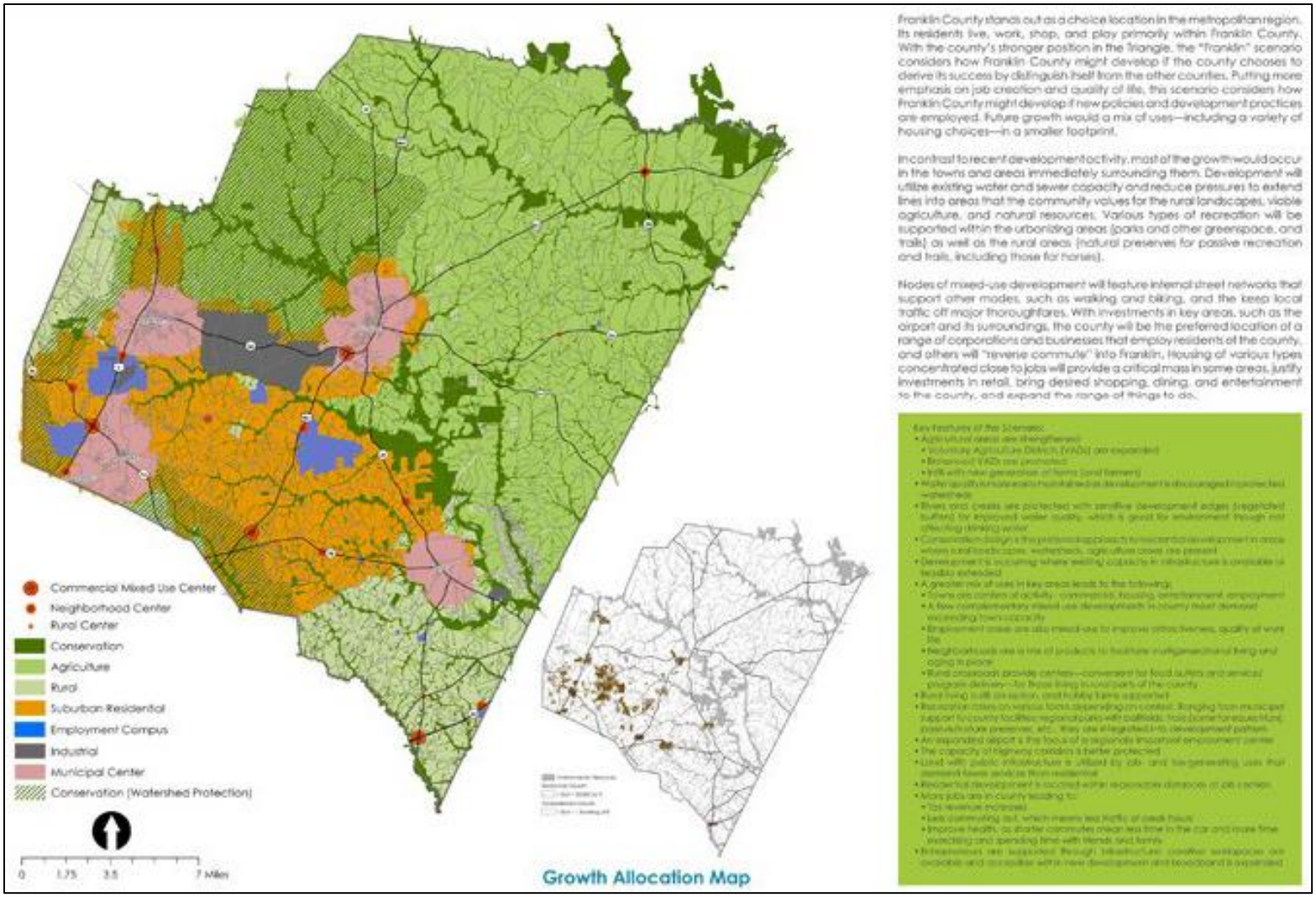


Figure 3-24: Franklin County Distinguishing Scenario Growth Allocation Map[64]

[64] Franklin County. (2020). *Comprehensive Plan for Franklin County, North Carolina* [PDF]. Franklin County, NC. https://www.franklincountync.gov/DocumentCenter/View/436/Comprehensive-Development-Plan-PDF?bidId=

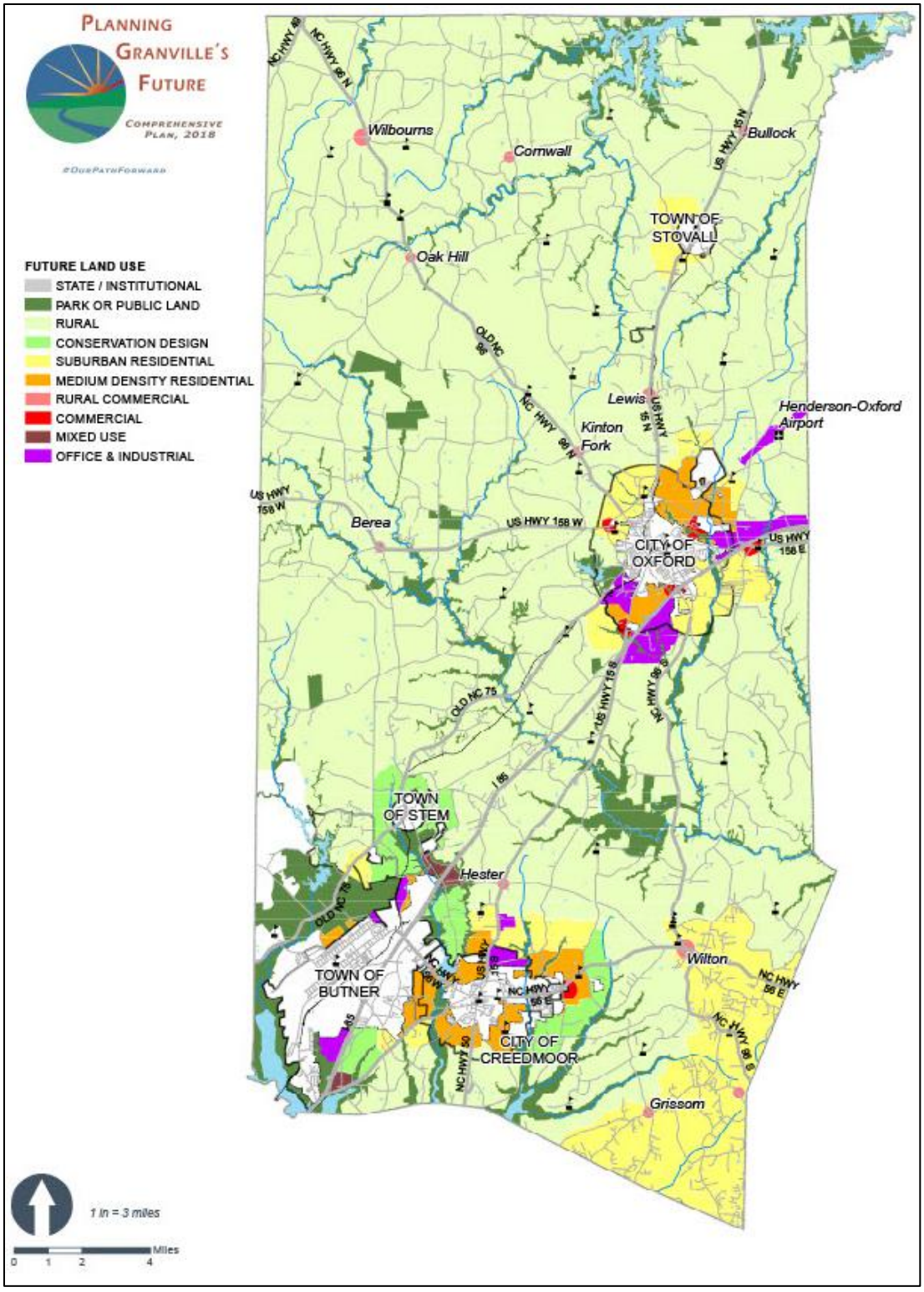


Figure 3-25: Granville County Future Land Use Map[65]

[65] Granville County. (2018). *Granville County, NC Comprehensive Plan* [PDF]. Granville County, NC. https://www.granvillecounty.org/DocumentCenter/View/2696/Granville-County-2018-Comprehensive-Plan-PDF

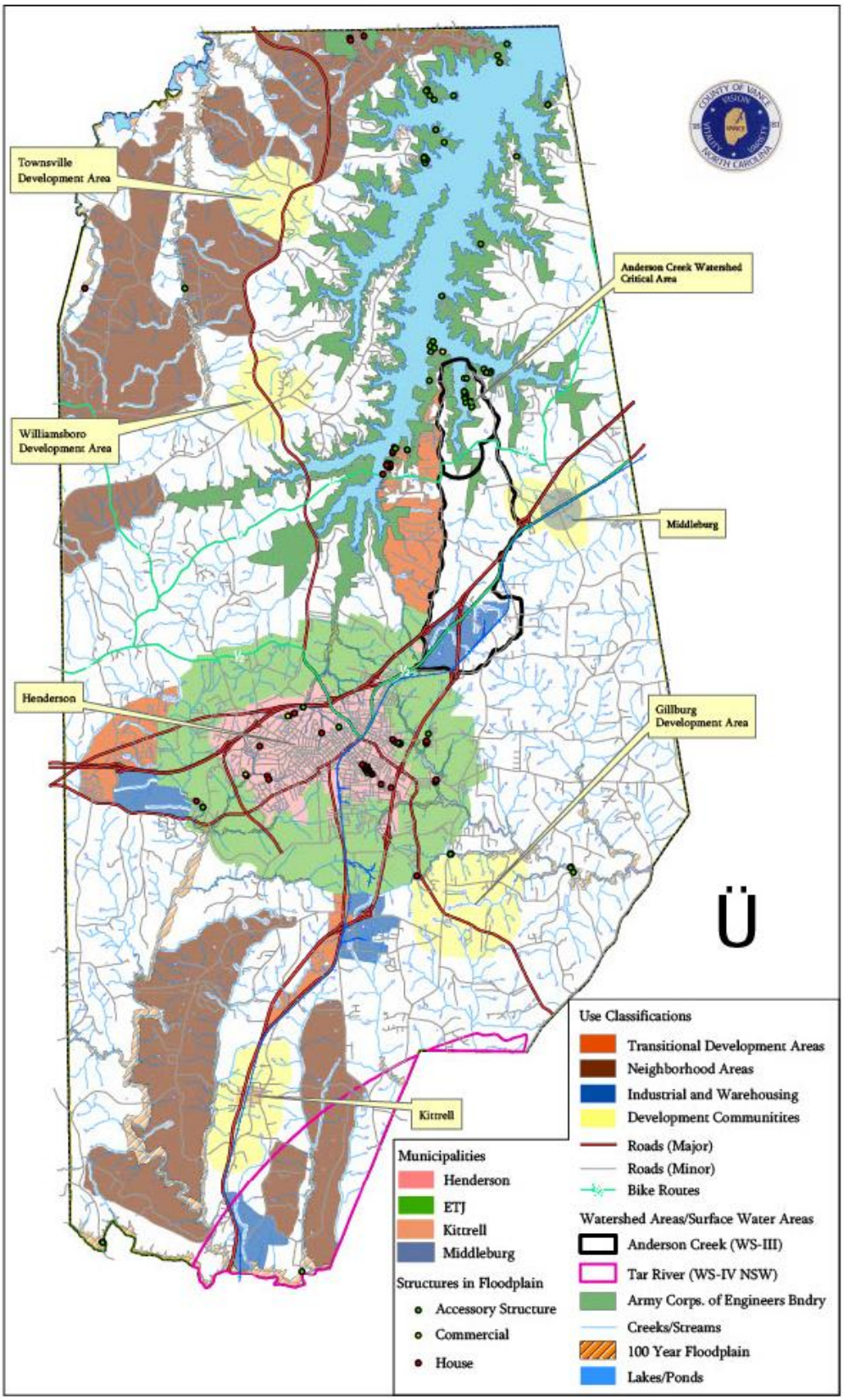


Figure 3-26: Vance County Existing Land Use Map (2010)[66]

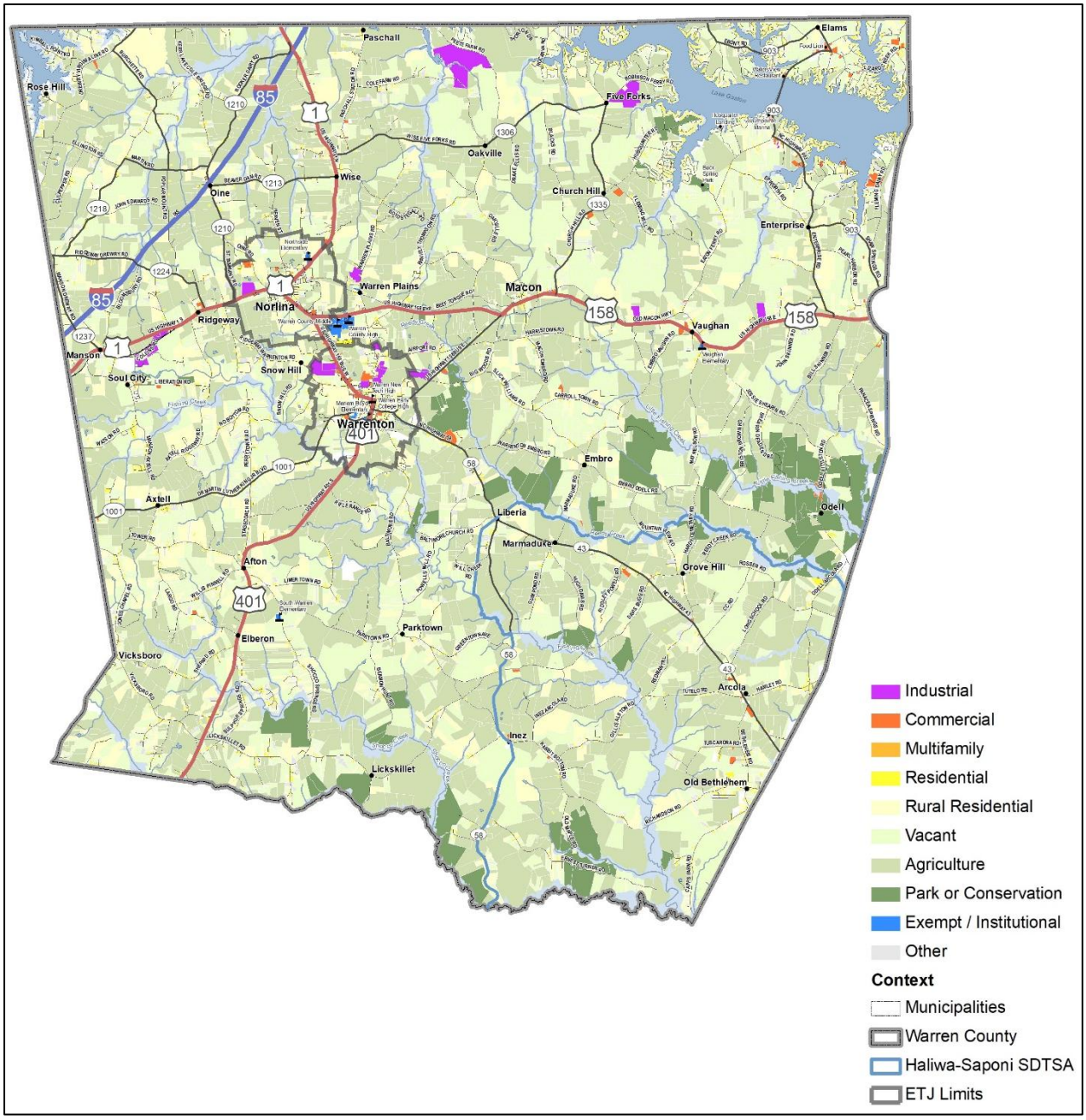


Figure 3-27: Warren County Existing Land Use Map (2022)[67]

[67] Warren County Planning, Zoning, & Enforcement Department. (2022). *Warren County Comprehensive Development Plan* [PDF]. Warren County, NC. https://www.warrencountync.com/DocumentCenter/View/5281/Warren-County-Comprehensive-Development-Plan-2022

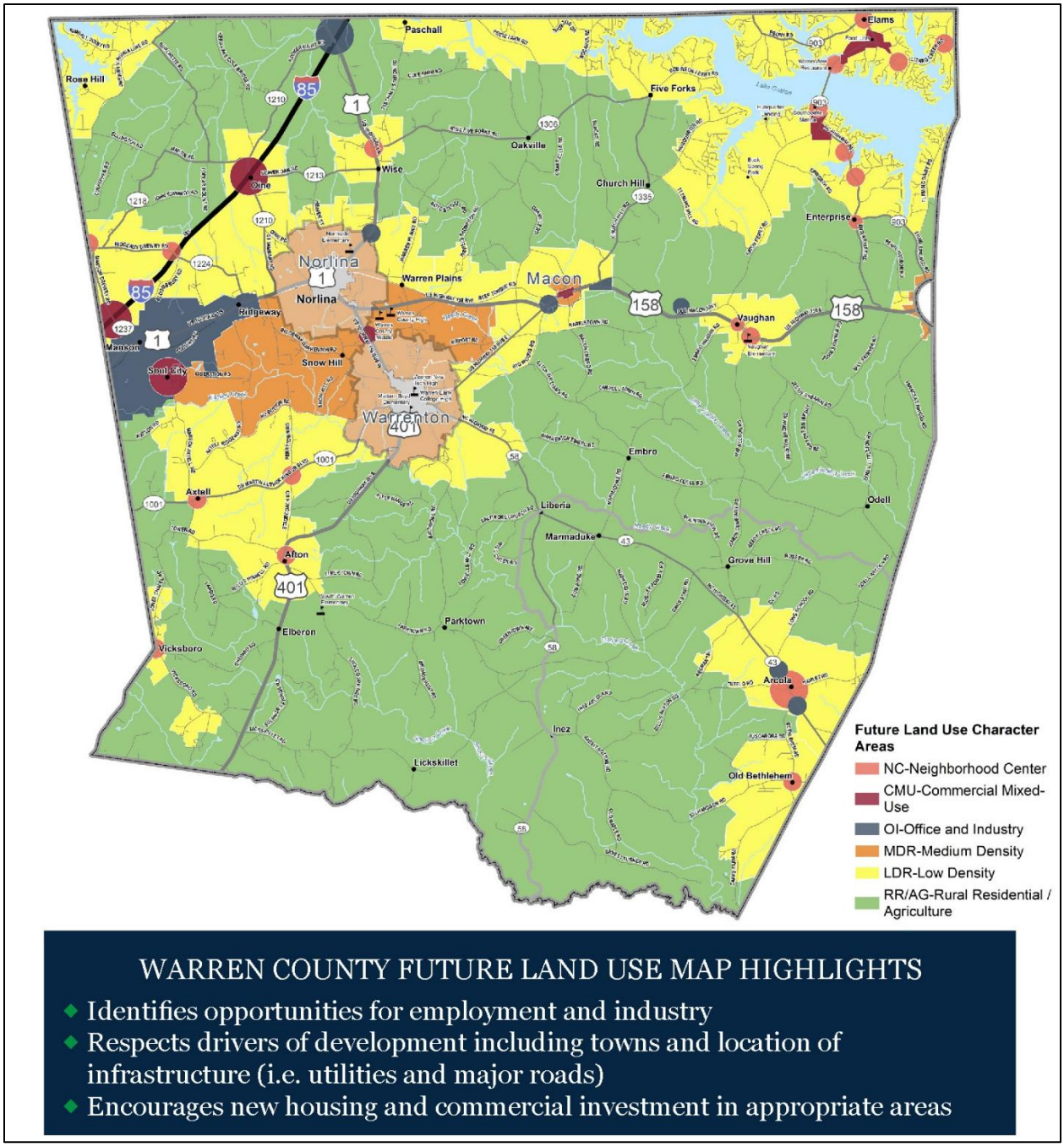


Figure 3-28: Warren County Future Land Use Map (2022)[68]

[68] Warren County Planning, Zoning, & Enforcement Department. (2022). *Warren County Comprehensive Development Plan* [PDF]. Warren County, NC. https://www.warrencountync.com/DocumentCenter/View/5281/Warren-County-Comprehensive-Development-Plan-2022

3.6. Employment and Industry

3.6.1. Franklin County

According to the 2023 ACS Employment Estimates, Franklin County had an unemployment rate of 5.5% and approximately 33,909 employed residents. The jurisdictions with the lowest unemployment rates are estimated to be Bunn (1.2%) and Youngsville (3.5%). The jurisdictions with the most significant number of employed residents are Youngsville (1,315) and Franklinton (1,175). The overall median household income in Franklin County was $71,386, and the per capita income was $33,957 as of 2023. The highest median household income was in Franklinton at $64,053, and the highest per capita income was reported in Youngsville at $34,427.

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 19.5% of employees, followed by construction (11.9%) and retail trade (11.3%). The largest employers in Franklin County were Franklin County Board of Education (1,000+ employees), County of Franklin (500-999 employees), and Novozymes North America Inc. (500-999 employees).

3.6.2. Granville County

According to the 2023 ACS Employment Estimates, Granville County had an unemployment rate of 4.4% and approximately 26,768 employed residents. The jurisdictions with the lowest unemployment rates are estimated to be Stem (2.1%), Butner (5.3%), and Creedmoor (6.1%), followed by Stovall (6.4%) and Oxford (7.2%). The jurisdictions with the most significant number of employed residents are Butner (3,572), Oxford (3,567), and Creedmoor (2,342). The median household income in Granville County was $70,975, and the per capita income was $33,166 as of 2023. The highest median household income was in Stem at $85,385, and the highest per capita income was reported in Creedmoor at $35,713.

According to the NC 2024 Quarterly Census of Employment and Wages Demand Driven Data Delivery, the largest industry in the County was health care and social assistance, accounting for 22.3% of employees, followed by manufacturing (18.6%) and public administration (12.3%). The largest employers in Granville County were the State of North Carolina Department of Health & Human Services, Food Lion, and the United States Department of Justice, each with an estimated 1,000+ employees.

3.6.3. Vance County

According to the 2023 ACS Employment Estimates, Vance County had an unemployment rate of 6.8% and approximately 18,204 employed residents. The jurisdictions with the lowest unemployment rates are estimated to be Kittrell (0.0%) and Middleburg (0.0%). The jurisdiction with the most significant number of employed residents is Henderson (6,140). The median household income in Vance County was $46,943, and the per capita income was $27,223 as of 2023. The highest median household income was in Kittrell at $98,750, and the highest per capita income was also reported in Kittrell at $44,887.

According to the NC 2024 Quarterly Census of Employment and Wages Demand Driven Data Delivery, the largest industry in the County was health care and social assistance, accounting for 15.6% of employees, followed by retail trade (14.5%) and transportation and warehousing (11.7%). The largest employers in Vance County were Wal-Mart Associates Inc., Vance County Schools, Variety Wholesalers Inc., and Dlp Partner LLC., all of which employed an estimated 500-999 residents.

3.6.4. Warren County

According to the 2023 ACS Employment Estimates, Warren County had an unemployment rate of 8.0% and approximately 7,287 employed residents. The jurisdictions with the lowest unemployment rates are estimated to be Norlina (5.7%) and Warrenton (8.4%). The jurisdiction with the most significant number of employed residents is Norlina (415). The median household income in Warren County was $45,279, and the per capita income was $31,482 as of 2023. The highest median household income was in Macon at $79,464, and the highest per capita income was reported in Warrenton at $39,551.

According to the NC 2024 Quarterly Census of Employment and Wages Demand Driven Data Delivery, the largest industry in the County was public administration, accounting for 20.2% of employees, followed by manufacturing (14.6%) and education services (13.9%). The largest employers in Warren County were Warren County Schools (250-499 employees), County of Warren (250-499 employees), and Glen Raven Inc. (100-249 employees).

Table 3-14: Rounded Regional Employment Data

Jurisdiction	ACS 2023 Employment Estimates[69]			
	Unemployment Rate	Employed	Median Household Income	Per Capita Income
Franklin County	**5.5%**	**33,909**	**$71,386**	**$33,957**
Bunn	1.2%	242	$53,750	$26,547
Franklinton	9.4%	1,175	$64,053	$30,659
Louisburg	26.6%	822	$31,827	$19,273
Youngsville	3.5%	1,315	$61,813	$34,427
Granville County	**4.4%**	**26,768**	**$70,975**	**$33,166**
Butner	5.3%	3,572	$72,917	$29,196
Creedmoor	6.1%	2,342	$77,799	$35,713
Oxford	7.2%	3,567	$48,135	$27,315
Stem	2.1%	504	$85,385	$31,466
Stovall	6.4%	102	$46,250	$29,526
Vance County	**6.8%**	**18,204**	**$46,943**	**$27,223**
Henderson	5.3%	6,140	$38,780	$24,005
Kittrell	0.0%	35	$98,750	$44,887

[69] U.S. Census Bureau. (2023). *Selected Economic Characteristics* (No. ACSDP5Y2023.DP03; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSDP5Y2023.DP03

Jurisdiction	ACS 2023 Employment Estimates[69]			
	Unemployment Rate	Employed	Median Household Income	Per Capita Income
Middleburg	0.0%	82	-	$28,916
Warren County	**8.0%**	**7,287**	**$45,279**	**$31,482**
Macon	27.3%	32	$79,464	$29,082
Norlina	5.7%	415	$34,659	$27,460
Warrenton	8.4%	382	$37,188	$39,551

Table 3-15: Percent of Employment in Different Employment Sectors in the Planning Area for 2024[70]

Employment Sectors	Franklin County	Granville County	Vance County	Warren County
Accommodation and Food Services	6.87%	5.85%	9.91%	10.13%
Administrative and Support and Waste Management and Remediation Services	6.49%	4.96%	3.90%	3.38%
Agriculture, Forestry, Fishing and Hunting	1.26%	0.84%	0.00%	4.46%
Arts, Entertainment, and Recreation	0.90%	0.26%	2.07%	0.73%
Construction	11.89%	4.07%	2.51%	2.61%
Educational Services	9.66%	5.81%	10.73%	13.85%
Finance and Insurance	1.99%	0.73%	1.27%	1.29%
Health Care and Social Assistance	6.88%	22.32%	15.59%	6.65%
Information	0.60%	0.26%	0.88%	0.00%
Management of Companies and Enterprises	0.00%	0.12%	0.37%	0.00%
Manufacturing	19.46%	18.57%	10.60%	14.55%
Mining, Quarrying, and Oil and Gas Extraction	0.20%	0.00%	0.00%	0.00%
Other Services (except Public Administration)	2.67%	1.33%	1.96%	2.30%
Professional, Scientific, and Technical Services	3.86%	2.70%	2.40%	1.64%
Public Administration	8.57%	12.31%	6.50%	20.19%
Real Estate and Rental and Leasing	0.52%	0.33%	1.33%	1.15%

[70] North Carolina Department of Commerce. (2024). *Quarterly Census of Employment and Wages* (Tabular No. QCEW). Demand Driven Data Delivery (D4). https://d4.nccommerce.com/QCEWSelection.aspx

Employment Sectors	Franklin County	Granville County	Vance County	Warren County
Retail Trade	11.29%	8.39%	14.53%	13.64%
Transportation and Warehousing	3.43%	9.33%	11.69%	2.78%
Unclassified	0.00%	0.00%	0.00%	0.00%
Utilities	0.00%	0.45%	0.40%	0.00%
Wholesale Trade	3.48%	1.38%	3.36%	0.66%

Table 3-16: Top 10 Industries and Employers for Each County in the Planning Area in 2024[71]

Employment Rank	Franklin County			Granville County		
	Employer	Industry	Range of Employees	Employer	Industry	Range of Employees
1	Franklin County Board of Education	Educational Services	1000+	State of NC Dept of Health & Human	Health Care and Social Assistance	1000+
2	County of Franklin	Public Administration	500-999	Food Lion	Transportation and Warehousing	1000+
3	Novozymes North America inc	Manufacturing	500-999	US Department of Justice	Public Administration	1000+
4	Captive-Aire Systems Inc	Manufacturing	250-499	Granville County Schools	Educational Services	500-999
5	K-Flex Usa LLC	Manufacturing	250-499	Altec Industries Inc	Manufacturing	500-999
6	Wal-Mart Associates Inc	Retail Trade	100-249	Revlon Consumer Products LLC	Manufacturing	500-999
7	East Coast Drilling & Blasting Inc	Construction	100-249	Granville Health System	Health Care and Social Assistance	500-999
8	Southwire Company LLC	Wholesale Trade	100-249	County of Granville	Public Administration	250-499
9	Amcor Rigid Plastics Usa LLC	Manufacturing	100-249	Food Lion LLC	Transportation and Warehousing	250-499

[71] North Carolina Department of Commerce. (2024). *Quarterly Census of Employment and Wages Largest Employers* (Tabular No. QCEW). Demand Driven Data Delivery (D4). https://d4.nccommerce.com/QCEWLargestEmployers.aspx

Employment Rank	Franklin County			Granville County		
	Employer	Industry	Range of Employees	Employer	Industry	Range of Employees
10	Robling Medical Inc	Manufacturing	100-249	Certainteed Corporation	Manufacturing	250-499
Employment Rank	**Vance County**			**Warren County**		
	Employer	**Industry**	**Range of Employees**	**Employer**	**Industry**	**Range of Employees**
1	Wal-Mart Associates Inc	Transportation and Warehousing	500-999	Warren County Schools	Educational Services	250-499
2	Vance County Schools	Educational Services	500-999	County of Warren	Public Administration	250-499
3	Variety Wholesalers Inc	Transportation and Warehousing	500-999	Glen Raven Inc	Manufacturing	100-249
4	Dlp Partner LLC	Health Care and Social Assistance	500-999	NC Department of Adult Corrections	Public Administration	100-249
5	County of Vance	Public Administration	250-499	Food Lion	Retail Trade	50-99
6	Vance Granville Community College	Educational Services	250-499	Smoke House Lumber Company	Manufacturing	50-99
7	Ardagh Glass Inc	Manufacturing	250-499	Cast Stone Systems Inc	Manufacturing	50-99
8	M R Williams Inc	Wholesale Trade	250-499	Comfort of Home Care Agency Inc	Health Care and Social Assistance	50-99
9	City of Henderson	Public Administration	250-499	Youth Camps For Christ Inc	Accommodation and Food Services	Below 50
10	Henderson Collegiate Inc	Educational Services	100-249	Alpha Magnolia Garden LLC	Health Care and Social Assistance	Below 50

3.7. Addendum

The Municipal Boundaries (2025) GIS layer obtained from NCDOT and used for the maps in this plan contained slightly outdated jurisdictional boundaries for the Town of Franklinton due to recent annexations between 2023 and 2025. However, given the map scale, hazard data can still be viewed for the missing incorporated areas of Franklinton. Please see Figure 3-29 for the Town of Franklinton's up-to-date boundary map, based on the incorporated boundary corrections from the U.S. Census Boundary and Annexations Survey.[72]

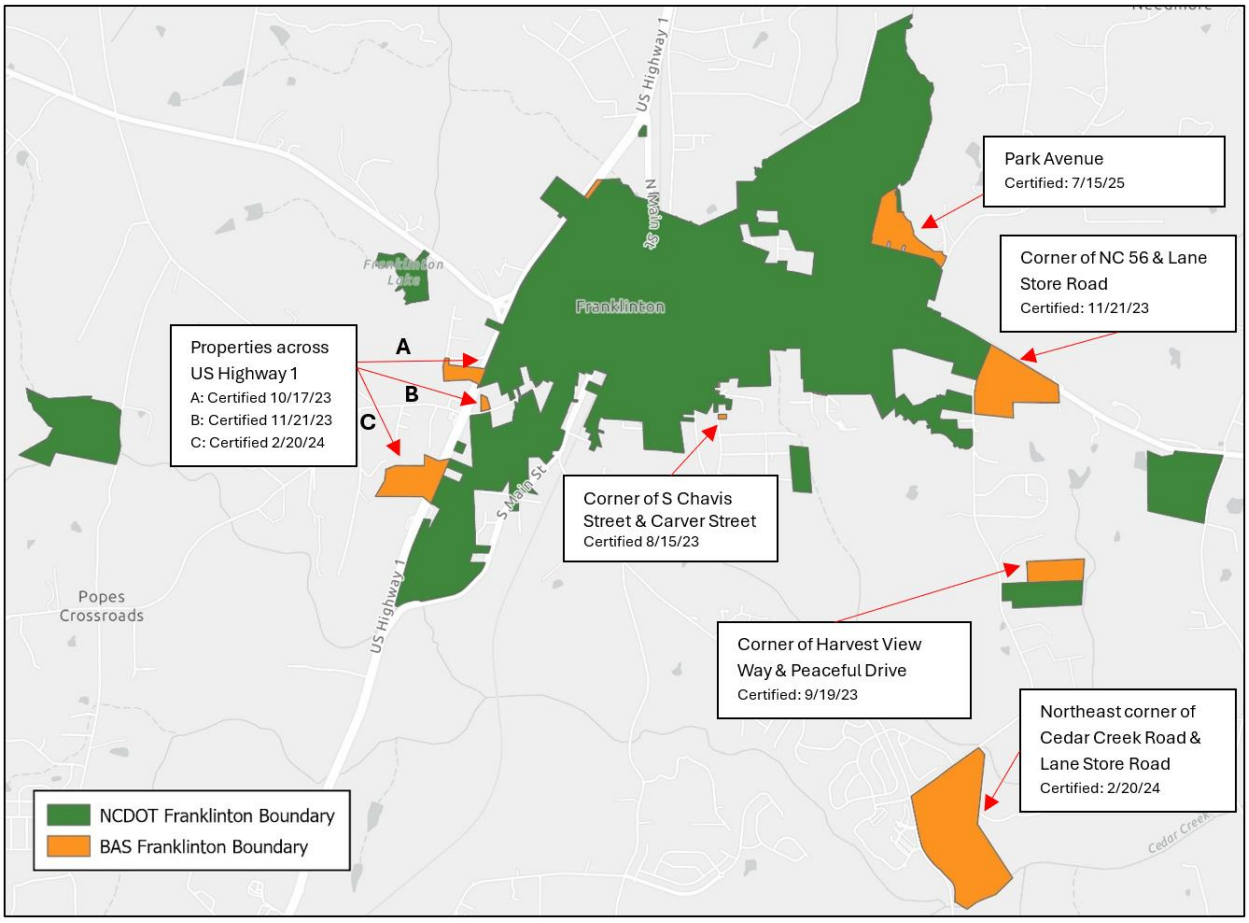


Figure 3-29: Town of Franklinton Incorporated Boundary Corrections From the U.S. Census Boundary and Annexations Survey (BAS) Due to Recent Annexations

[72] North Carolina Office of the Secretary of State Land Records Office. (2026). *Municipal Boundaries*. NC OneMap. https://www.nconemap.gov/pages/ed47506371644affaf4a1c8781af1729

SECTION 4: HAZARD IDENTIFICATION

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

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

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

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 Tar River 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 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 the 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 Tar River planning area.

Table 4-1: Description of the Full Range of Initially Identified Hazards[1]

State of NC Enhanced HMP (2023) Hazard Identification	Description
Natural Hazards Identified	
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

[1] North Carolina Department of Public Safety. (2023, January 31). 2023 State Hazard Mitigation Plan [PDF]. https://www.ncdps.gov/20230125-2023-nc-shmp-final-publicpdf/open

State of NC Enhanced HMP (2023) Hazard Identification	Description
	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.
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.
Excessive Heat	Excessive heat is a dangerous and deadly occurrence in North Carolina. According to the National Weather Service (NWS), 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.
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.
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

State of NC Enhanced HMP (2023) Hazard Identification	Description
	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.
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.
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.
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.
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

State of NC Enhanced HMP (2023) Hazard Identification	Description
	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.
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.
Technological Hazards Identified	
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

State of NC Enhanced HMP (2023) Hazard Identification	Description
	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.
Hazardous Substances	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 CFR 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.

4.3. Disaster Declarations

To further focus on the list of identified hazards for this plan update, the HMPC researched past events that led to federal disaster declarations to identify known hazards. Table 4-2 and Error! Reference source not found. present a list of all major disaster declarations that have occurred in Franklin, Granville, Vance, and Warren Counties, respectively, since 1953. These tables provide the foundation for identifying which hazards pose the greatest risk to the region.

Table 4-2: Major Disaster and Emergency Declarations in the Tar River Region (1964-2025)[2]

Disaster Number	Declaration Type	Year	Description	Franklin (County)	Granville (County)	Vance (County)	Warren (County)
3608	EM	2024	TROPICAL STORM DEBBY	X	X	X	X
3617	EM	2024	HURRICANE HELENE	X	X	X	X
3586	EM	2022	HURRICANE IAN	X	X	X	X
4487	DR	2020	COVID-19 PANDEMIC	X	X	X	X
3534	EM	2020	HURRICANE ISAIAS	X	X	X	X
3471	EM	2020	COVID-19	X	X	X	X
4412	DR	2019	TROPICAL STORM MICHAEL		X	X	
3423	EM	2019	HURRICANE DORIAN	X	X	X	X
4393	DR	2018	HURRICANE FLORENCE		X		
3401	EM	2018	HURRICANE FLORENCE	X	X	X	X
4285	DR	2016	HURRICANE MATTHEW	X			X
3380	EM	2016	HURRICANE MATTHEW	X	X	X	X
4167	DR	2014	SEVERE WINTER STORM		X		
4019	DR	2011	HURRICANE IRENE			X	X
3222	EM	2005	HURRICANE KATRINA EVACUATION	X	X	X	X
1490	DR	2003	HURRICANE ISABEL	X	X	X	X
1457	DR	2003	ICE STORM		X		
1448	DR	2002	SEVERE ICE STORM	X	X	X	X
1312	DR	2000	SEVERE WINTER STORM	X	X	X	X
3146	EM	1999	HURRICANE FLOYD EMERGENCY DECLARATIONS	X	X	X	X
1292	DR	1999	HURRICANE FLOYD MAJOR DISASTER DECLARATIONS	X	X	X	X
1134	DR	1996	HURRICANE FRAN	X	X	X	X
1103	DR	1996	WINTER STORM				X
1087	DR	1996	BLIZZARD OF 96	X	X	X	X
3110	EM	1993	SEVERE SNOWFALL & WINTER STORM	X	X	X	X
827	DR	1989	TORNADOES		X		
818	DR	1988	SEVERE STORMS & TORNADOES	X			
3049	EM	1977	DROUGHT	X	X	X	X
3033	EM	1977	DROUGHT & FREEZING	X	X	X	X
Total Number of Disasters				**22**	**25**	**22**	**23**

[2] United States Federal Emergency Management Agency. (2025). *OpenFEMA dataset: Disaster Declarations Summaries – v2*. FEMA. Retrieved December 4, 2025, from https://www.fema.gov/openfema-data-page/disaster-declarations-summaries-v2

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 regional plan. This table examines whether or not the hazard was included in the 2018 State of North Carolina Enhanced Hazard Mitigation Plan and the Tar River Regional Hazard Mitigation Plan. This table summarizes the hazards identified for inclusion, those not identified, and the reasoning for the decision.

Table 4-3: Summary of Hazard Identification and Prioritization

State of NC Enhanced HMP (2023) Hazard Identification	Prioritized Hazard for the Tar River Plan?	Why?
Natural Hazards		
Dam Failures	Yes	The HMPC identified notable vulnerabilities to this natural hazard in the region. The hazard can significantly impact the region, given its assessed frequency, severity, and extent.
Drought	Yes	The HMPC identified notable vulnerabilities to this natural hazard in the region. The hazard can significantly impact the region, given its assessed frequency, severity, and extent.
Earthquakes	Yes	The HMPC identified notable vulnerabilities to this natural hazard in the region. The hazard can significantly impact the region, given its assessed frequency, severity, and extent.
Excessive Heat	Yes	The HMPC identified notable vulnerabilities to this natural hazard in the region. The hazard can significantly impact the region, given its assessed frequency, severity, and extent. The Tar River RHMP specifically includes this hazard as “Extreme Heat.”
Flooding	Yes	The HMPC identified notable vulnerabilities to this natural hazard in the region. The hazard can significantly impact the region, given its assessed frequency, severity, and extent.
Geological	No	The HMPC decided not to include geological hazards in the Tar River RHMP because Franklin, Granville, Vance, and Warren Counties are located in the inland, northern Piedmont region of North Carolina, where landslides, sinkholes, coastal erosion, and other geology-related hazards are uncommon, have limited documented impacts, and do not present a significant risk relative to the other hazards evaluated in the planning area.
Hurricanes & Coastal Hazards	Yes	The HMPC identified notable vulnerabilities to this natural hazard in the region. The hazard can significantly impact the region, given its assessed frequency, severity, and extent. The Tar River RHMP specifically includes this hazard as “Hurricane/Tropical Storm.”

State of NC Enhanced HMP (2023) Hazard Identification	Prioritized Hazard for the Tar River Plan?	Why?
Infectious Disease	No	The HMPC decided not to include infectious disease as a natural hazard in the Tar River RHMP because monitoring, prevention, and response to communicable diseases in the region are primarily managed through established public health systems and agencies, and such events are typically addressed through public health planning and emergency response frameworks rather than through the hazard mitigation strategies evaluated in this plan.
Severe Winter Weather	Yes	The HMPC identified notable vulnerabilities to this natural hazard in the region. The hazard can significantly impact the region, given its assessed frequency, severity, and extent. The Tar River RHMP specifically includes this hazard as “Winter Storm (Winter Weather & Ice Storm).”
Tornadoes / Thunderstorms	Yes	The HMPC identified notable vulnerabilities to these natural hazards in the region. The hazards can significantly impact the region, given their assessed frequency, severity, and extent. The Tar River RHMP includes Tornadoes as a natural hazard and specifically incorporates thunderstorms into the “Severe Weather (Thunderstorm Wind, Lightning & Hail)” hazard.
Wildfire	Yes	The HMPC identified notable vulnerabilities to this natural hazard in the region. The hazard can significantly impact the region, given its assessed frequency, severity, and extent.
Technological Hazards		
Civil Disturbance	No	The HMPC decided not to include civil disturbance in the Tar River RHMP because the participating jurisdictions are predominantly rural, have relatively low population densities, and have a limited history of large-scale public disturbances or riots that have resulted in widespread property damage or long-term community impacts.
Cyber	No	The HMPC decided not to include cyber hazards in the Tar River RHMP because there is a limited, publicly documented history of large-scale cyber incidents in the region that have caused widespread community disruption or infrastructure impacts.
Electromagnetic Pulse	No	The HMPC decided not to include electromagnetic pulse hazards in the Tar River RHMP because the probability of a significant EMP event affecting the region is considered extremely low.
Food Emergency	No	The HMPC decided not to include food emergencies in the Tar River RHMP because there is a limited documented history of large-scale food contamination or supply-disruption events affecting multiple jurisdictions across the region.
Hazardous Substances	No	The HMPC decided not to include hazardous substance incidents as a hazard in the Tar River RHMP because available records indicate that past releases in Franklin, Granville, Vance, and Warren Counties have generally been small-scale, localized, and not associated with widespread or long-term community impacts.

State of NC Enhanced HMP (2023) Hazard Identification	Prioritized Hazard for the Tar River Plan?	Why?
Radiological Emergencies	No	The HMPC decided not to include radiological emergencies in the Tar River RHMP because there are no nuclear power plants or major radiological facilities located in the region, and there is limited exposure to fixed radiological sources that could produce a region-wide incident. None of the participating jurisdictions are within the 10-mile Emergency Planning Zone of a nuclear facility.
Terrorism	No	The HMPC decided not to include terrorism as a hazard in the Tar River RHMP because Franklin, Granville, Vance, and Warren Counties contain relatively few high-profile or nationally significant targets and have no documented history of terrorist incidents with reported impacts.

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

- Dam Failure
- Drought
- Earthquake
- Extreme Heat
- Hurricane/Tropical Storm
- Flooding
- Severe Weather (Thunderstorm Wind, Lightning & Hail)
- Tornado
- Wildfire
- Winter Storm (Winter Weather & Ice Storm)

SECTION 5: INTRODUCTION

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

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

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

5.1. Overview

The Hazard Mitigation Planning Committee (HMPC) recognizes the need to continually capture and update risk assessment data as development and hazards occur across 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 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 was 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 vulnerability levels. 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 of the hazard on people, first responders, continuity of operations, the built environment, the economy, and the natural environment.

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

Study Area

Franklin County includes four participating municipalities; Granville County includes five; Vance County includes three; and Warren County includes three. Table 5-1 provides a summary of the participating jurisdictions by County. Figure 5-1 provides a base map, for reference, of the Tar River Region and the participating jurisdictions.

Table 5-1: Participating Jurisdictions

Franklin County	Granville County	Vance County	Warren County
Town of Bunn	Town of Butner	City of Henderson	Town of Macon
Town of Franklinton	City of Creedmoor	Town of Kittrell	Town of Norlina
Town of Louisburg	City of Oxford	Town of Middleburg	Town of Warrenton
Town of Youngsville	Town of Stem	--	--
--	Town of Stovall	--	--

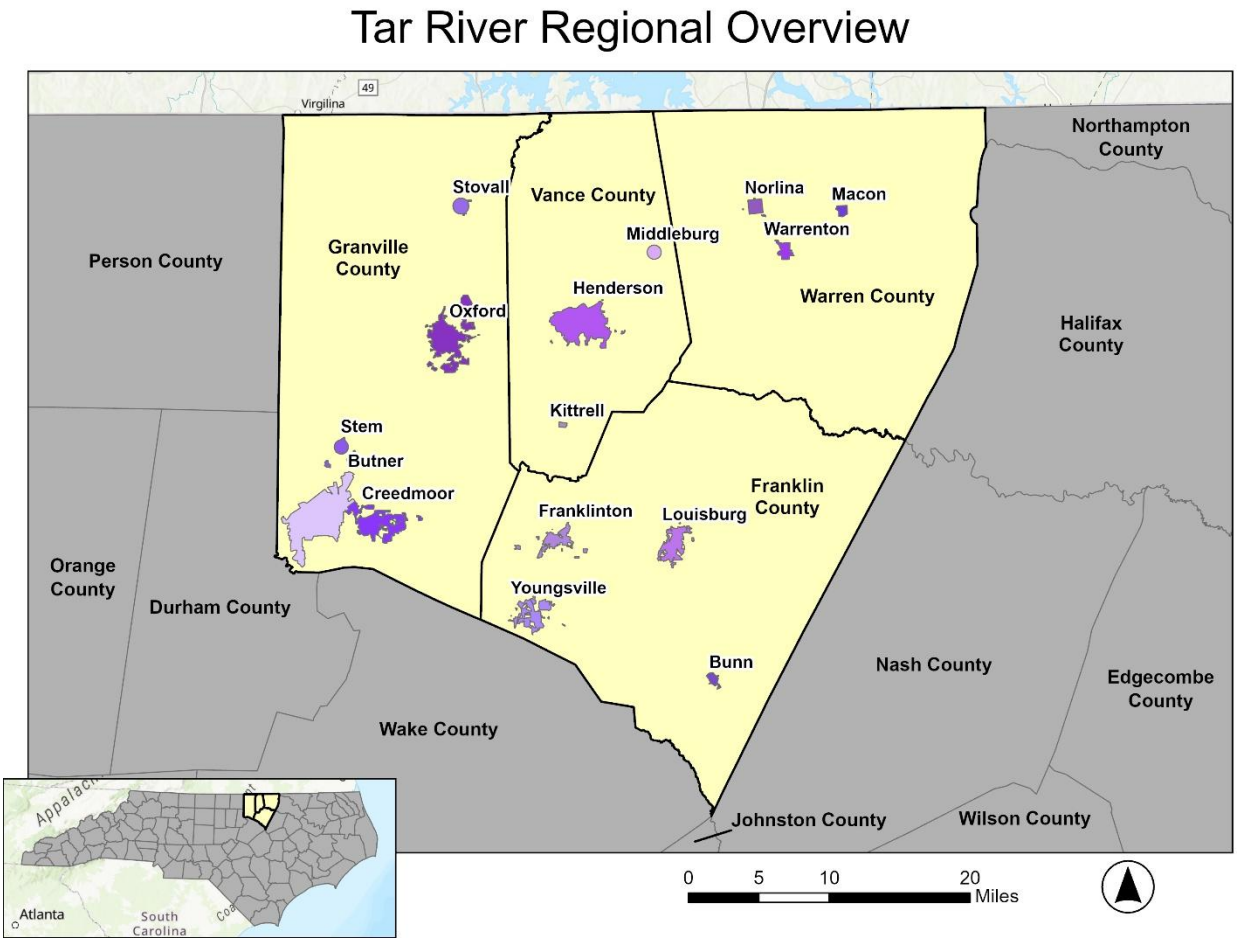


Figure 5-1: Tar River Regional Base Map Overview

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 result from natural internal processes or from 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 geological time. The rapid warming of the Earth over the past century has been cause for concern, as it is very likely due to the accumulation of human-caused greenhouse gases, such as Carbon Dioxide (CO_2), in the atmosphere. This warming is occurring almost everywhere, suggesting a global cause rather than changes in localized weather patterns.

Since 1901, the average surface temperature across the contiguous 48 states has risen by 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 (NCCSR),[1] 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 frequent and prolonged drought; and more heavy rainfall and flooding. 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.

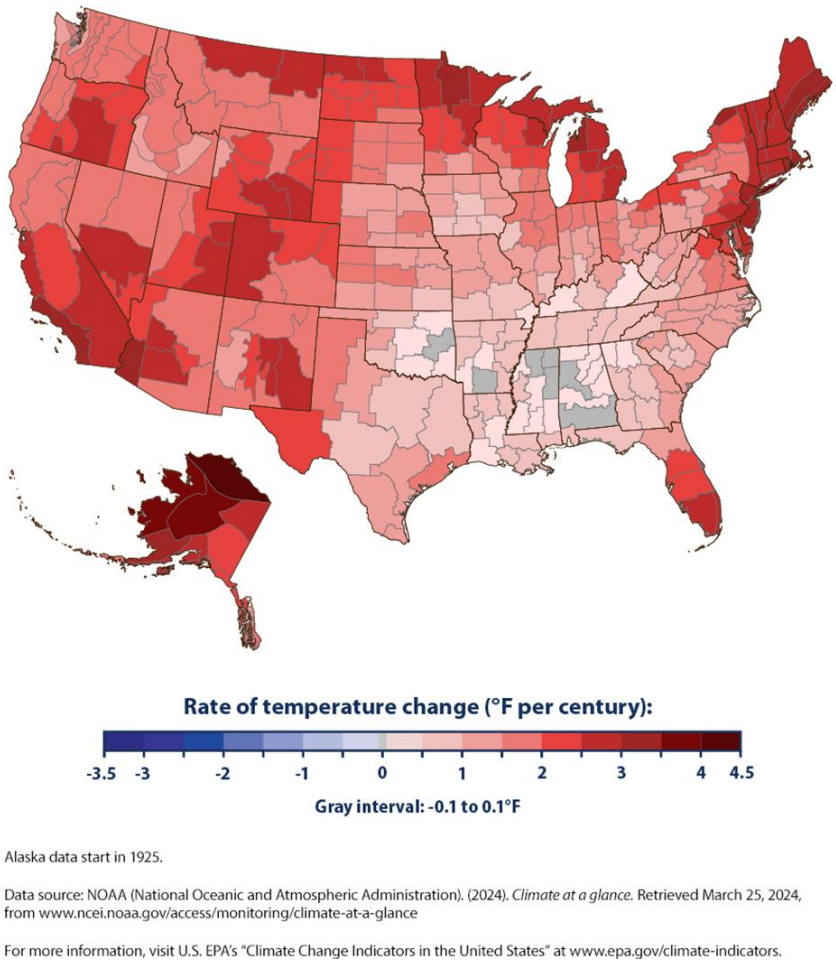


Figure 5-2: Rate of Temperature Change in the United States, 1901-2023

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

5.1.1. NRI Overview

Each natural hazard in the FEMA National Risk Index is associated with 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 describe 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 5-2. For more information about NRI Calculations and methodology, please refer to the NRI Technical Documentation.[2]

Table 5-2: 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), is estimated to be exposed to 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 (EAL)	Represents the average economic loss in dollars resulting from natural hazards each year. It is calculated for each hazard type and quantifies loss for relevant consequence types: buildings, people, and agriculture.	
	Equation	Exposure X Annualized Frequency X Historic Loss Ratio
	Score	Percentile of EAL compared to other communities, labeled according to the 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.	

[2] *National Risk Index Data v1.20 Technical Documentation*. (2025). Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/documents/fema_national-risk-index_technical-documentation.pdf

Term	Definition or Equation	
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 are in one of five qualitative categories that describe the community's component value relative to all 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 5-3: Census Tracts Used to Calculate NRI Data that Overlap Jurisdictional Boundaries

Jurisdiction	Overlapping Census Tracts
Franklin County (Unincorporated Area)	37069060100, 37069060200, 37069060601, 37069060602, 37069060701, 37069060702, 37069060703, 37069060802
Bunn	37069060801
Franklinton	37069060401, 37069060403, 37069060404, 37069060502
Louisburg	37069060301, 37069060302
Youngsville	37069060501, 37069060502
Granville County (Unincorporated Area)	37077970102, 37077970605, 37077970704
Butner	37077970606, 37077970607, 37077970701, 37077970702, 37077970703
Creedmoor	37077970601, 37077970604, 37077970606, 37077970607
Oxford	37077970200, 37077970300, 37077970400, 37077970500
Stem	37077970701
Stoval	37077970101
Vance County (Unincorporated Area)	37181960200, 37181960901, 37181960902
Henderson	37181960300, 37181960400, 37181960500, 37181960600, 37181960700, 37181960800, 37181960903, 37181961000
Kittrell	37181961000
Middleburg	37181960100
Warren County (Unincorporated Area)	37185950202, 37185950400
Macon	37185950101, 37185950103
Norlina	37185950201
Warrenton	37185950300

The jurisdictional probability summary was developed by identifying census tracts that overlap with jurisdictional boundaries because jurisdictional-level data are 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 the 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 5-2	Average of the 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 5-2

[3] North Carolina Department of Transportation. (2024). *Municipal Boundaries* (Version 2024 End of Year Release; Power Bill Fiscal Year 2023-2024) [Geodatabase]. Connect NCDOT. https://connect.ncdot.gov/resources/gis/Pages/GIS-Data-Layers.aspx

5.2. Dam Failure

5.2.1. Hazard Description

A dam is a barrier constructed across a watercourse that stores, controls, or diverts water. Dams are usually built from earth, rock, or concrete. The water impounded behind a dam is called a 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 recreational areas, generate electrical power, and help control erosion and flooding.

A dam failure is the collapse or breach of a dam that causes downstream flooding. Dam failures may be caused by natural or human events, or by a combination of both. Due to a lack of advance warning, failures 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 spillway capacity is inadequate, causing water to overtop the dam, or when internal erosion in the foundation (also known as piping) occurs. When internal erosion or overtopping causes a full structural breach, a high-velocity, debris-laden wall of water is released and rushes downstream, damaging or destroying anything in its path. Overtopping is the primary cause of earthen dam failure in the United States. Dam failures can result from any one or a combination of the following:

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

Water released from a failed dam can generate tremendous energy and cause a catastrophic flood. 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. Significant 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

include the amount of water impounded, the density, type, and value of downstream development and infrastructure, and the speed of failure.

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

Dams and impoundments smaller than that may fall under state regulation if it is determined that failure of the dam could result in loss of human life or significant damage to property below the dam. The height of a dam is from the highest point on the crest of the dam to the lowest point on the downstream toe, and the storage capacity is the volume impounded at the elevation of the highest point on the crest of the dam.

Dam Safety Program engineers determine the "hazard potential" of a dam, meaning the probable damage that would occur if the structure failed, in terms of loss of human life, economic losses, and 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 in backwater areas not subjected to the direct path of the breach flood wave. 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[4]

Hazard Classification	Description	Quantitative Guidelines
Low	Interruption of road service, low-volume roads	Less than 25 vehicles per day
	Economic damage	Less than $30,000
Intermediate	Damage to highways, interruption of service	25 to less than 250 vehicles per day
	Economic damage	$30,000 to less than $200,000
	Loss of human life	Probable loss of one or more human lives
High	Economic damage	More than $200,000

[4] Kang, D. (2020). *Documents Related to Dam Hazard Classification*. North Carolina Dam Safety Program. https://files.nc.gov/ncdeq/Energy%20Mineral%20and%20Land%20Resources/Land%20Quality/Dam%20Safety/docs_HazardClassificationCriteria.pdf

Hazard Classification	Description	Quantitative Guidelines
	Probable loss of human life due to a breached roadway or bridge on or below the dam	250 or more vehicles per day

5.2.2. Location and Spatial Extent

Table 5-6 provides details for 40 dams classified as a high or intermediate hazard in the North Carolina Dam Inventory that are located within the Tar River Region. The following figures show the locations of the intermediate- and high-hazard dams within the Region. There are 91 additional low-hazard dams in Franklin County, 54 in Granville County, 31 in Vance County, and 10 in Warren County.

Table 5-6: Counts of High Hazard and Intermediate Dams by Jurisdiction

Jurisdiction	High	Intermediate
Franklin		
Franklin County (Unincorporated Area)	13	9
Bunn	--	--
Franklinton	1	1
Louisburg	--	--
Youngsville	--	--
Franklin Subtotal:	**14**	**10**
Granville		
Granville County (Unincorporated Area)	5	3
Butner	--	--
Creedmoor	1	1
Oxford	--	--
Stem	--	--
Stoval	--	--
Granville Subtotal:	**6**	**4**
Vance		
Vance County (Unincorporated Area)	3	2
Henderson	--	--
Kittrell	--	--
Middleburg	--	--
Vance Subtotal:	**3**	**2**
Warren		
Warren County (Unincorporated Area)	--	1
Macon	--	--
Norlina	--	--
Warrenton	--	--

Jurisdiction	High	Intermediate
Warren Subtotal:	**0**	**1**
Total Plan	**23**	**17**

Source: North Carolina Dam Safety Program, North Carolina Department of Environmental Quality (NCDEQ)

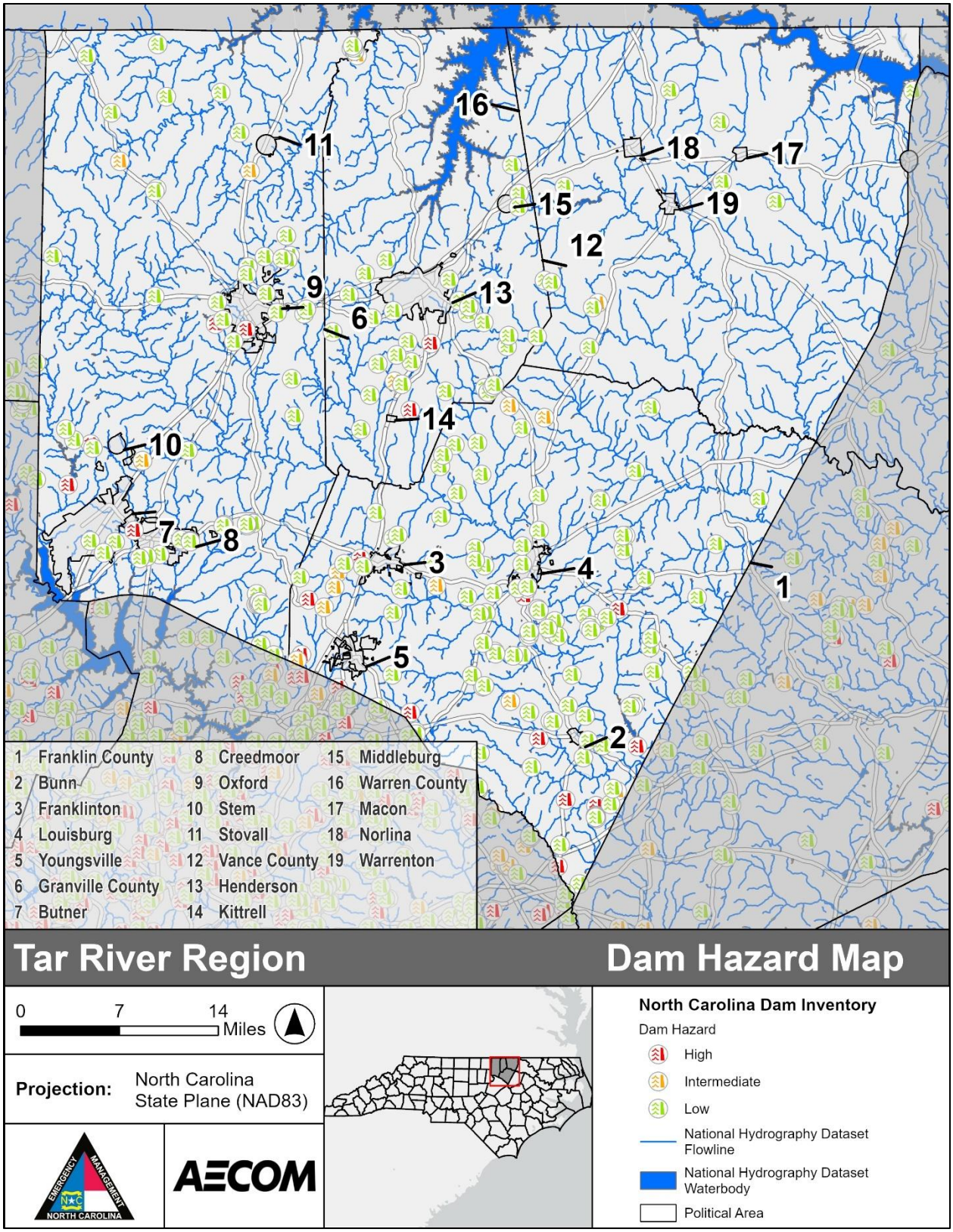


Figure 5-3: Dam Hazard Map – Tar River Region

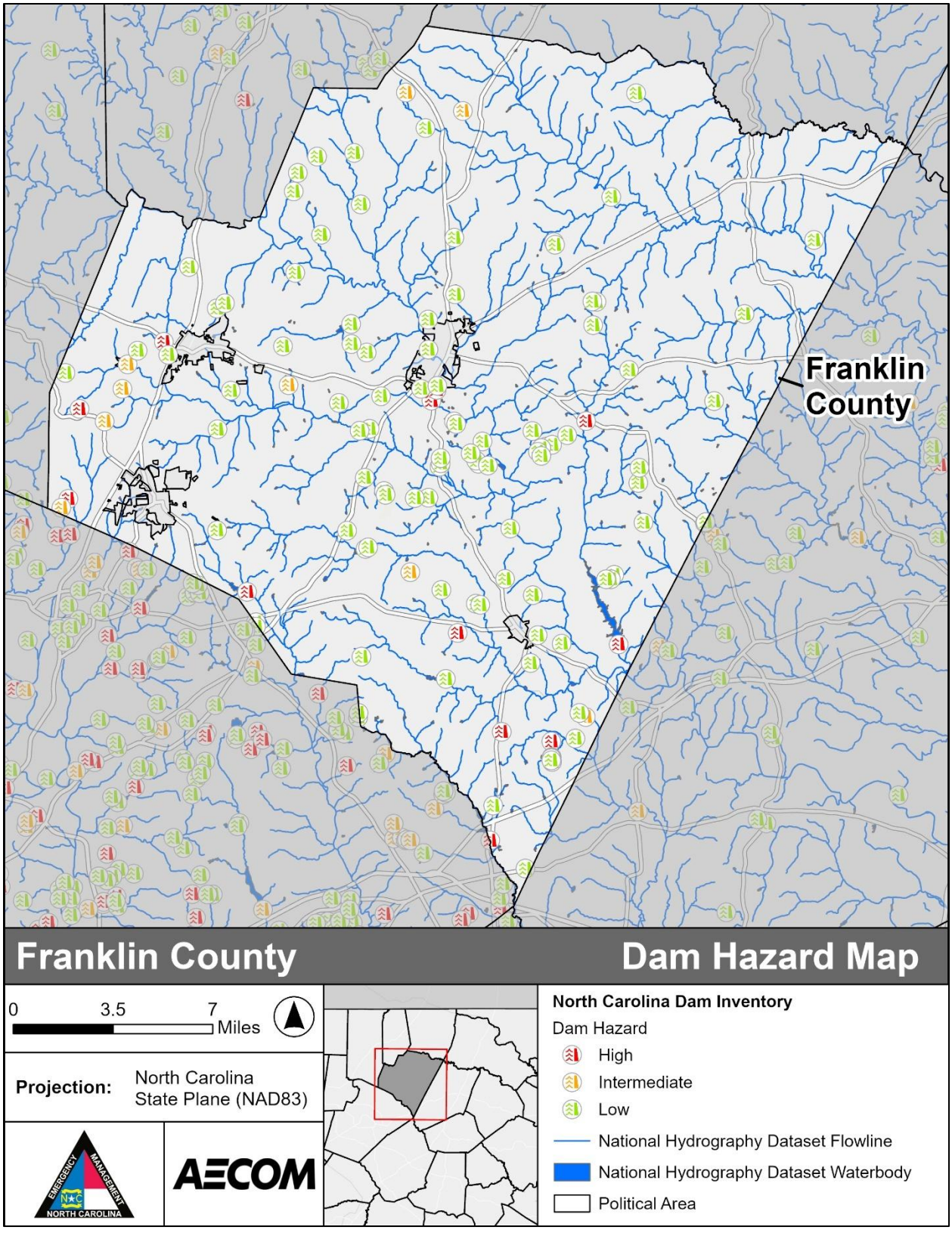


Figure 5-4: Dam Hazard Map - Franklin County

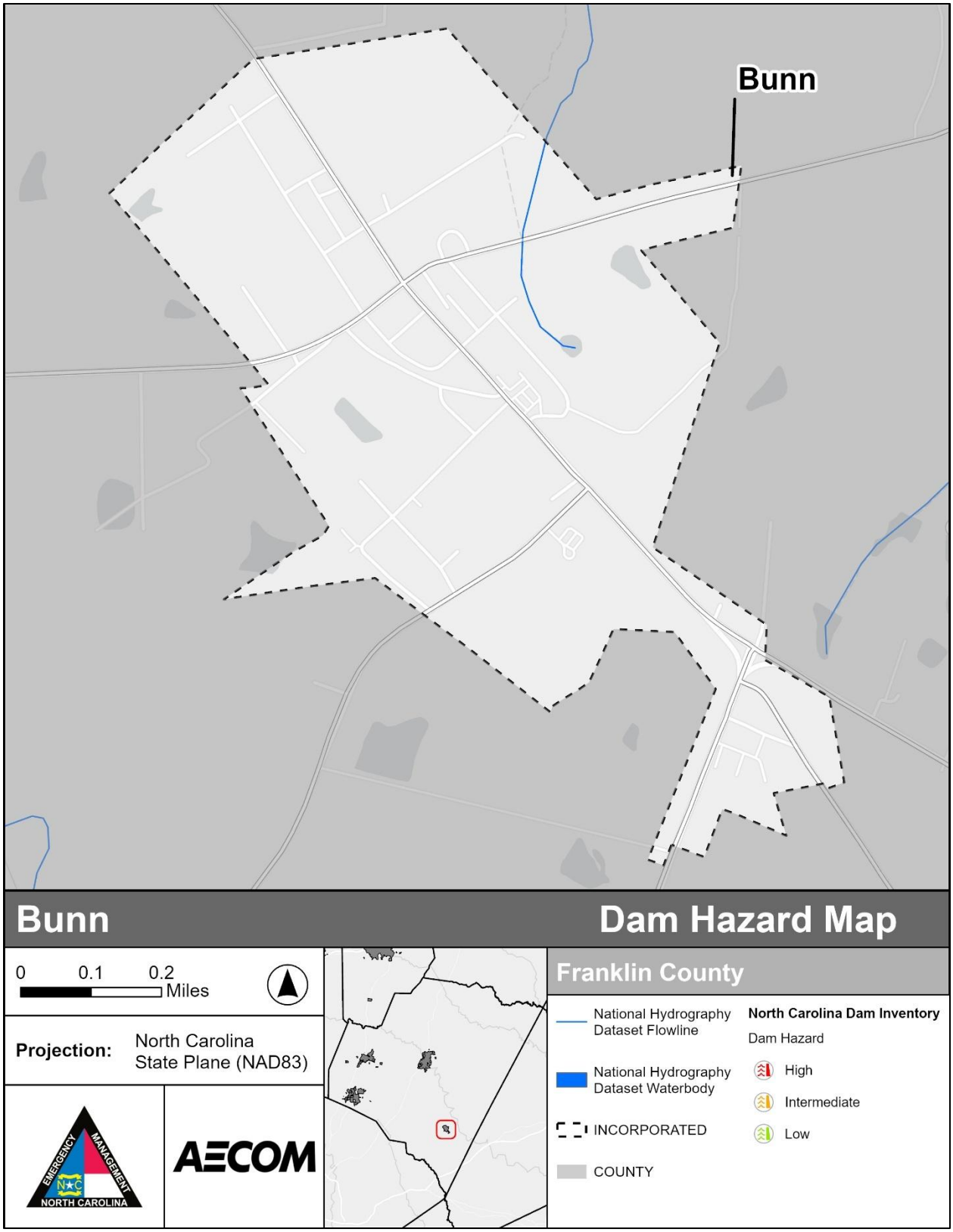


Figure 5-5: Dam Hazard Map - Bunn

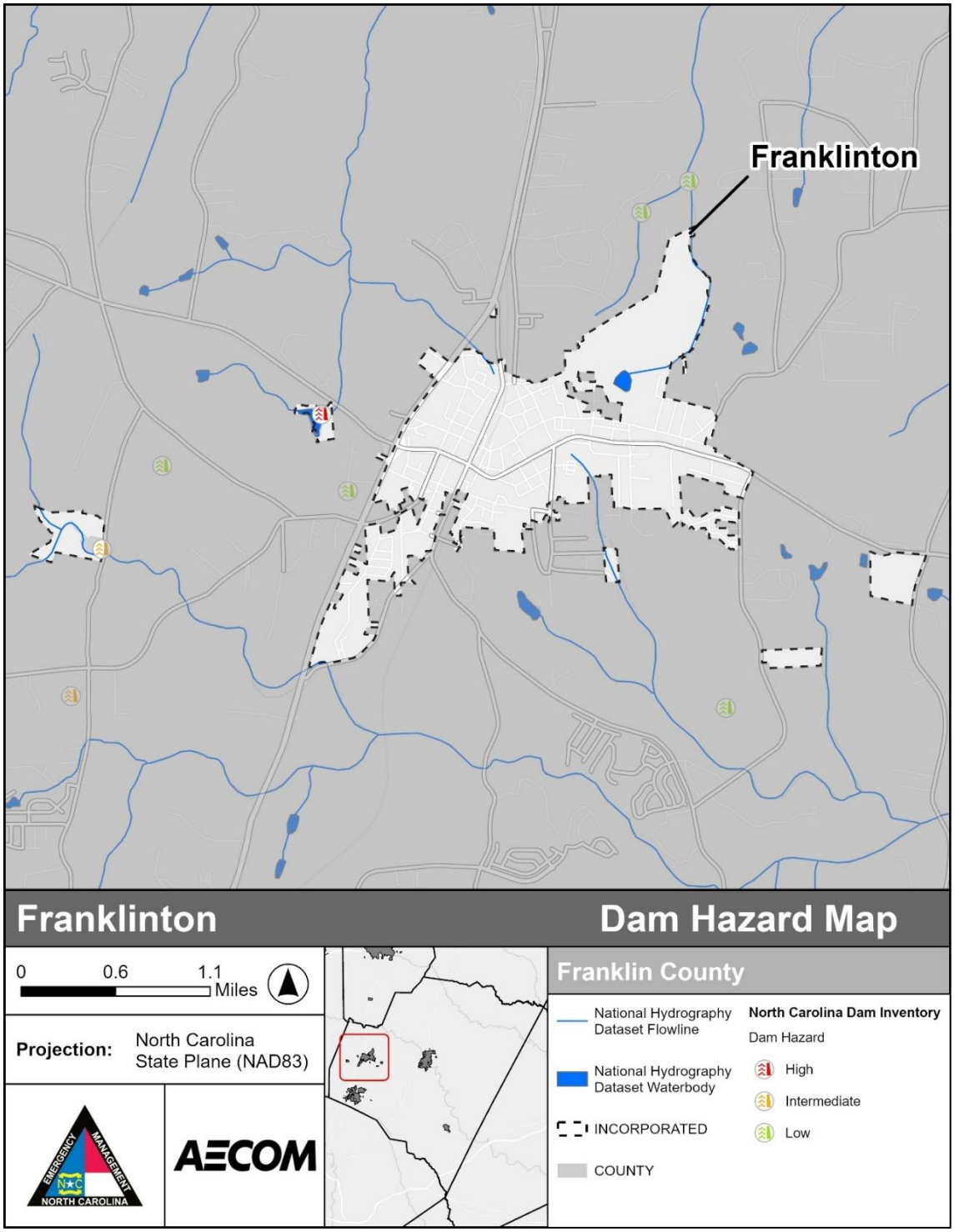


Figure 5-6: Dam Hazard Map - Franklinton[5]

[5] The Municipal Boundaries (2025) GIS layer obtained from NCDOT and used for the maps in this plan contained slightly outdated jurisdictional boundaries for the Town of Franklinton due to recent annexations between 2023 and 2025. However, given the map scale, hazard data can still be viewed for the missing incorporated areas of Franklinton. Please see Section 3 – Figure 3-29 for the Town of Franklinton's up-to-date boundary map, based on the incorporated boundary corrections from the U.S. Census Boundary and Annexations Survey.

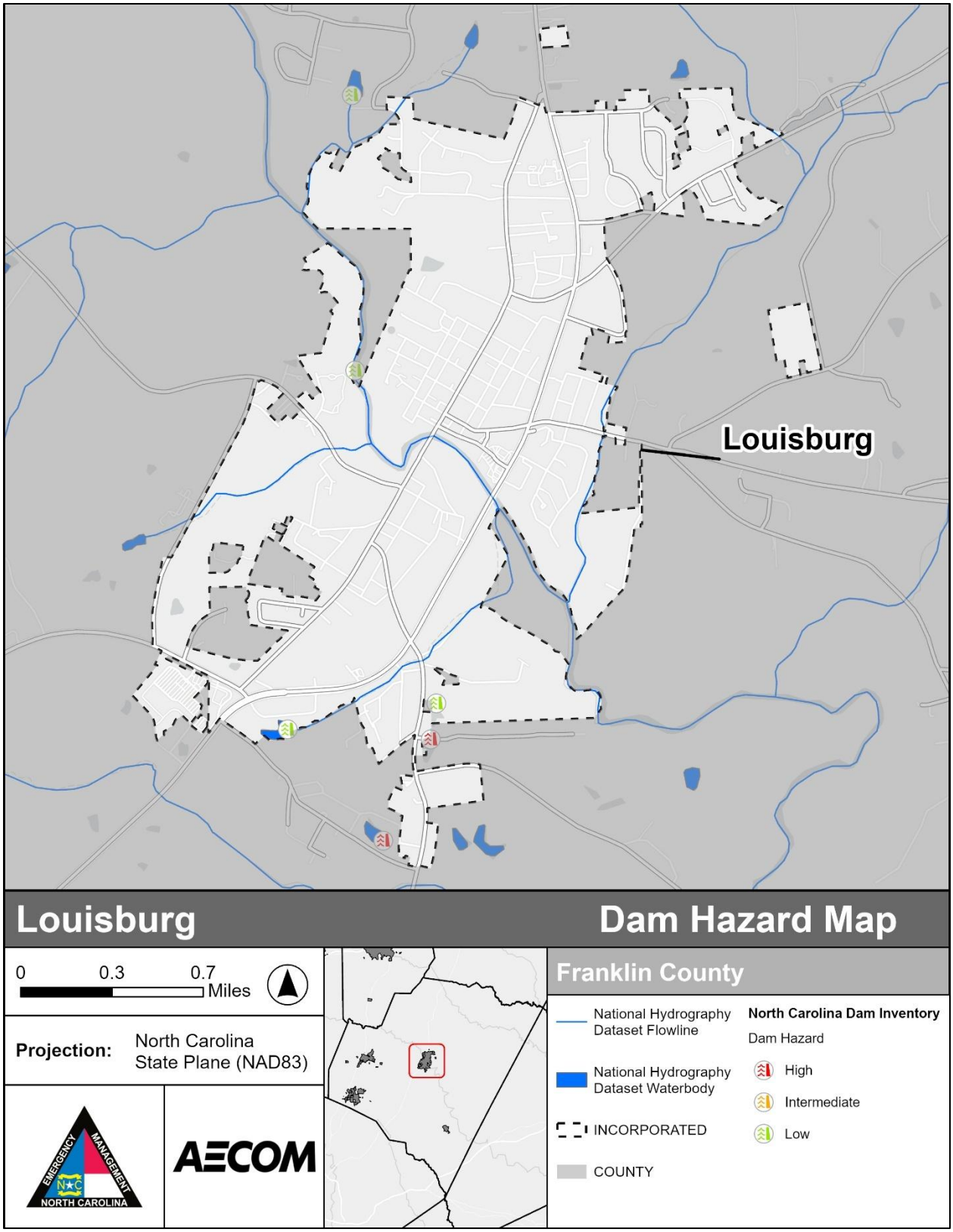


Figure 5-7: Dam Hazard Map - Louisburg

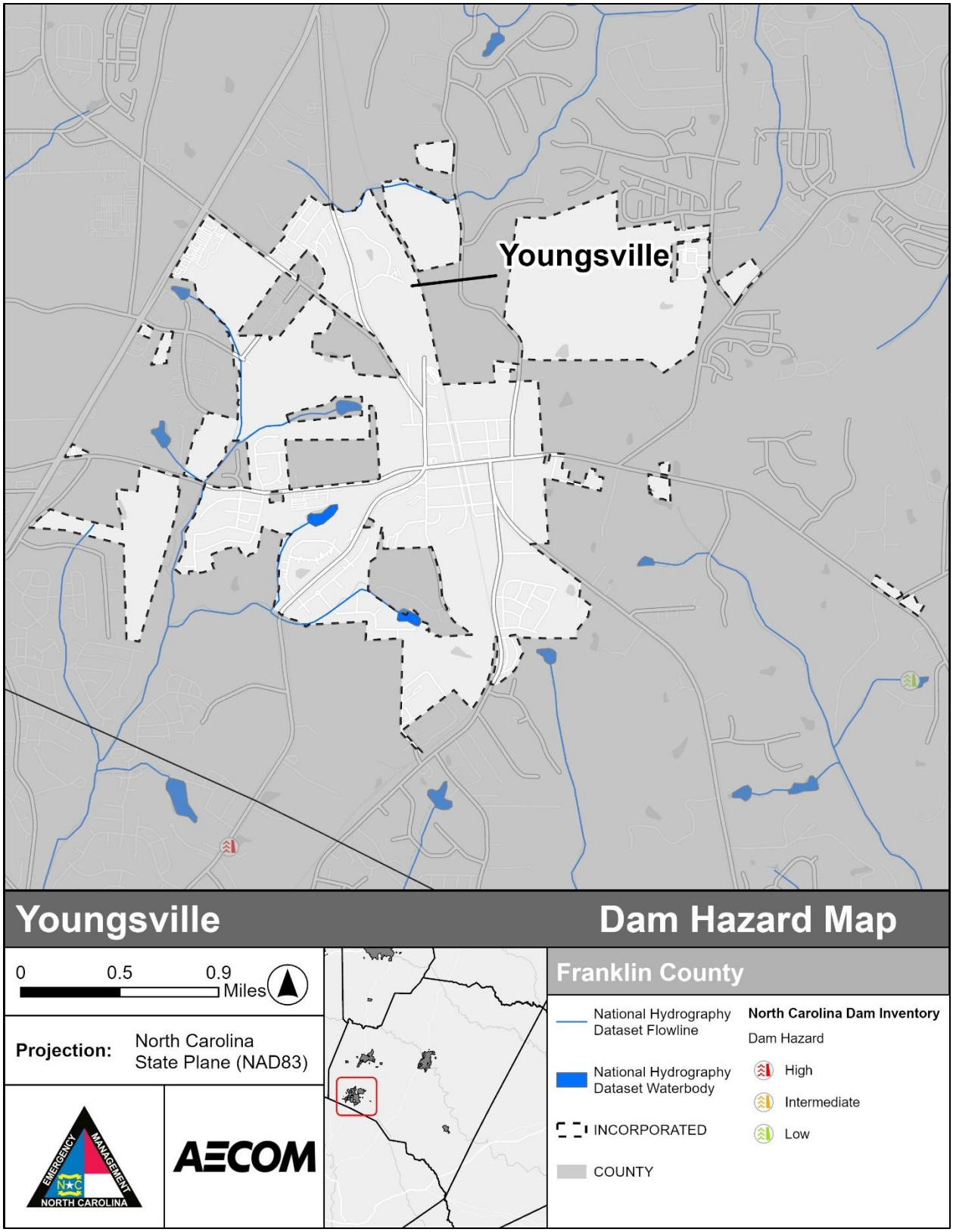


Figure 5-8: Dam Hazard Map - Youngsville

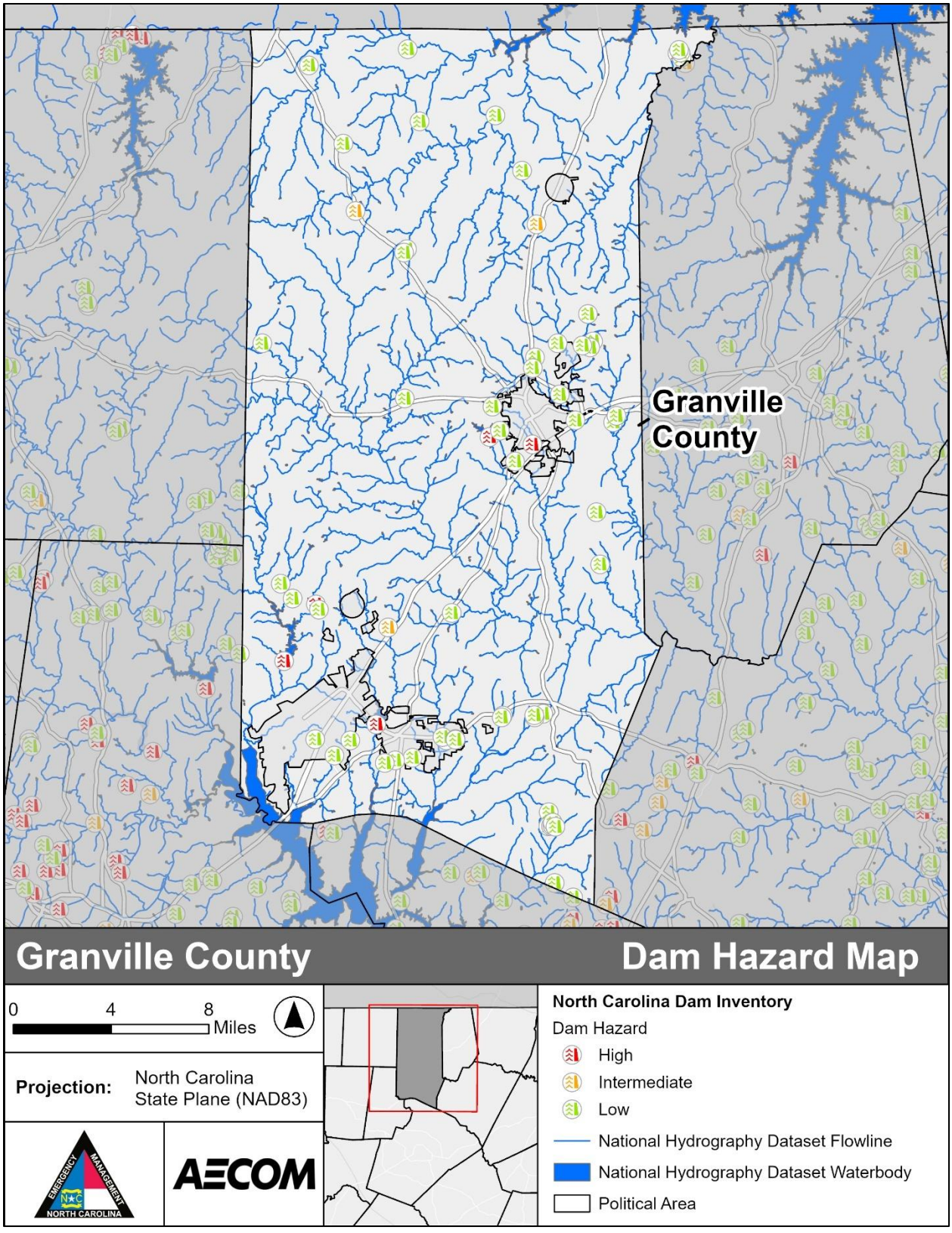


Figure 5-9: Dam Hazard Map - Granville County

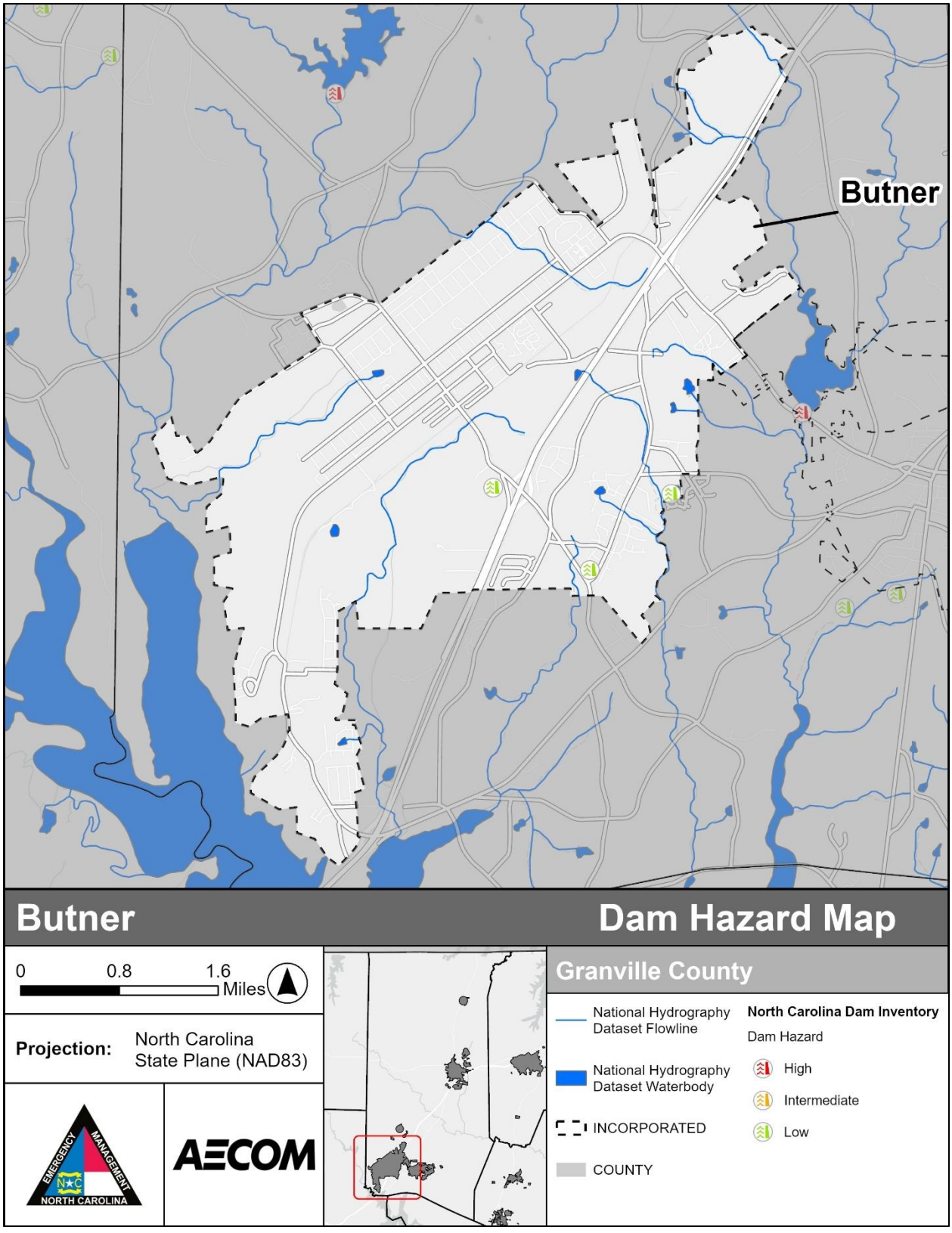


Figure 5-10: Dam Hazard Map - Butner

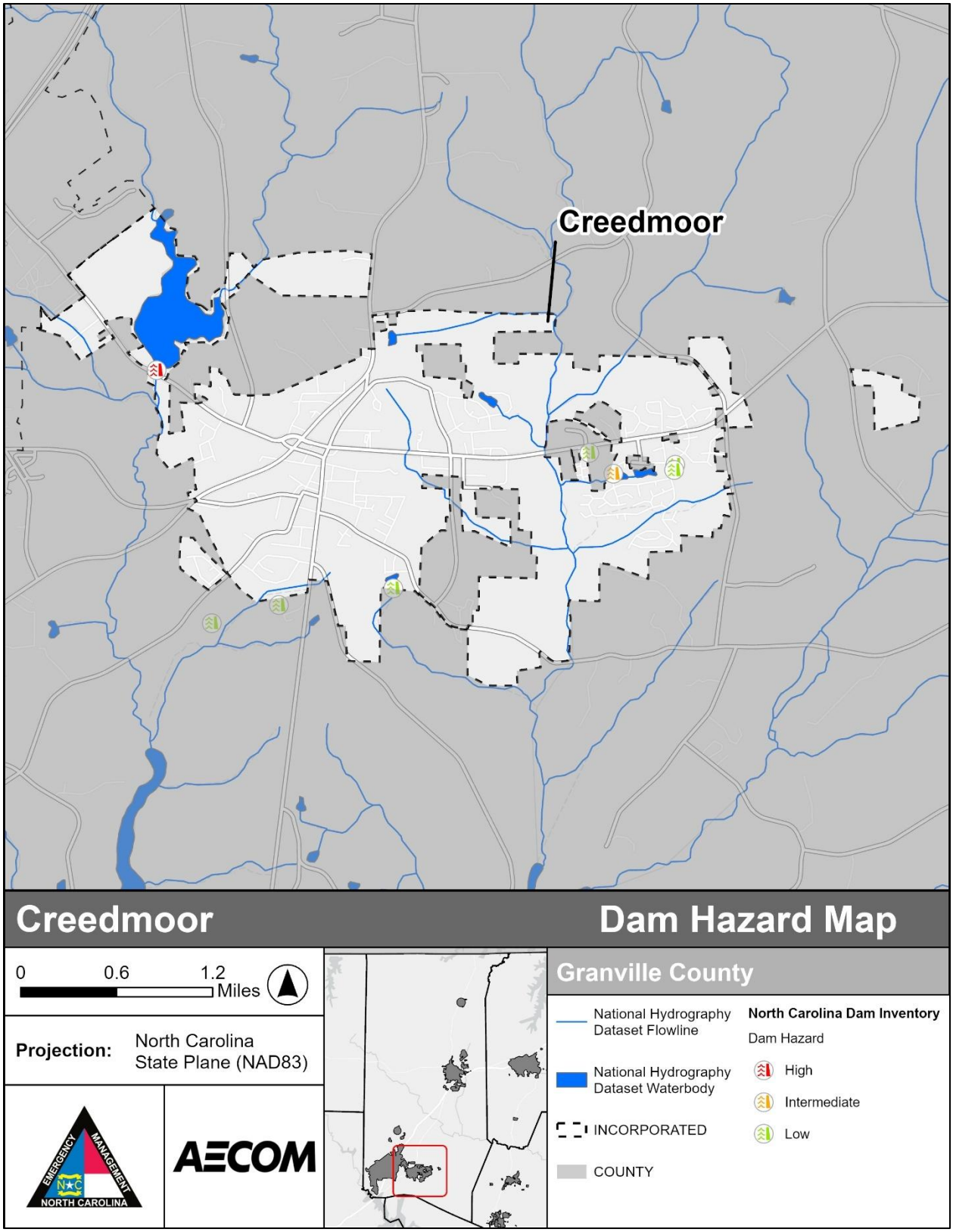


Figure 5-11: Dam Hazard Map - Creedmoor

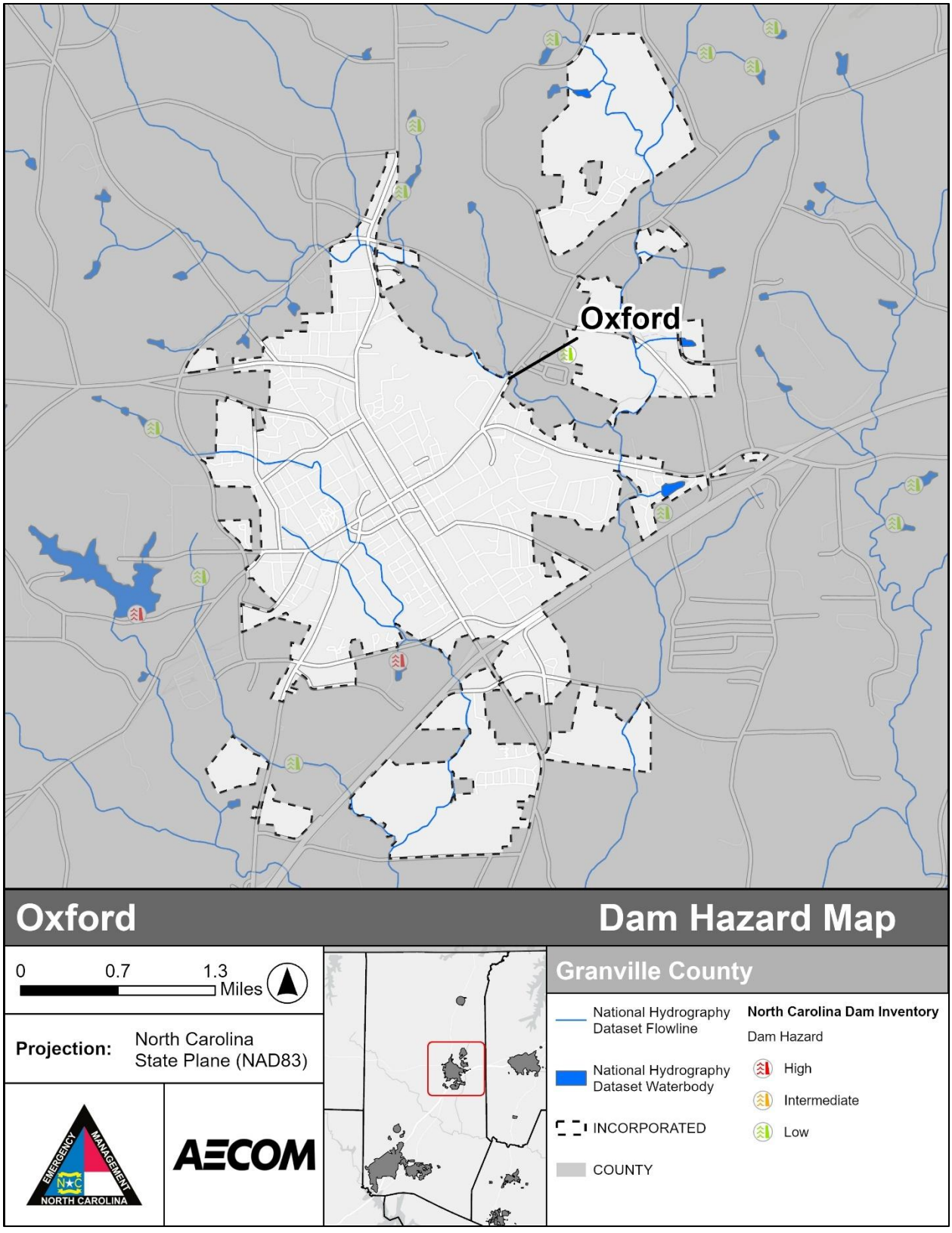


Figure 5-12: Dam Hazard Map – Oxford

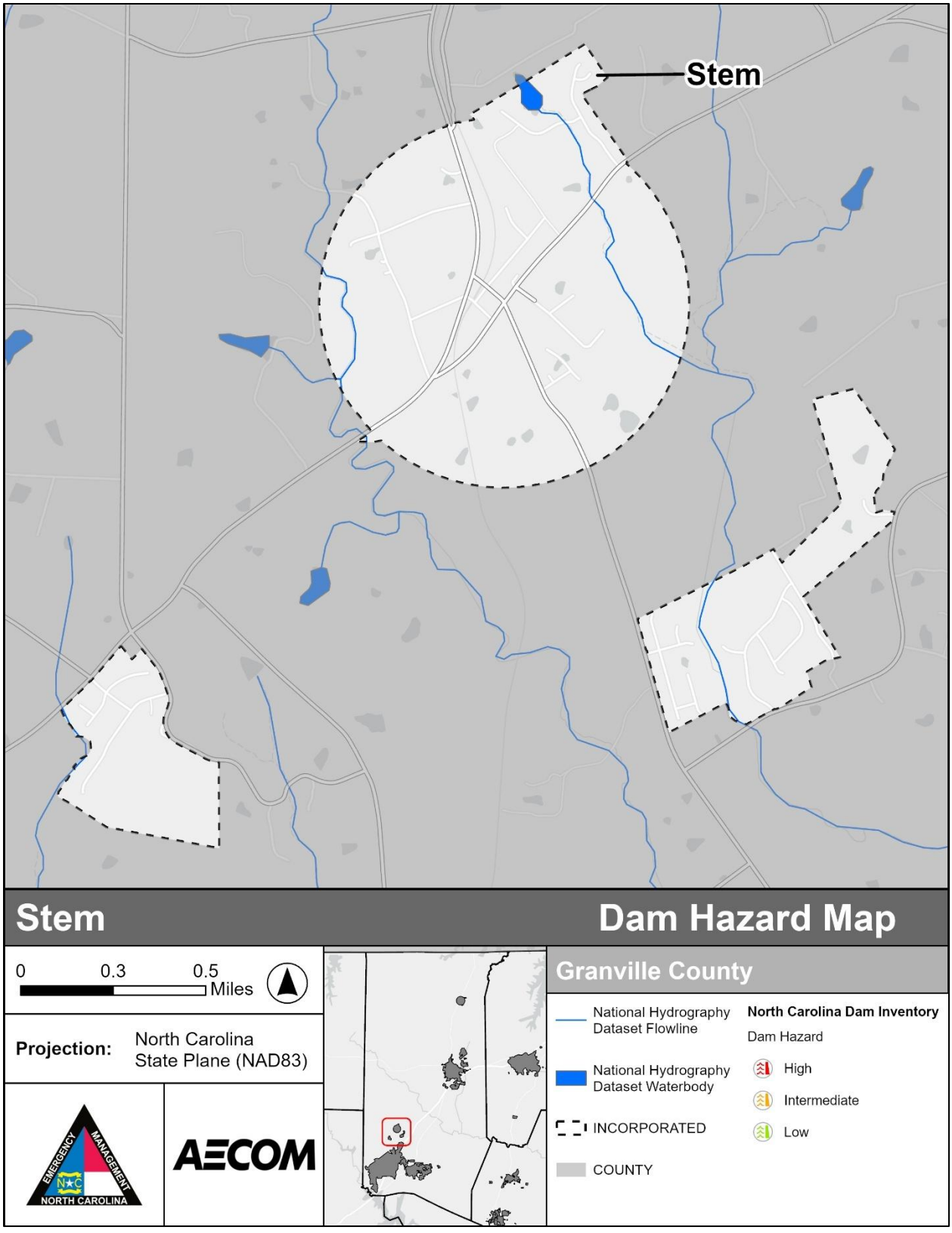


Figure 5-13: Dam Hazard Map - Stem

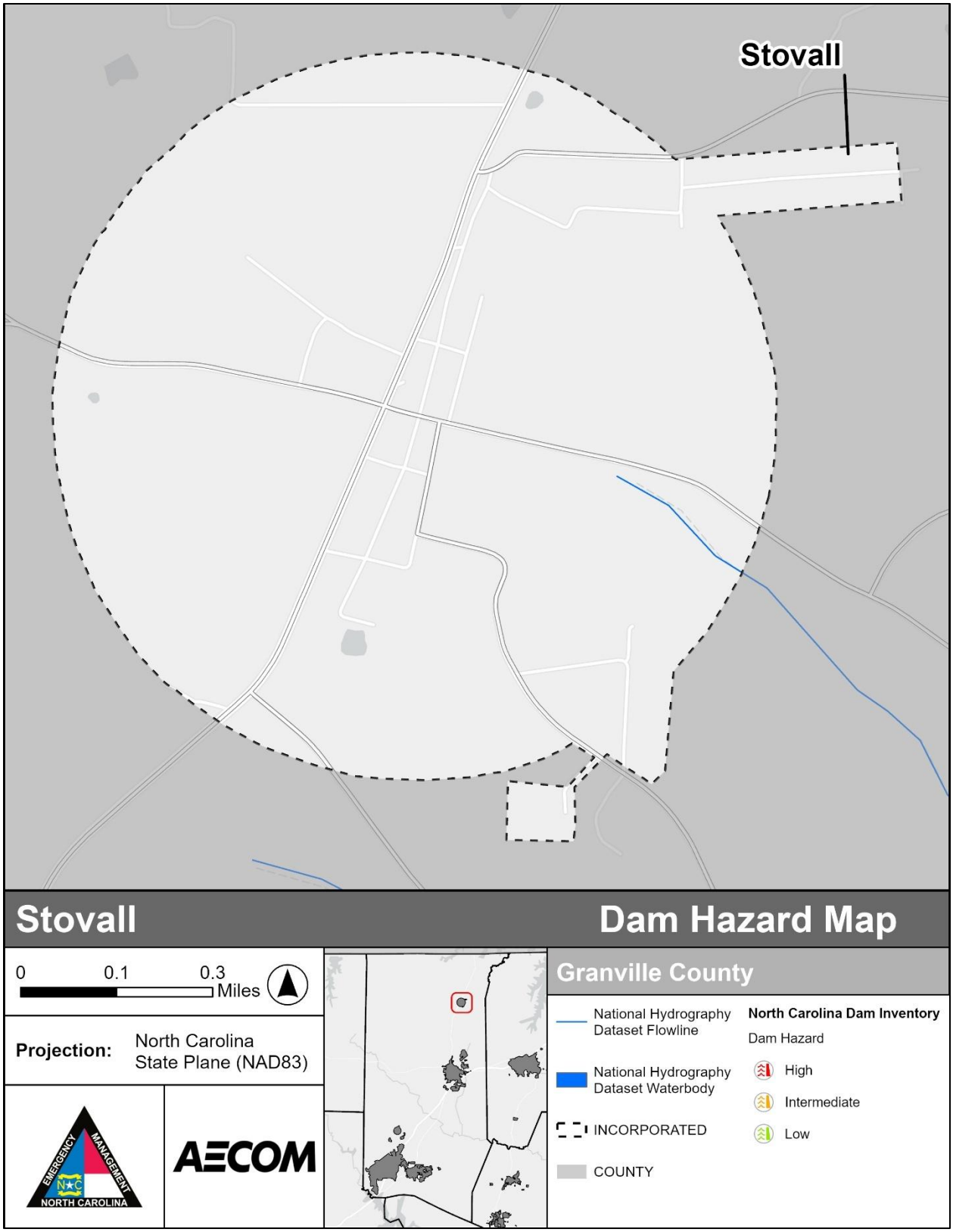


Figure 5-14: Dam Hazard Map – Stovall

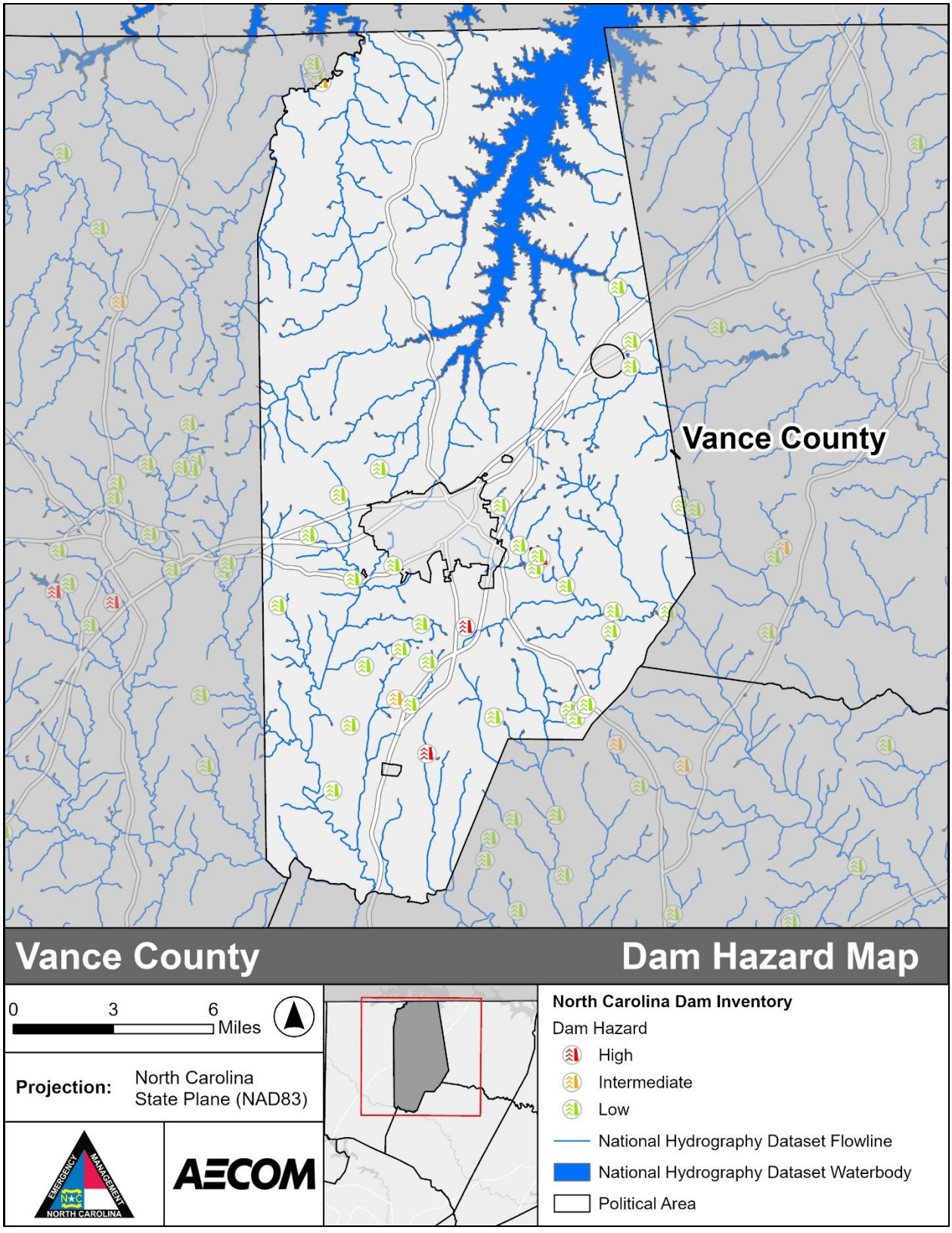


Figure 5-15: Dam Hazard Map - Vance County

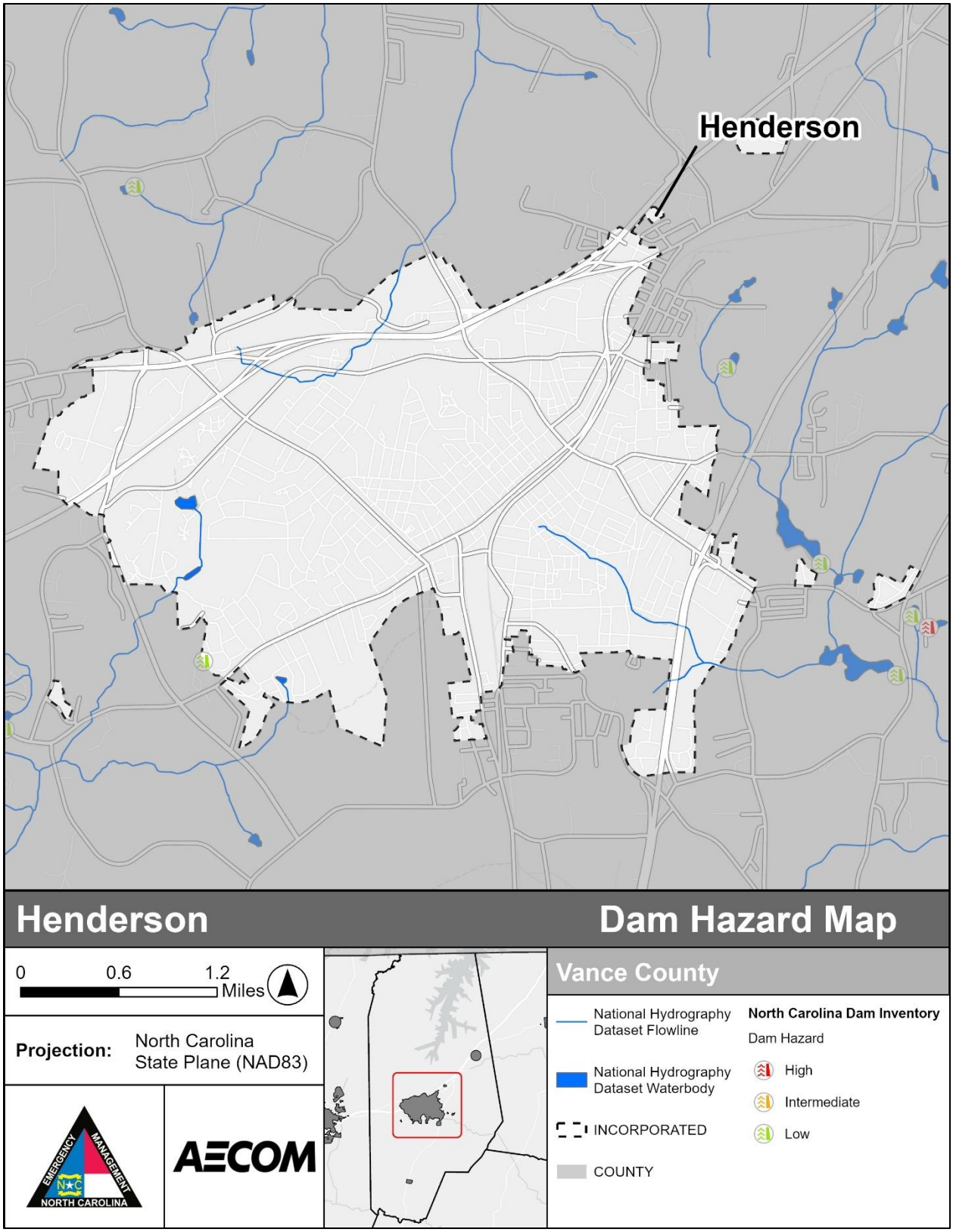


Figure 5-16: Dam Hazard Map - Henderson

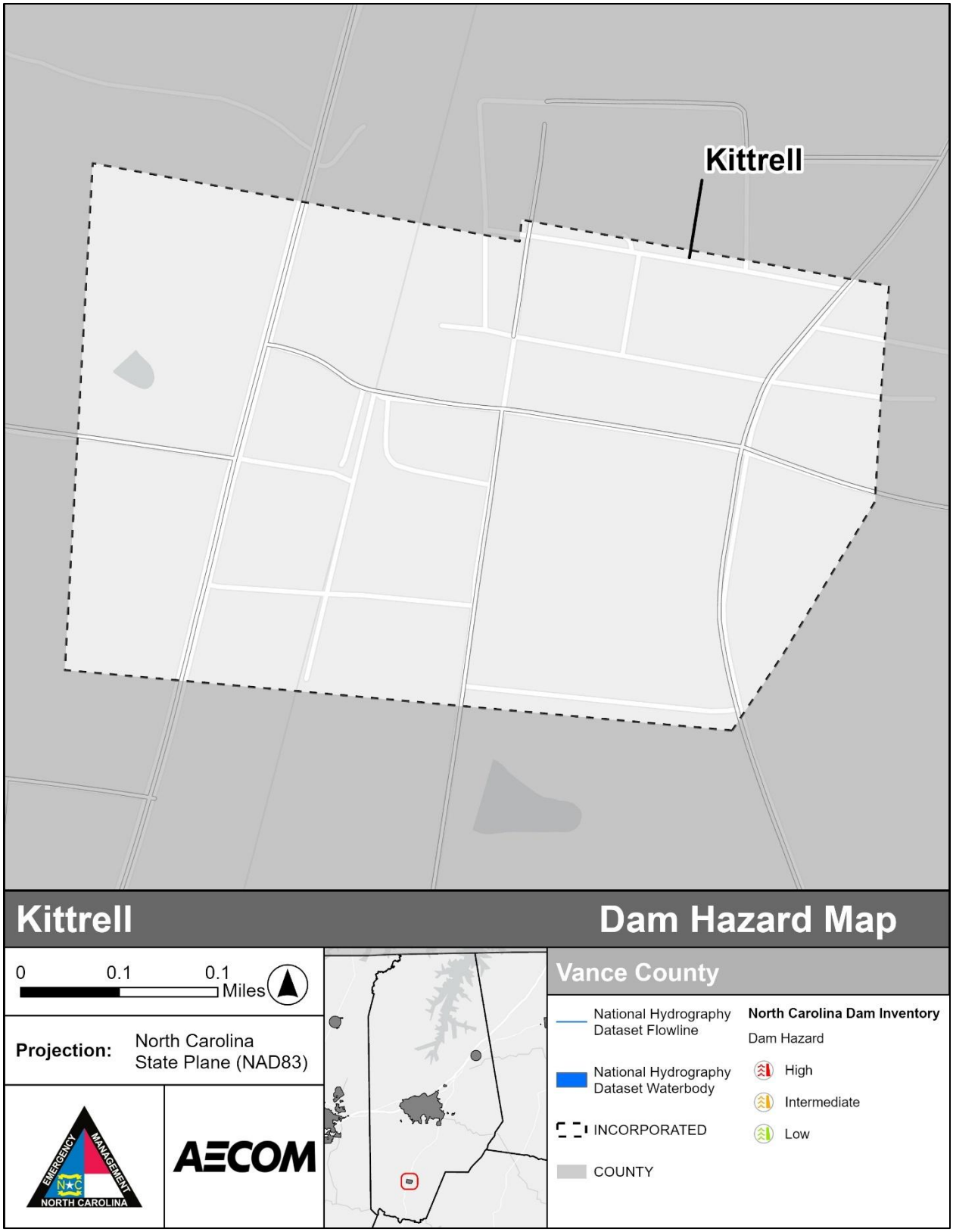


Figure 5-17: Dam Hazard Map - Kittrell

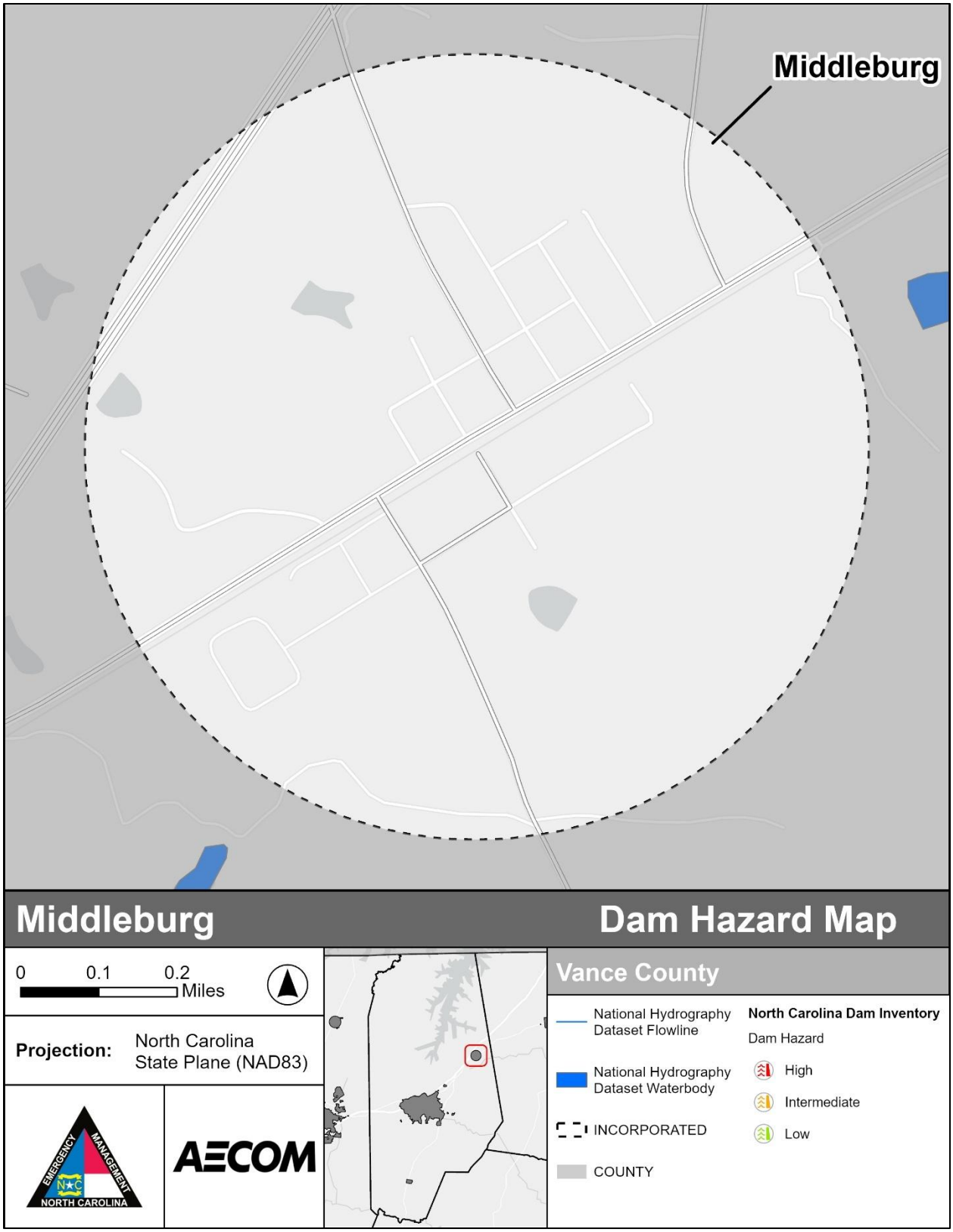


Figure 5-18: Dam Hazard Map – Middleburg

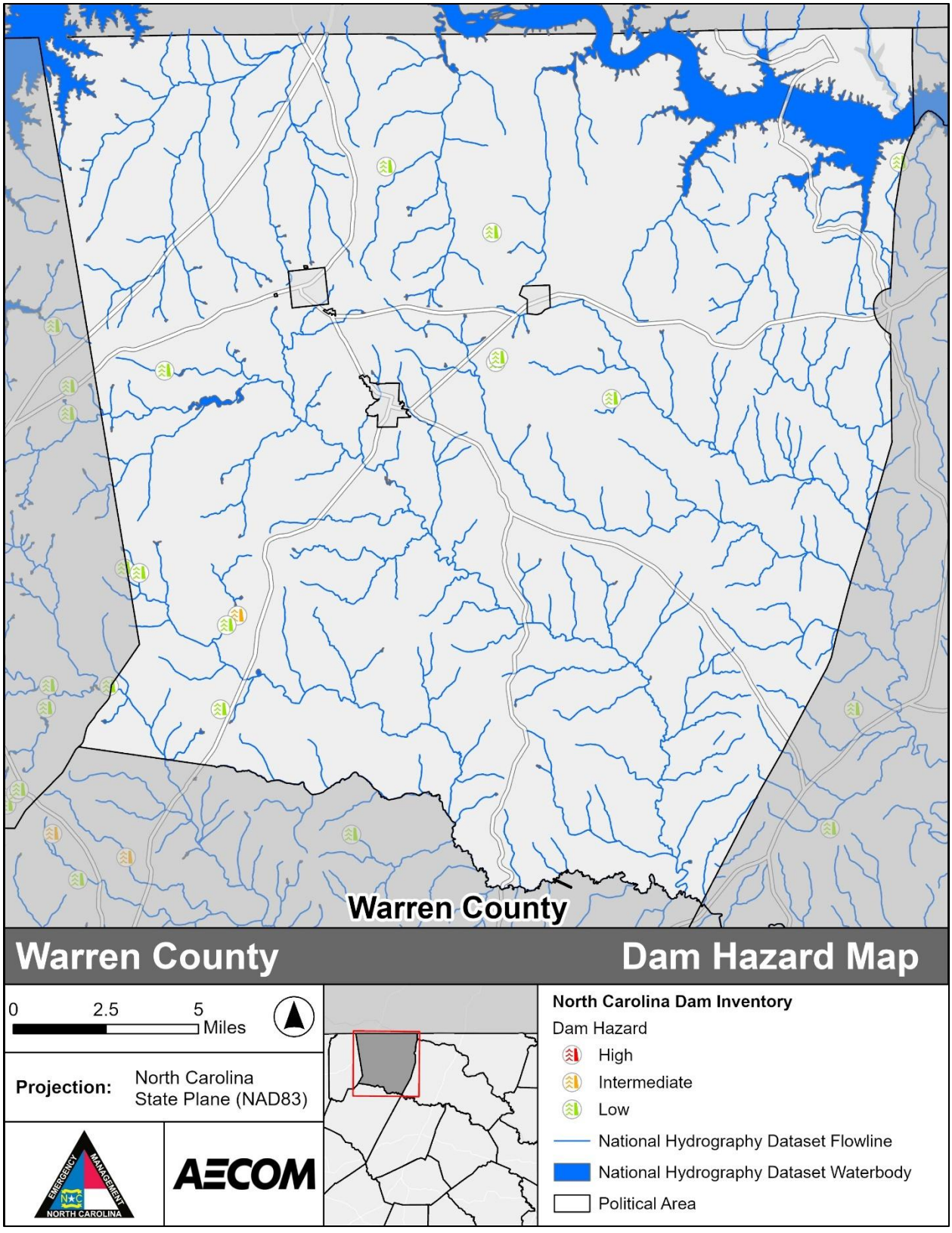


Figure 5-19: Dam Hazard Map - Warren County

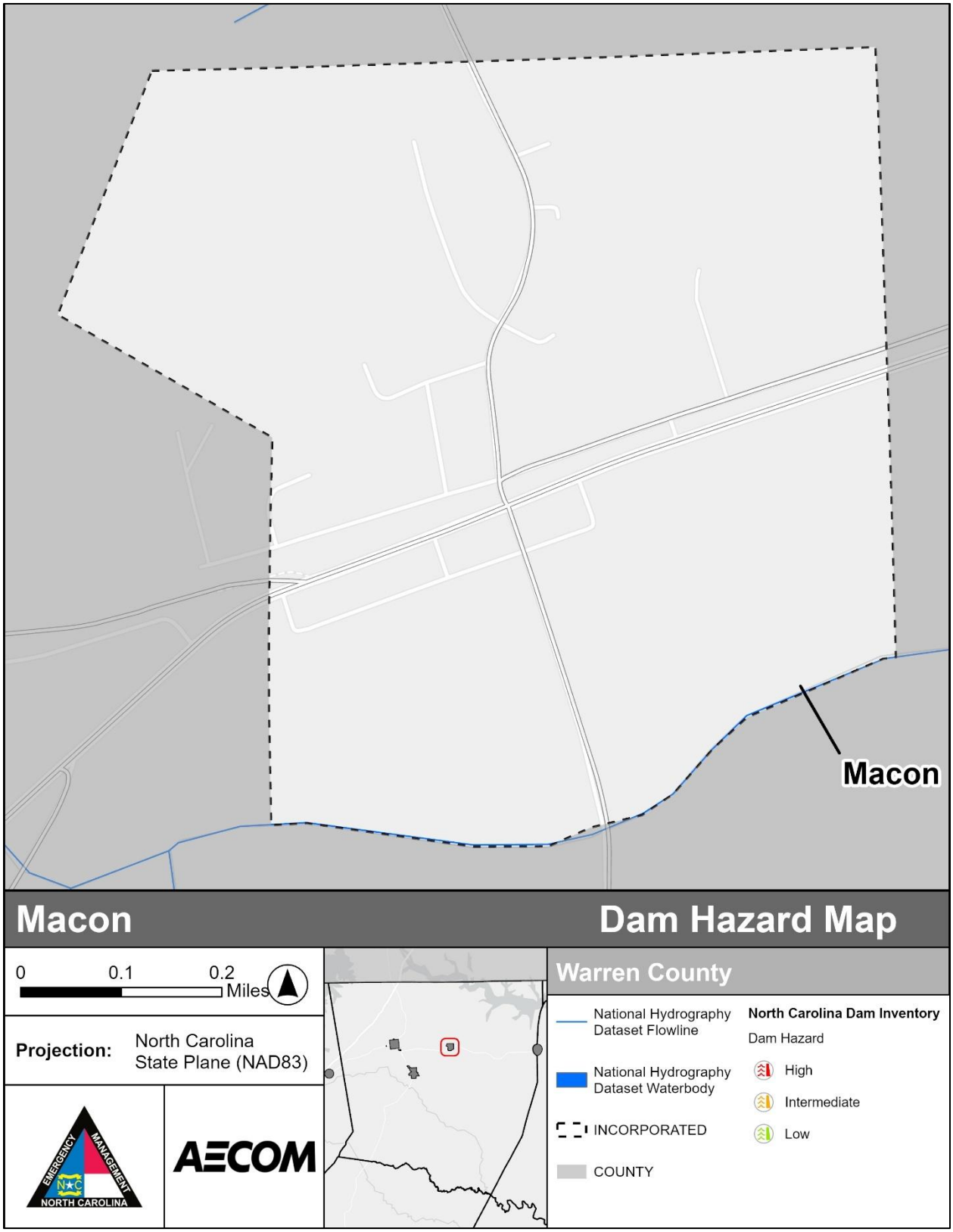


Figure 5-20: Dam Hazard Map - Macon

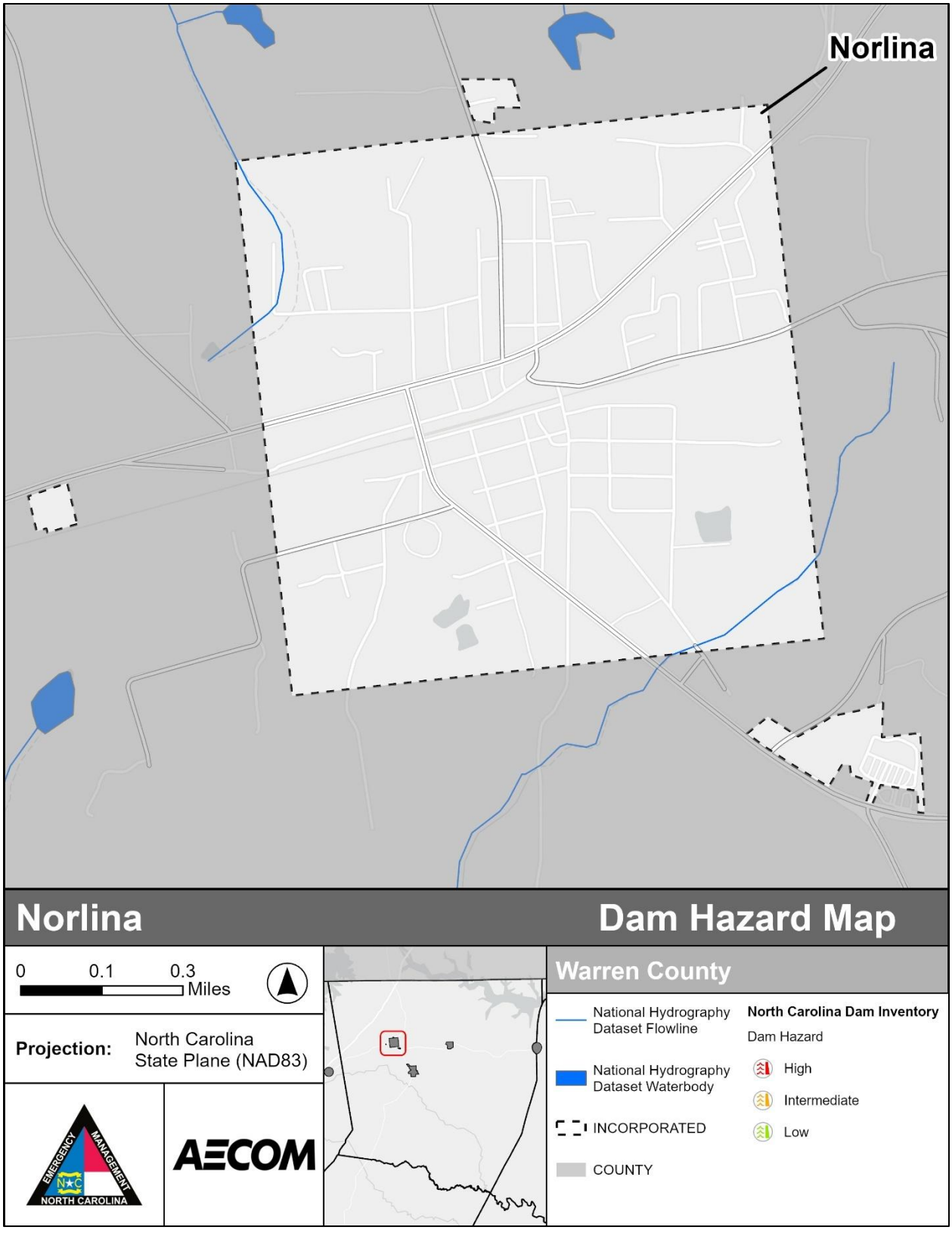


Figure 5-21: Dam Hazard Map - Norlina

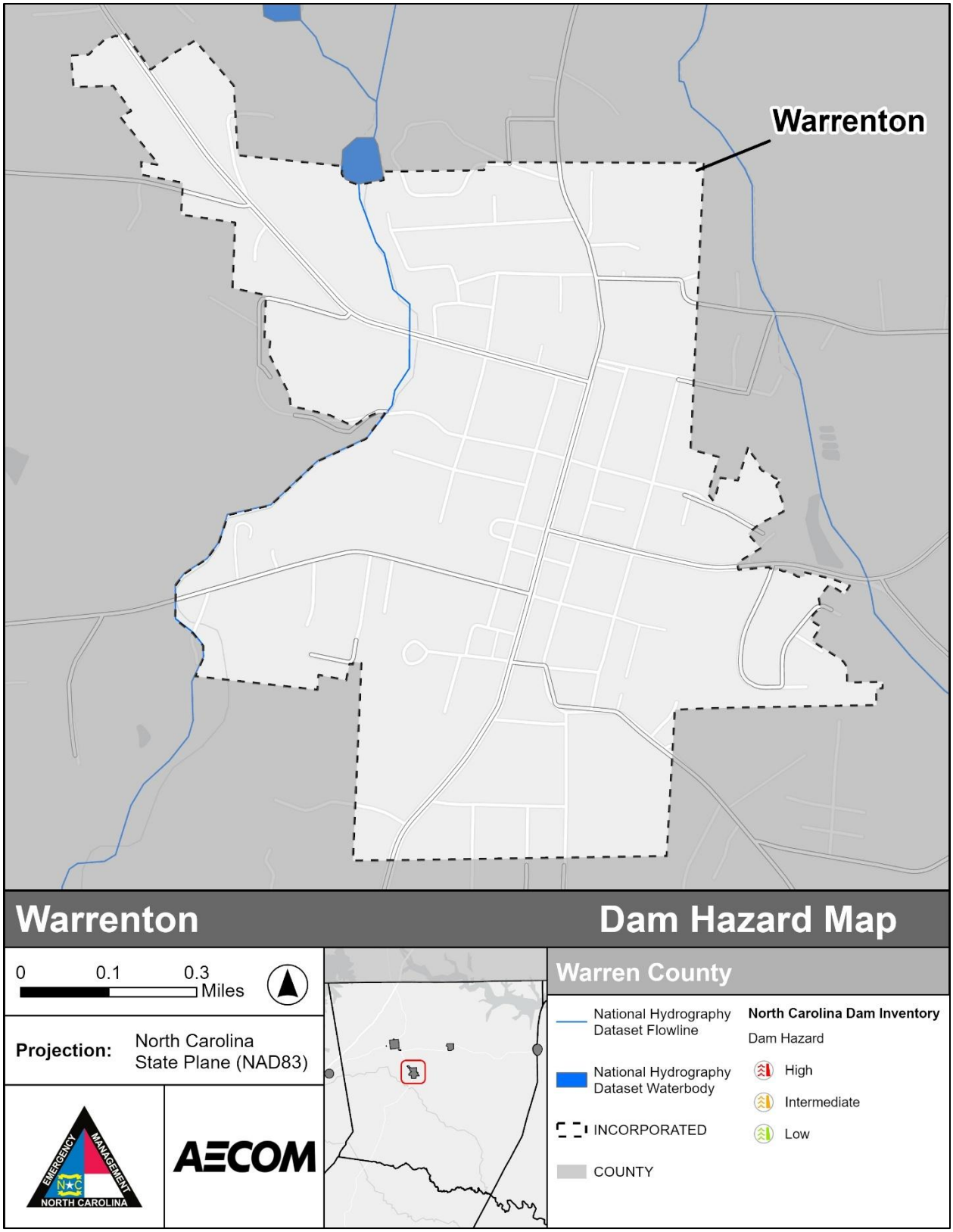


Figure 5-22: Dam Hazard Map - Warrenton

The National Levee Database (NLD), developed by the U.S. Army Corps of Engineers (USACE), contains inspection and evaluation information for the National Flood Insurance Program (NFIP) levee system. The NLD is a dynamic database that is continually adding levee data from federal agencies, states, and tribes. Currently, there are no levees located in the Tar River Region that are included in the USACE's NLD.

5.2.3. Extent

Two factors influence the potential severity of 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 its "hazard potential," meaning the probable damage that would occur if the structure failed, in terms of loss of human life, economic losses, or environmental damage. The State of North Carolina classifies dam structures under its regulations according to hazard potential as described in the table above. It is important to note that these classifications are not based on the adequacy or structural integrity of existing dam structures.

Table 5-7: Dams in the Tar River Planning Area[6]

State ID	National Inventory of Dams (NID)	Dam Name	County	Dam Purpose	Dam Hazard	Dam Condition	Dam Status*	Last Inspection	Next Inspection
FRANK-001	NC00386	Franklinton Reservoir #2 Dam	Franklin	Water Supply	High	Poor	Jurisdictional	2/22/2023	01/01/2025
FRANK-017	NC01074	Lands Lake Dam	Franklin	Recreation	High	Fair	Jurisdictional	12/10/2021	12/10/2022
FRANK-009	NC01064	Moore Lake Dam	Franklin	Irrigation, Recreation	High	Fair	Jurisdictional	11/28/2023	11/28/2025
FRANK-109	NC02571	Lowery Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	High	Fair	Jurisdictional	2/21/2023	01/01/2025
FRANK-131	NC02589	Lambert Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	High	Fair	Jurisdictional	11/27/2023	11/27/2025
FRANK-137	NC02595	Cone Pond Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	High	Satisfactory	Jurisdictional	2/22/2023	01/01/2025
FRANK-334	NC06437	Fox Lake Dam	Franklin	Other	High	Poor	Jurisdictional	2/22/2023	01/01/2025
FRANK-336	NC06539	100 Rex Place Dam	Franklin	Recreation	High	Fair	Jurisdictional	10/30/2024	10/30/2026
FRANK-347	NC07698	Olde Liberty GC Hole 11 Dam	Franklin	Recreation	High	--	Pending	--	--
FRANK-003	NC00821	Lake Royale Dam	Franklin	Recreation	High	Satisfactory	Jurisdictional	2/22/2023	01/01/2025
FRANK-011	NC01066	Jackson Lake Dam	Franklin	Recreation	High	Fair	Jurisdictional	11/28/2023	11/28/2025
FRANK-349	NC07976	Tant Road Dam	Franklin	Other	High	--	Jurisdictional	--	--
FRANK-350	NC07982	Tant Road Dam #2	Franklin	Other	High	--	Jurisdictional	--	--
FRANK-351	NC07983	Tant Road Dam #3	Franklin	Other	High	--	Jurisdictional	--	--
GRANV-004	NC01003	Lake Rogers Dam	Granville	Recreation, Water Supply	High	Fair	Jurisdictional	11/6/2024	11/01/2026
GRANV-019	NC01555	Nye #1 Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	High	Fair	Jurisdictional	2/28/2023	01/01/2025

[6] Smith, J. A. (2025). *North Carolina Dam Inventory* [Shapefile]. North Carolina Department of Environmental Quality Online GIS. https://data-ncdenr.opendata.arcgis.com/datasets/ncdenr::north-carolina-dam-inventory/about

State ID	National Inventory of Dams (NID)	Dam Name	County	Dam Purpose	Dam Hazard	Dam Condition	Dam Status*	Last Inspection	Next Inspection
GRANV-003	NC01002	Lake Devin Dam	Granville	Water Supply	High	Fair	Jurisdictional	2/28/2023	01/01/2025
GRANV-008	NC01008	Lake Butner Dam	Granville	Recreation, Water Supply	High	Fair	Jurisdictional	2/28/2023	01/01/2025
GRANV-036	NC02670	Noblin Dam	Granville	Recreation	High	Fair	Jurisdictional	2/28/2023	01/01/2025
GRANV-132	NC06801	Island Creek Dam	Granville	Other, Recreation	High	--	Jurisdictional	--	--
VANCE-028	NC04430	Rose's Warehouse Dam	Vance	Fire Protection/Stock Pond/Small Farm Pond	High	Fair	Jurisdictional	11/30/2021	11/30/2022
VANCE-034	NC04436	Buffalo Millpond Dam	Vance	Irrigation, Recreation	High	Fair	Jurisdictional	11/30/2021	11/30/2022
VANCE-040	NC06210	Medlin Pond Dam	Vance	Irrigation	High	Fair	Jurisdictional	2/28/2023	01/01/2025
FRANK-013	NC01068	Franklinton Reservoir Dam	Franklin	Water Supply	Intermediate	--	Exempt	2/8/2010	02/09/2011
FRANK-050	NC02514	Novo Lagoon Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Intermediate	--	Exempt-Hb_Size	3/19/2002	03/19/2005
FRANK-024	NC05115	Hollow Farm Lagoon Dam	Franklin	Other	Intermediate	--	Exempt-Hb_Size	4/3/2003	04/03/2008
FRANK-031	NC05169	Newcomb Lagoon Dam	Franklin	Other	Intermediate	--	Exempt-Hb_Size	3/29/1999	03/29/2001
FRANK-055	NC02519	Dupree Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Intermediate	--	Exempt-Hb_Size	3/19/2004	03/19/2007
FRANK-059	NC02523	Denton Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Intermediate	Fair	Exempt	12/10/2021	--
FRANK-104	NC02566	Allen Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Intermediate	Fair	Jurisdictional	10/26/2021	10/26/2023
FRANK-012	NC01067	Lake View Dam	Franklin	Recreation	Intermediate	Fair	Exempt-Approved Breach	10/12/2021	10/12/2023
FRANK-333	NC06379	Cliff Freeman Pond Dam	Franklin	Other	Intermediate	Fair	Jurisdictional	2/22/2023	01/01/2025
FRANK-023	NC02487	Lye Dam	Franklin	Recreation	Intermediate	Fair	Exempt-Hb_Size	4/25/2017	05/14/2004

State ID	National Inventory of Dams (NID)	Dam Name	County	Dam Purpose	Dam Hazard	Dam Condition	Dam Status*	Last Inspection	Next Inspection
GRANV-001	NC01001	Golden Pond Dam	Granville	Recreation	Intermediate	Fair	Jurisdictional	10/28/2021	10/28/2023
GRANV-020	NC02654	Camp Oak Hill Pond Dam	Granville	Recreation	Intermediate	--	Exempt-Hb_Size	4/21/2004	04/21/2007
GRANV-005	NC05172	Norwood Dam	Granville	Recreation	Intermediate	Fair	Jurisdictional	10/28/2021	10/28/2023
GRANV-035	NC02669	Gregory Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Intermediate	--	Exempt	11/20/1981	11/20/1986
VANCE-009	NC01689	Tungsten Mine Tailings Dam	Vance	Tailings	Intermediate	Fair	Jurisdictional	11/30/2021	11/30/2023
VANCE-007	NC01057	South Lake Dam	Vance	Recreation	Intermediate	Fair	Jurisdictional	11/30/2021	11/30/2022
WARRE-005	NC01056	Lake Largo Dam	Warren	Recreation	Intermediate	--	Exempt	2/4/1981	02/04/2004
FRANK-056	NC02520	Dixie Pond Dam	Franklin	Recreation	Low	Fair	Exempt	1/9/2019	07/07/7777
FRANK-345	NC07618	Club Drive Dam	Franklin	Other	Low	--	Exempt-Hb_Size	--	--
FRANK-021	NC02486	Tar River Diversion Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	2/7/2001	02/07/2006
FRANK-007	NC01062	Clifton Pond Dam	Franklin	Irrigation, Recreation	Low	--	Exempt	8/29/1995	--
FRANK-068	NC02532	Jeffreys Pond Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	1/17/2001	01/17/2006
FRANK-136	NC02594	Price Pond Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	2/25/2000	02/25/2005
FRANK-018	NC02484	Nash Pond #1 Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	2/7/2001	02/07/2006
FRANK-019	NC02485	Nelms Pond Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	2/7/2001	02/07/2006
FRANK-016	NC01073	Circle R Lake Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	3/6/2003	03/06/2008
FRANK-033	NC05551	R. L. Jones Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	6/16/1986	06/16/1991
FRANK-014	NC01069	Pleasants Lake Dam	Franklin	Recreation	Low	Fair	Exempt-Approved Breach	11/28/2023	11/28/2028
FRANK-025	NC02489	Hicks Pond Dam	Franklin	Recreation	Low	Fair	Jurisdictional	11/29/2023	11/29/2028

State ID	National Inventory of Dams (NID)	Dam Name	County	Dam Purpose	Dam Hazard	Dam Condition	Dam Status*	Last Inspection	Next Inspection
FRANK-026	NC02490	Morningstar Farm Lagoon Dam	Franklin	Other	Low	--	Exempt-Approved Breach	11/19/1996	11/19/1997
FRANK-027	NC05123	Jackson Bradshaw Pond Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	7/27/1995	07/27/2000
FRANK-028	NC05209	Strother Swine Lagoon Dam	Franklin	Other	Low	--	Exempt-Hb_Size	4/3/2003	04/03/2008
FRANK-029	NC05072	Daniels & Daniels Lagoon Dam	Franklin	Other	Low	--	Exempt-Hb_Size	2/7/2001	02/07/2006
FRANK-030	NC05129	Jones Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	3/19/2003	03/19/2008
FRANK-038	NC02502	Mitchner Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	4/3/2003	04/03/2008
FRANK-044	NC02508	May Pond Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	2/7/2001	02/07/2006
FRANK-046	NC02510	Felix Allen Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	2/13/2001	02/13/2006
FRANK-047	NC02511	Bryan Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Approved Breach	--	--
FRANK-048	NC02512	Talton Pond Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	4/3/2003	04/03/2008
FRANK-010	NC01065	Mitchiner Lake Dam	Franklin	Recreation	Low	Satisfactory	Exempt	1/9/2019	--
FRANK-054	NC02518	Wheless Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	1/4/2001	01/04/2006
FRANK-070	NC02534	Perry Pond Dam #2	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	1/17/2001	01/17/2006
FRANK-083	NC02547	Rowe Pond Dam	Franklin	Irrigation	Low	Not Rated	Exempt-Approved Breach	4/29/2019	--
FRANK-076	NC02540	Talton Pond Dam	Franklin	Fish and Wildlife Pond	Low	--	Exempt-Hb_Size	4/15/2003	04/15/2008
FRANK-087	NC02551	Wicks Pond Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/15/2003	04/15/2008

State ID	National Inventory of Dams (NID)	Dam Name	County	Dam Purpose	Dam Hazard	Dam Condition	Dam Status*	Last Inspection	Next Inspection
FRANK-091	NC02555	Nowell Pond Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Approved Breach	4/3/2003	04/03/2008
FRANK-095	NC01235	Strickland Lake Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	2/7/2001	02/07/2006
FRANK-096	NC02559	Hasty Pond Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	2/7/2001	02/07/2006
FRANK-097	NC02560	Richard Pond Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	3/11/2003	03/11/2008
FRANK-098	NC02561	Gupton Pond Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	Fair	Jurisdictional	11/28/2023	11/28/2028
FRANK-100	NC02563	Robert Gardner Dam	Franklin	Other	Low	--	Exempt-Hb_Size	1/3/2001	01/03/2006
FRANK-101	NC04903	Colbert Lagoon Dam	Franklin	Other	Low	--	Exempt-Hb_Size	1/3/2001	01/03/2006
FRANK-102	NC02564	Strickland Pond Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	3/11/2003	03/11/2008
FRANK-103	NC02565	Perry Pond Dam #3	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	3/11/2003	03/11/2008
FRANK-105	NC02567	Rogers Dam	Franklin	Irrigation	Low	--	Exempt-Hb_Size	3/6/2003	03/06/2008
FRANK-106	NC02568	Rose Dam	Franklin	Irrigation	Low	Fair	Jurisdictional	4/29/2019	04/29/2024
FRANK-108	NC02570	Moore Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	Fair	Exempt	1/9/2019	--
FRANK-110	NC02572	Stone Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/15/2003	04/15/2008
FRANK-111	NC02573	Gordon Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	Not Rated	Exempt-Hb_Size	9/9/1999	09/09/2004
FRANK-112	NC02574	Weldon Dam	Franklin	Irrigation	Low	--	Exempt-Hb_Size	12/20/2000	12/20/2003
FRANK-113	NC02575	Loyd Pond Lower Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	1/4/2001	01/04/2006

State ID	National Inventory of Dams (NID)	Dam Name	County	Dam Purpose	Dam Hazard	Dam Condition	Dam Status*	Last Inspection	Next Inspection
FRANK-114	NC02576	Loyd Pond Upper Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	1/4/2001	01/04/2006
FRANK-116	NC02578	Kemp Pond Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	1/22/2001	01/22/2006
FRANK-117	NC02579	Newton Pond Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	2/13/2001	02/13/2006
FRANK-118	NC02580	Lumpkin Pond Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	1/22/2001	01/22/2006
FRANK-119	NC02581	Beaver Creek Dam	Franklin	Recreation	Low	Satisfactory	Jurisdictional	11/27/2018	11/27/2023
FRANK-121	NC02582	Edwards Dam	Franklin	Irrigation	Low	--	Exempt-Hb_Size	1/22/2001	01/22/2006
FRANK-122	NC02583	Holmes Pond Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	1/22/2001	01/22/2006
FRANK-123	NC02584	Jones Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	2/26/2002	02/26/2009
FRANK-124	NC02585	Dean Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	2/26/2002	02/26/2007
FRANK-125	NC02586	Allen Dam	Franklin	Irrigation	Low	--	Exempt-Hb_Size	1/4/2001	01/04/2006
FRANK-126	NC05062	Cone Dam #1	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Approved Breach	5/17/1996	05/17/1999
FRANK-127	NC05063	Cone Dam #2	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	5/17/1996	05/17/1999
FRANK-128	NC05061	Collie Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	Fair	Jurisdictional	4/29/2019	04/29/2024
FRANK-129	NC02587	Pernell Pond Dam	Franklin	Irrigation	Low	--	Exempt-Hb_Size	2/17/2000	02/17/2005
FRANK-132	NC02590	Newcomb Pond Dam	Franklin	Irrigation	Low	--	Exempt-Hb_Size	4/23/2004	04/23/2009
FRANK-133	NC02591	Holmestead Pond Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	4/18/2002	04/18/2007
FRANK-134	NC02592	Jones Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	2/15/2000	02/15/2005

State ID	National Inventory of Dams (NID)	Dam Name	County	Dam Purpose	Dam Hazard	Dam Condition	Dam Status*	Last Inspection	Next Inspection
FRANK-135	NC02593	Mullen Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	2/17/2000	02/17/2005
FRANK-138	NC02596	May Pond Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	2/13/2001	02/13/2006
FRANK-139	NC05014	Wheiess Dam	Franklin	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	2/26/2002	02/26/2007
FRANK-140	NC05006	United Turf Pond Dam	Franklin	Irrigation, Recreation	Low	--	Exempt-Hb_Size	3/26/2003	03/26/2008
FRANK-141	NC05882	Rosado Robeson Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	4/17/2008	04/17/2008
FRANK-332	NC06199	Oak Forest Dam	Franklin	Flood Control or Stormwater Management, Recreation	Low	--	Exempt	--	--
FRANK-335	NC06440	Wade Pond Dam	Franklin	Other	Low	Satisfactory	Jurisdictional	11/10/2020	--
FRANK-337	NC06793	Nelms-Lowe Dam	Franklin	Irrigation	Low	Fair	Pending	11/14/2024	11/14/2029
FRANK-338	NC06794	Shearin Pond Dam	Franklin	Irrigation	Low	Not Rated	Pending	11/14/2024	11/14/2029
FRANK-339	NC07053	Shearon Pond Dam	Franklin	Other	Low	--	Pending	--	--
FRANK-340	NC07072	Harris Lake Dam #1	Franklin	Other	Low	--	Pending	--	--
FRANK-341	NC07073	Harris Lake Dam #4	Franklin	Other	Low	--	Pending	--	--
FRANK-342	NC07074	Harris Lake Dam #5	Franklin	Other	Low	--	Pending	--	--
FRANK-343	NC07481	Parrish Farm Dam	Franklin	Other	Low	Fair	Pending	11/14/2024	11/14/2029
FRANK-344	NC07482	May Family Dam	Franklin	Other	Low	Fair	Pending	11/14/2024	11/14/2029
FRANK-346	NC07671	Clifton Pond Dam #2	Franklin	Irrigation	Low	--	Pending	--	--
FRANK-348	NC07832	Nelms-Lowe Dam #2	Franklin	Other	Low	--	Pending	--	--
FRANK-130	NC02588	Eddins Pond Dam	Franklin	Irrigation	Low	Fair	Jurisdictional	4/29/2019	04/29/2024
FRANK-352	NC07984	Perry Dam	Franklin	Irrigation	Low	--	Pending	--	--
FRANK-353	NC07985	Boyer Dam	Franklin	Irrigation	Low	--	Pending	--	--
FRANK-005	NC00986	Hidden Lake Dam	Franklin	Irrigation	Low	Satisfactory	Jurisdictional	11/27/2018	11/27/2023

State ID	National Inventory of Dams (NID)	Dam Name	County	Dam Purpose	Dam Hazard	Dam Condition	Dam Status*	Last Inspection	Next Inspection
FRANK-006	NC02483	Nash Pond #1 Dam	Franklin	Irrigation	Low	--	Exempt-Hb_Size	2/7/2001	02/07/2006
WAKE-331	NC04630	Jeans Pond Dam	Franklin	Recreation	Low	Fair	Exempt	1/22/2018	01/01/7777
NASH-053	NC05095	Futrell Lagoon Dam	Franklin	Other	Low	--	Exempt-Hb_Size	1/3/2001	01/03/2006
FRANK-022	NC01071	Timmerman Lake Dam	Franklin	Recreation	Low	Satisfactory	Jurisdictional	1/9/2019	01/09/2024
FRANK-002	NC00675	Harris Lake Dam #2	Franklin	Irrigation	Low	--	Jurisdictional	4/22/2003	04/22/2008
FRANK-004	NC00903	Harris Lake Dam #3	Franklin	Irrigation	Low	--	Exempt-Hb_Size	4/22/2003	04/22/2008
FRANK-015	NC01072	Alford Brothers Lake Dam	Franklin	Recreation	Low	Fair	Jurisdictional	4/29/2019	04/29/2024
FRANK-008	NC01063	Perry Lake Dam	Franklin	Recreation	Low	--	Exempt-Hb_Size	1/17/2001	01/17/2006
FRANK-107	NC02569	Goldston Dam	Franklin	Irrigation	Low	--	Exempt-Hb_Size	4/7/2004	04/07/2009
GRANV-120	NC06308	AAA Gas and Appliance Dam	Granville	Other	Low	--	Exempt	--	--
GRANV-127	NC06338	Freight Trailer Parking Facility Dam	Granville	Other	Low	--	Exempt	--	--
GRANV-128	NC06378	Hock Development Wetland Dam	Granville	Other	Low	--	Exempt	--	--
GRANV-042	NC02676	Peed Dam #1	Granville	Recreation	Low	--	Exempt	2/13/1987	--
GRANV-118	NC06283	Amberleaf BMP A Dam	Granville	Other	Low	--	Exempt	--	--
GRANV-119	NC06284	Amberleaf BMP B Dam	Granville	Other	Low	--	Exempt	--	--
GRANV-006	NC05080	Easton Pond Dam	Granville	Recreation	Low	Fair	Exempt	1/7/2019	--
GRANV-052	NC02686	Clark Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/4/2002	04/04/2007
GRANV-018	NC02653	Nye #2 Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/9/2002	04/09/2007
GRANV-064	NC02697	Teal Upper Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	2/20/2003	02/20/2008

State ID	National Inventory of Dams (NID)	Dam Name	County	Dam Purpose	Dam Hazard	Dam Condition	Dam Status*	Last Inspection	Next Inspection
GRANV-078	NC02711	Allen Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/9/2002	04/09/2007
GRANV-083	NC02716	Teal Lower Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/23/2003	04/23/2008
GRANV-002	NC01000	Hamme Lake Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/11/2002	04/11/2007
GRANV-007	NC05107	Haynes Dam	Granville	Recreation	Low	--	Exempt-Hb_Size	3/27/2002	03/27/2007
GRANV-009	NC02650	Gantt Pond #1 Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/9/2002	04/09/2007
GRANV-010	NC01009	Gantt Pond #2 Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/9/2002	04/09/2007
GRANV-015	NC01017	Hancock Lake Dam	Granville	Irrigation	Low	--	Exempt-Approved Breach	2/13/2003	02/13/2005
GRANV-016	NC02651	Oxford Treatment Basin Dam	Granville	Other	Low	--	Exempt	1/15/1970	--
GRANV-017	NC02652	Bingham Pond Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt	5/27/1976	05/27/1981
GRANV-021	NC02655	Royster Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt	4/28/1987	--
GRANV-027	NC02661	Hardy Pond Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	12/14/2000	12/14/2005
GRANV-033	NC02667	Elliot Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/4/2002	04/04/2007
GRANV-044	NC02678	Sherman Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/4/2002	04/04/2007
GRANV-101	NC02734	Oxford Research Station Dam	Granville	Irrigation	Low	--	Exempt-Hb_Size	12/14/2000	12/14/2005

State ID	National Inventory of Dams (NID)	Dam Name	County	Dam Purpose	Dam Hazard	Dam Condition	Dam Status*	Last Inspection	Next Inspection
GRANV-102	NC02735	Malloy Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/4/2002	04/04/2007
GRANV-104	NC02737	Bodie Currin Dam	Granville	Irrigation	Low	--	Exempt-Hb_Size	4/4/2002	04/04/2007
GRANV-106	NC02739	Olmstead Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/4/2002	04/04/2007
GRANV-107	NC02740	Dickerson Pond Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	Fair	Jurisdictional	1/7/2019	01/07/2024
GRANV-108	NC02741	Peed Dam #2	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/9/2002	04/09/2007
GRANV-109	NC02742	Salem Church Dam	Granville	Recreation	Low	--	Exempt-Hb_Size	4/4/2002	04/04/2007
GRANV-110	NC02743	Crews Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/4/2002	04/04/2007
GRANV-111	NC02744	Penny Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	4/4/2002	04/04/2007
GRANV-113	NC04908	Crews Dam #2	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	2/13/2003	02/13/2008
GRANV-114	NC04923	Granville Farm Pond Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	2/13/2003	02/13/2008
GRANV-115	NC04932	Hobgood Pond Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	2/13/2003	02/13/2008
GRANV-116	NC04924	Hamme Pond Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	2/13/2003	02/13/2008
GRANV-117	NC04883	B. Hobgood Pond Dam	Granville	Irrigation, Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	2/13/2003	02/13/2008
GRANV-121	NC06323	Matt Harrison Dam	Granville	Other	Low	--	Exempt	--	--
GRANV-122	NC06329	Poupard BMP #1 Dam	Granville	Other	Low	Satisfactory	Exempt	11/8/2019	--

State ID	National Inventory of Dams (NID)	Dam Name	County	Dam Purpose	Dam Hazard	Dam Condition	Dam Status*	Last Inspection	Next Inspection
GRANV-123	NC06330	Poupard BMP #2 Dam	Granville	Other	Low	Satisfactory	Exempt	11/8/2019	--
GRANV-124	NC06331	Poupard BMP #3 Dam	Granville	Other	Low	Satisfactory	Exempt	11/8/2019	--
GRANV-125	NC06332	Poupard BMP #4 Dam	Granville	Other	Low	Satisfactory	Exempt	11/8/2019	--
GRANV-126	NC06333	Poupard BMP #5 Dam	Granville	Other	Low	Satisfactory	Exempt	11/8/2019	--
GRANV-129	NC06798	Coves End Lower Dam	Granville	Other, Recreation	Low	--	Pending	--	--
GRANV-130	NC06799	Coves End Middle Dam	Granville	Other, Recreation	Low	--	Pending	--	--
GRANV-131	NC06800	Coves End Upper Dam	Granville	Other, Recreation	Low	--	Pending	--	--
GRANV-133	NC07030	Huff Denny Dam	Granville	Other	Low	--	Pending	--	--
GRANV-134	NC07031	Cosner Dam	Granville	Other	Low	--	Pending	--	--
GRANV-135	NC07443	Pridgen Pond Dam	Granville	Other	Low	--	Pending	--	--
GRANV-136	NC07645	Bode Pond Dam	Granville	Other	Low	--	Pending	--	--
GRANV-137	NC07707	Grassy Creek Dam	Granville	--	Low	--	Pending	--	--
GRANV-103	NC02736	Monk Dam	Granville	Recreation	Low	--	Exempt-Hb_Size	4/4/2002	04/04/2007
GRANV-112	NC05021	Wortham Pond Dam	Granville	Recreation	Low	Fair	Exempt	1/7/2019	07/07/7777
GRANV-105	NC02738	Garner Dam	Granville	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Hb_Size	12/14/2000	12/14/2005
VANCE-036	NC04880	Abbott Dam	Vance	Fish and Wildlife Pond, Recreation	Low	Fair	Jurisdictional	5/31/2019	05/31/2024
VANCE-024	NC04427	Ronald Smith Dam	Vance	Irrigation	Low	Fair	Jurisdictional	5/1/2019	05/01/2019
VANCE-004	NC01018	Southerland Lake Dam	Vance	--	Low	--	Exempt	5/7/1993	--
VANCE-005	NC01019	Ayscue Lake Dam	Vance	Water Supply	Low	Fair	Jurisdictional	5/31/2019	05/31/2024
VANCE-006	NC01020	Weldon Lake Dam	Vance	--	Low	--	Exempt	5/11/1993	--
VANCE-016	NC04419	Turner Pond Dam	Vance	Fire Protection/Stock Pond/Small Farm Pond	Low	Satisfactory	Jurisdictional	5/16/2019	05/16/2024

State ID	National Inventory of Dams (NID)	Dam Name	County	Dam Purpose	Dam Hazard	Dam Condition	Dam Status*	Last Inspection	Next Inspection
VANCE-008	NC01688	Lake Vance Dam	Vance	Recreation	Low	Not Rated	Exempt-Approved Breach	5/16/2019	--
VANCE-021	NC04424	Gwynn Pond Dam	Vance	Fire Protection/Stock Pond/Small Farm Pond	Low	Fair	Jurisdictional	5/16/2019	05/16/2024
VANCE-035	NC05020	Wortham Dam	Vance	Fish and Wildlife Pond, Recreation	Low	Fair	Jurisdictional	5/1/2019	05/01/2024
VANCE-037	NC04902	Coghill Dam	Vance	Fish and Wildlife Pond, Recreation	Low	Fair	Jurisdictional	5/1/2019	05/01/2024
VANCE-010	NC01434	Vance-Granville Technical Lake Dam	Vance	Recreation	Low	Fair	Jurisdictional	1/11/2024	01/11/2029
VANCE-012	NC04415	Short Pond Dam	Vance	Fire Protection/Stock Pond/Small Farm Pond	Low	Fair	Jurisdictional	5/31/2019	05/31/2024
VANCE-013	NC04416	Woodlief Pond Dam	Vance	Recreation	Low	Fair	Jurisdictional	5/1/2019	05/01/2024
VANCE-015	NC04418	Hoyle Pond Dam	Vance	Fire Protection/Stock Pond/Small Farm Pond	Low	Fair	Jurisdictional	6/27/2019	06/27/2024
VANCE-001	NC01012	Club Lake Dam	Vance	Water Supply	Low	--	Exempt	5/11/1993	--
VANCE-022	NC04425	Lake Lucy Dam	Vance	Recreation	Low	--	Exempt-Approved Breach	1/27/1981	--
VANCE-023	NC04426	Jackson Dam	Vance	Irrigation, Recreation	Low	Fair	Jurisdictional	5/1/2019	05/01/2024
VANCE-002	NC01013	Rowland Lake Dam	Vance	Other	Low	--	Exempt	5/11/1993	--
VANCE-025	NC04428	Ronald Stainback Dam	Vance	Fire Protection/Stock Pond/Small Farm Pond	Low	Fair	Jurisdictional	5/31/2019	05/31/2024
VANCE-026	NC05057	Charles Rose Dam	Vance	Fire Protection/Stock Pond/Small Farm Pond	Low	--	Exempt-Approved Breach	1/31/1995	01/31/2001
VANCE-027	NC04429	George Frazier Dam	Vance	Fire Protection/Stock Pond/Small Farm Pond	Low	Satisfactory	Jurisdictional	5/1/2019	05/01/2024

State ID	National Inventory of Dams (NID)	Dam Name	County	Dam Purpose	Dam Hazard	Dam Condition	Dam Status*	Last Inspection	Next Inspection
VANCE-030	NC04432	Mettrey Lower Pond Dam	Vance	Irrigation, Recreation	Low	Fair	Jurisdictional	5/31/2019	05/31/2024
VANCE-031	NC04433	Mettrey Upper Pond Dam	Vance	Irrigation, Recreation	Low	Fair	Jurisdictional	5/31/2019	05/31/2024
VANCE-032	NC04434	Allen Pond Dam	Vance	Irrigation, Recreation	Low	Fair	Jurisdictional	5/1/2019	05/01/2024
VANCE-033	NC04435	Stainback Dam	Vance	Irrigation	Low	Satisfactory	Jurisdictional	5/31/2019	05/31/2024
VANCE-003	NC01014	Fox Reservior Dam	Vance	Other	Low	--	Exempt	2/18/1992	--
VANCE-038	NC05010	W&W Properties Dam	Vance	Fish and Wildlife Pond, Recreation	Low	Fair	Jurisdictional	5/1/2019	05/01/2024
VANCE-039	NC04975	Parham Farm Pond Dam	Vance	Fish and Wildlife Pond	Low	Fair	Jurisdictional	5/16/2019	05/16/2024
VANCE-041	NC07180	Unicapital Investment Dam #1	Vance	Other	Low	--	Pending	--	--
VANCE-042	NC07181	Unicapital Investment Dam #2	Vance	Other	Low	--	Pending	--	--
VANCE-043	NC07182	Daryl Burgess Dam	Vance	Other	Low	--	Pending	--	--
WARRE-019	NC04648	Sullivan Pond Dam	Warren	Irrigation, Recreation	Low	Poor	Exempt	11/20/2018	--
WARRE-001	NC05418	Fleming Lagoon Dam	Warren	Other	Low	Not Rated	Exempt-Approved Breach	4/26/2011	03/12/2004
WARRE-002	NC05167	NC Farm Dam	Warren	Irrigation, Recreation	Low	Satisfactory	Exempt	11/20/2018	--
WARRE-006	NC01433	Rocky Creek Dam	Warren	Irrigation, Recreation	Low	Fair	Exempt	11/20/2018	07/07/7777
WARRE-007	NC04636	Bobby Whitney Dam	Warren	Irrigation, Recreation	Low	Fair	Exempt	11/20/2018	--
WARRE-020	NC06402	Justyn Phelps Dam	Warren	Other	Low	--	Exempt	--	--
WARRE-021	NC07183	Jones Chapel Road Dam	Warren	Other, Fire Protection/Stock Pond/Small Farm Pond	Low	Fair	Exempt	1/16/2025	01/16/2030
WARRE-022	NC07557	Spruill Pond Dam	Warren	Other	Low	--	Pending	--	--

State ID	National Inventory of Dams (NID)	Dam Name	County	Dam Purpose	Dam Hazard	Dam Condition	Dam Status*	Last Inspection	Next Inspection
WARRE-023	NC07599	Rathyen Dam	Warren	Irrigation, Recreation	Low	--	Exempt	--	--
WARRE-024	NC07600	Big Woods Dam	Warren	Irrigation, Recreation	Low	--	Exempt	--	--

**In the Dam Status (Current) field, Jurisdictional indicates that a dam meets the criteria set by the North Carolina Dam Safety Law of 1967 and subsequent amendments, which means the dam is subject to regulatory requirements. Exempt indicates that the dam does not fall under the state's Dam Safety Law requirements and therefore is not subject to the regulatory jurisdiction of the Dam Safety Program. Pending indicates a dam has not yet received a final jurisdictional determination by the North Carolina Dam Safety Program, typically due to ongoing review or incomplete information needed to classify it as jurisdictional or exempt.*

5.2.4. Past Occurrences

There were no reported dam failures in the Tar River Region, according to the Association of State Dam Safety Officials' Dam Incident Database[7].

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. A mitigation strategy for dam identification and mapping will be considered in future mitigation actions for the Region.

5.2.6. Consequence and Impact Analysis

People

A person's immediate vulnerability to a dam failure is directly associated with the person's distance downstream of the dam as well as proximity to the stream carrying the floodwater from the failure. For dams with an Emergency Action Plan (EAP), the vulnerability to loss of life for people 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.

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

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 crossings; weakening of bridge supports through scour; and damage or destruction of public or private infrastructure that crosses the stream, such as water and sewer lines, gas lines, and power lines. Water-dependent structures on the lake upstream of the dam, such as docks/piers, floating structures, or water intake structures, may be damaged by the rapid reduction in water level during the failure.

Economy

The economic impact of small dams is generally small and is often limited to the dam owner and the cost of first-responder activities. Significant 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.

[7] Ogden, M. (2025). *Dam Incident Database* [Tabular]. Association of State Dam Safety Officials. https://damsafety.org/incidents

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's sediment layers.

First Responders

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

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

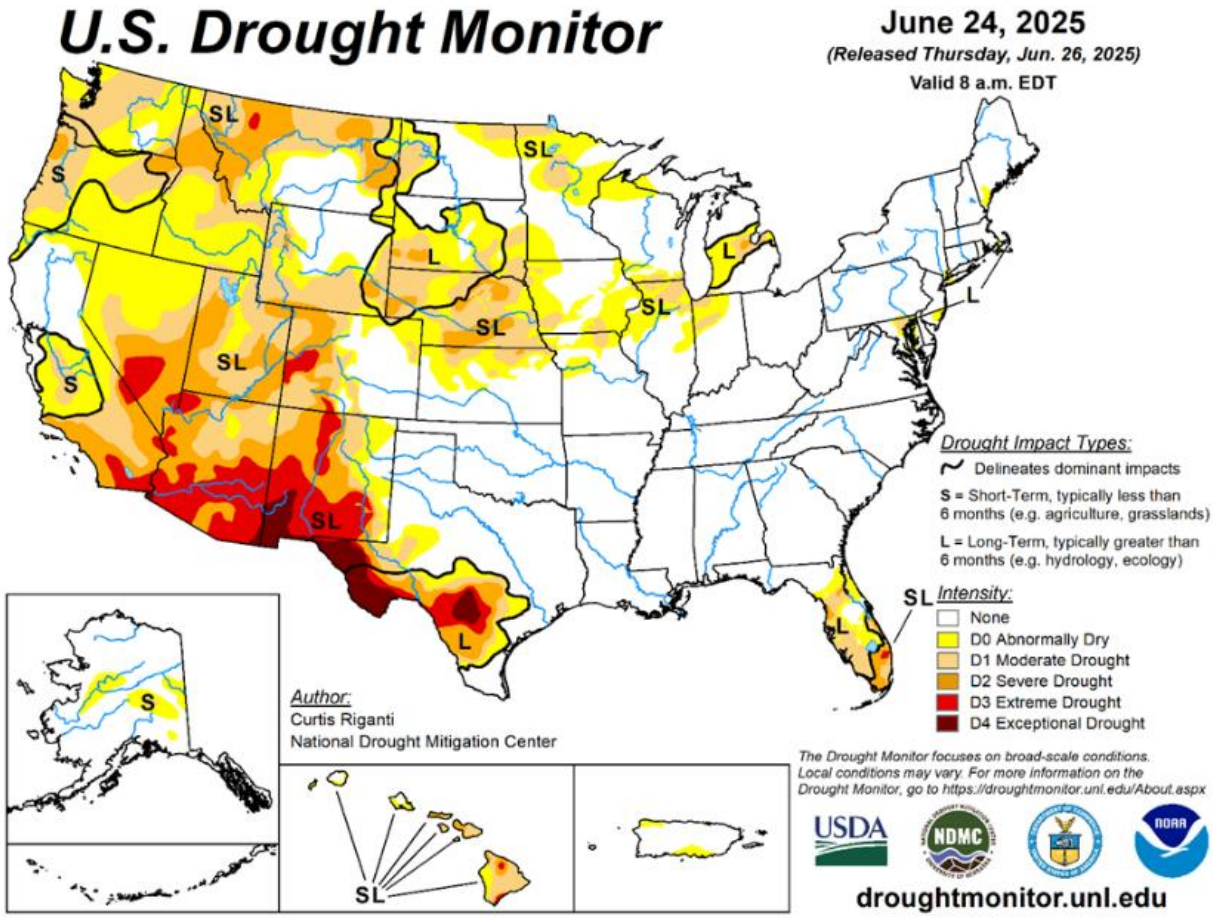
5.3.1. Hazard Description

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

Table 5-8: Drought Classification Definitions

Meteorological Drought	The degree of dryness or departure of actual precipitation from an expected average/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 of a weather-related supply shortfall.

Droughts are slow-onset hazards but can, over time, have very damaging effects on crops, municipal water supplies, recreational uses, and wildlife. If drought conditions persist for several years, the direct and indirect economic impacts 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 5-23, the PDSI Summary Map for the United States shows that drought affects most areas, but is less severe in the Eastern U.S.



Source: National Drought Mitigation Center

Figure 5-23: Palmer Drought Severity Index Summary Map for the United States[8]

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 drought index that differs from the Palmer Drought Index (PDI). Like the PDI, this index is negative for drought, and positive for wet

[8] Brian, F. (2025). *U.S. Drought Monitor Intensity and Impacts* [PDF]. U.S. Drought Monitor. https://droughtmonitor.unl.edu/CurrentMap.aspx

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, central North Carolina has a relatively low drought risk. 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 drought conditions in North Carolina 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 5-9: Drought Categories and Impact Description

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.

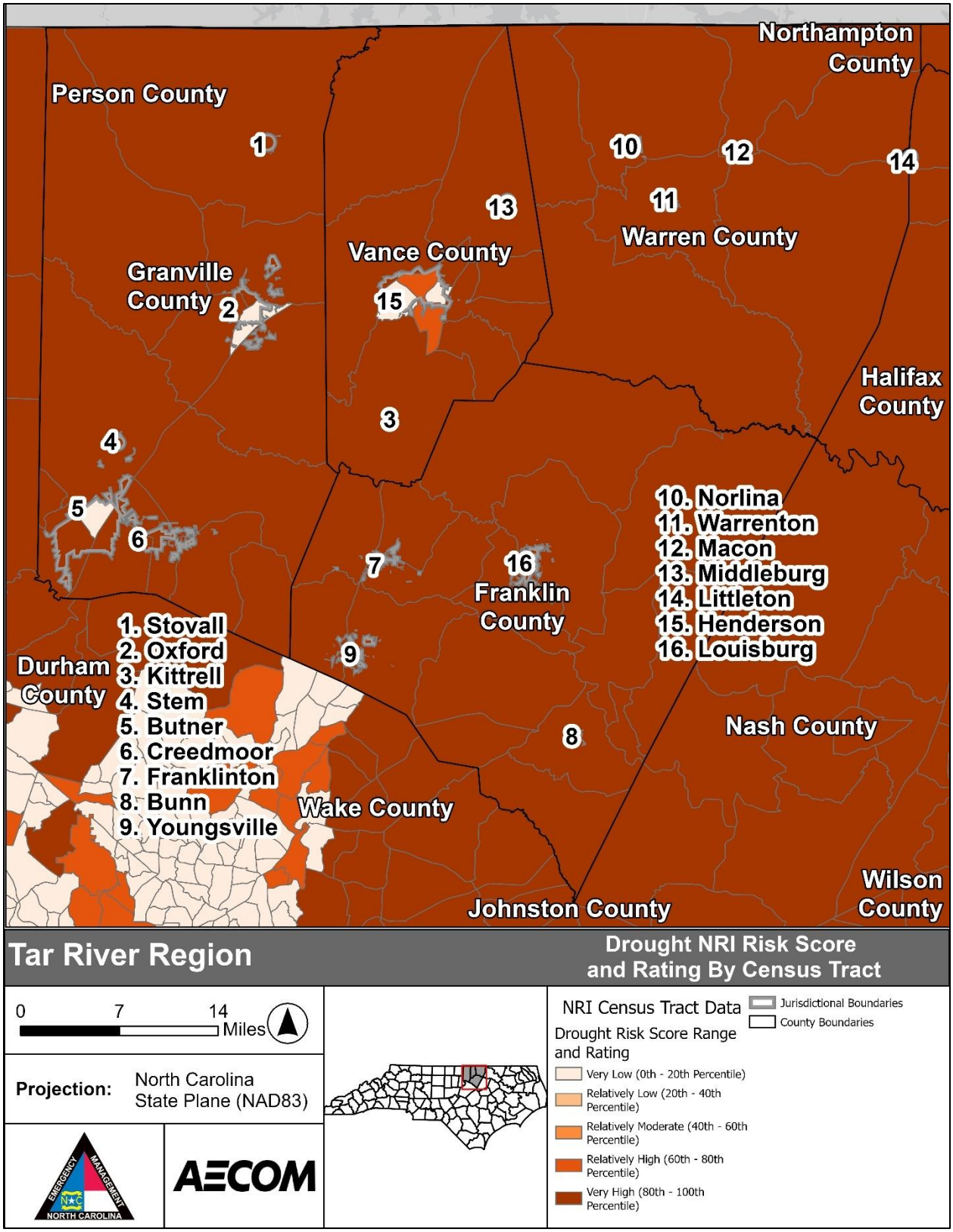


Figure 5-24: Drought Hazard Map - Tar River Region

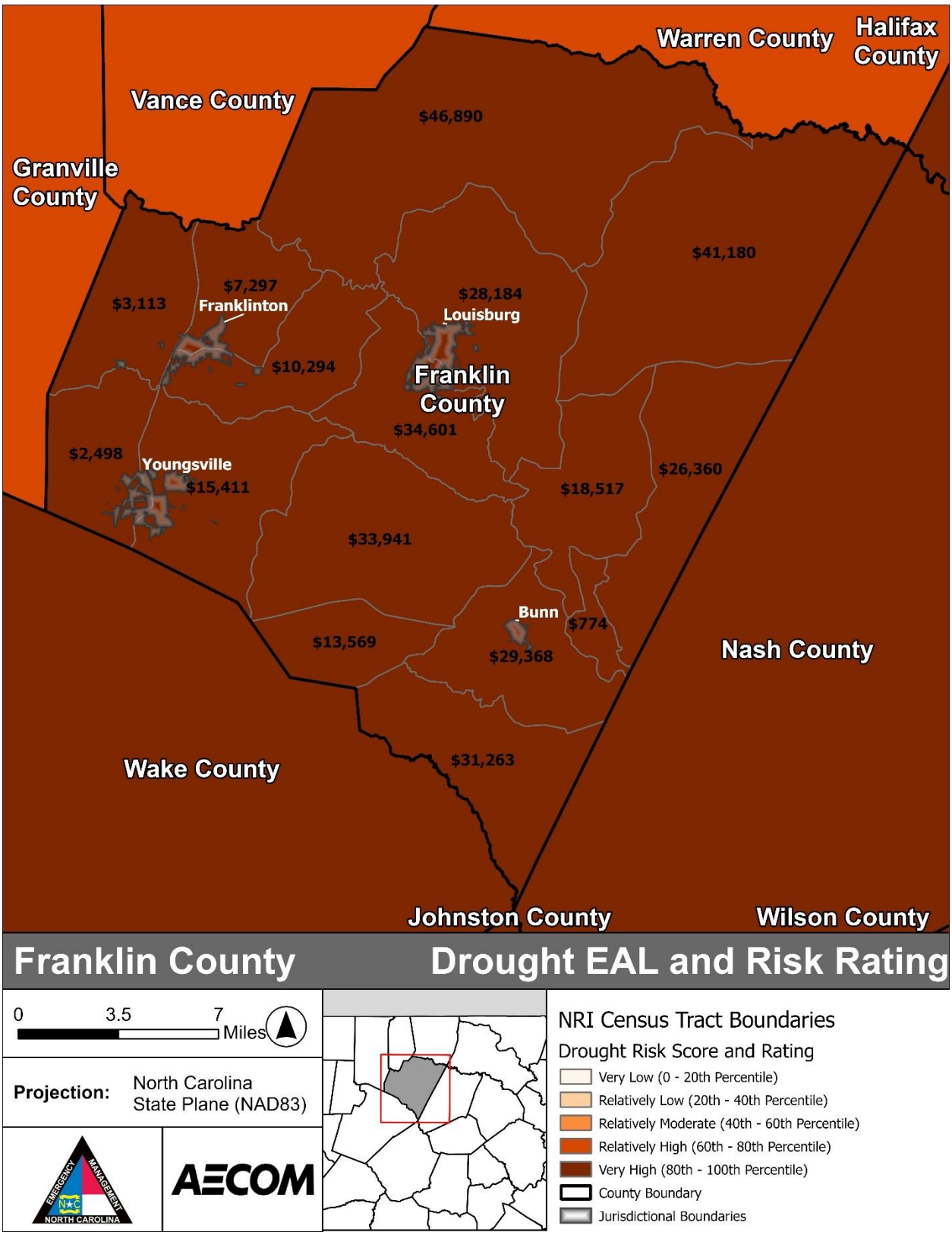


Figure 5-25: Drought Hazard Map - Franklin County

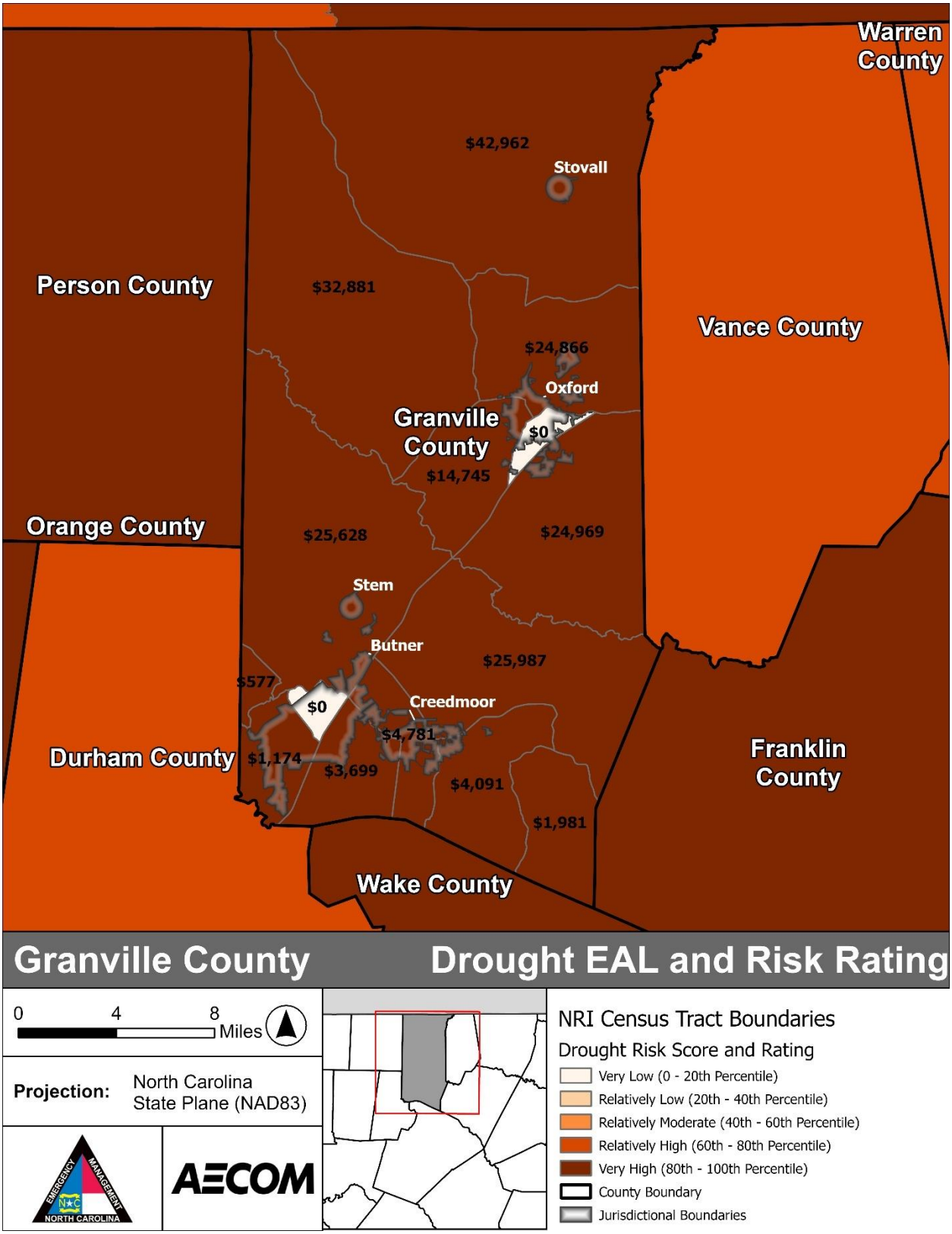


Figure 5-26: Drought Hazard Map - Granville County

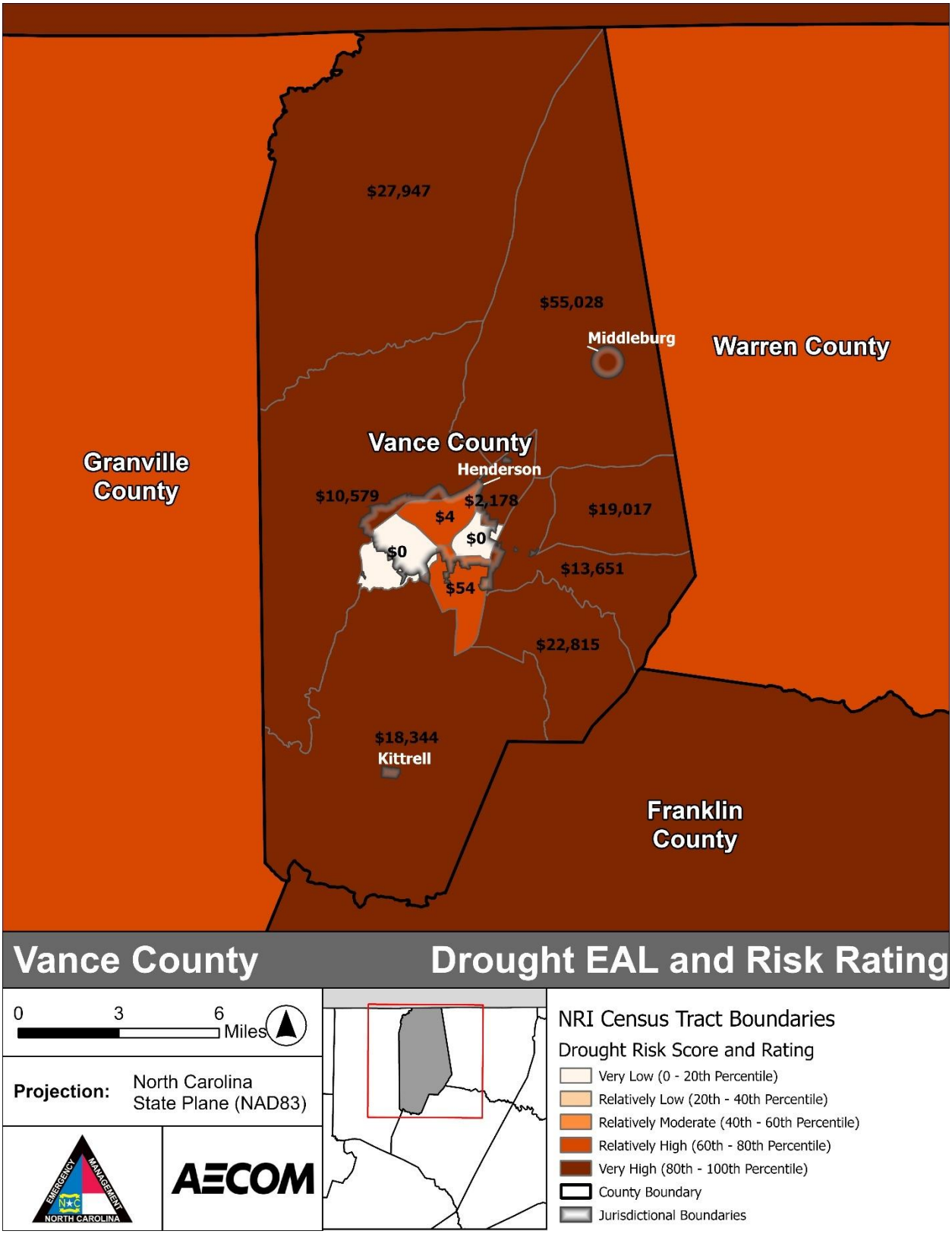


Figure 5-27: Drought Hazard Map - Vance County

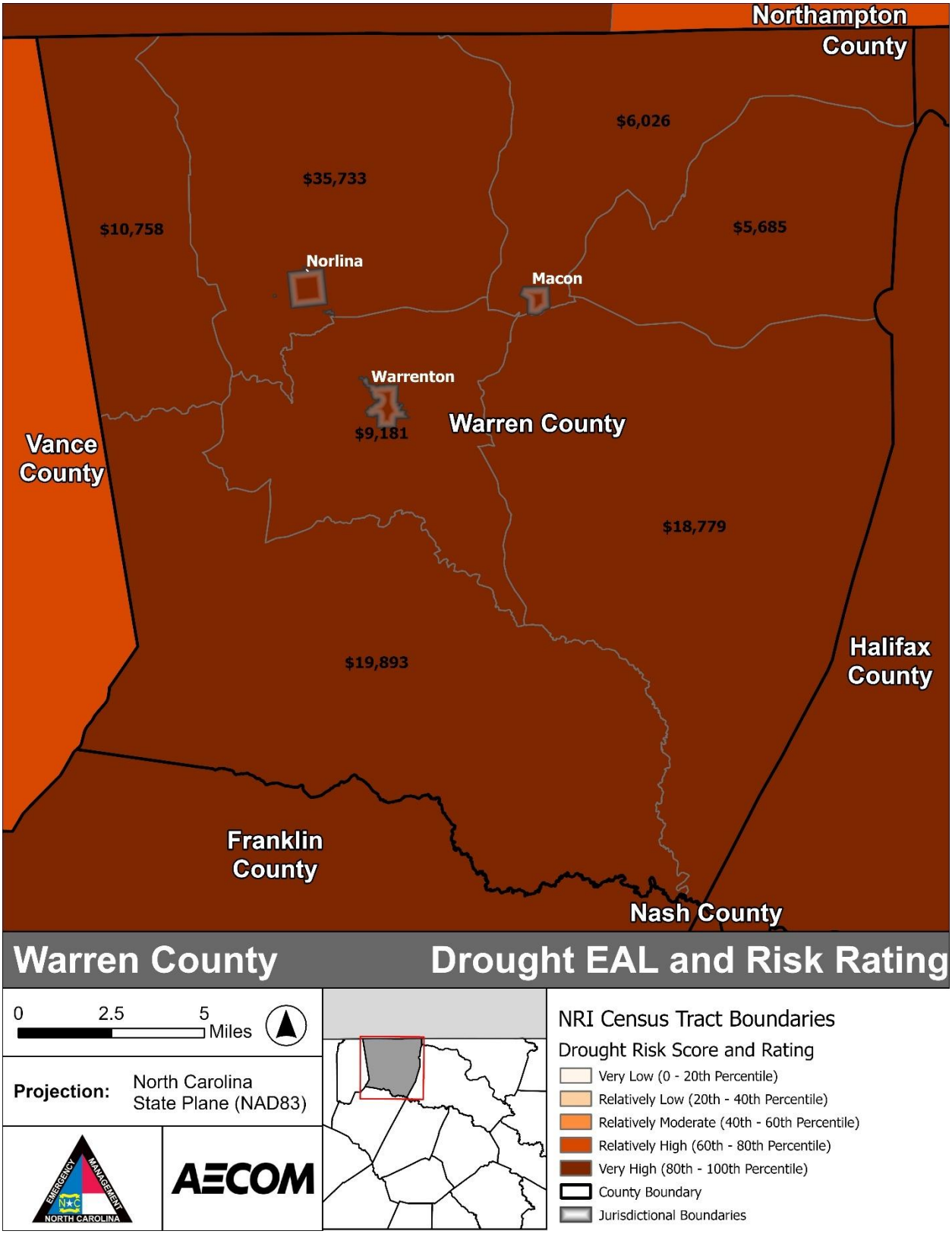


Figure 5-28: Drought Hazard Map - Warren County

5.3.3. Extent

According to the North Carolina Drought Monitor, all four counties in the Region's planning area experienced drought (including abnormally dry) over the last 20 years (2005-2025) (Figure 5-29 and Figure 5-30). 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 5-10: Percentage of Days in Drought in North Carolina Where the Drought Category Was the Highest Level of Drought Reported from 1/1/2015 to 12/30/2025[9]

Highest Level of Drought	Sum of Days
D0	3906
D1	1944
D2	162
D3	0
D4	0
None	7788
Grand Total	**13800**

Table 5-11: Percentage of Days Where the Drought Classification Was at or Above the Drought Class in the Tar River Region from 1/1/2015 to 12/30/2025[9]

County	D0	D1	D2	D3	D4	None
Franklin	29.57%	13.04%	0.35%	0	0	57.04%
Granville	27.65%	14.43%	1.91%	0	0	56.00%
Vance	25.91%	15.48%	1.04%	0	0	57.57%
Warren	30.09%	13.39%	1.39%	0	0	55.13%

5.3.4. Past Occurrences

According to the North Carolina Drought Monitor, Franklin, Granville, Vance, and Warren Counties have experienced drought conditions almost every year since 2000.[10] The following figures show the most severe classification for each year and County, expressed as a percentage of the county land area.

[9] Fuchs, B. (2025). *Comprehensive Statistics* [Tabular]. U.S. Drought Monitor. https://droughtmonitor.unl.edu/DmData/DataDownload/ComprehensiveStatistics.aspx
[10] *Time Series*. (2025). [Chart]. U.S. Drought Monitor. https://droughtmonitor.unl.edu/DmData/TimeSeries.aspx

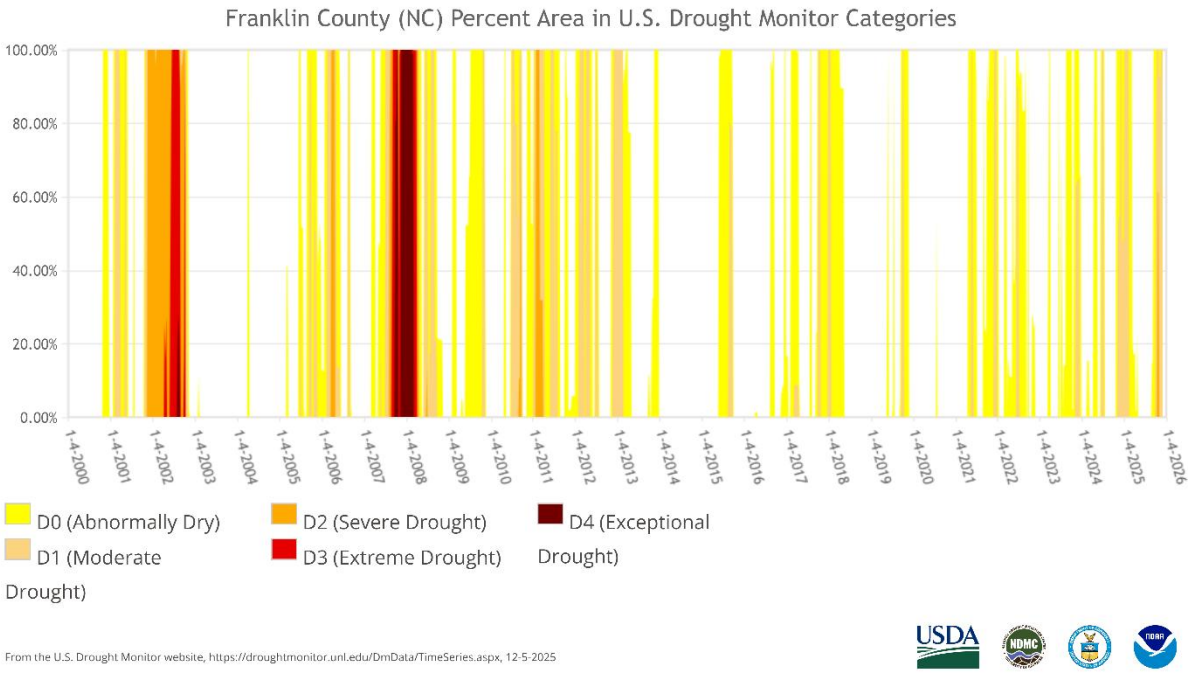


Figure 5-29: Historical Drought Occurrences in Franklin County

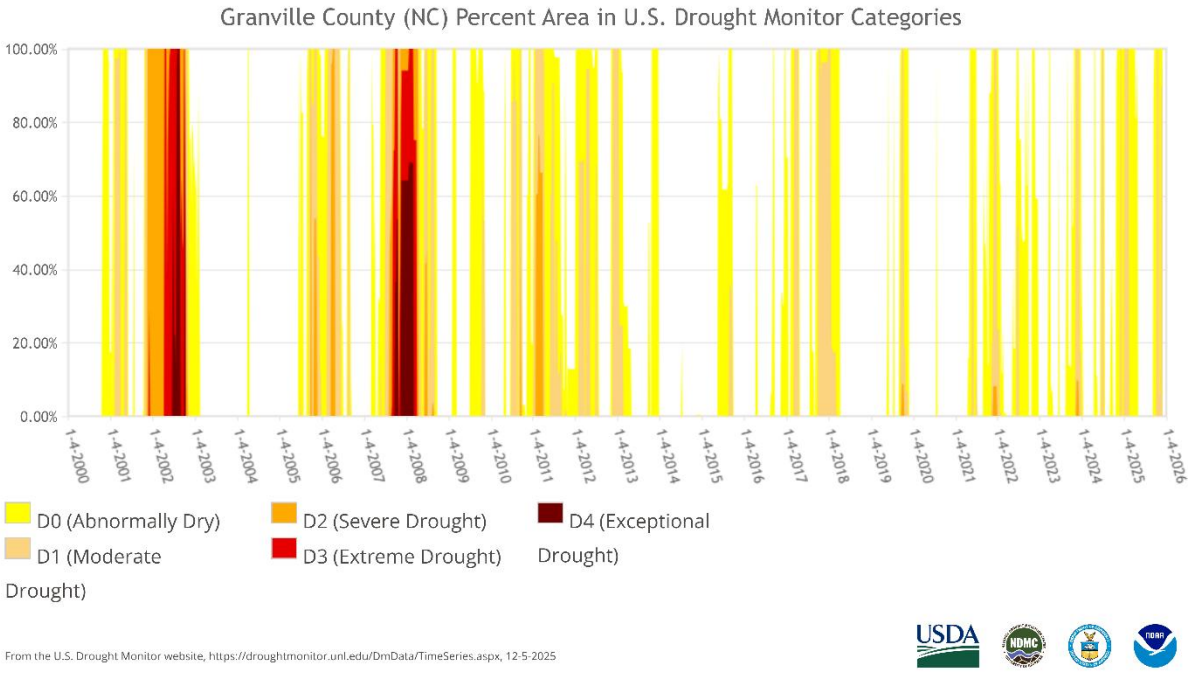


Figure 5-30: Historical Drought Occurrences in Granville County

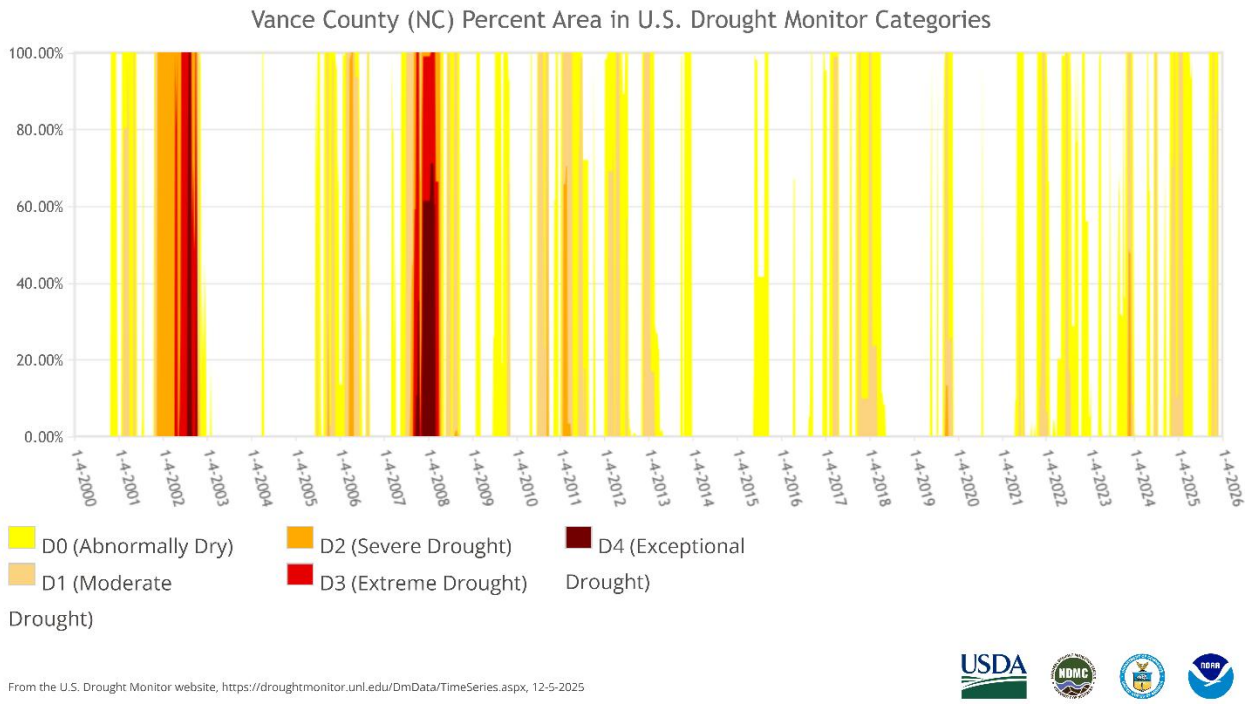


Figure 5-31: Historical Drought Occurrences in Vance County

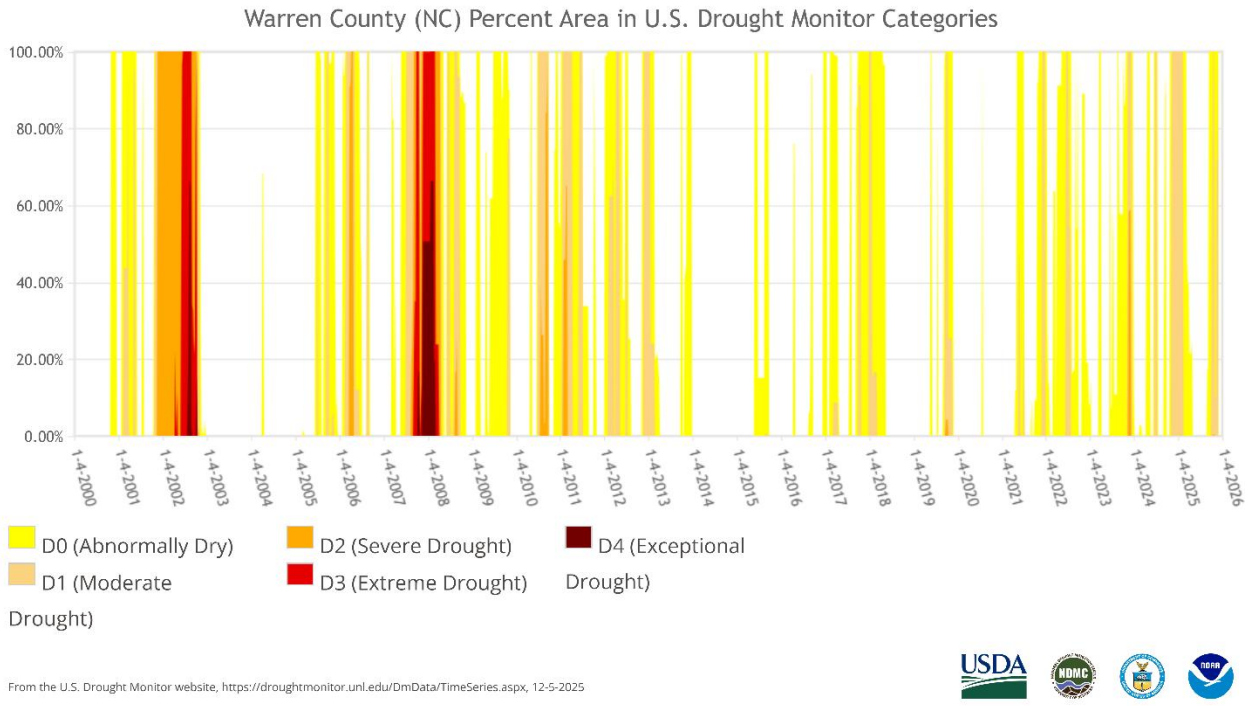


Figure 5-32: Historical Drought Occurrences in Warren County

5.3.5. Probability of Future Occurrences

Droughts are a natural part of North Carolina's climate. Future droughts are projected to be warmer than historical events, with high confidence. The warmer conditions will lead to more rapid drying due to increased potential evapotranspiration. Thus, future droughts, in their various forms, are likely to be more frequent and severe, with greater soil moisture deficits and impacts on rainfed agriculture and natural vegetation.

Franklin County has an impacted area of 499.56 mi^2, an annualized frequency of 14.53 drought events, a total EAL of $343,261, an EAL score of 84.58, and a Hazard Risk Index Score of 86.57. The unincorporated areas of Franklin County have a total impacted area of 304.54 mi^2, a total EAL of $212,495, an average EAL Score of 93.78, and an average Hazard Risk Index Score of 93.74. The jurisdictions with the highest total EAL are Louisburg ($62,784) and Franklinton ($36,115).

Granville County has an impacted area of 543.02 mi^2, an annualized frequency of 16.82 events, an EAL Score of 78.1, and a Hazard Risk Index Score of 78.94. The unincorporated areas of Granville County have a total impacted area of 114.57 mi^2, an average annualized frequency of 16.65, a total EAL of $35,282, an average EAL Score of 88.33, and an average Hazard Risk Index Score of 88.57. The jurisdictions with the highest total EAL are Oxford ($64,579) and Stoval ($42,961).

Vance County has a total impacted area of 271.4 mi^2, an annualized frequency of 15.69 events, a total EAL of $169,616, an EAL Score of 75.37, and a Hazard Risk Index Score of 77.12. Unincorporated areas have a total impacted area of 96.25 mi^2, an average annualized frequency of 15.06, a total EAL of $69,779, an average EAL Score of 94.74, and a Hazard Risk Index Score of 94.8. The jurisdictions with the highest EAL are Norlina ($35,732) and Woodland ($33,328).

Table 5-12: NRI Drought Sum of Impacted Area, Annualized Frequency, EAL Total, EAL Rate, and Hazard Risk Rating

Jurisdiction	Sum of Impacted Area (Mi^2)	Drought Annualized Frequency	Drought EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Index Rating
Franklin County (Unincorporated Area)	**304.54**	**14.12**	**$212,495**	**93.78**	**Very High**	**93.74**	**Very High**
Bunn	23.89	14.00	$29,368	95.41	Very High	96.02	Very High
Franklinton	88.40	15.11	$36,116	91.40	Very High	91.83	Very High
Louisburg	64.41	14.80	$62,784	95.57	Very High	96.52	Very High
Youngsville	49.35	15.43	$17,909	90.60	Very High	90.31	Very High
Franklin County Total	**499.56**	**14.53**	**$343,262**	**84.58**	**Very High**	**86.57**	**Very High**
Granville County (Unincorporated Area)	**114.57**	**16.65**	**$35,440**	**88.33**	**Very High**	**88.57**	**Very High**
Butner	115.10	16.74	$35,282	71.73	Relatively High	71.77	Relatively High
Creedmoor	100.81	16.39	$38,559	90.76	Very High	90.41	Very High
Oxford	105.81	16.39	$64,579	70.85	Relatively High	71.28	Relatively High

Jurisdiction	Sum of Impacted Area (Mi^2)	Drought Annualized Frequency	Drought EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Index Rating
Stem	73.24	17.82	$25,628	95.04	Very High	94.77	Very High
Stoval	133.39	16.86	$42,962	96.40	Very High	96.41	Very High
Granville County Total	**543.02**	**16.82**	**$208,341**	**78.10**	**Relatively High**	**78.94**	**Relatively High**
Vance County (Unincorporated Area)	**96.25**	**15.06**	**$69,779**	**94.74**	**Very High**	**94.80**	**Very High**
Henderson	124.58	15.19	$44,810	64.09	Relatively High	64.75	Relatively High
Kittrell	52.76	15.59	$18,344	94.13	Very High	94.97	Very High
Middleburg	50.58	15.27	$55,028	96.92	Very High	97.07	Very High
Vance County Total	**271.40**	**15.69**	**$169,617**	**75.37**	**Relatively High**	**77.12**	**Relatively High**
Warren County (Unincorporated Area)	**146.40**	**15.27**	**$30,651**	**93.43**	**Very High**	**94.47**	**Very High**
Macon	153.37	13.05	$24,805	92.40	Very High	92.79	Very High
Norlina	67.44	13.05	$35,733	95.95	Very High	96.71	Very High
Warrenton	40.68	14.32	$9,181	91.99	Very High	93.59	Very High
Woodland	92.40	7.95	$33,329	95.75	Very High	96.48	Very High
Warren County Total	**448.79**	**13.91**	**$106,054**	**69.14**	**Relatively High**	**73.31**	**Relatively High**

5.3.6. Consequence and Impact Analysis

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 susceptible to this impact.

Changes in Development

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.

Economy

Examples of economic impacts include farmers who lose money because drought destroys their crops or who must spend more to feed and water their animals. Businesses that depend on farming, such as those that make tractors and food, may lose business when drought damages crops or livestock. 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. Warren County is at the highest risk of economic impacts from drought due to its 4.46% employment in agriculture, forestry, fishing, and hunting.

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 temporary; 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 drought-related diseases, 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.

First Responders

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

Future Conditions

Drought is expected to become more frequent and severe during the summer months under projected climate change scenarios.[11] The spring and summer seasons in the Tar River region are projected to see a 0-10% decrease in precipitation, while the fall and winter seasons may see a 0-10% increase.[11] The HMPC expressed concern that prolonged droughts could place significant strain on reservoirs and the drinking water supply, as further discussed in this section of the Plan.

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

5.4. Earthquake

5.4.1. Hazard Description

An earthquake is a movement or shaking of the ground. Most earthquakes are caused by the release of stresses accumulated because of the rupture of rocks along opposing fault planes in the Earth's outer crust. These faults are typically found along the borders of the Earth's 10 tectonic plates. The areas of greatest tectonic instability occur at the perimeters of slowly moving plates, where they are subjected to the greatest strains from plates moving in opposite directions 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 the stored energy and producing seismic waves that generate 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 5-13.

Table 5-13: 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.

Source: FEMA

Table 5-14: Earthquake Magnitude Types Applicable to the Planning Region[12]

MAGNITUDE TYPE	MAGNITUDE RANGE	DISTANCE RANGE	DESCRIPTION
Short-Period Surface Wave (mb_lg or mlg)	~3.5 to ~7.0	150 to 1,110 km (10 degrees)	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.
Duration (md)	~4.0 or smaller	0 to 400 km	Based on the duration of shaking as measured by the time decay of the amplitude of the seismogram. Sometimes the only magnitude available for very small events but often used (especially in the past) to

[12] *Magnitude Types*. (n.d.). U.S. Geological Survey; Earthquake Hazards Program. https://www.usgs.gov/programs/earthquake-hazards/magnitude-types

MAGNITUDE TYPE	MAGNITUDE RANGE	DISTANCE RANGE	DESCRIPTION
			compute magnitude from seismograms with "clipped" waveforms due to the limited dynamic recording range of analog instrumentation, which makes it impossible to measure peak amplitudes. Computed by National Earthquake Information Center (NEIC) but only published when there is no other magnitude available.
Felt-Area Magnitude (mfa)	Any	Any	An estimate of body-wave (mb) magnitude based on the area over which the earthquake was felt, typically assigned to widely felt earthquakes that occurred before the invention of seismographs and to earthquakes occurring in the early decades of seismograph deployment for which magnitudes calculated from seismographic data are unavailable. The computations are based on isoseismal maps or on defined felt areas, using various intensity-magnitude or felt-area-magnitude formulas.

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 people at rest, especially on the upper floors of buildings.	< 4.2
III	Weak	Felt quite noticeably by people indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. 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

SCALE	INTENSITY	DESCRIPTION OF EFFECTS	CORRESPONDING RICHTER SCALE MAGNITUDE
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 are 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.

The following maps utilize the Global Earthquake Model (GEM) Global Seismic Hazard Map (Version 2023.1)[13] are used to depict the Predicted Ground Acceleration (PGA), or the fraction of acceleration of gravity with the probability of being exceeded in 50 years. These maps also include the known geological faults described by the Database of Geological Maps of North America[14] and the earthquake occurrences recorded by the U.S. Geological Survey (USGS) Earthquake Catalog.[15]

[13] 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
[14] Garrity, C. P., & Soller, D. (2009). Database of the geologic map of North America— Adapted from the map by J.C. Reed, Jr. and others (2005). Data Series. https://doi.org/10.3133/ds424
[15] 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/

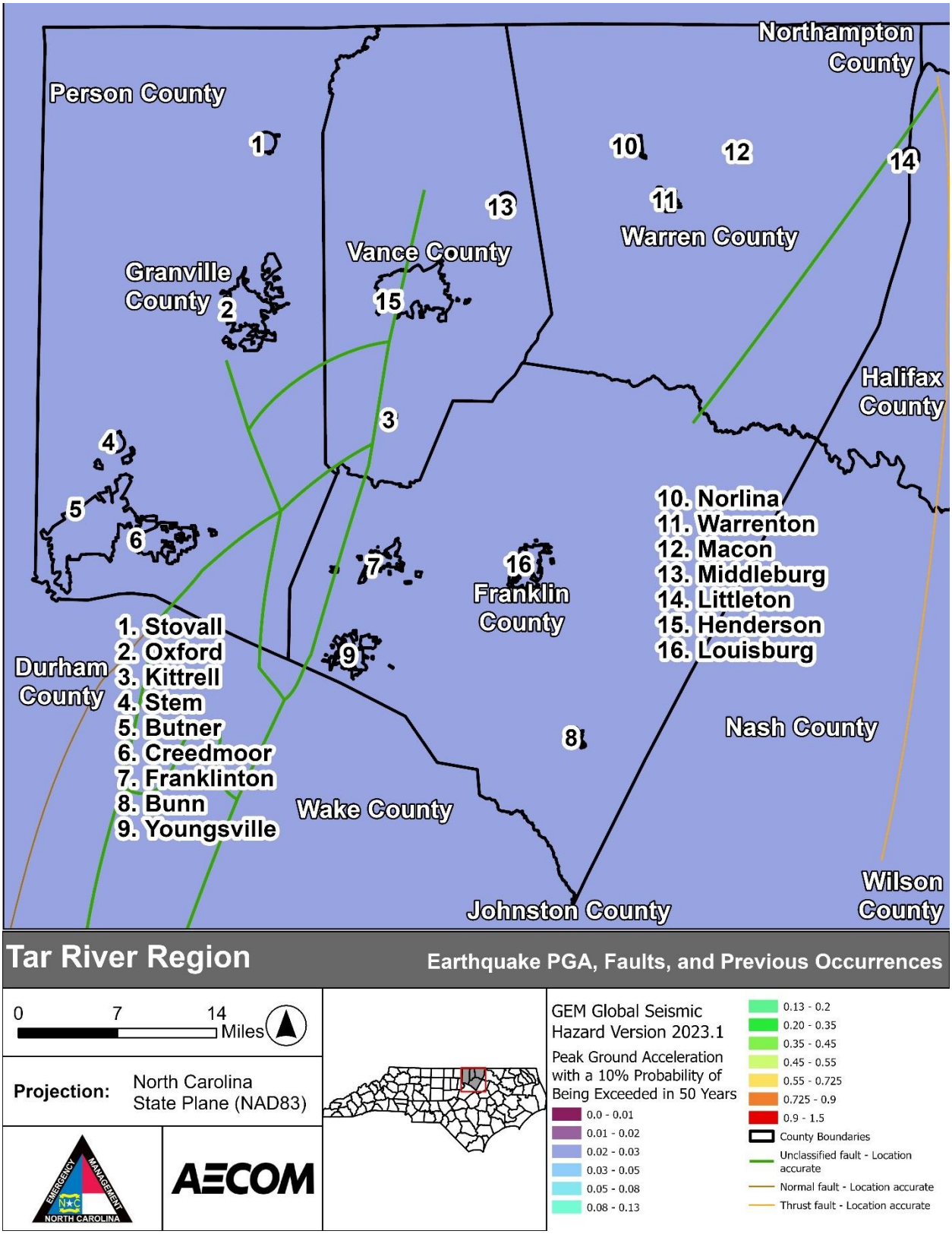


Figure 5-33: Earthquake Hazard Map - Tar River Region

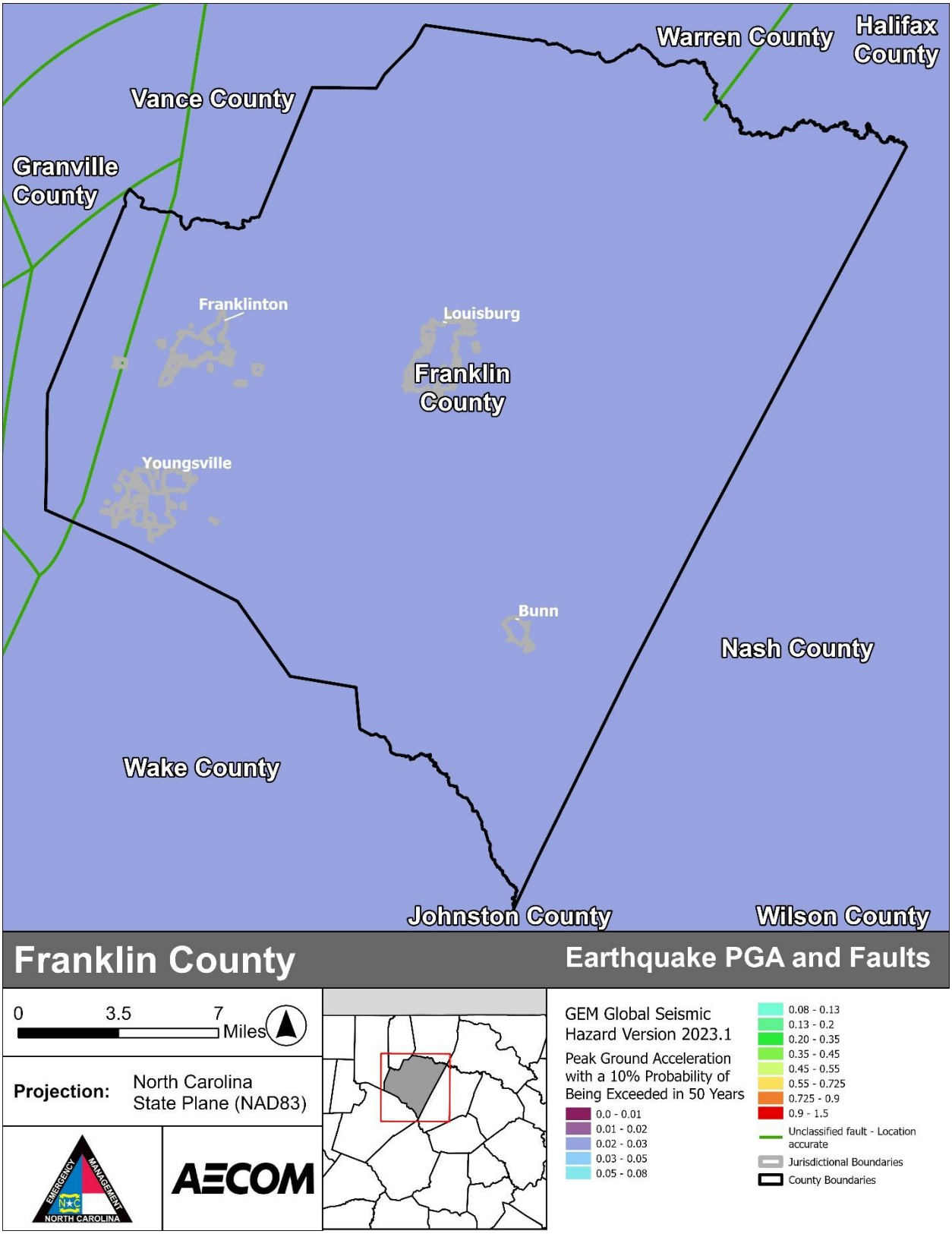


Figure 5-34: Earthquake Hazard Map - Franklin County

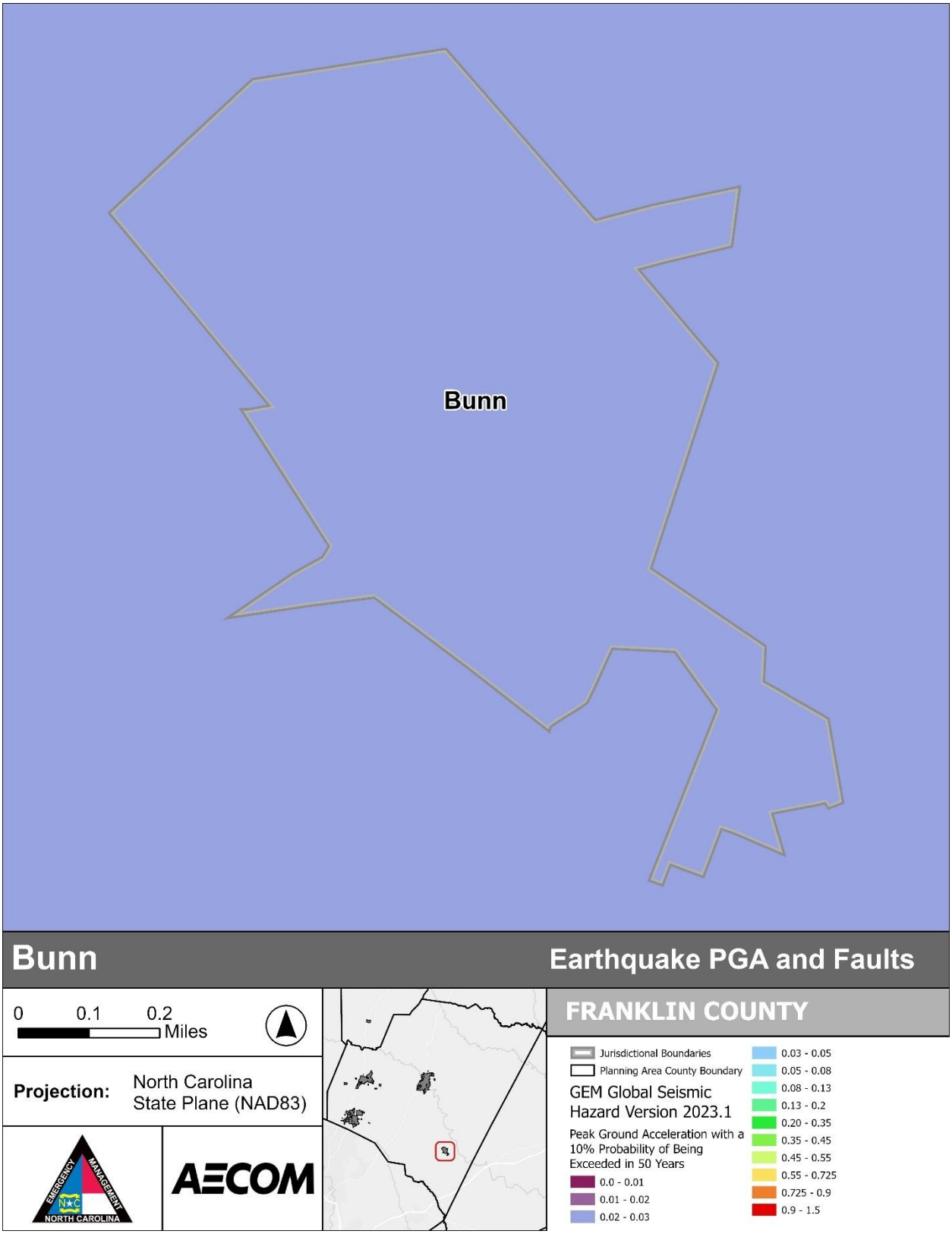


Figure 5-35: Earthquake Hazard Map - Bunn

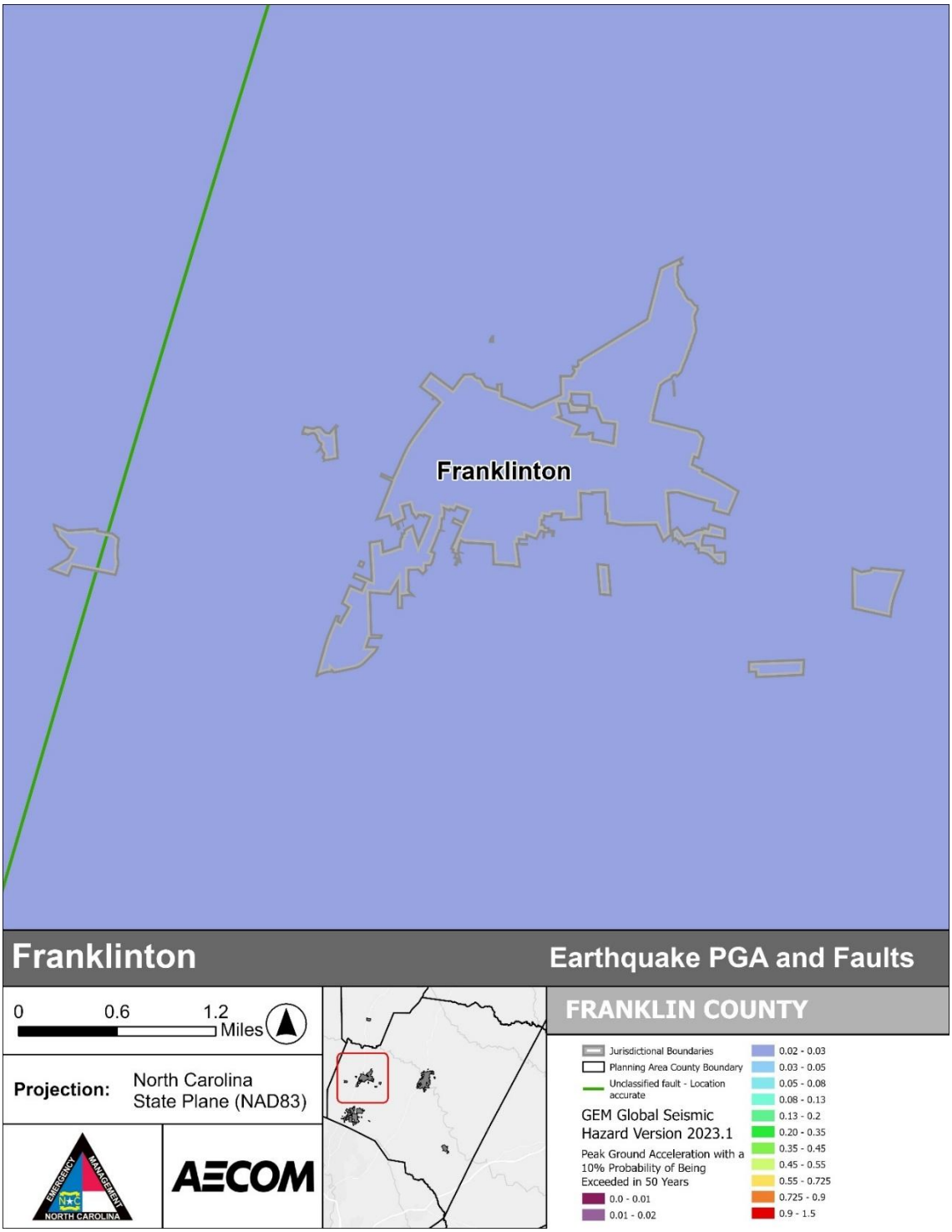


Figure 5-36: Earthquake Hazard Map - Franklinton[16]

[16] The Municipal Boundaries (2025) GIS layer obtained from NCDOT and used for the maps in this plan contained slightly outdated jurisdictional boundaries for the Town of Franklinton due to recent annexations between 2023 and 2025. However, given the map scale, hazard data can still be viewed for the missing incorporated areas of Franklinton. Please see Section 3 – Figure 3-29 for the Town of Franklinton's up-to-date boundary map, based on the incorporated boundary corrections from the U.S. Census Boundary and Annexations Survey.

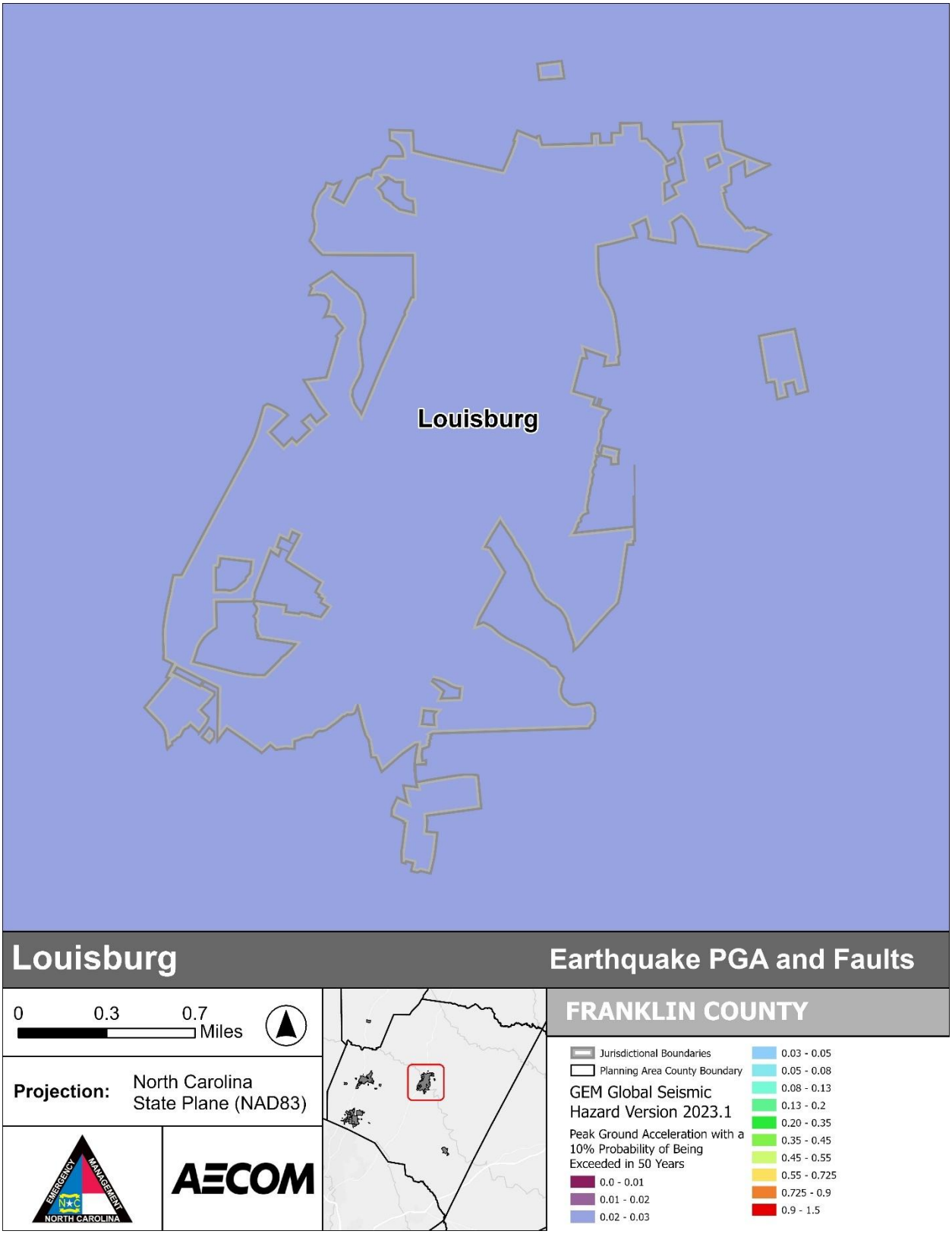


Figure 5-37: Earthquake Hazard Map - Louisburg

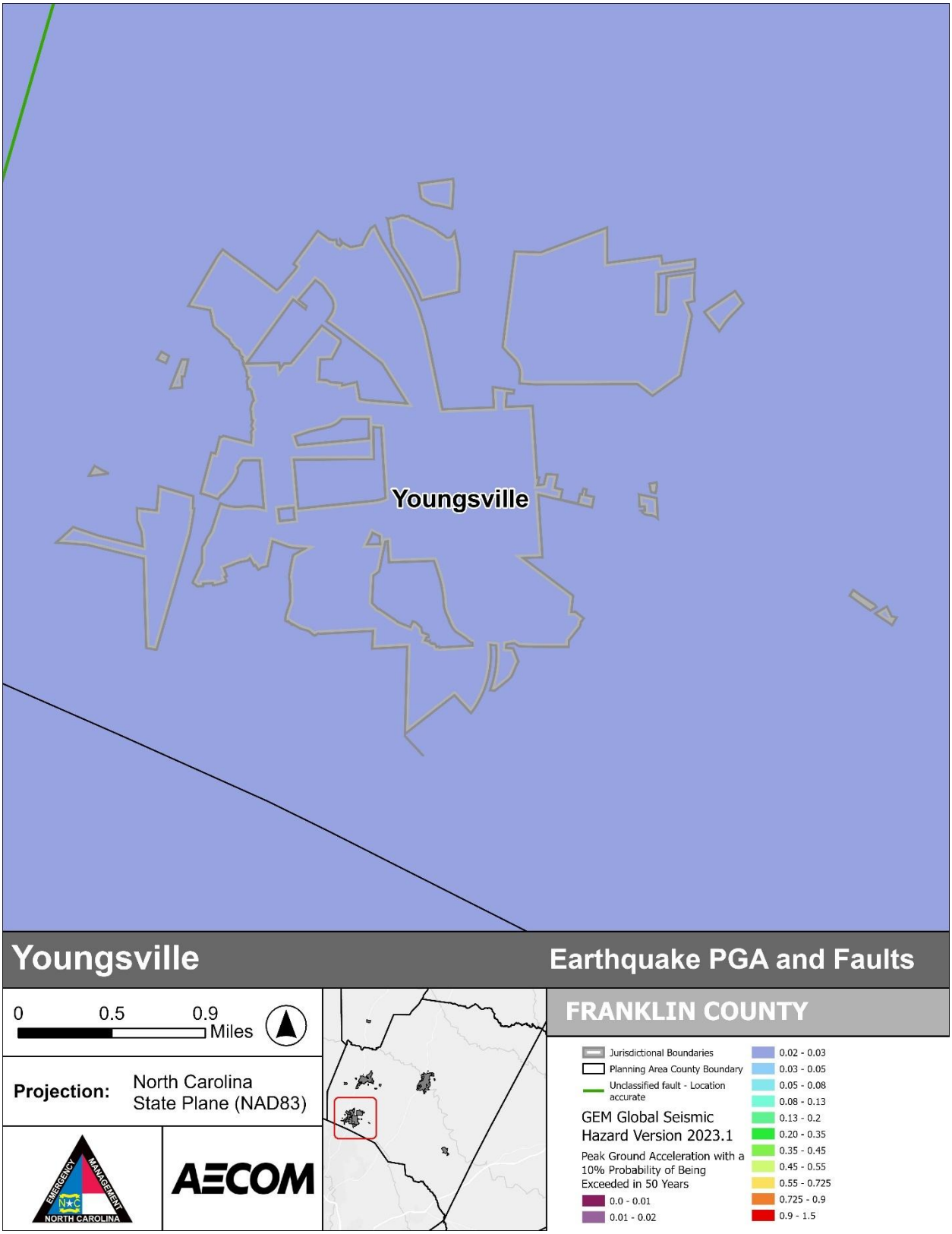


Figure 5-38: Earthquake Hazard Map – Youngsville

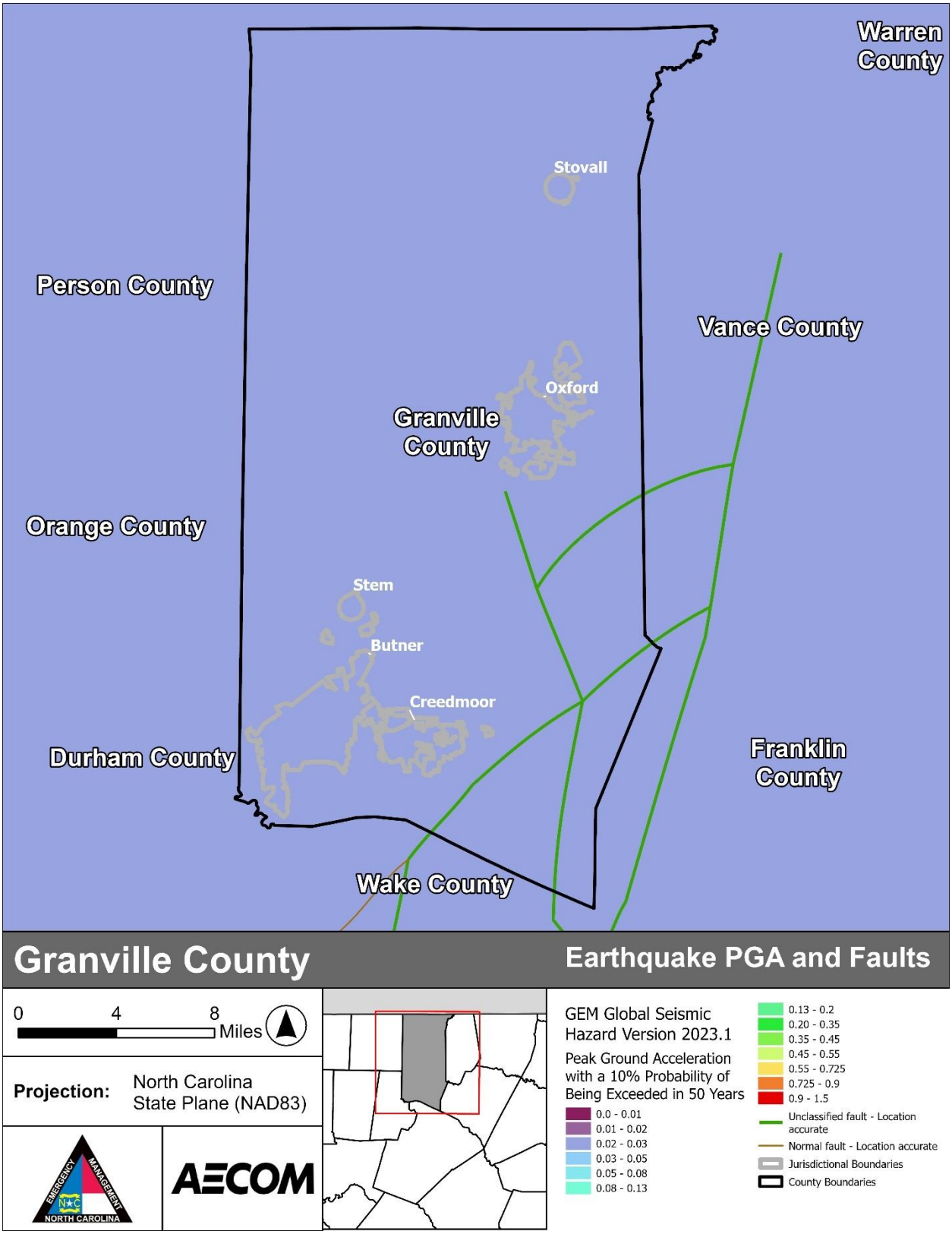


Figure 5-39: Earthquake Hazard Map - Granville County

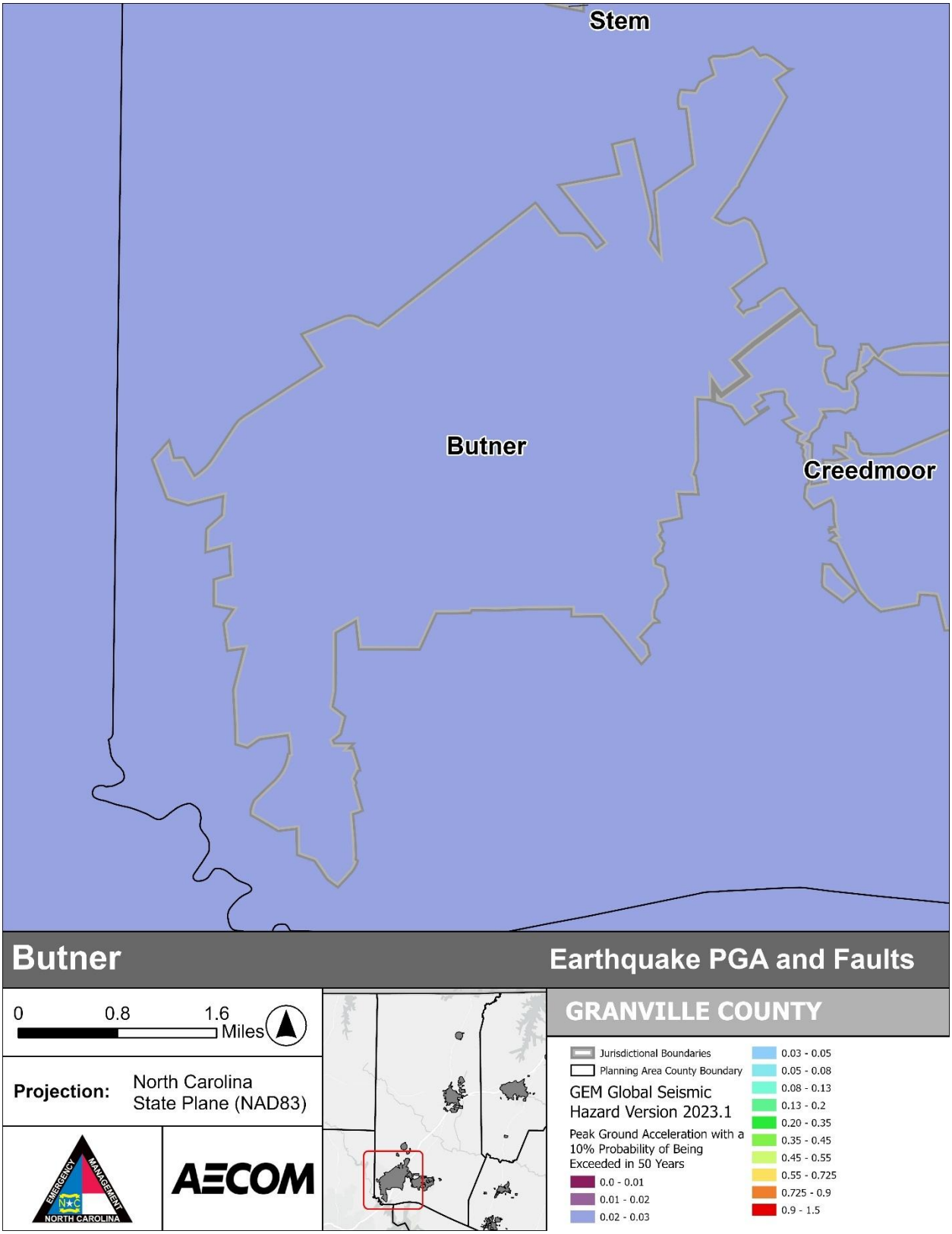


Figure 5-40: Earthquake Hazard Map - Butner

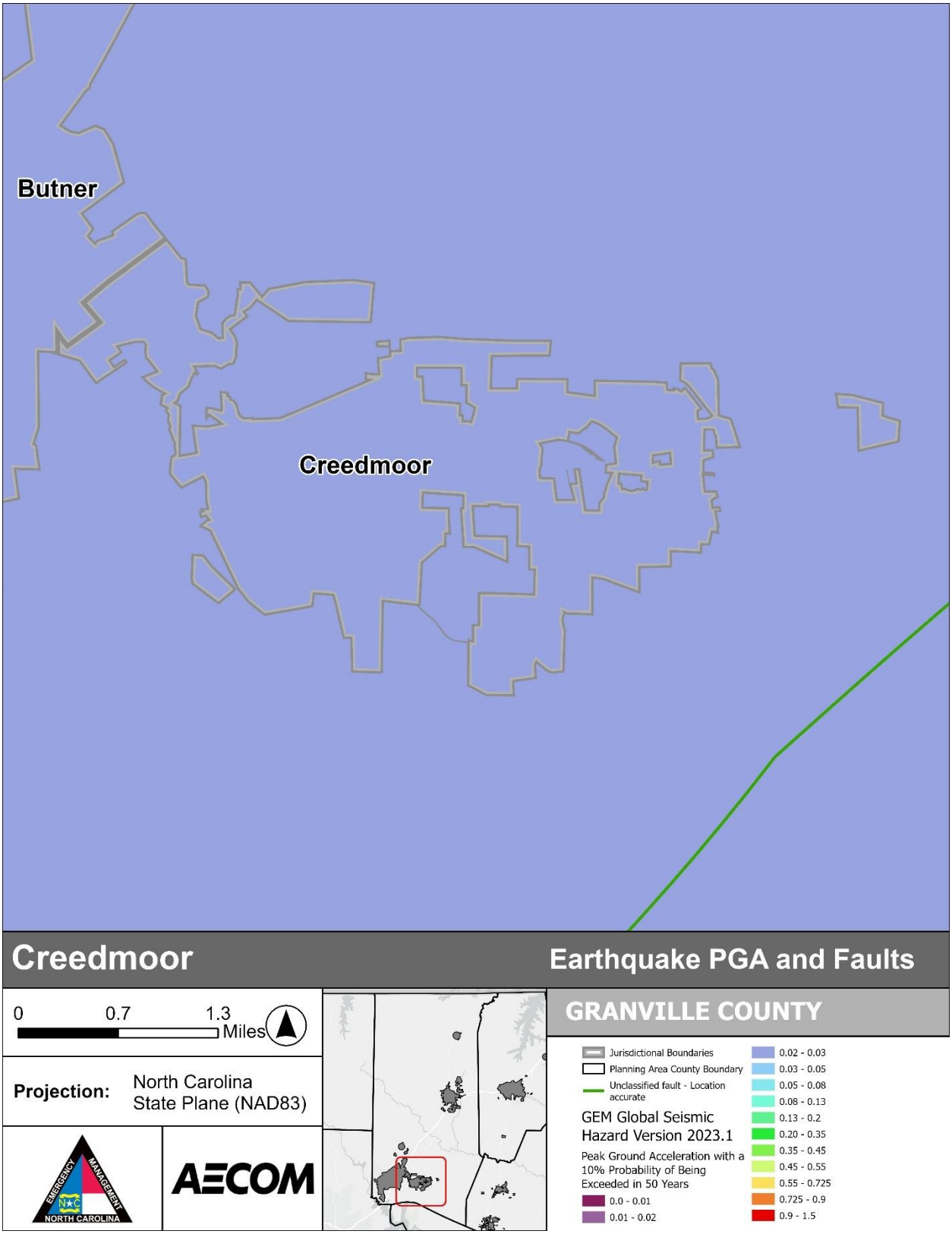


Figure 5-41: Earthquake Hazard Map - Creedmoor

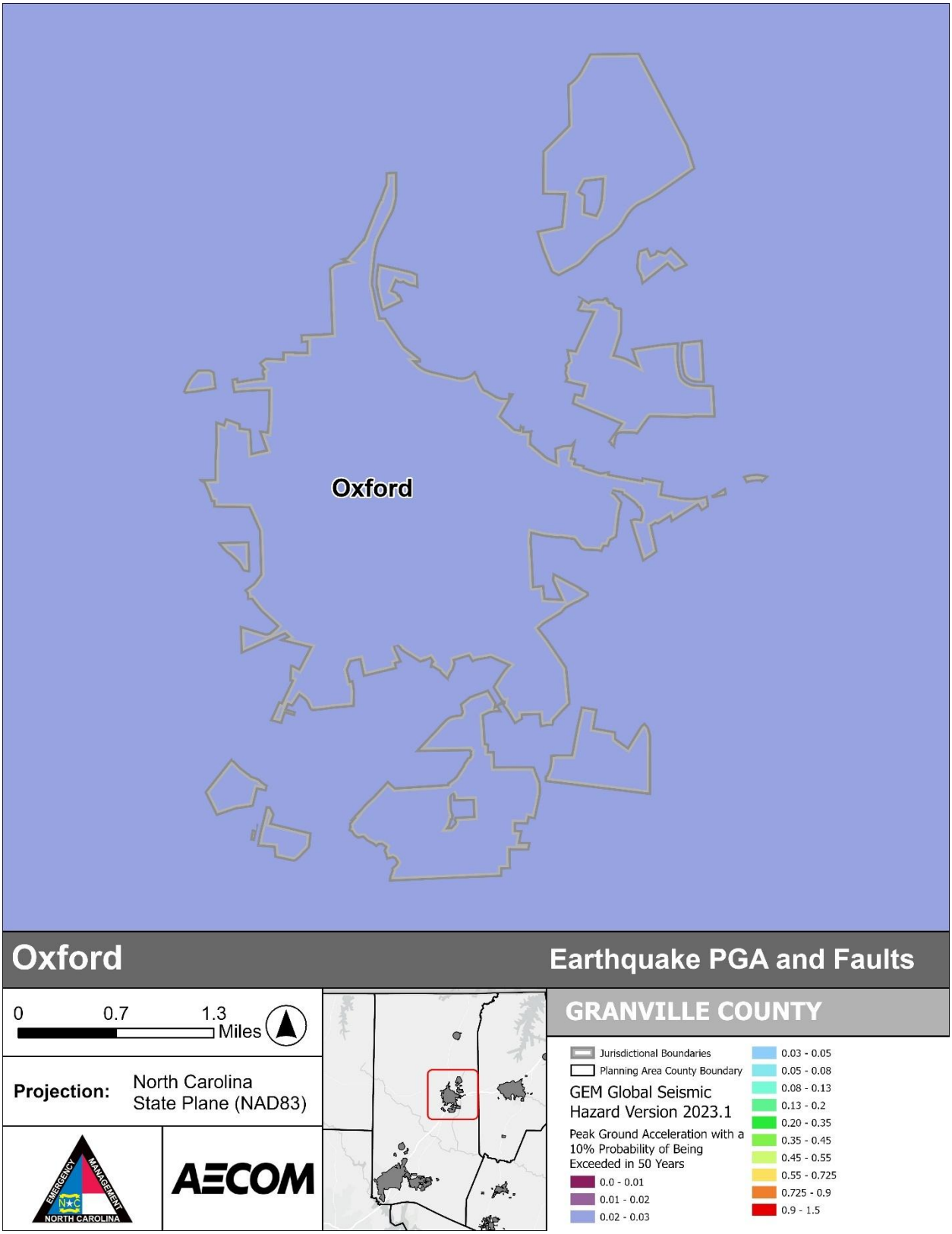


Figure 5-42: Earthquake Hazard Map - Oxford

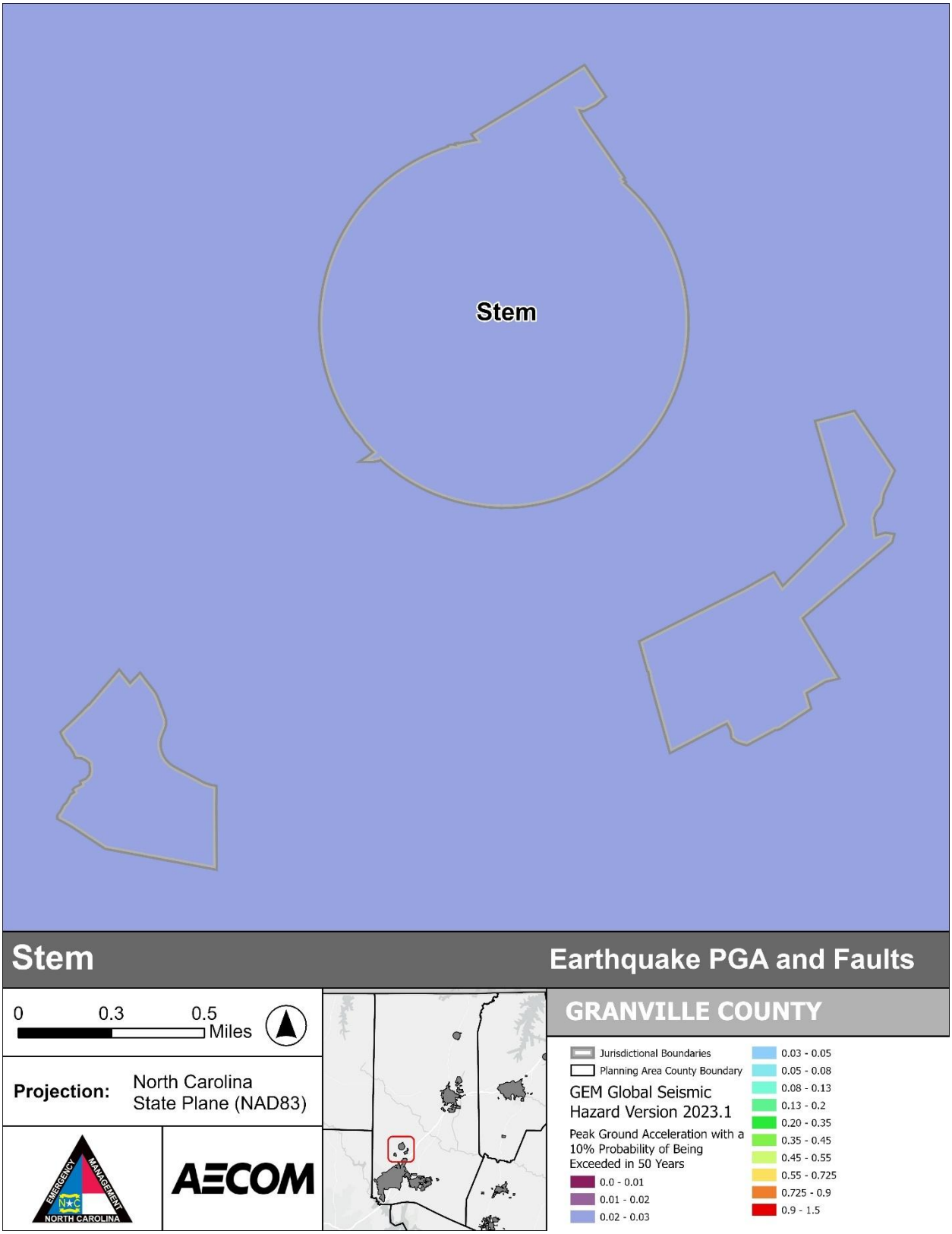


Figure 5-43: Earthquake Hazard Map – Stem

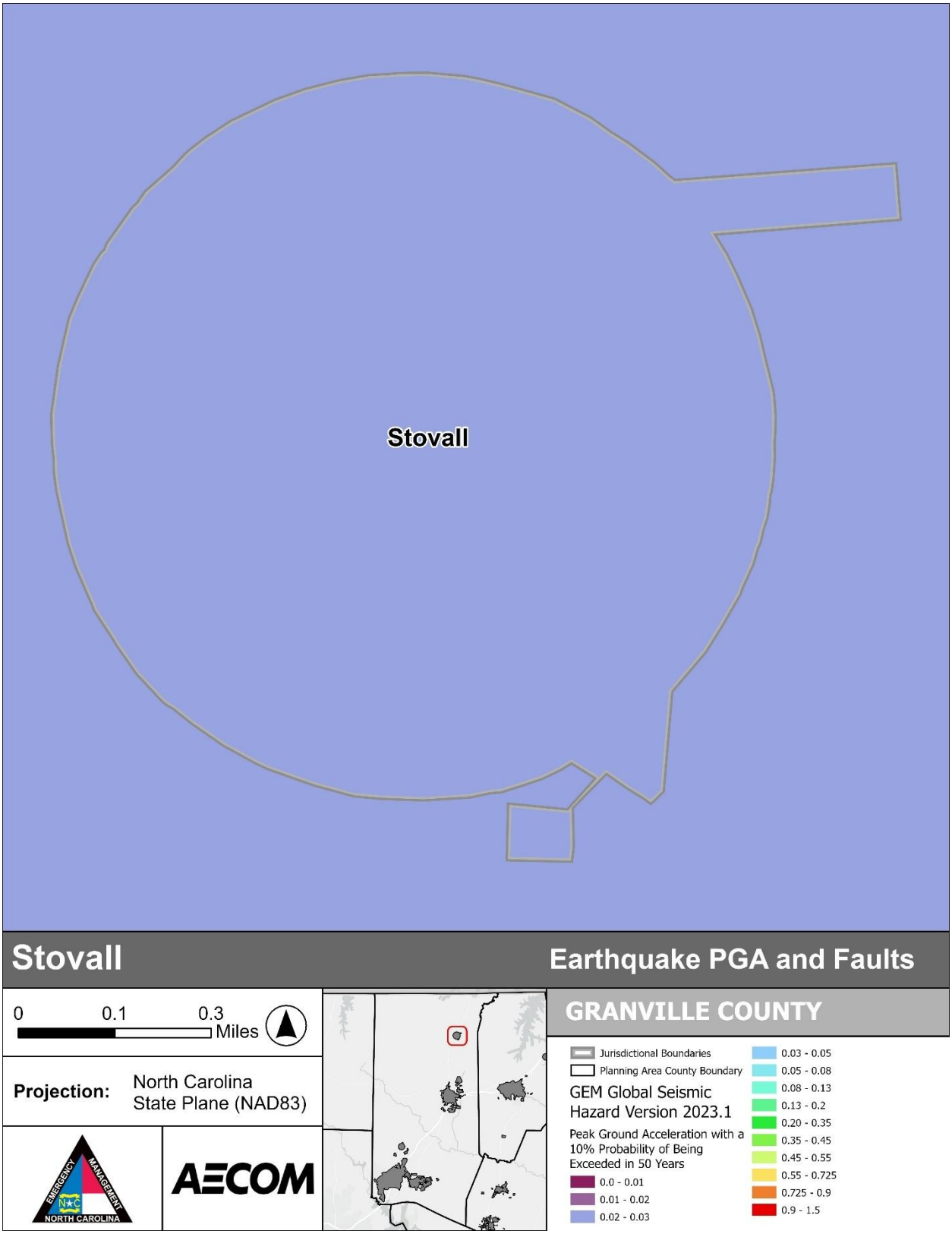


Figure 5-44: Earthquake Hazard Map – Stovall

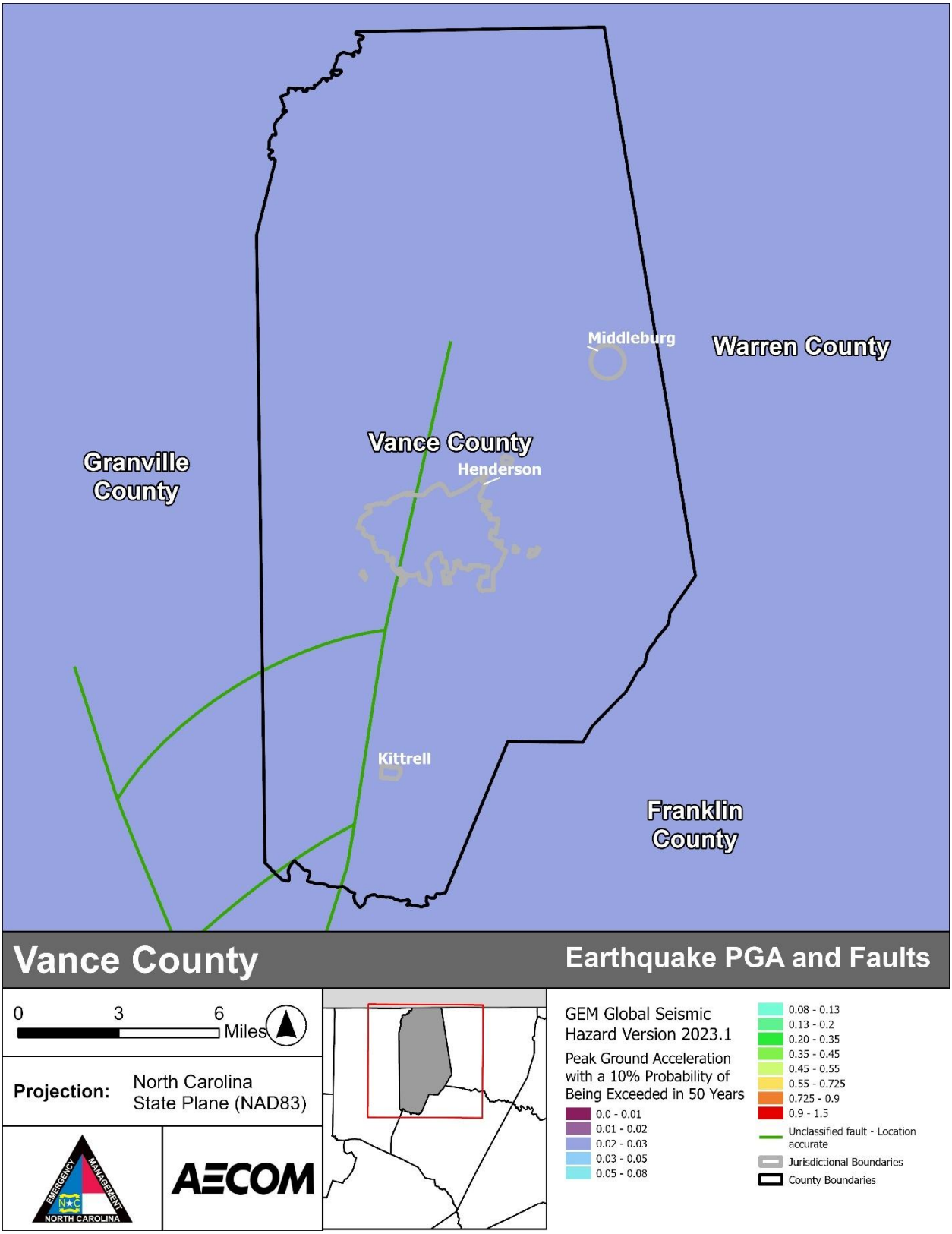


Figure 5-45: Earthquake Hazard Map – Vance County

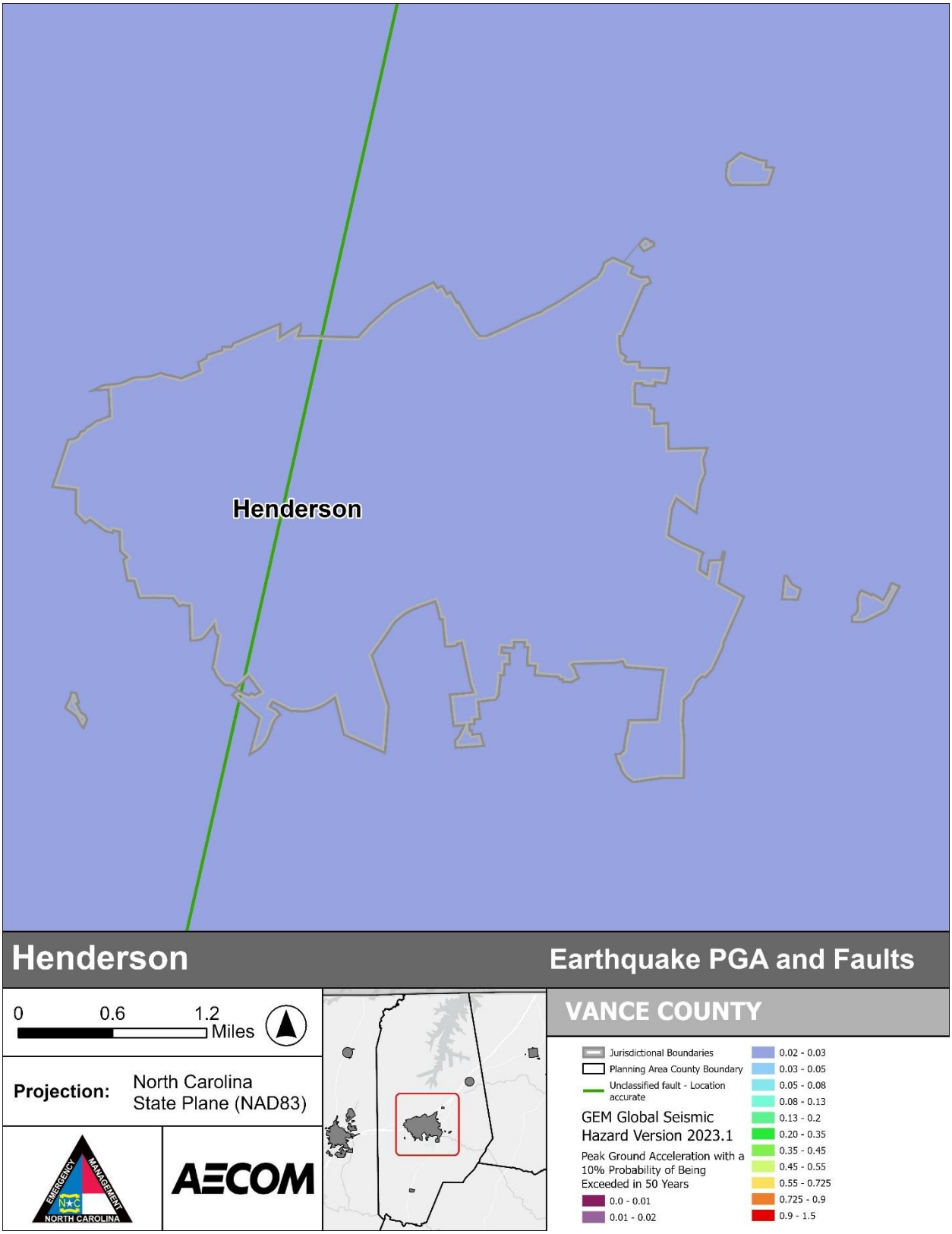


Figure 5-46: Earthquake Hazard Map - Henderson

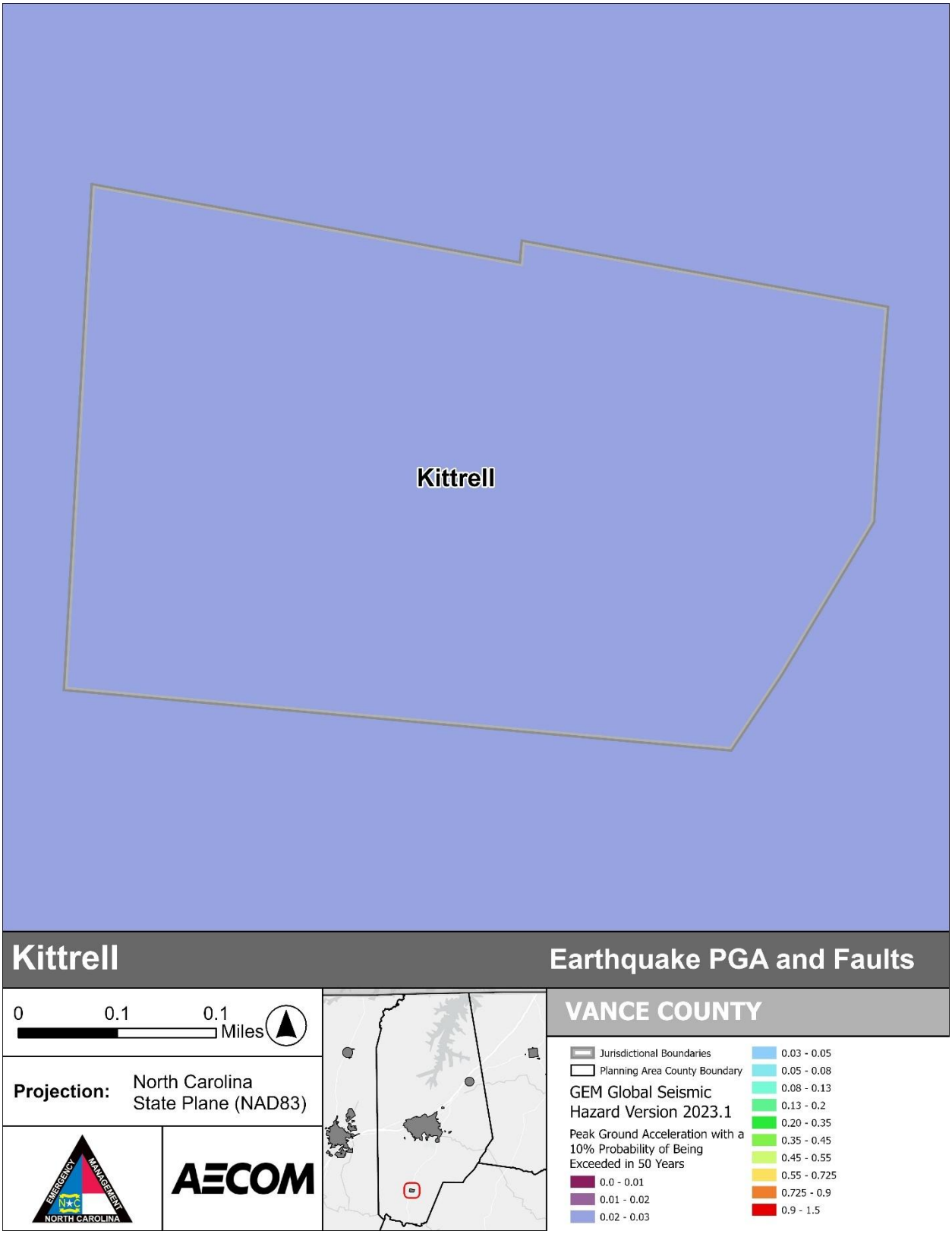


Figure 5-47: Earthquake Hazard Map - Kittrell

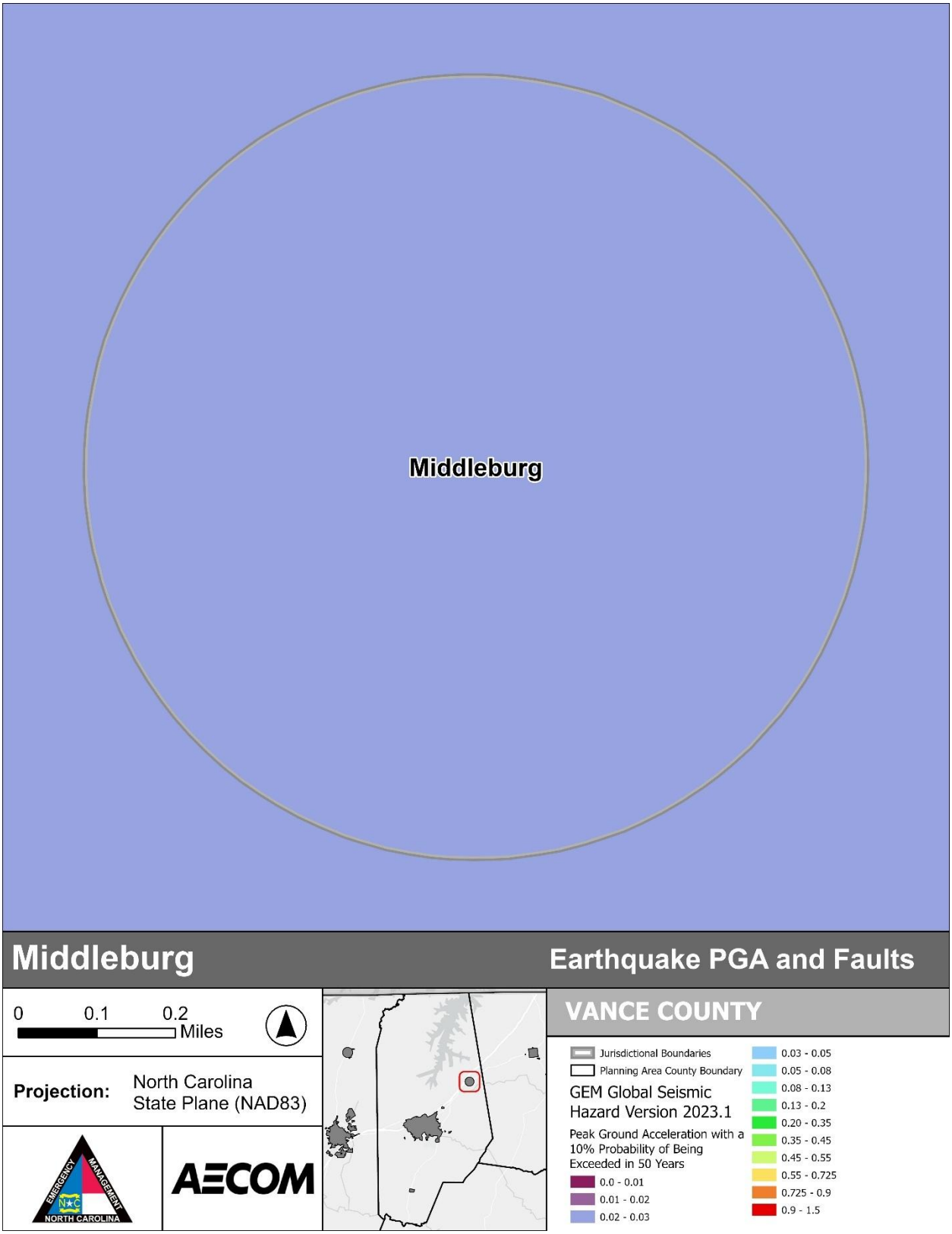


Figure 5-48: Earthquake Hazard Map – Middleburg

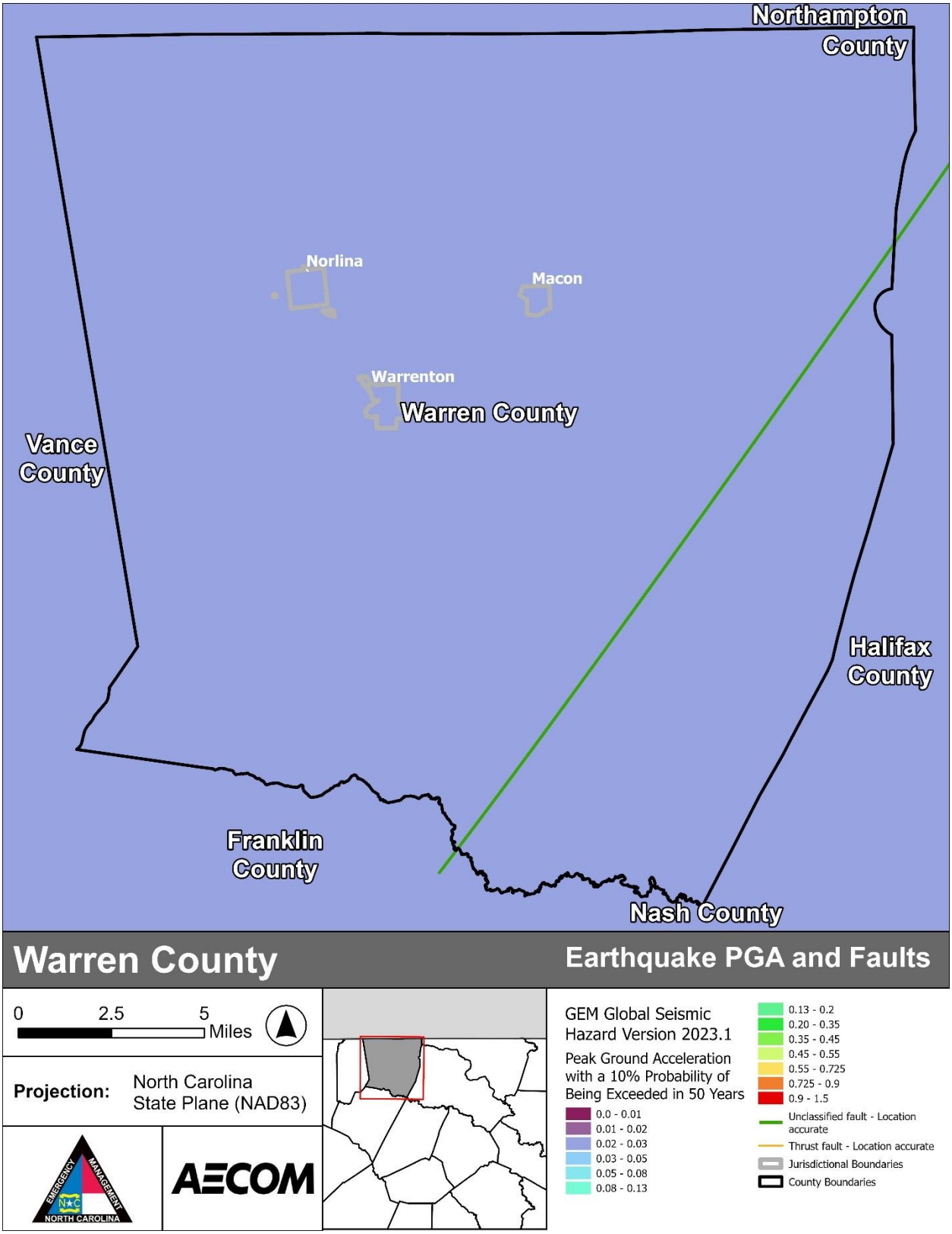


Figure 5-49: Earthquake Hazard Map - Warren County

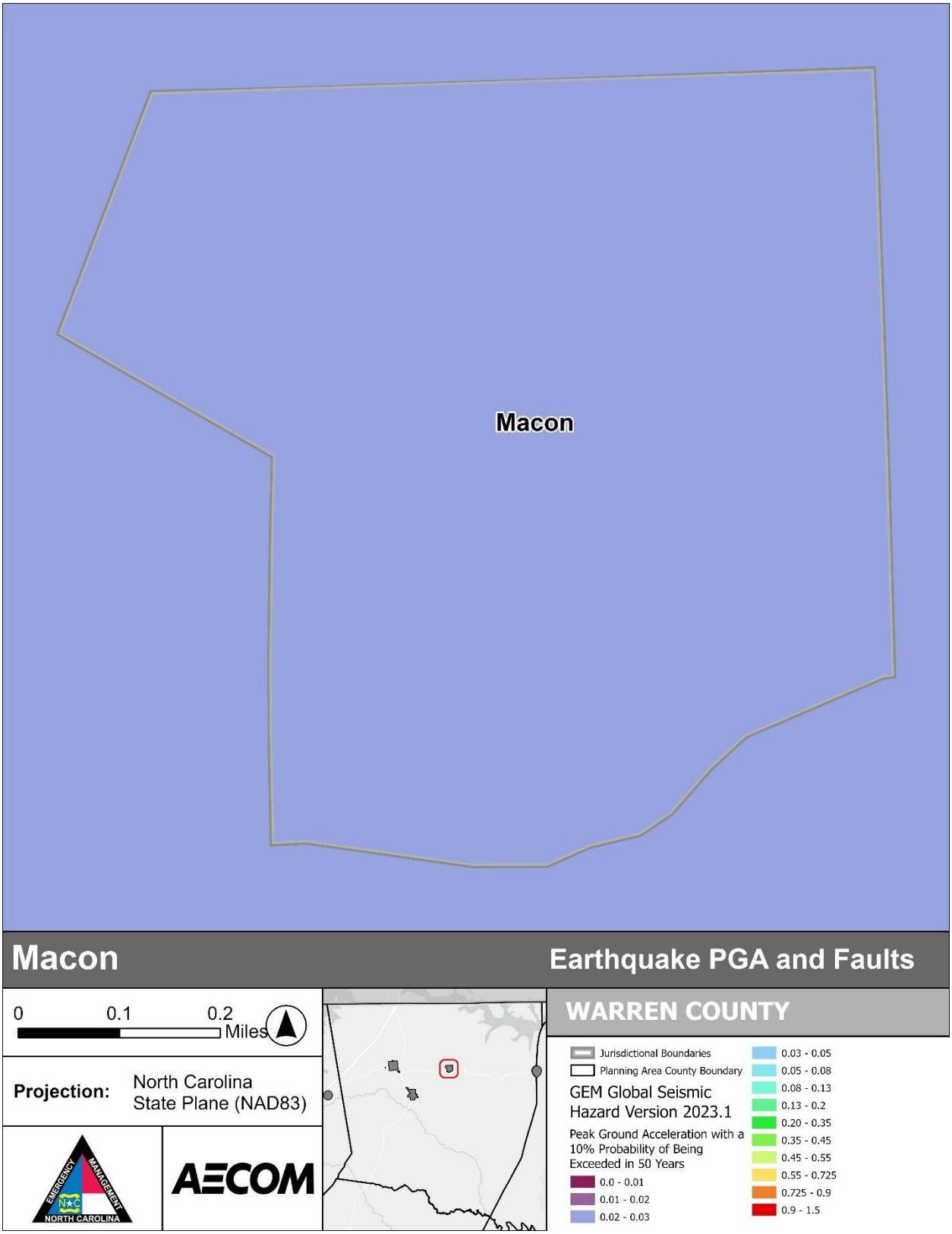


Figure 5-50: Earthquake Hazard Map - Macon

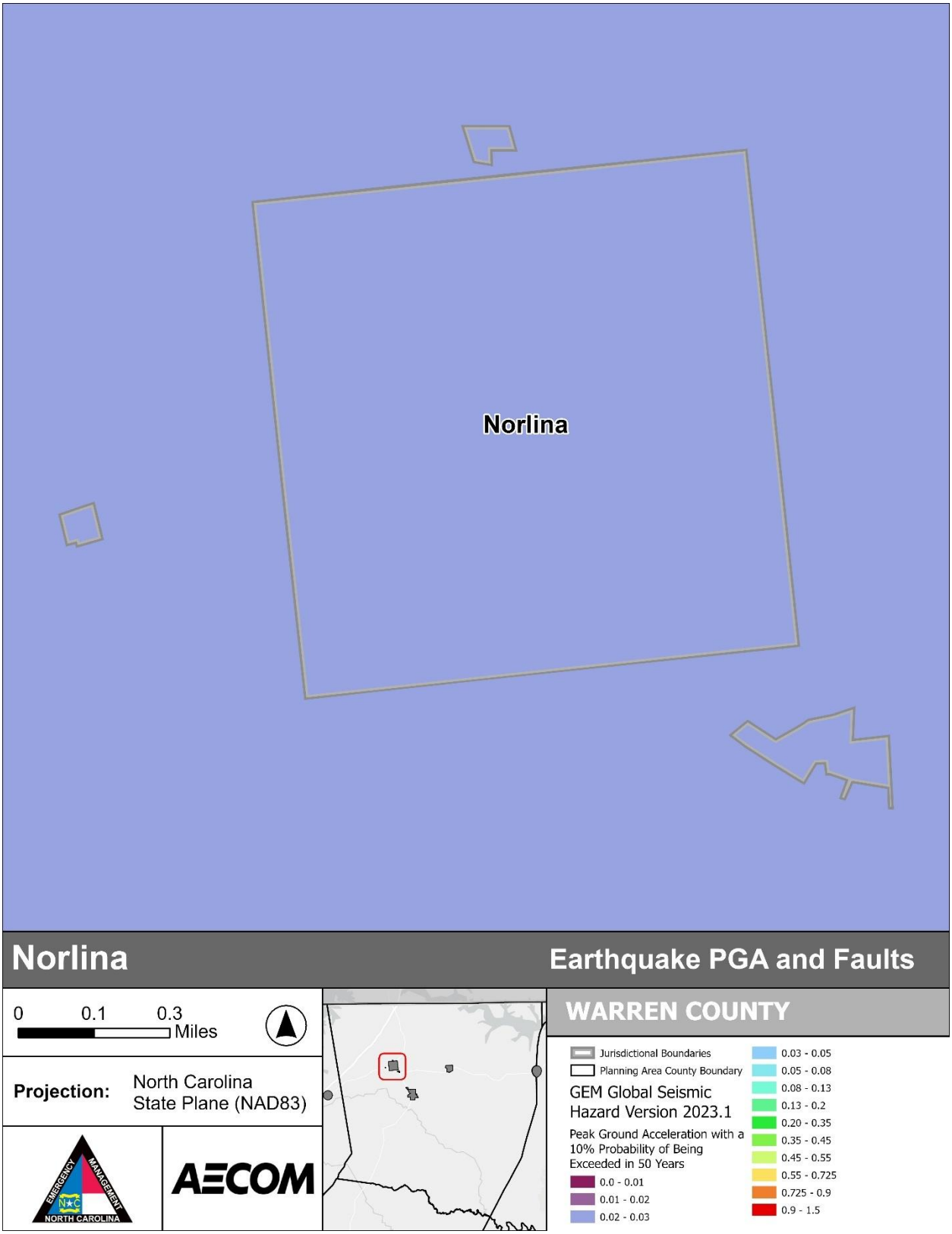


Figure 5-51: Earthquake Hazard Map - Norlina

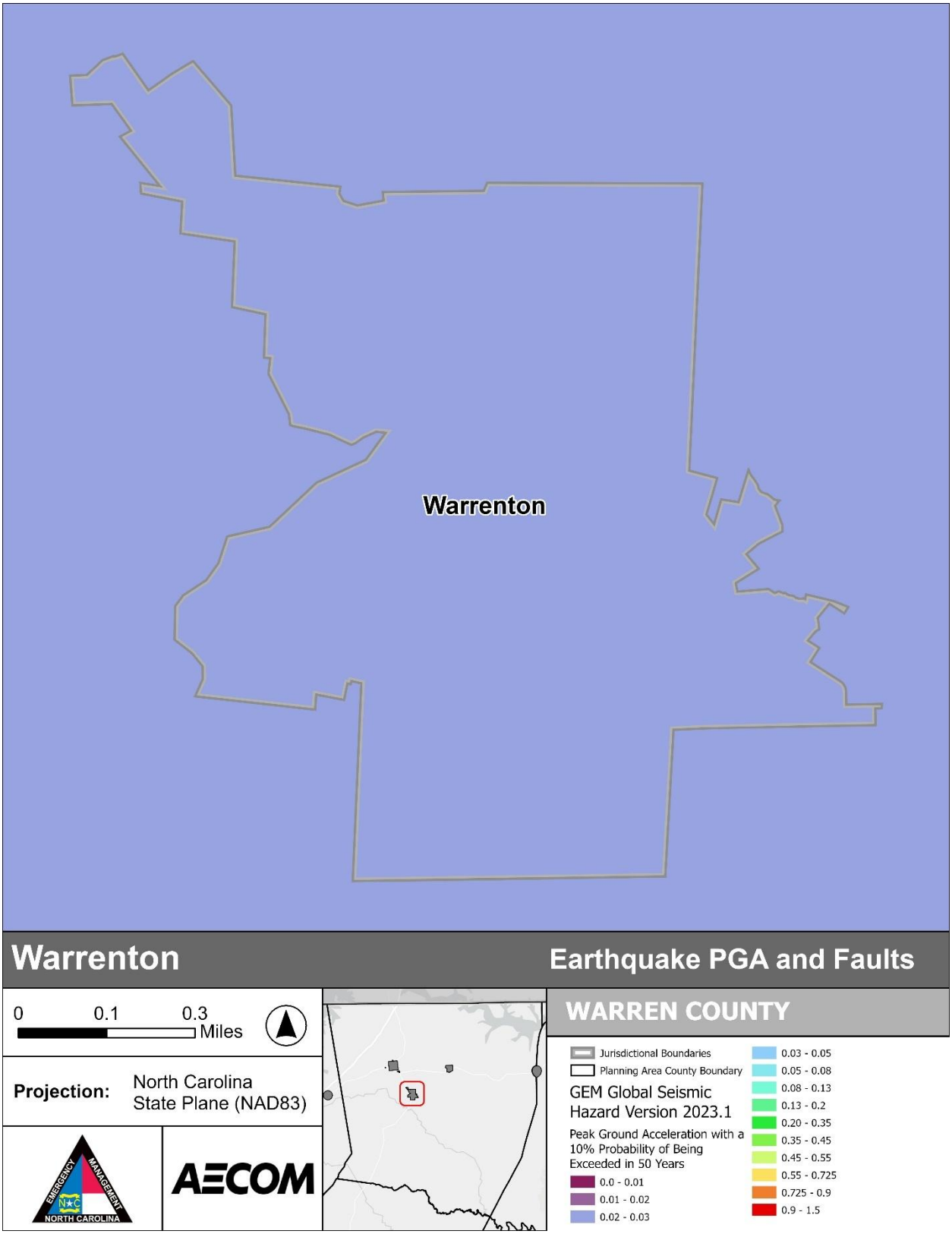


Figure 5-52: Earthquake Hazard Map - Warrenton

5.4.3. Extent

Figure 5-53 shows the intensity level associated with the Tar River Region, based on the GEM Seismic Hazard map of GPA with 10 percent probability of exceedance in 50 years. The PGA shows the value expected during a strong earthquake with a specific probability of being exceeded over a given amount of time. According to this map, all the Tar River Region lies within an approximate zone of 0.01-0.02 peak ground acceleration, which means that, in the event of a significant earthquake, the ground would be expected to experience shaking forces that are equivalent to 1% to 2% of the force of gravity.

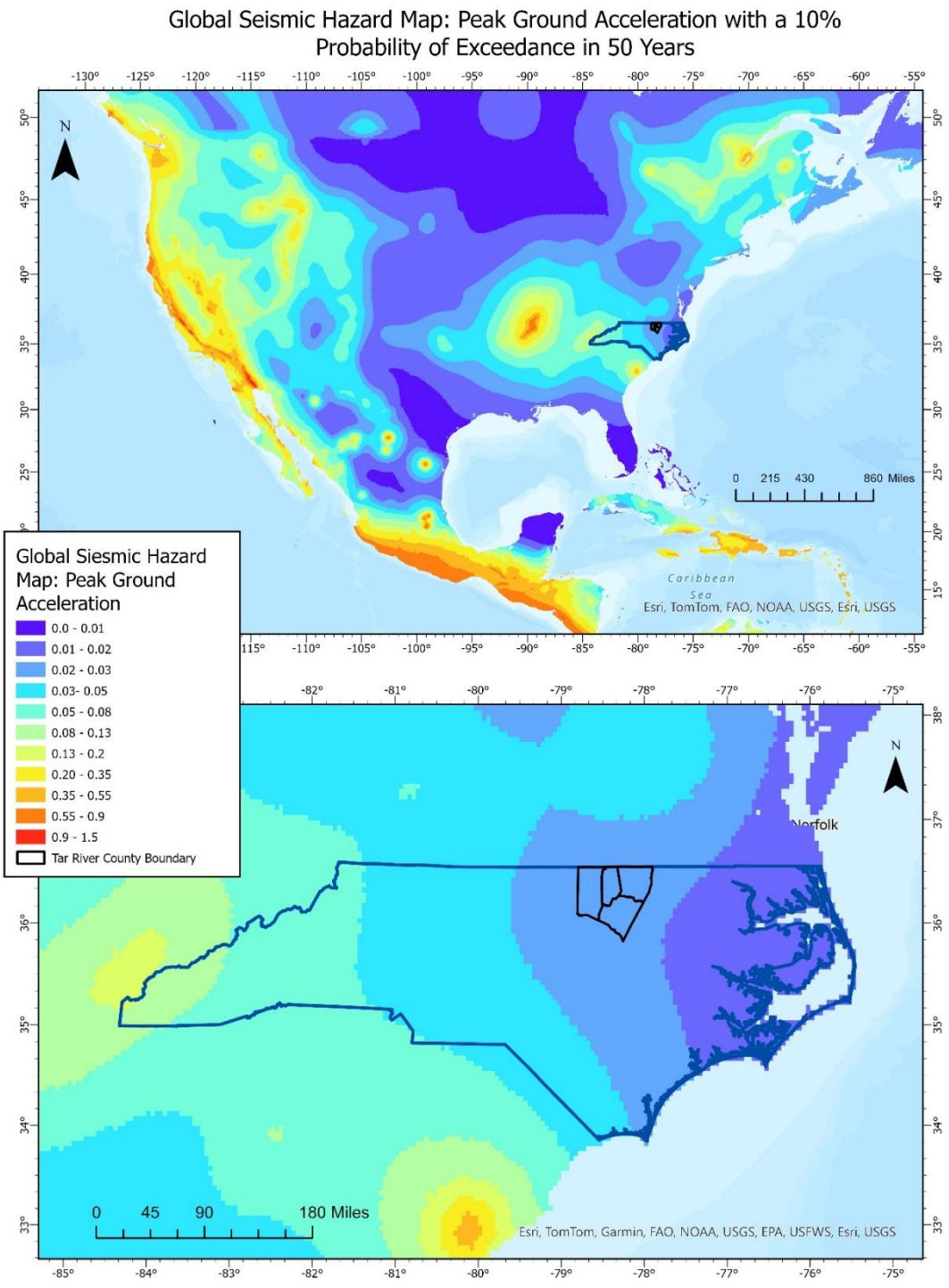


Figure 5-53: Peak Acceleration with 10 Percent Probability of Exceedance in 50 Years[17]

[17] Hazard Map from the 2023 50-State Update of the National Seismic Hazard Model Project. (2024). [JPEG]. United States Geological Survey. https://www.usgs.gov/media/images/hazard-map-2023-50-state-update-national-seismic-hazard-model-project

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 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 near Hendersonville in 1981. The epicenter of the most recent damaging event recorded in the state was Mineral Springs, Virginia, in 2011. A list of earthquakes that have caused damage in North Carolina is presented in Table 5-17 below.

Table 5-16: USGS Earthquake Catalog: Closest Earthquakes Near the Planning Area[18]

Date	Magnitude	Magnitude Type*	Distance to Closest Jurisdiction (Miles)	Closest Jurisdiction	Closest County
2/21/1774	4.5	mfa	64.2	Macon	Warren
2/2/1855	3.9	mfa	37.6	Stovall	Granville
2/25/1978	2.2	mb_lg	29.1	Butner	Granville
3/4/1981	2.8	mb_lg	56.6	Butner	Granville
10/3/1981	1.1	md	50.0	Butner	Granville
11/15/1983	1	md	30.3	Butner	Granville
4/5/1987	2	md	57.1	Stovall	Granville
6/4/1989	2.8	mb_lg	53.4	Norlina	Warren
7/12/1993	2.7	mb_lg	57.6	Butner	Granville
4/15/1995	1.8	md	58.1	Macon	Warren
9/3/2001	2.5	md	63.2	Norlina	Warren
6/24/2013	2.1	md	64.7	Bunn	Franklin
9/13/2019	2.02	md	54.0	Butner	Granville
1/28/2020	2.33	md	53.1	Butner	Granville
8/15/2023	2.25	md	50.8	Butner	Granville
8/15/2023	2.21	md	50.3	Butner	Granville
10/19/2023	2.24	md	19.4	Butner	Granville

*See Table 5-14 for definitions of magnitude type relevant to the Tar River Region

[18] 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/

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 Bluff, VA	5.8

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

5.4.5. Probability of Future Occurrences

The NRI calculates earthquake risk based on the USGS 100-year probability of minor earthquake shaking. Franklin County has an annualized frequency of 0.00018 events, a total EAL of $80,102, an EAL Score of 41.54, and a Hazard Risk Index Score of 43.81. In Franklin County, unincorporated areas have an average annualized frequency of 0.00019, an average EAL Score of 21.65, and an average Hazard Risk Score of 24.13. The jurisdictions in Franklin County with the highest total EAL are Youngsville ($22,078) and Franklinton ($20,717).

In Granville County, the annualized frequency is 0.00025 events per year, the total EAL is $110,277, the EAL Score is 46.49, and the Hazard Risk Index Score is 48.84. In unincorporated areas, the average annualized frequency of earthquakes is 0.00023, a total EAL of $11,194, an average EAL Score of 22.76, and an average Hazard Risk Index Score of 24.21. The jurisdictions with the highest total EAL are Oxford ($40,201) and Butner ($39,335).

In Vance County, the annualized frequency of occurrence is 0.00021 events per year; the total EAL is $66,384; the EAL Score is 38.63; and the Hazard Risk Index Score is 43.05. In

unincorporated areas of Vance County, the average annualized frequency of earthquakes is 0.00027 events per year, a total of $9,359, an average EAL Score of 22.21, and an average Hazard Risk Index Score of 24.49. The jurisdiction with the highest total EAL is Henderson, with $53,390.

In Warren County, the annualized earthquake frequency is 0.00019; the total EAL is $40,247; the EAL Score is 31.79; and the Hazard Risk Index Score is 36.53. The unincorporated areas of Warren County have an average annualized frequency of 0.00018, a total EAL of $7,813, an average EAL Score of 26.52, and an average Hazard Risk Index Score of 35.44. The jurisdictions with the highest total EAL are Warrenton ($12,468) and Macon ($9,116).

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 Index Rating
Franklin County (Unincorporated Area)	**0.00019**	**$25,181**	**21.65**	**Relatively Low**	**24.13**	**Relatively Low**
Bunn	0.00014	$4,366	28.79	Relatively Low	35.46	Relatively Low
Franklinton	0.00019	$20,718	29.31	Relatively Low	32.85	Relatively Low
Louisburg	0.00015	$19,151	45.01	Relatively Moderate	54.74	Relatively Moderate
Youngsville	0.00018	$22,078	48.88	Relatively Moderate	48.08	Relatively Moderate
Franklin County Total	**0.00018**	**$80,102**	**41.54**	**Relatively Moderate**	**43.81**	**Relatively Moderate**
Granville County (Unincorporated Area)	**0.00023**	**$11,194**	**22.76**	**Relatively Low**	**24.21**	**Relatively Low**
Butner	0.00024	$39,336	40.93	Relatively Moderate	44.26	Relatively Moderate
Creedmoor	0.00021	$26,413	36.81	Relatively Low	36.30	Relatively Low
Oxford	0.00029	$40,201	45.50	Relatively Moderate	52.13	Relatively Moderate
Stem	0.00029	$9,527	45.48	Relatively Moderate	44.87	Relatively Moderate
Stoval	0.00024	$7,647	40.59	Relatively Moderate	42.63	Relatively Moderate
Granville County Total	**0.00025**	**$110,277**	**46.49**	**Relatively Moderate**	**48.84**	**Relatively Moderate**
Vance County (Unincorporated Area)	**0.00027**	**$9,359**	**22.21**	**Relatively Low**	**24.49**	**Relatively Low**
Henderson	0.00024	$53,390	34.96	Relatively Low	43.46	Relatively Moderate
Kittrell	0.00016	$6,609	37.33	Relatively Low	45.92	Relatively Moderate
Middleburg	0.00021	$3,635	25.37	Relatively Low	28.76	Relatively Low
Vance County Total	**0.00021**	**$66,384**	**38.63**	**Relatively Low**	**43.05**	**Relatively Moderate**
Warren County (Unincorporated Area)	**0.00018**	**$7,813**	**26.52**	**Relatively Low**	**35.44**	**Relatively Low**
Macon	0.00019	$9,117	29.57	Relatively Low	34.69	Relatively Low
Norlina	0.00017	$7,488	40.09	Relatively Moderate	49.03	Relatively Moderate
Warrenton	0.00023	$12,469	51.55	Relatively Moderate	62.38	Relatively High
Warren County Total	**0.00019**	**$40,247**	**31.79**	**Relatively Low**	**36.53**	**Relatively Low**

5.4.6. Consequence and Impact Analysis

People

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

Changes in Development

Buildings can be damaged by the shaking itself or by the ground beneath them settling to a lower 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 caused by broken gas or 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.

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.

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.

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.

Future Conditions

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

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 called a “heat wave.” According to the National Weather Service (NWS), there is no universal definition of a heat wave. Still, the standard U.S. definition is any event lasting at least 3 days in which temperatures reach 90 degrees Fahrenheit or higher. However, it may also be defined as an event lasting at least 3 days during which temperatures in the affected area are 10 degrees above normal. 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[19] and 248 hospitalizations for heat-related illness (HRI) in NC in 2022.[20]

The NWS developed the Heat Index to better inform the public about heat dangers. The Heat Index Chart, shown in Figure 5-54, 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-related dangers than others.

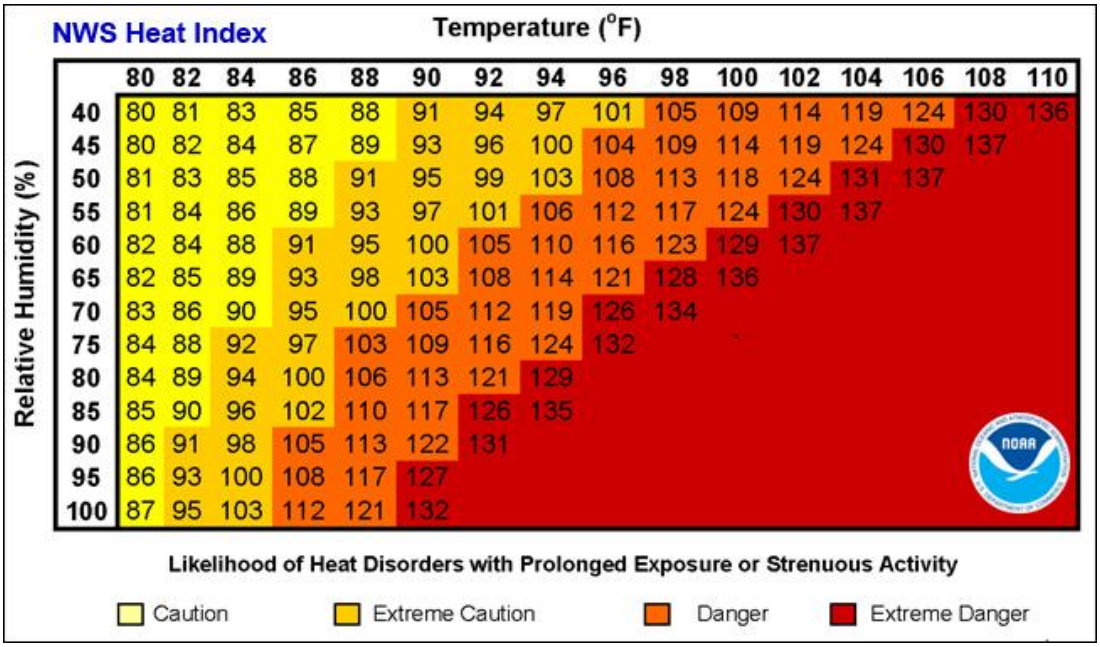


Figure 5-54: Heat Index Chart[21]

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

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

[21] National Oceanic and Atmospheric Administration. (2025). *What is the heat index?* National Weather Service. https://www.weather.gov/ama/heatindex

Table 5-19: Heat Disorders Associated with Heat Index Temperatures[22]

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

In addition, National Oceanic and Atmospheric Administration (NOAA) has 17 metropolitan areas participating in the Heat HealthWatch/Warning System to better inform and warn the public about 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 conditions are occurring, are imminent, or are highly likely to occur. Urban areas participate in the Heat Health Watch/Warning System because they are at greater risk of heat-related effects. Stagnant atmospheric conditions trap pollutants, creating unhealthy air alongside 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.

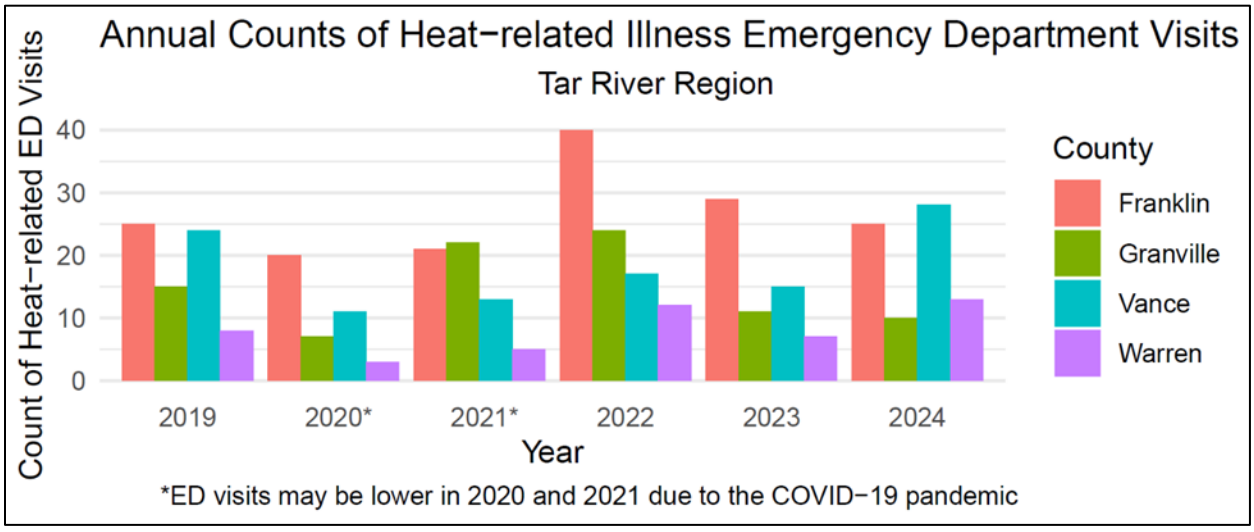


Figure 5-55: Emergency department visits for heat-related illnesses in the Tar River Region from the public health syndromic surveillance system data from NC DETECT. The annual count of emergency department visits for heat-related illness in Franklin County ranged from 20 visits in 2020 to 40 visits in 2022, Granville County ranged from 7 visits in 2020 to 24 in 2022, Vance County ranged from 11 visits in 2020 to 24 in 2022, and in Warren County ranged from 3 visits in 2020 to 13 in 2024.

[22] National Oceanic and Atmospheric Administration. (2025). *What is the heat index?* National Weather Service. https://www.weather.gov/ama/heatindex

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 Tar River Region is susceptible to extreme heat conditions. 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.[23] The following maps represent the risk rating and EAL total of heat wave events in the planning area by census tract:

[23] *National Risk Index Data v1.20 Technical Documentation*. (2025). Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/documents/fema_national-risk-index_technical-documentation.pdf

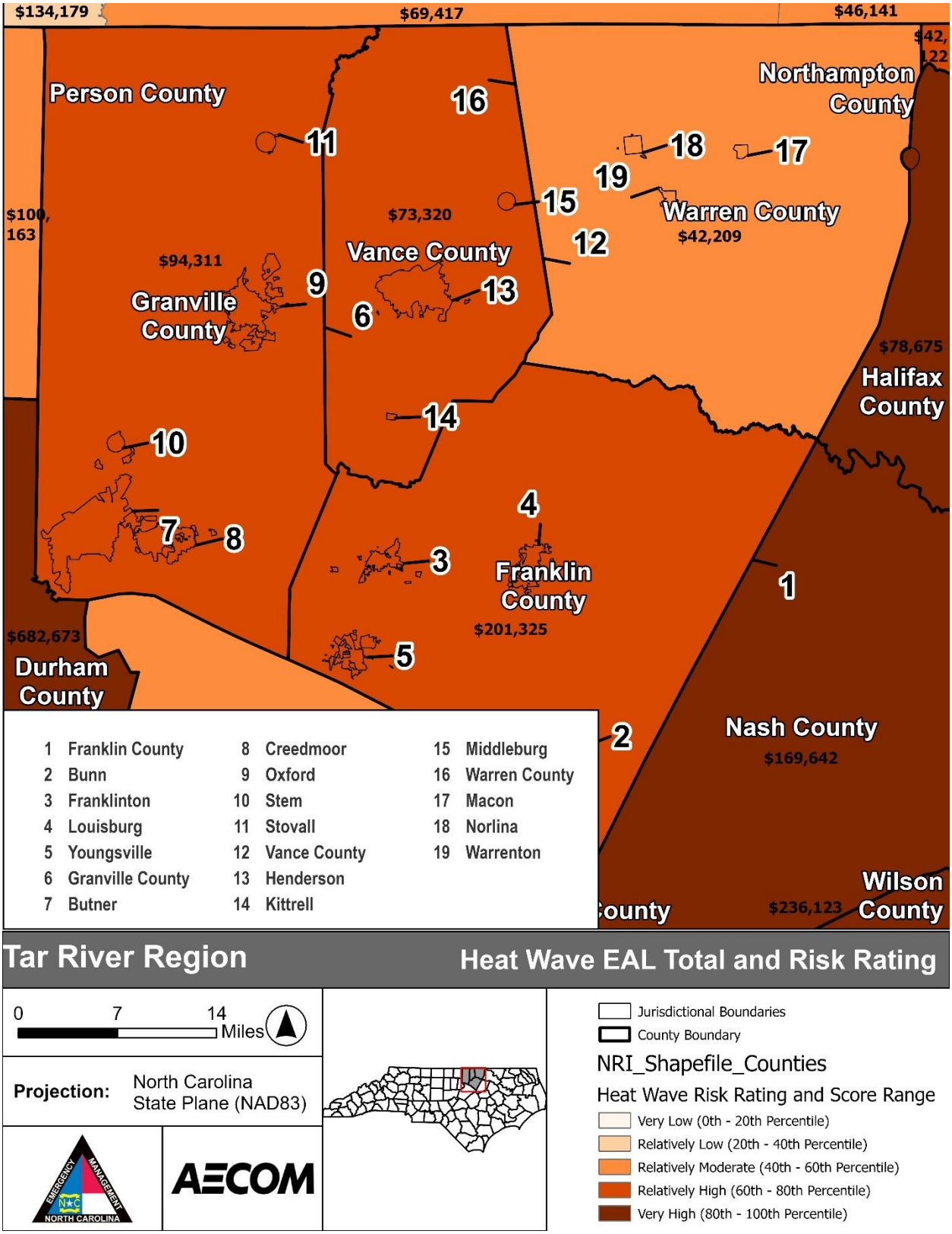


Figure 5-56: Heat Wave Risk Map - Tar River Region

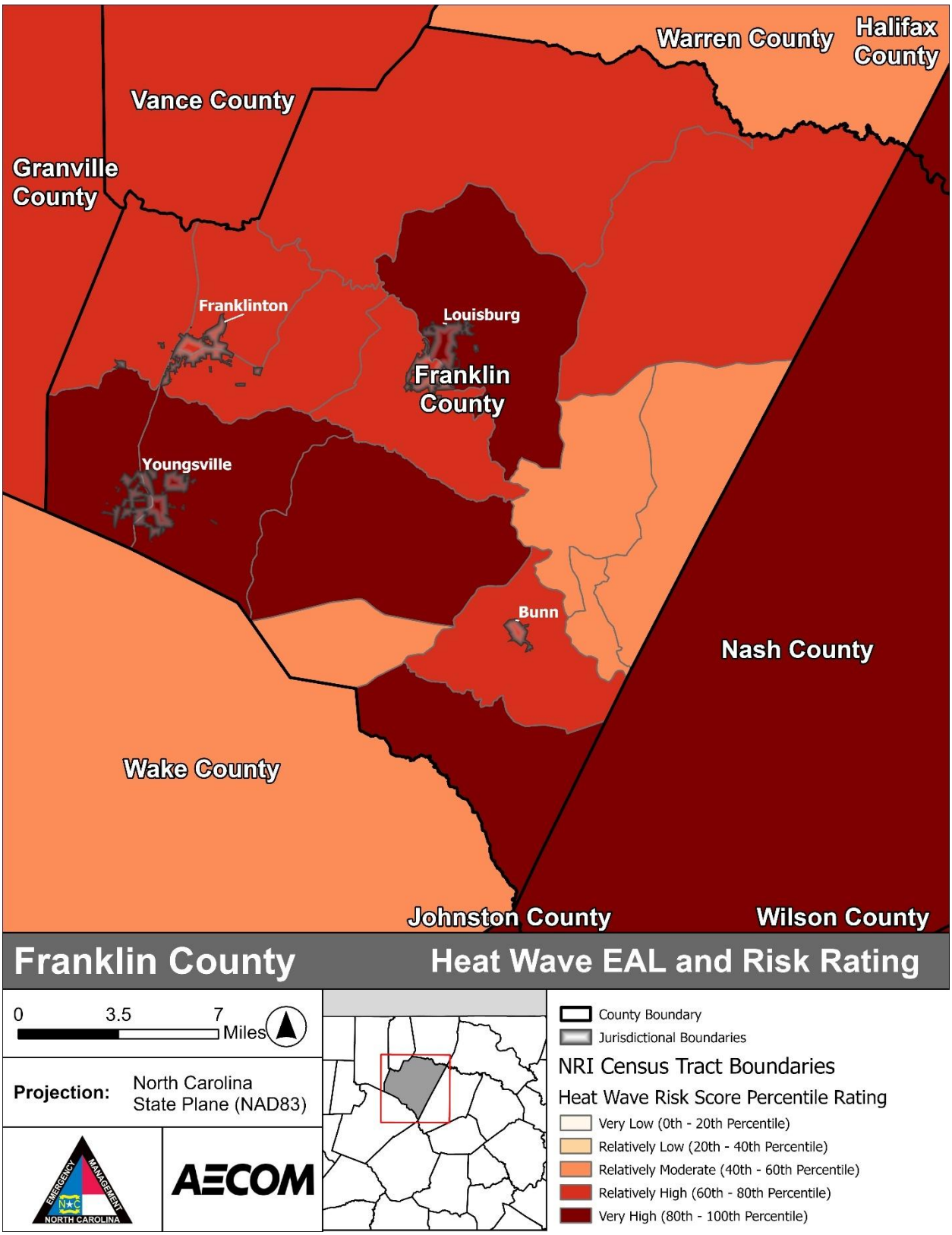


Figure 5-57: Heat Wave Risk Map - Franklin County

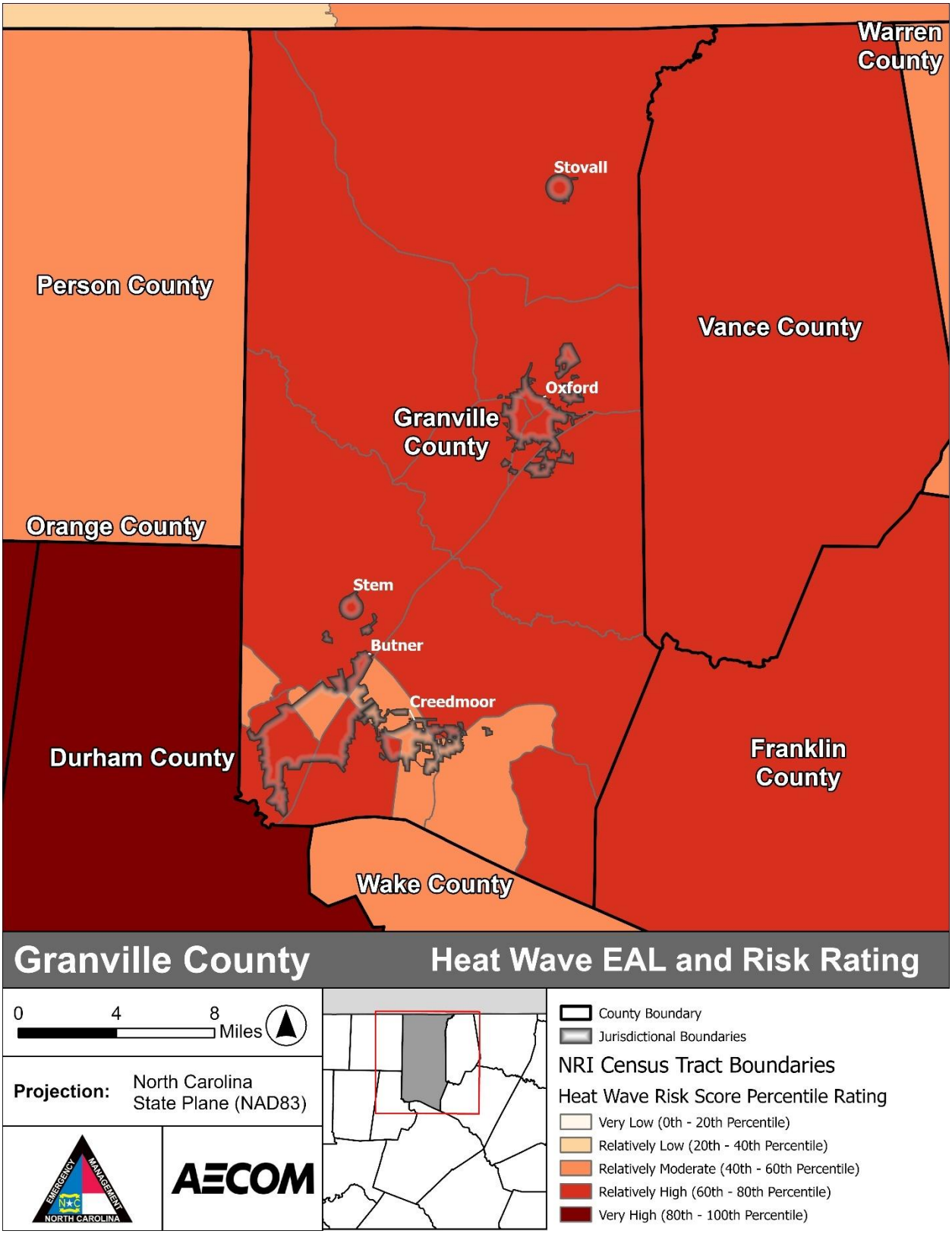


Figure 5-58: Heat Wave Risk Map - Granville County

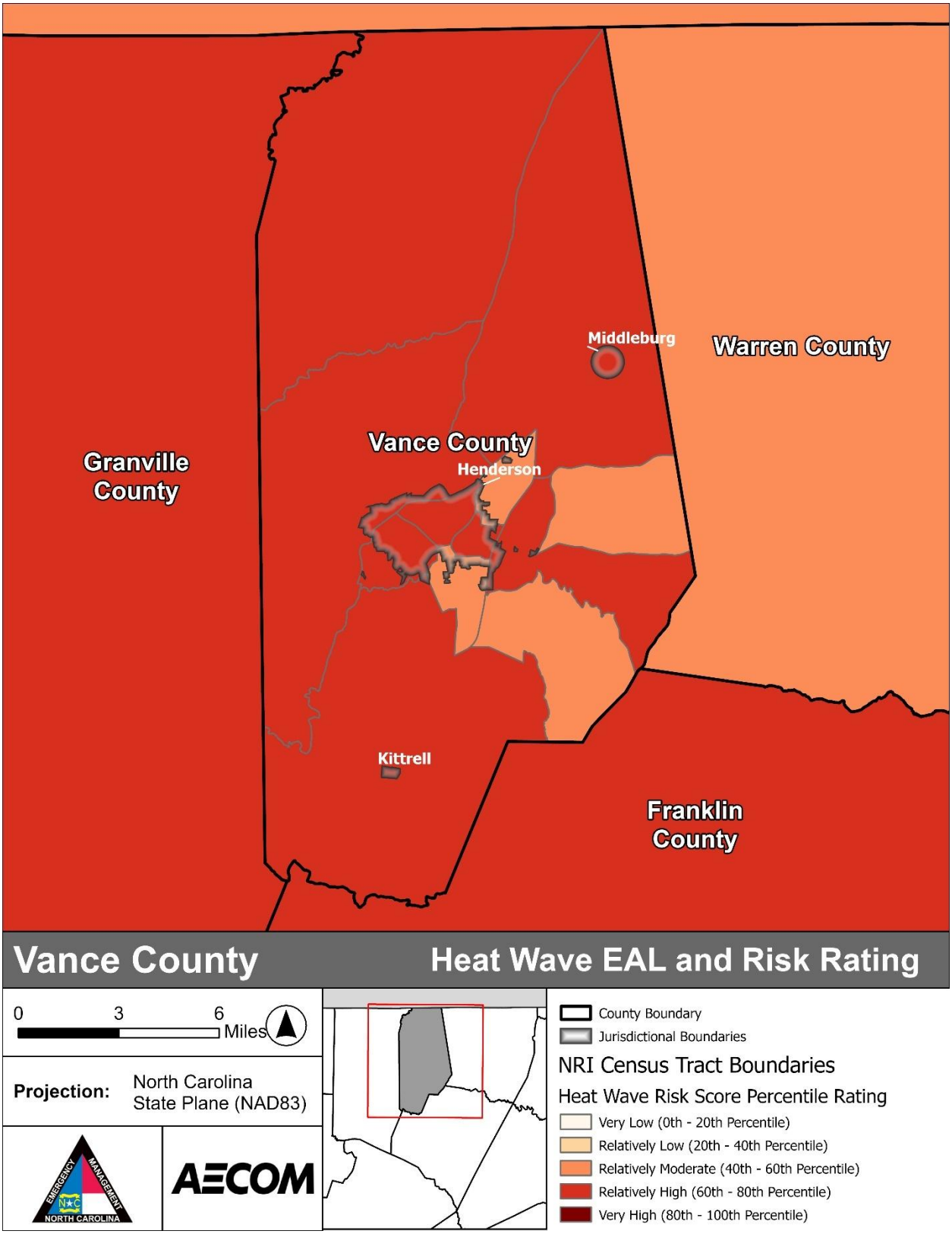


Figure 5-59: Heat Wave Risk Map - Vance County

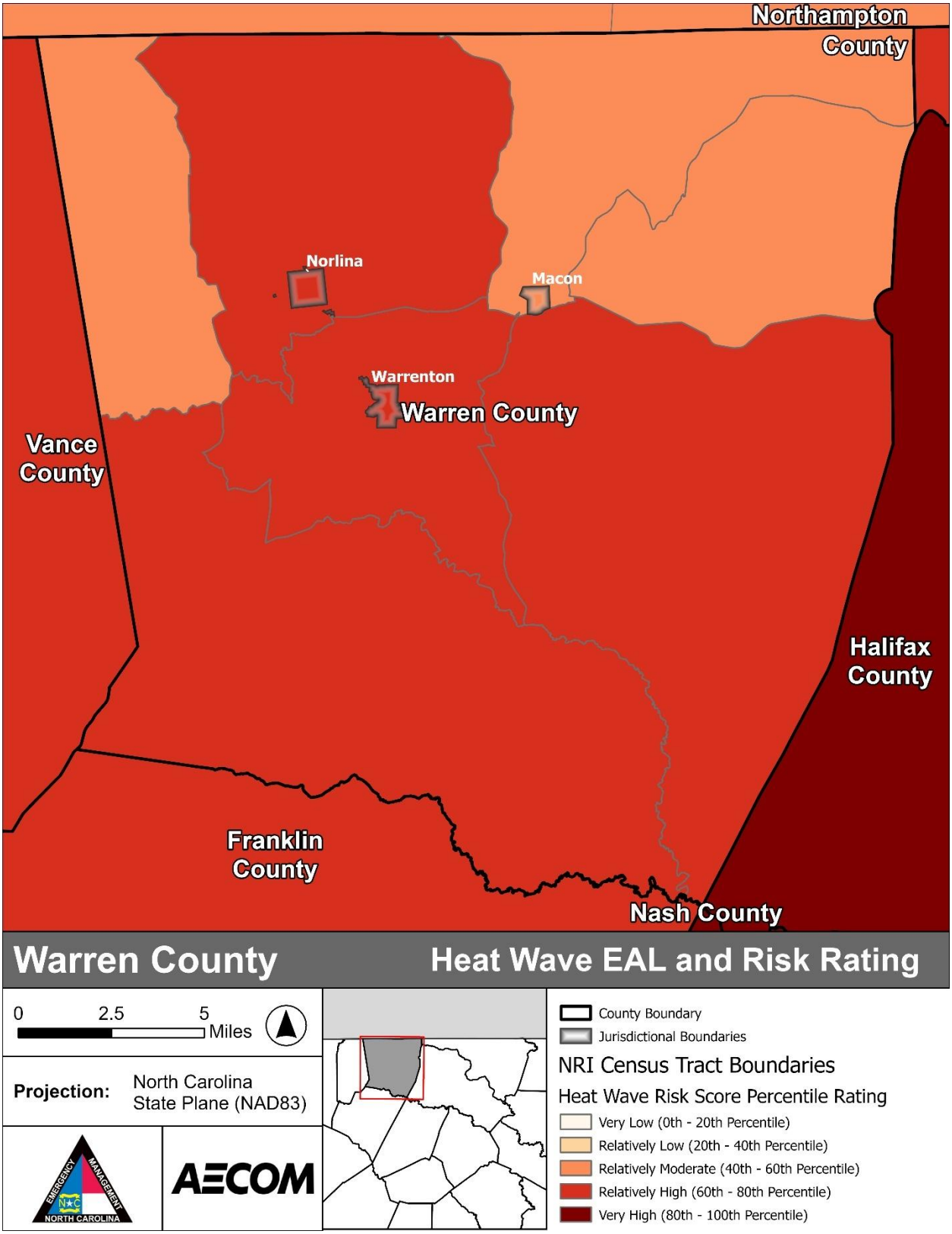


Figure 5-60: Heat Wave Risk Map - Warren County

5.5.3. Extent

The extent of extreme heat can be defined by the maximum temperature reached. Extreme Heat occurrences are recorded by the NC State University (NCSU) Climate Office and summarized based on the maximum heat index temperatures. The tables below show the highest reported temperature in the Tar River Region and the number of days between 2015 and 2025 that fell within different heat index ranges.

Table 5-20: Maximum Temperatures Reported in the Planning Area from the NC State Climate Office (2015-2025)[24]

Weather Station Name	Station Location	Highest Temperature (°F)	Date
Franklin County Airport (KLHZ)	Louisburg (Franklin County)	96.8	2015-06-16 2017-07-23 2022-07-06 2024-06-26 2025-06-24
Oxford Tobacco Research Stn (OXFO)	Oxford (Granville County)	98.6	2019-10-03

Table 5-21: 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[25]

Weather Station Name	Station Location	Heat Index Range	Heat Index Range (based on total hourly report)				
			100-104	105-109	110-114	≥115	Days Equal to or Over 100
Franklin County Airport (KLHZ)	Louisburg (Franklin County)	**Number of Days**	96	21	1	0	118
		% of Total Days	2.4%	0.5%	0.0%	0.0%	2.9%
Oxford Tobacco Research Stn (OXFO)	Oxford (Granville County)	**Number of Days**	78	11	3	0	92
		% of Total Days	1.9%	0.3%	0.1%	0.0%	2.3%

[24] North Carolina State Climate Office. (2025). *Weather Extremes* [Tabular]. North Carolina State Climate Office. https://products.climate.ncsu.edu/extremes/
[25] North Carolina State Climate Office. (2025). *Heat Index Climatology* [Tabular]. North Carolina State Climate Office. https://products.climate.ncsu.edu/climate/heat-index/

5.5.4. Past Occurrences

The National Center for Environmental Information (NCEI) Storm Events Database shows 14 records of excessive heat and heat events in the planning area over five days in 2025; however, no injuries, deaths, property damage, or crop damage have been reported as a result of these events.

Table 5-22: Extreme (Excessive) Heat Events Reported by the NCEI Storm Events Database[26]

County	Date	Deaths	Injuries	Damage	Event Narrative	Episode Narrative
Granville	6/24/2025	0	0	0	Heat indices ranged from 109 to 112 degrees.	An anomalously strong high over the southern Appalachians produced very hot, humid conditions during the day, prompting an extreme heat warning. Heat indices reached 115 degrees across the eastern Piedmont, Coastal Plain, and Sandhills of central North Carolina.
Warren		0	0	0	Heat indices ranged from 110 to 112 degrees.	
Franklin		0	0	0	Heat indices ranged from 108 to 110 degrees.	
Vance		0	0	0	Heat indices ranged from 108 to 110 degrees.	
Franklin	6/25/2025	0	0	0	Heat indices ranged from 108 to 110 degrees.	An anomalously strong high over eastern Tennessee produced very hot, humid conditions during the day, prompting an extreme heat warning. Heat indices reached 115 degrees across the eastern Piedmont, Coastal Plain, and Sandhills of central North Carolina.
Granville		0	0	0	Heat indices ranged from 108 to 110 degrees.	
Vance		0	0	0	Heat indices ranged from 108 to 110 degrees.	
Warren		0	0	0	Heat indices ranged from 108 to 110 degrees.	
Franklin	7/26/2025	0	0	0	Heat indices ranged from 108 to 112 degrees.	An anomalously strong high over the southeastern United States produced very hot, humid conditions during the day, with an extreme heat warning in eastern sections of central North Carolina. Heat indices reached 115 degrees across the eastern Piedmont, Coastal Plain, and Sandhills of central North Carolina.
Warren		0	0	0	Heat indices ranged from 108 to 112 degrees.	

[26] National Center for Environmental Information (NCEI). (2025). *Storm Events Database* [Tabular]. National Oceanic and Atmospheric Administration. https://www.ncei.noaa.gov/stormevents/

County	Date	Deaths	Injuries	Damage	Event Narrative	Episode Narrative
Franklin	7/27/2025	0	0	0	Heat indices ranged from 109 to 112 degrees.	An anomalously strong high over the southeastern United States produced very hot, humid conditions during the day, with an extreme heat warning in eastern sections of central North Carolina. Heat indices reached 110 to 115 degrees across the eastern Piedmont, Coastal Plain, and Sandhills of central North Carolina.
Warren		0	0	0	Heat indices ranged from 109 to 112 degrees.	
Franklin	7/28/2025	0	0	0	Heat indices ranged from 108 to 112 degrees.	An anomalously strong high over the deep South of the United States produced very hot, humid conditions during the day, with an extreme heat warning in eastern sections of central North Carolina. Heat indices ranged from 110 to 115 degrees across the eastern Piedmont, Coastal Plain, and Sandhills of central North Carolina.
Warren		0	0	0	Heat indices ranged from 108 to 112 degrees.	

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.[27] The NRI risk data, EAL data, risk index data, and NRI heat wave data are used to understand the impact of extreme heat in the planning area.

In Franklin County, the annualized frequency of heat events is 0.87; the total EAL is $409,498; the EAL Score is 78.77; and the Hazard Risk Index Score is 79.64. Unincorporated areas in Franklin County have a total EAL of $169,695, an average EAL Score of 67.03, and an average Hazard Risk Index Score of 67.11. The jurisdictions with the highest total EAL are Youngsville ($115,565) and Franklinton ($108,776).

In Granville County, the annualized frequency of extreme heat events is 0.5 events per year, a total EAL of $209,571, an EAL Score of 68.62, and a Hazard Risk Index Score of 68.57. The unincorporated areas of Granville County have a total EAL of $36,018, an average EAL Score of 56.37, and an average Hazard Risk Index Score of 58.34. The jurisdictions with the highest total EAL are Butner ($66,636), Creedmoor ($59,817), and Oxford ($54,837).

In Vance County, the annualized frequency of extreme heat events is 0.5; the total EAL is $146,043; the EAL Score is 63.32; and the Hazard Risk Index Score is 65.54. In unincorporated areas of Vance County, the total EAL is $29,510, the average EAL Score is 52.88, and the average Hazard Risk Index Score is 53.74. The jurisdiction with the highest EAL is Henderson at $103,068.

In Warren County, the annualized frequency of extreme heat events is 0.62; the total EAL is $80,675; the EAL Score is 53.08; and the Hazard Risk Index Score is 57.62. The Unincorporated areas of Warren County have a total EAL of $23,598, an average EAL Score of 57.13, and an average Hazard Risk Index Score of 64.68. The jurisdiction with the highest total EAL is Macon ($20,081).

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

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Index Rating
Franklin County (Unincorporated Area)	**0.87**	**$169,696**	**67.03**	**Relatively High**	**67.11**	**Relatively High**
Bunn	0.87	$24,678	72.42	Relatively High	77.03	Relatively High
Franklinton	0.87	$108,777	70.59	Relatively High	73.17	Relatively High
Louisburg	0.87	$49,083	71.03	Relatively High	78.37	Relatively High
Youngsville	0.87	$115,566	87.82	Very High	85.68	Very High
Franklin County Total	**0.87**	**$409,499**	**78.77**	**Relatively High**	**79.64**	**Relatively High**

[27] *National Risk Index Data v1.20 Technical Documentation*. (2025). Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/documents/fema_national-risk-index_technical-documentation.pdf

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Index Rating
Granville County (Unincorporated Area)	**0.50**	**$36,019**	**56.37**	**Relatively Moderate**	**58.34**	**Relatively Moderate**
Butner	0.50	$66,636	58.80	Relatively Moderate	60.50	Relatively High
Creedmoor	0.50	$59,817	61.06	Relatively High	59.00	Relatively Moderate
Oxford	0.50	$54,838	60.63	Relatively High	65.78	Relatively High
Stem	0.50	$18,690	66.96	Relatively High	65.05	Relatively High
Stoval	0.50	$16,943	65.07	Relatively High	65.44	Relatively High
Granville County Total	**0.50**	**$209,571**	**68.62**	**Relatively High**	**68.57**	**Relatively High**
Vance County (Unincorporated Area)	**0.50**	**$29,510**	**52.88**	**Relatively Moderate**	**53.74**	**Relatively Moderate**
Henderson	0.50	$103,069	57.90	Relatively Moderate	64.78	Relatively High
Kittrell	0.50	$18,837	67.14	Relatively High	73.44	Relatively High
Middleburg	0.50	$13,465	60.30	Relatively High	62.14	Relatively High
Vance County Total	**0.50**	**$146,043**	**63.32**	**Relatively High**	**65.54**	**Relatively High**
Warren County (Unincorporated Area)	**0.62**	**$23,598**	**57.13**	**Relatively Moderate**	**64.68**	**Relatively High**
Macon	0.62	$20,082	54.08	Relatively Moderate	57.77	Relatively Moderate
Norlina	0.62	$15,044	62.63	Relatively High	69.43	Relatively High
Warrenton	0.62	$16,220	64.20	Relatively High	74.16	Relatively High
Warren County Total	**0.62**	**$80,675**	**53.08**	**Relatively Moderate**	**57.62**	**Relatively Moderate**

5.5.6. Consequence and Impact Analysis

People

Extreme heat can affect people's health, leading to increased heatstroke cases and even loss of life. Staying hydrated and avoiding strenuous outdoor exercise during extreme heat can help reduce the risk of adverse health effects. Individuals with underlying health issues or those located in rural areas may be vulnerable due to medical access issues. Individuals with disabilities (16.5% in Franklin County, 16.2% in Granville County, 18.9% in Vance County, and 21.2% in Warren County[28]) and individuals with an independent living difficulty (7.8% in Franklin County, 6.3% in Granville County, 9.0% in Vance County, and 9.6% in Warren County[28]) may be at an increased risk of negative health impacts due to extreme heat, which could lead to heat-related illnesses (HRI), hospitalization, and death. With limited mobility, due to disability or an independent living difficulty, residents would require assistance to mitigate negative health impacts related to extreme heat.

Due to increased strain on the power supply during extreme heat events, residents may experience power outages and lose the ability to adequately power cooling devices. As the planning area's population increases in half of the participating counties (18.7% in Franklin County, 2.5% in Granville County, -6.7% in Vance County, and -10.6% in Warren County,

[28] U.S. Census Bureau. (2023). *Disability Characteristics* (No. ACSST5Y2023.S1810; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S1810

between 2010[29] and 2023[30]), there may be increased strain on power during extreme heat events and on emergency services during HRI responses.

Though technology has become an important tool to communicate extreme heat warnings, distribute extreme heat preparedness information, and communicate with friends, family, neighbors, or emergency services, some residents in the planning area do not have telephone service within their housing unit (0.9% of housing units in Franklin County, 1.4% in Granville County, 1.4% in Vance County, and 1.4% in Warren County, estimated in 2023[31]). Computing devices and the internet have also been critical tools for informing residents about hazard risk, preparedness, and impact mitigation. But, a large number of housing units are estimated not to have access to a computing device (8.0% of housing units in Franklin County, 5.7% in Granville County, 10.8% in Vance County, and 14.7% in Warren County, estimated in 2023) in their household, and not have an internet subscription (11.6% of housing units in Franklin County, 11.0% in Granville County, 17.4% in Vance County, and 23.0% in Warren County in 2023) in their household.[32] Additionally, a significant number of households are estimated to be "Limited English-Speaking Households" (1.5% in Franklin County, 0.9% in Granville County, 0.5% in Vance County, and 1.2% in Warren County).[33] Lack of internet access, lack of a computing device, and failure to prepare hazard mitigation information in multiple languages can prevent residents from using communication and education resources aimed at reducing the negative impacts of hazards in the planning area. This can act as a barrier to accessing important information about cooling centers, preventing negative health impacts, and preparing for extreme heat events, thereby reducing the disproportionate impacts on vulnerable populations.

- Ensure all residents have a way to receive emergency alerts and to contact emergency services from their housing unit during extreme heat events.
- Ensure all residents can access emergency-preparedness communications to mitigate the negative impacts of extreme heat events.

Changes in Development

Franklin and Granville Counties have experienced an increase in housing units between 2013 and 2023, with Franklin County up 16.1% and Granville County up 7.4%. However, Vance and Warren Counties have experienced decreases in housing units during the same period, with Vance County down 2.8% and Warren County down 1.7%. The Tar River region as a whole is up by an average of 4.8%. An increase in housing units can lead to more frequent power outages during extreme heat events as residents utilize more power for cooling devices. Increased development can lead to higher concentrations of infrastructure that absorbs heat, creating the heat island effect, which can form under many conditions, including in small cities,

[29] U.S. Census Bureau. (2010). *Total Population* (No. DECENNIALSF12010.P1; Version Decennial Census) [Dataset]. data.census.gov. https://data.census.gov/table/DECENNIALSF12010.P1
[30] U.S. Census Bureau. (2023). *Age and Sex* (No. ACSST5Y2023.S0101; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S0101
[31] U.S. Census Bureau. (2023). *ACS Demographic and Housing Estimates* (No. ACSDP5Y2023.DP05; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSDP5Y2023.DP05
[32] U.S. Census Bureau. (2023). *Types of Computers and Internet Subscriptions* (ACSDP5Y2023.S2801; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S2801
[33] U.S. Census Bureau. (2023). *Limited English-Speaking Households* (No. ACSST5Y2023.S1602; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S1602

large cities, and suburban areas. This is due to reduced natural landscapes, which normally provide cooling, shade, and moisture to mitigate extreme heat; increased absorption of solar energy by human-made materials; and heat generated by human activities.

- Updating building codes and landscape best management practices can increase energy efficiency during extreme heat events and reduce strain on power supplies.
- Local governments could provide public drinking fountains, cooling shelters, and swimming pools to keep individuals cool.

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 also raise power costs during peak periods, negatively impacting businesses in the planning area. Additionally, individuals working outdoors during extreme heat events, such as construction, landscaping, agriculture, and public safety, face an increased risk of heat-related illnesses. To reduce the economic impact of extreme heat events, the planning area should consider:

- Provide residents in the planning area with education on the risk of HRI among outdoor workers and how to prevent it.
- Evaluate the current grid capacity and upgrade capacity to handle increased power strain from extreme heat impacts.
- Promote energy-efficient building upgrades and appliances

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 the wooded regions) can mitigate heat islands, reducing local air temperatures by up to 9°F.[34] As development increases in the planning area, the natural environment and the urban heat island effect are likely to be affected.

First Responders

Extreme heat events may lead to more frequent wildfires, which could affect first responders in the planning area by increasing incident volume and their risk of HRI.

Future Conditions

According to the NCCSR[35], the years between 2009 and 2018 were the warmest 10-year period in NC, with an average of 0.6°F warmer than the warmest decade of the 20th century, 1930 to 1939. The NCCSR also states that temperatures in NC are very likely to increase across all

[34] Centers for Disease Control and Prevention (CDC). (2016). *Extreme Heat Can Impact Our Health in Many Ways*. U.S. Department of Health and Human Services. https://www.cdc.gov/climate-health/media/pdfs/EXTREME-HEAT-Final_508.pdf

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

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 summer heat index values and humidity are likely to 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.

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 miles per hour (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 because of their potential to cause 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*	≤39	--
0*	40–73	--
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

*-1 = Tropical Depression & 0 = Tropical Storm

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. While hurricanes in this range account for only 20 percent of total tropical cyclone landfalls, they cause 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 larger	

Storm Category	Damage Level	Description of Damages	Photo Example
		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[36] 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),[37] which represent the location, intensity, and path of tropical cyclones from the 1840s to the present, at 3-hour intervals when available. Other data parameters may also be included in the records, depending on the source data agency.

[36] National Oceanic and Atmospheric Association. (2024). *Best Track Data (HURDAT2)* [Tabular]. National Hurricane Center Data Archive. https://www.nhc.noaa.gov/data/#hurdat

[37] Knapp, K. R., Kruk, M. C., Diamond, H. J., Gahtan, J., Schreck, C. J., & Kossin, J. P. (2025). *The International Best Track Archive for Climate Stewardship (IBTrACS)* (Tabular No. (DSI) 9637). National Centers for Environmental Information. https://www.ncei.noaa.gov/products/international-best-track-archive

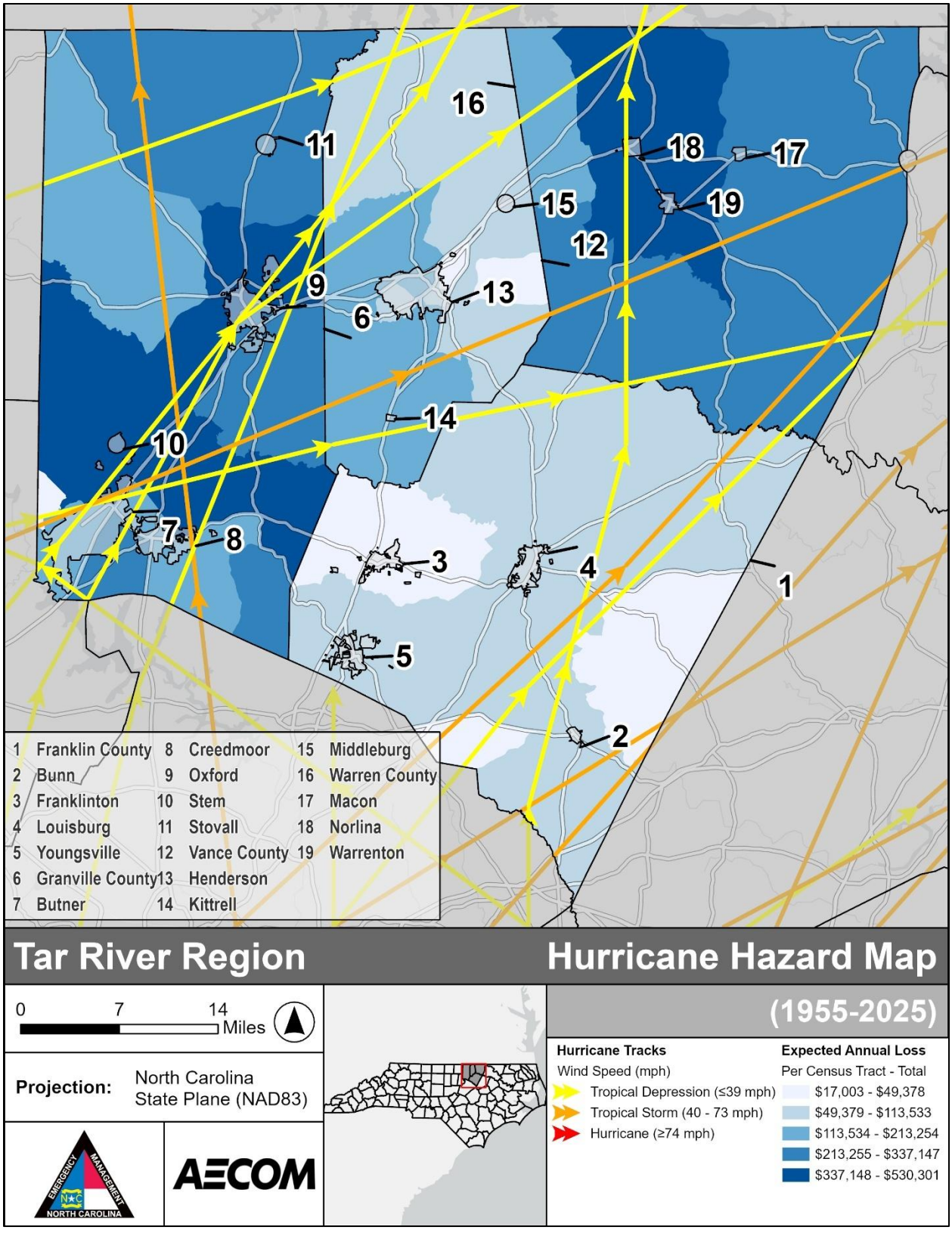


Figure 5-61: Hurricane Risk Map - Tar River Region

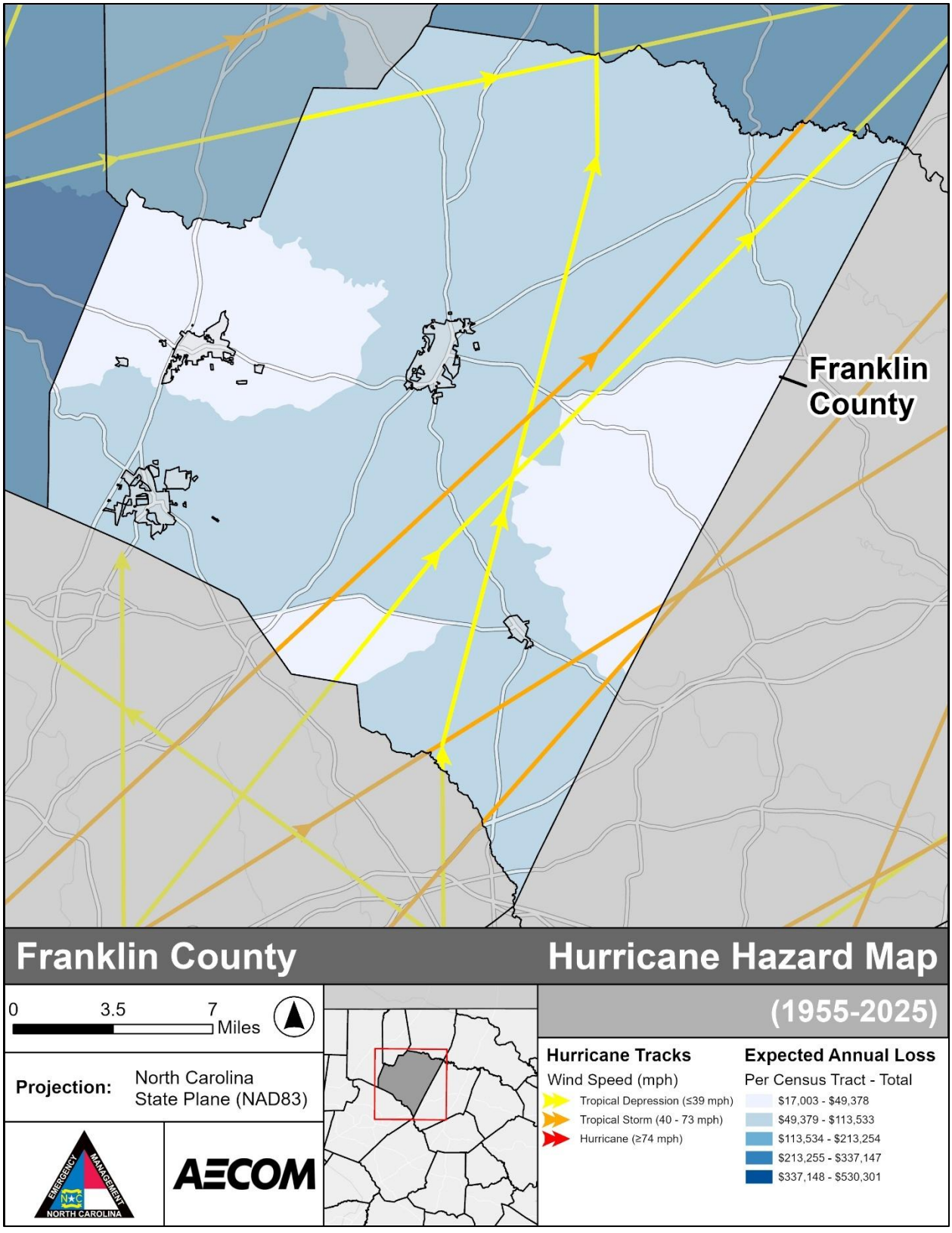


Figure 5-62: Hurricane Risk Map - Franklin County

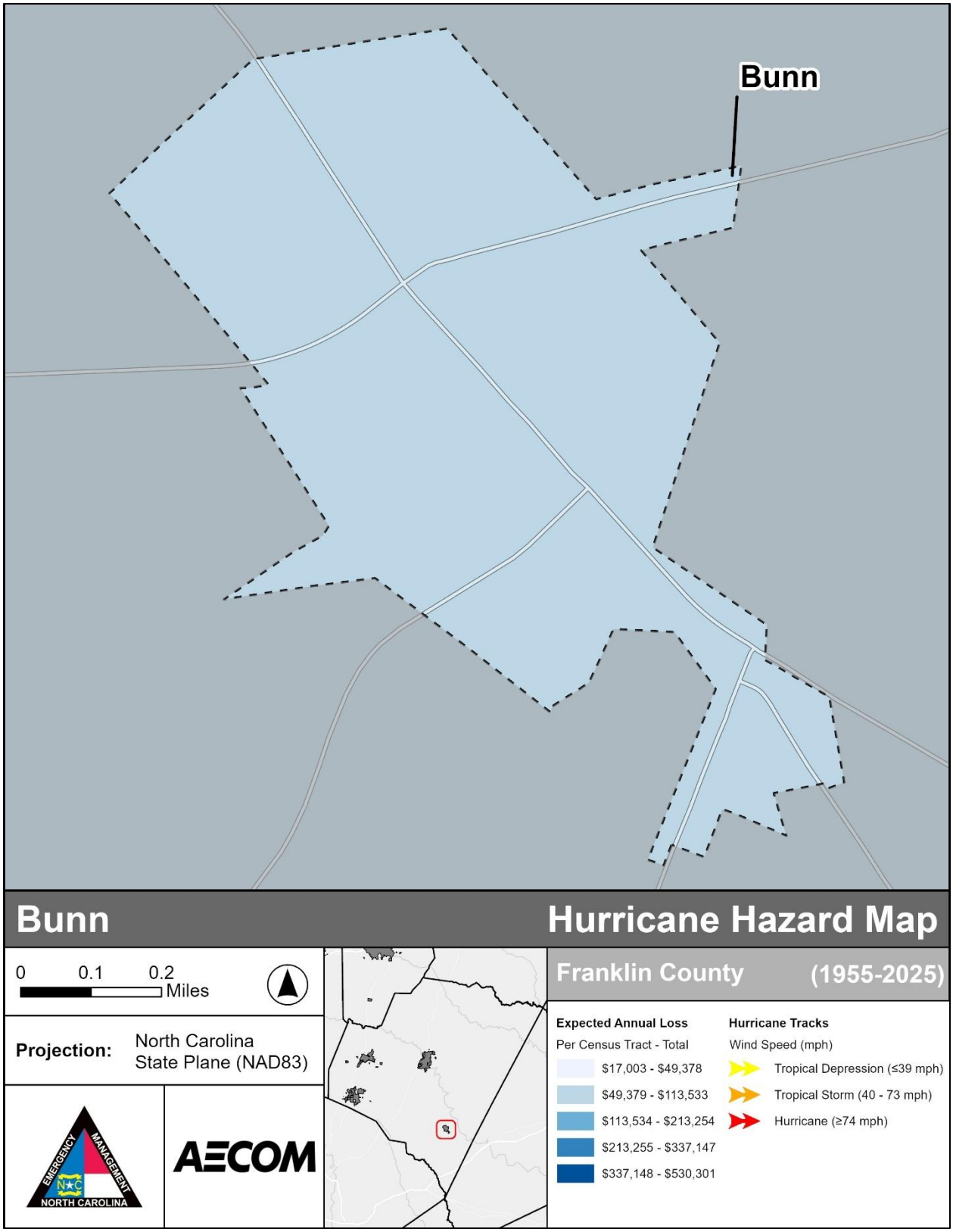


Figure 5-63: Hurricane Hazard Map - Bunn

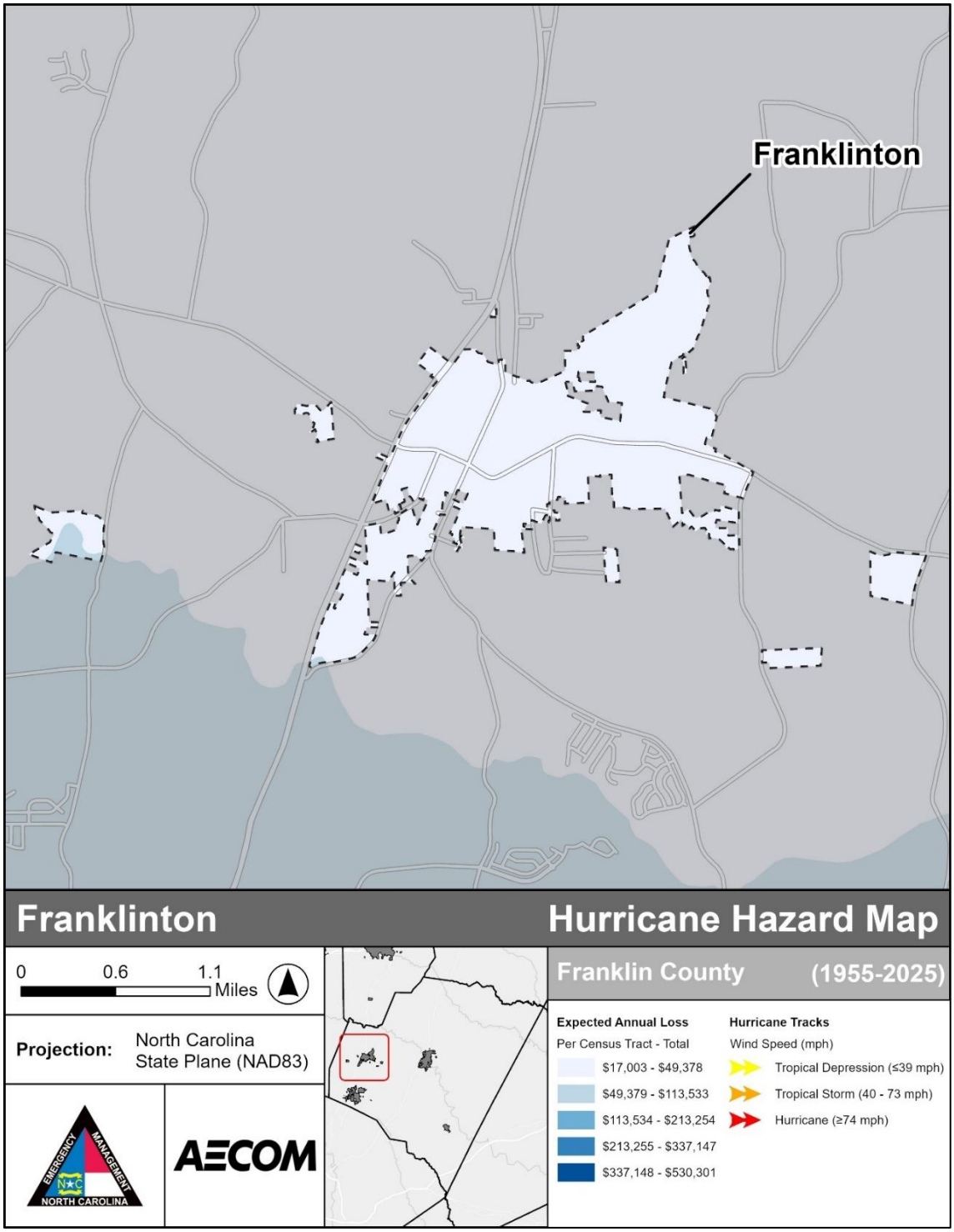


Figure 5-64: Hurricane Hazard Map - Franklinton[38]

[38] The Municipal Boundaries (2025) GIS layer obtained from NCDOT and used for the maps in this plan contained slightly outdated jurisdictional boundaries for the Town of Franklinton due to recent annexations between 2023 and 2025. However, given the map scale, hazard data can still be viewed for the missing incorporated areas of Franklinton. Please see Section 3 – Figure 3-29 for the Town of Franklinton's up-to-date boundary map, based on the incorporated boundary corrections from the U.S. Census Boundary and Annexations Survey.

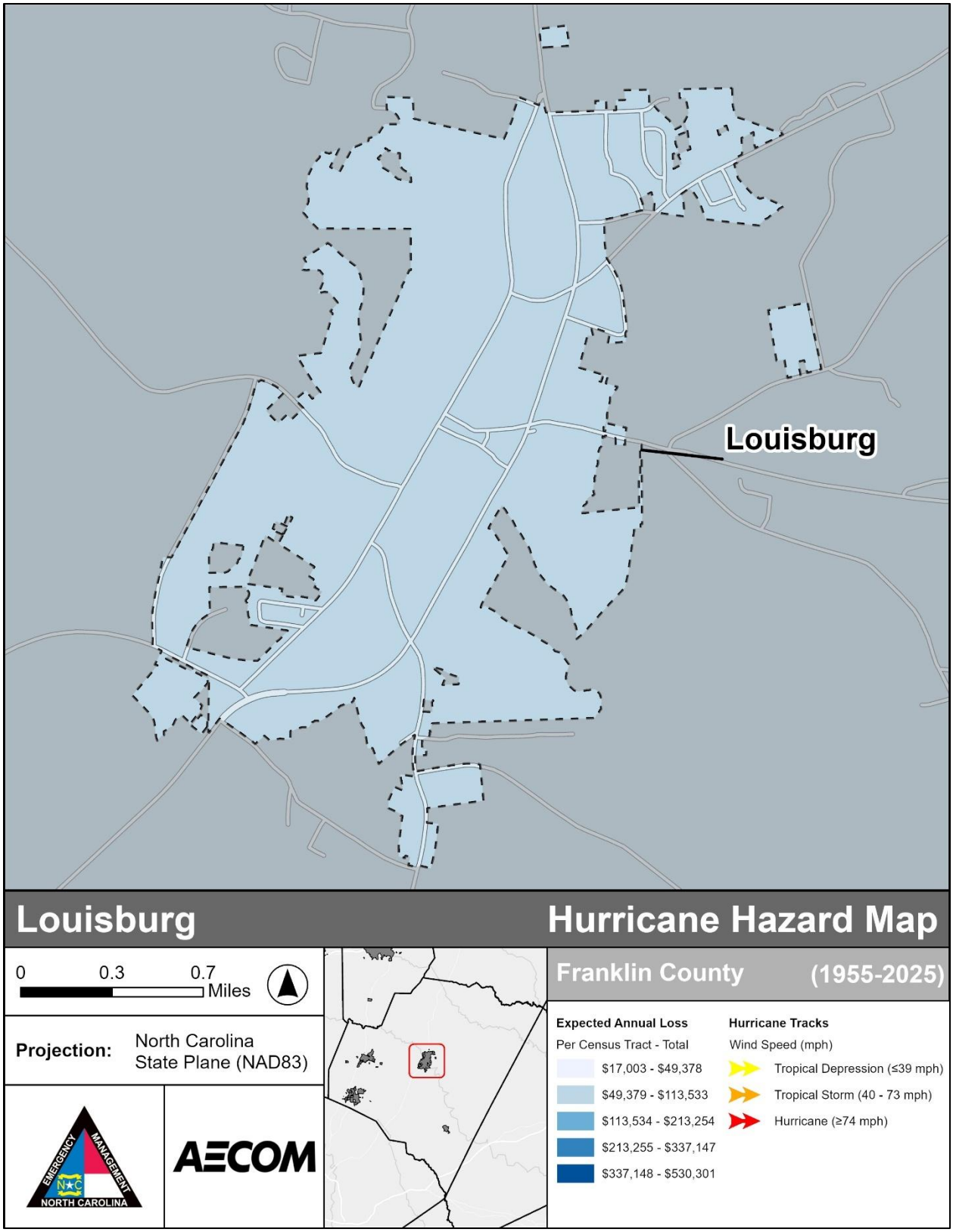


Figure 5-65: Hurricane Hazard Map - Louisburg

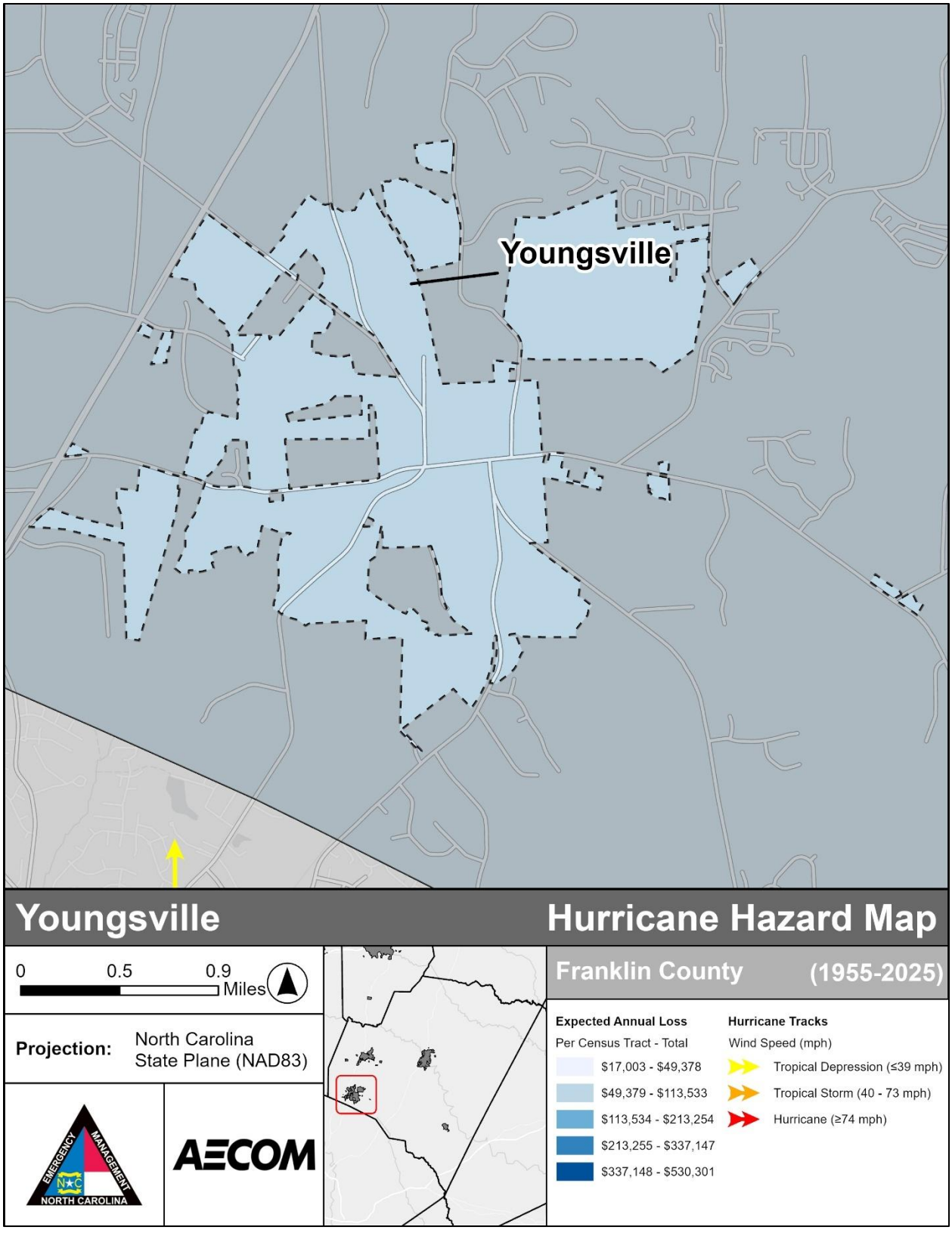


Figure 5-66: Hurricane Hazard Map - Youngsville

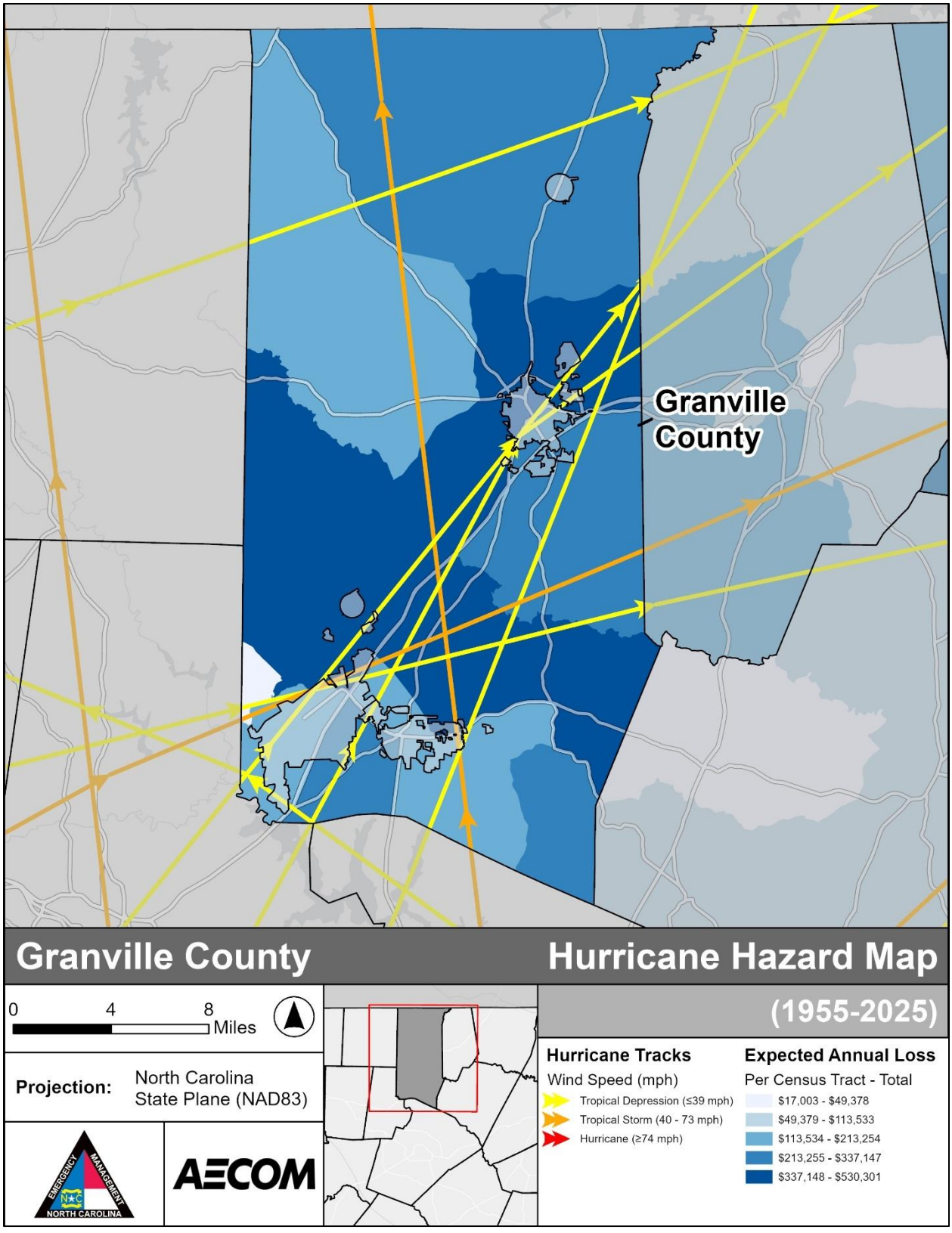


Figure 5-67: Hurricane Hazard Map - Granville County

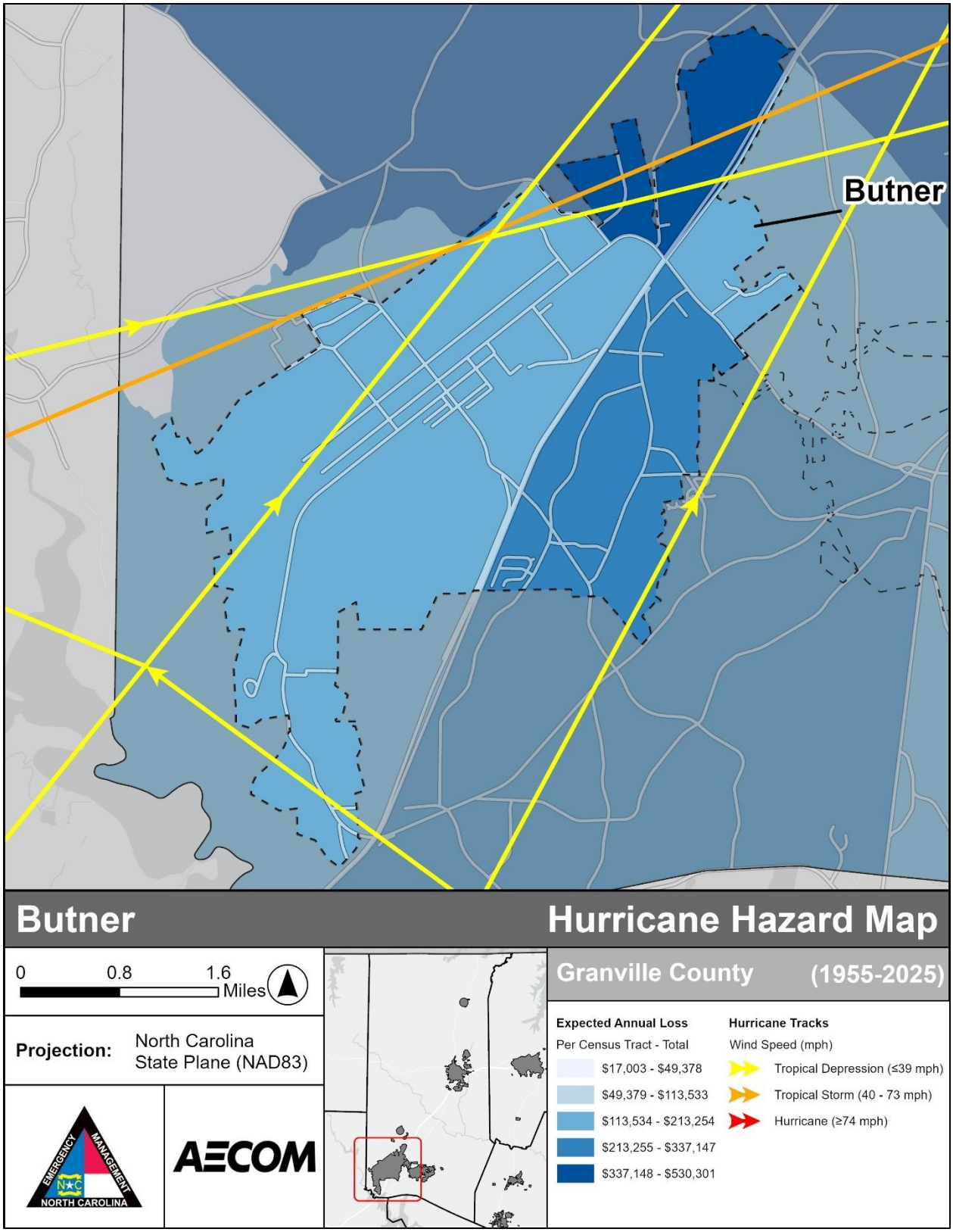


Figure 5-68: Hurricane Hazard Map - Butner

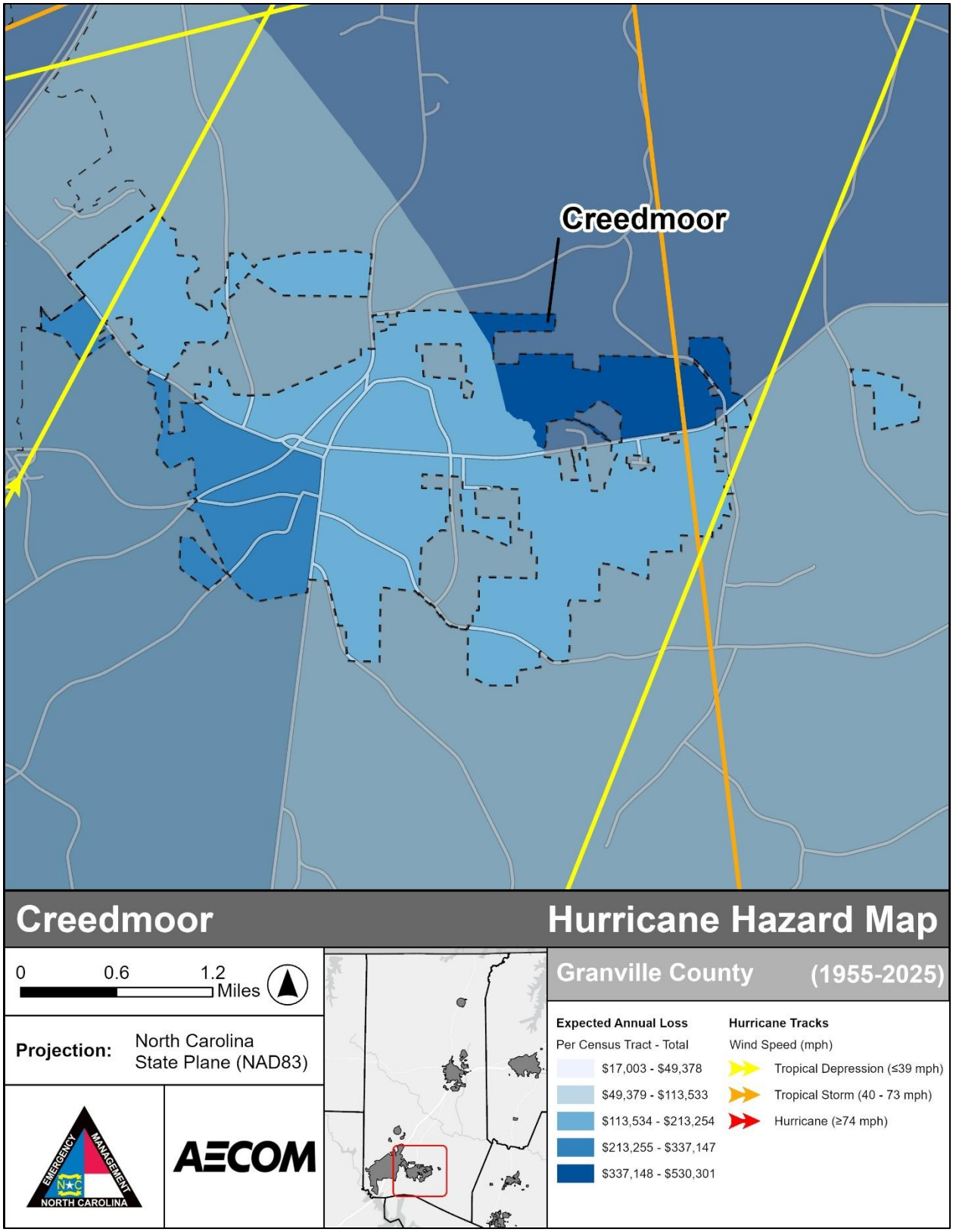


Figure 5-69: Hurricane Hazard Map - Creedmoor

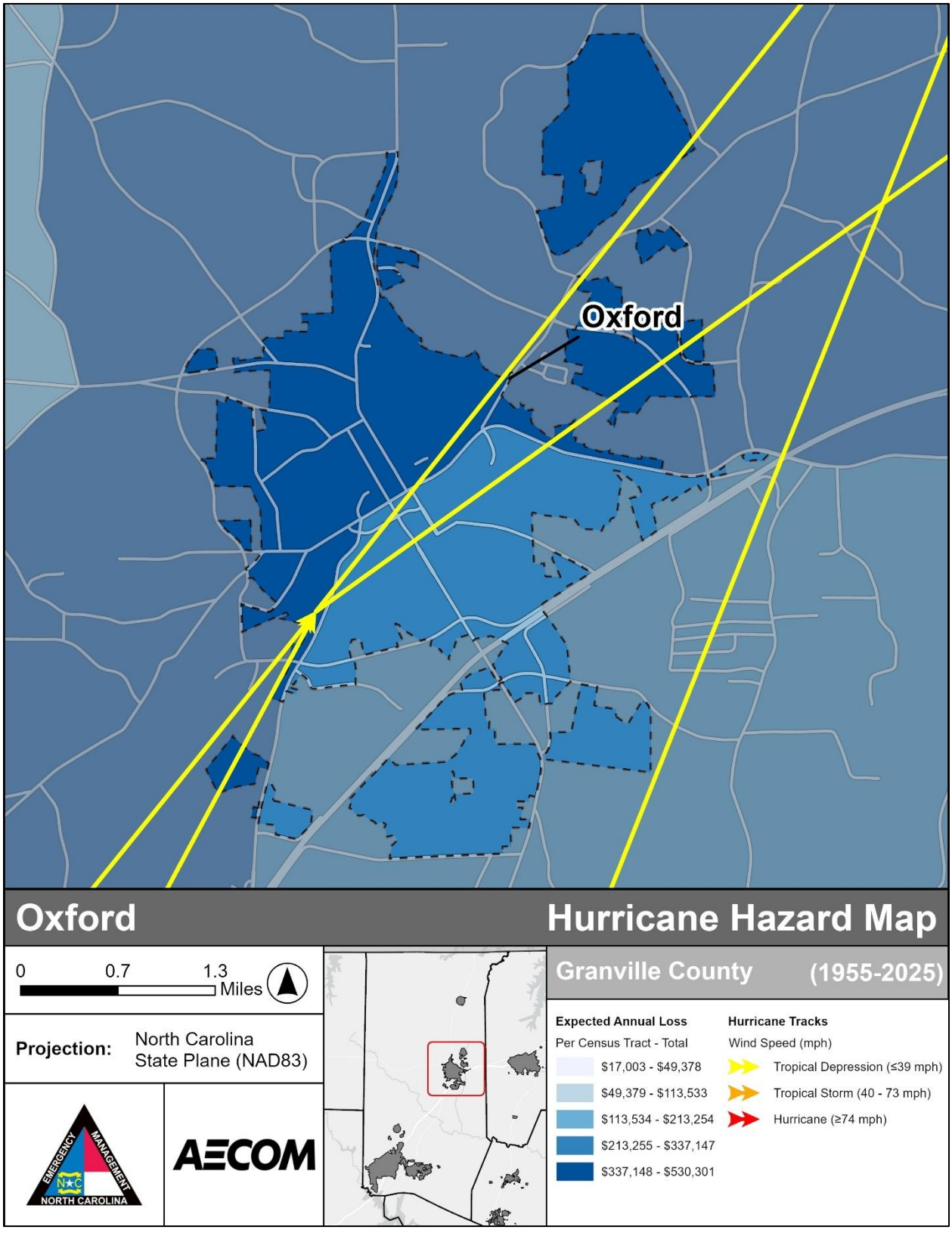


Figure 5-70: Hurricane Hazard Map - Oxford

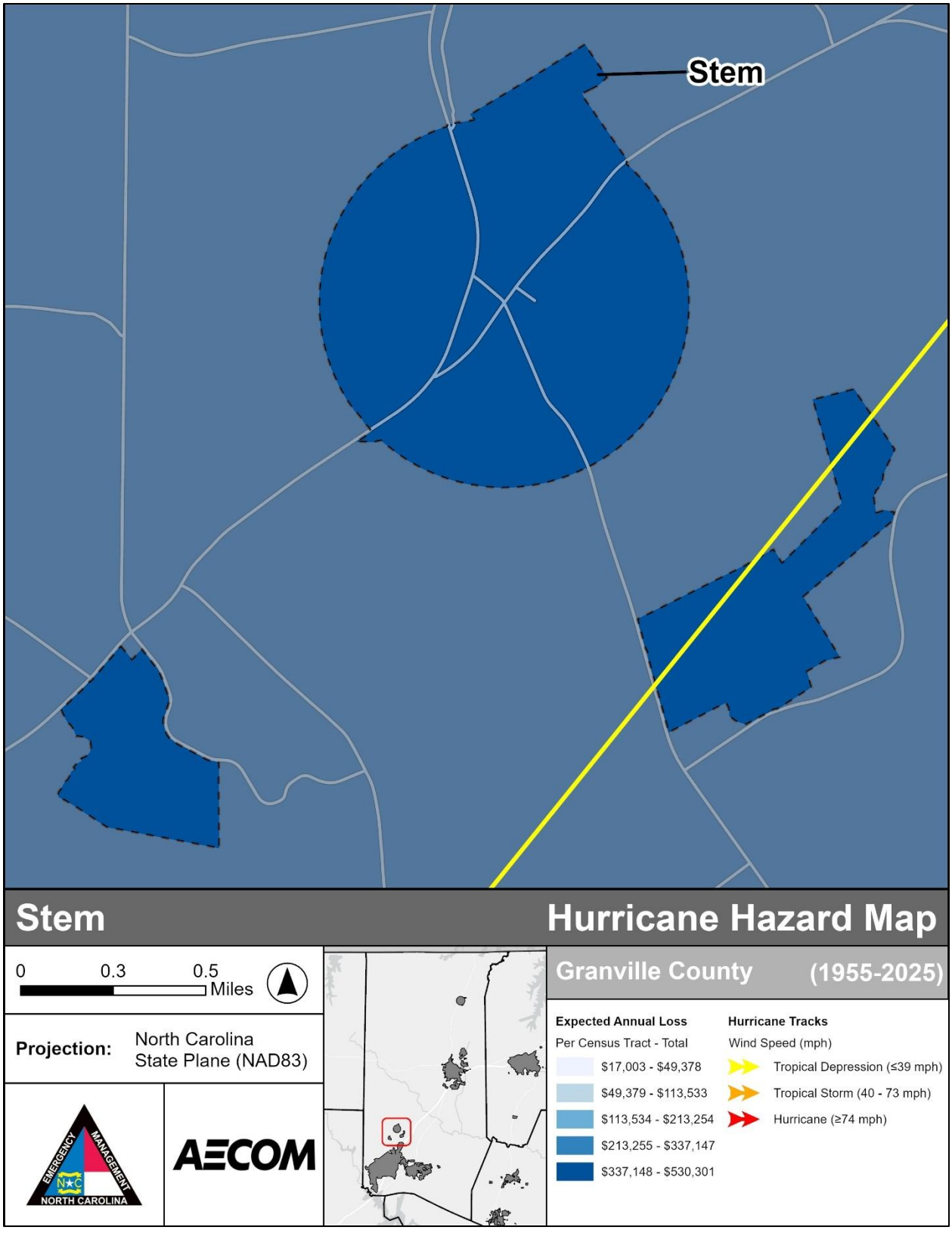


Figure 5-71: Hurricane Hazard Map - Stem

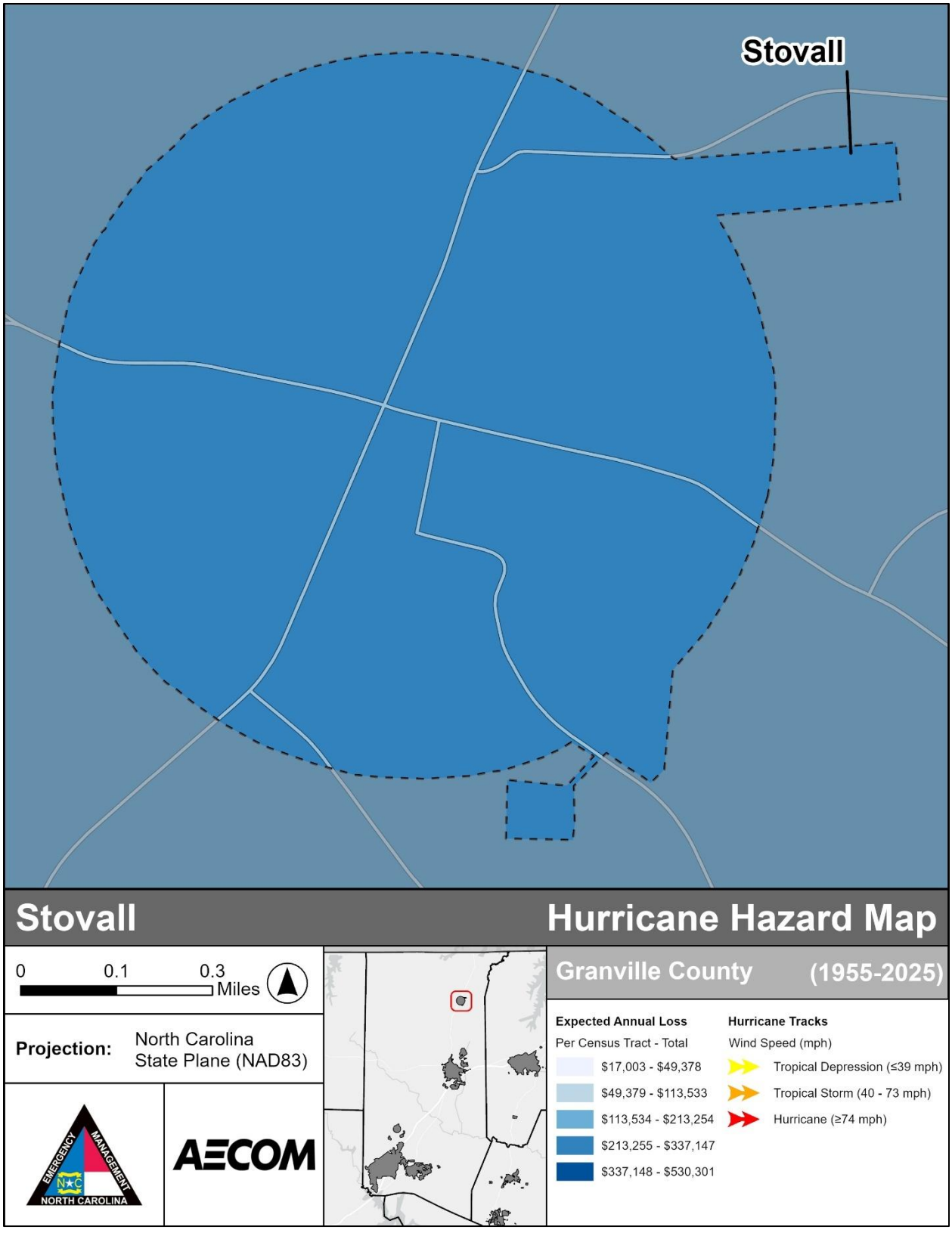


Figure 5-72: Hurricane Hazard Map – Stovall

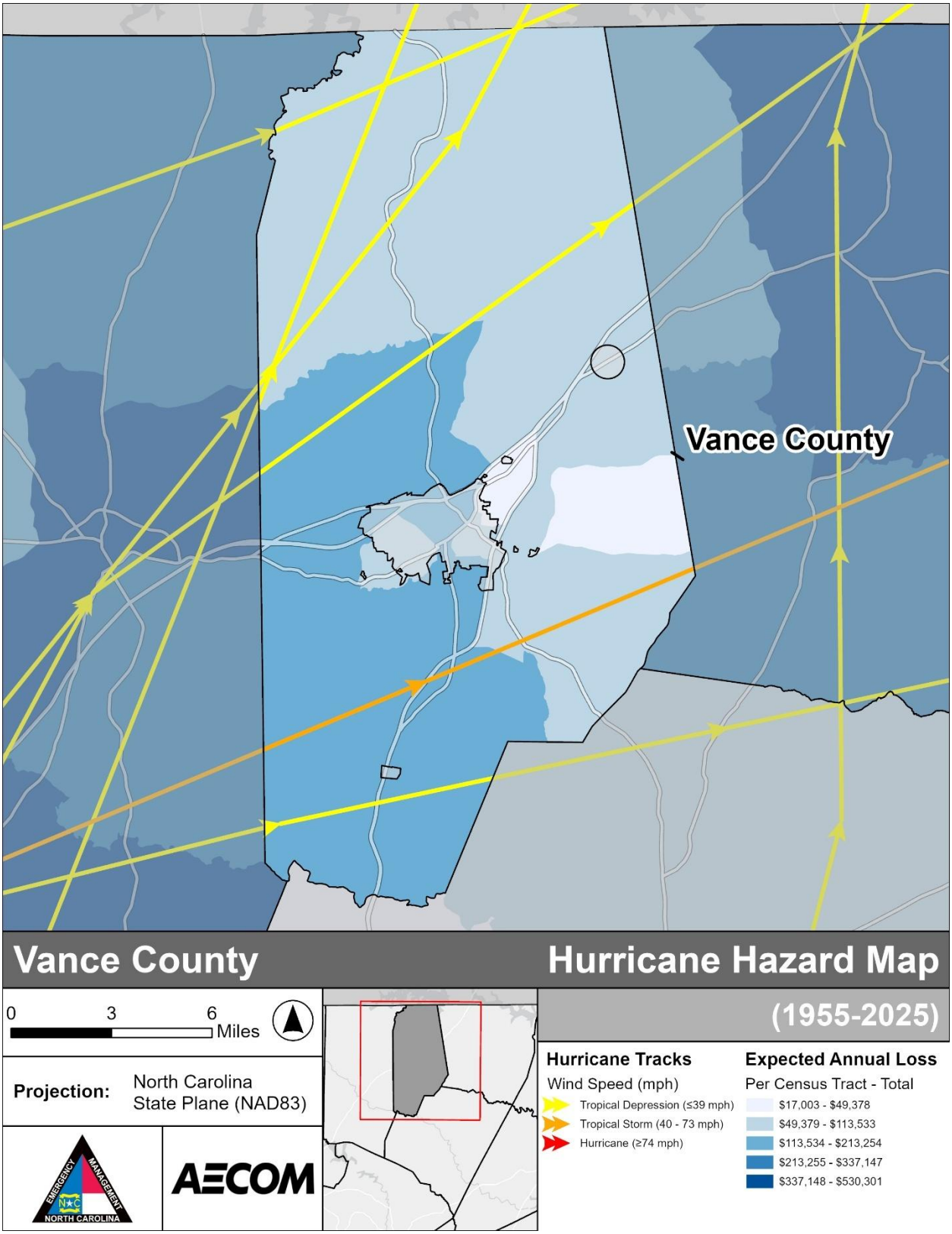


Figure 5-73: Hurricane Hazard Map - Vance County

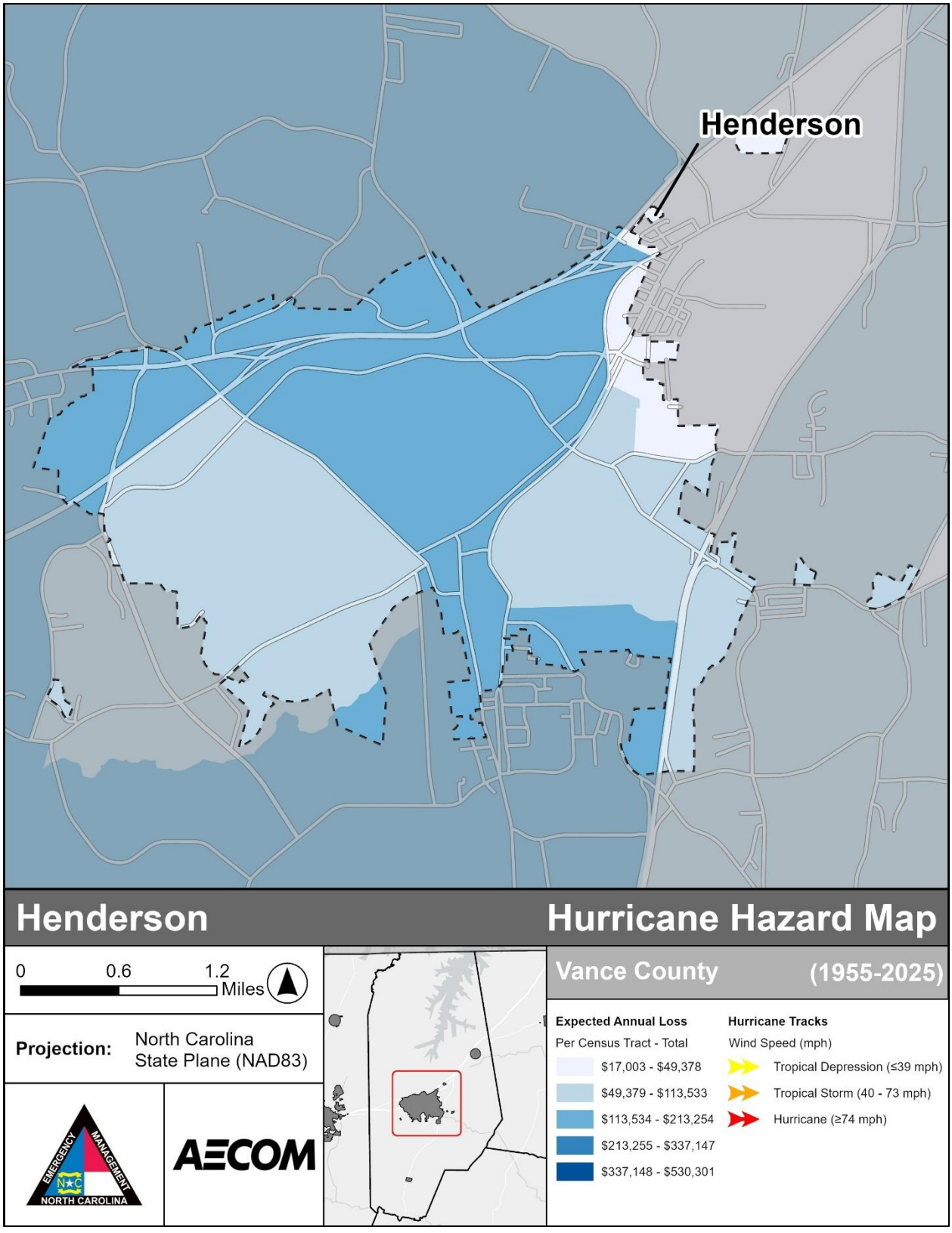


Figure 5-74: Hurricane Hazard Map – Henderson

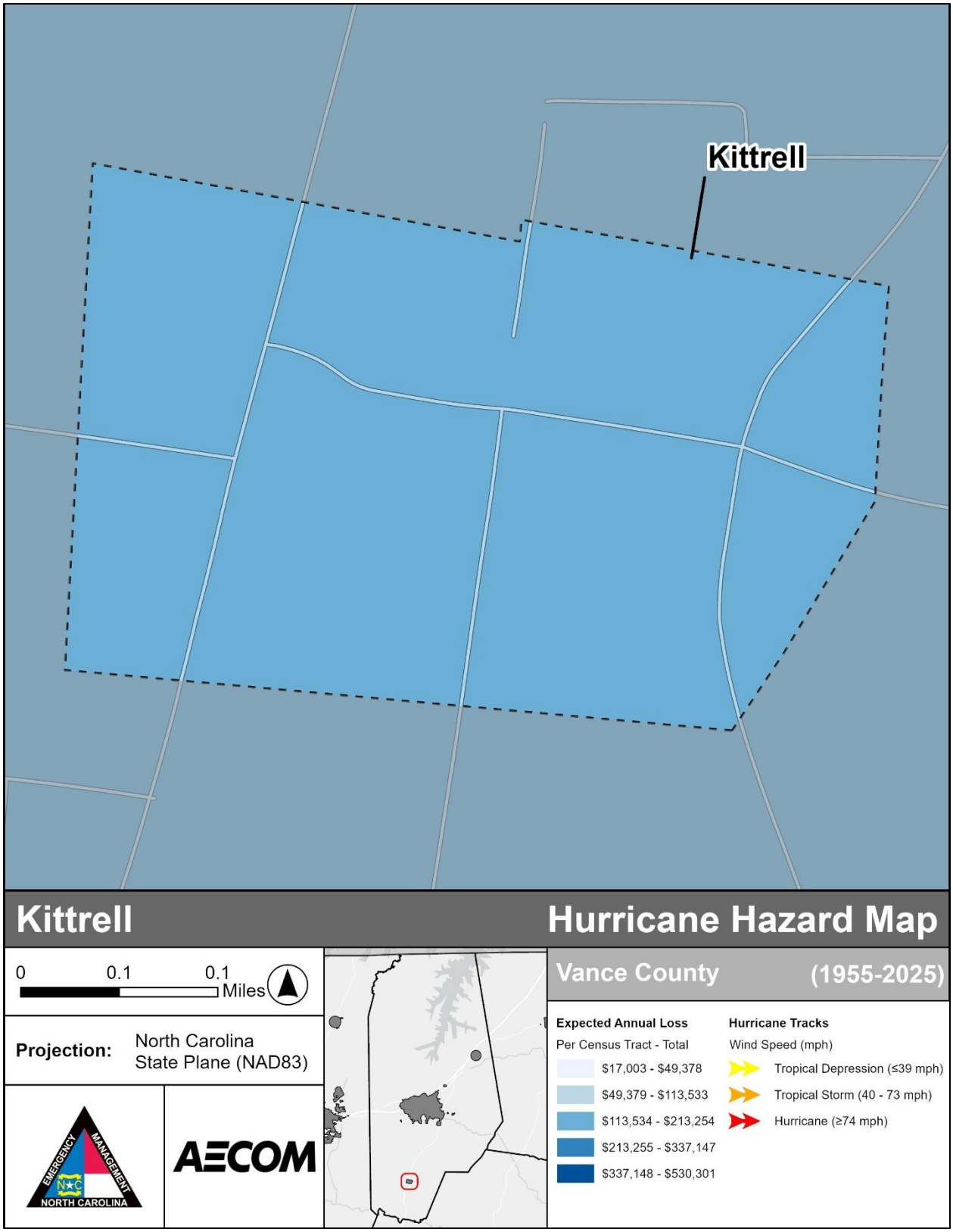


Figure 5-75: Hurricane Hazard Map – Kittrell

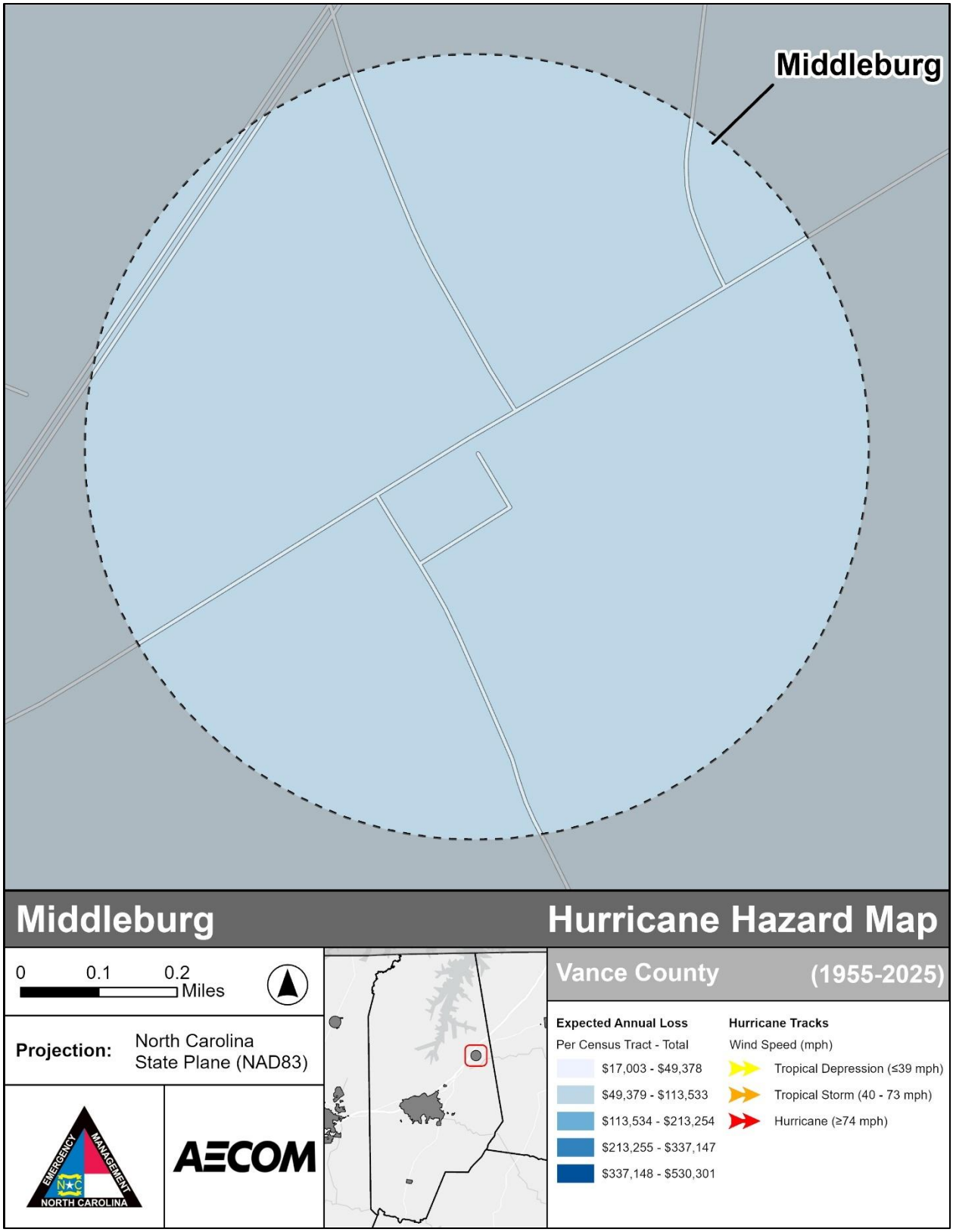


Figure 5-76: Hurricane Hazard Map – Middleburg

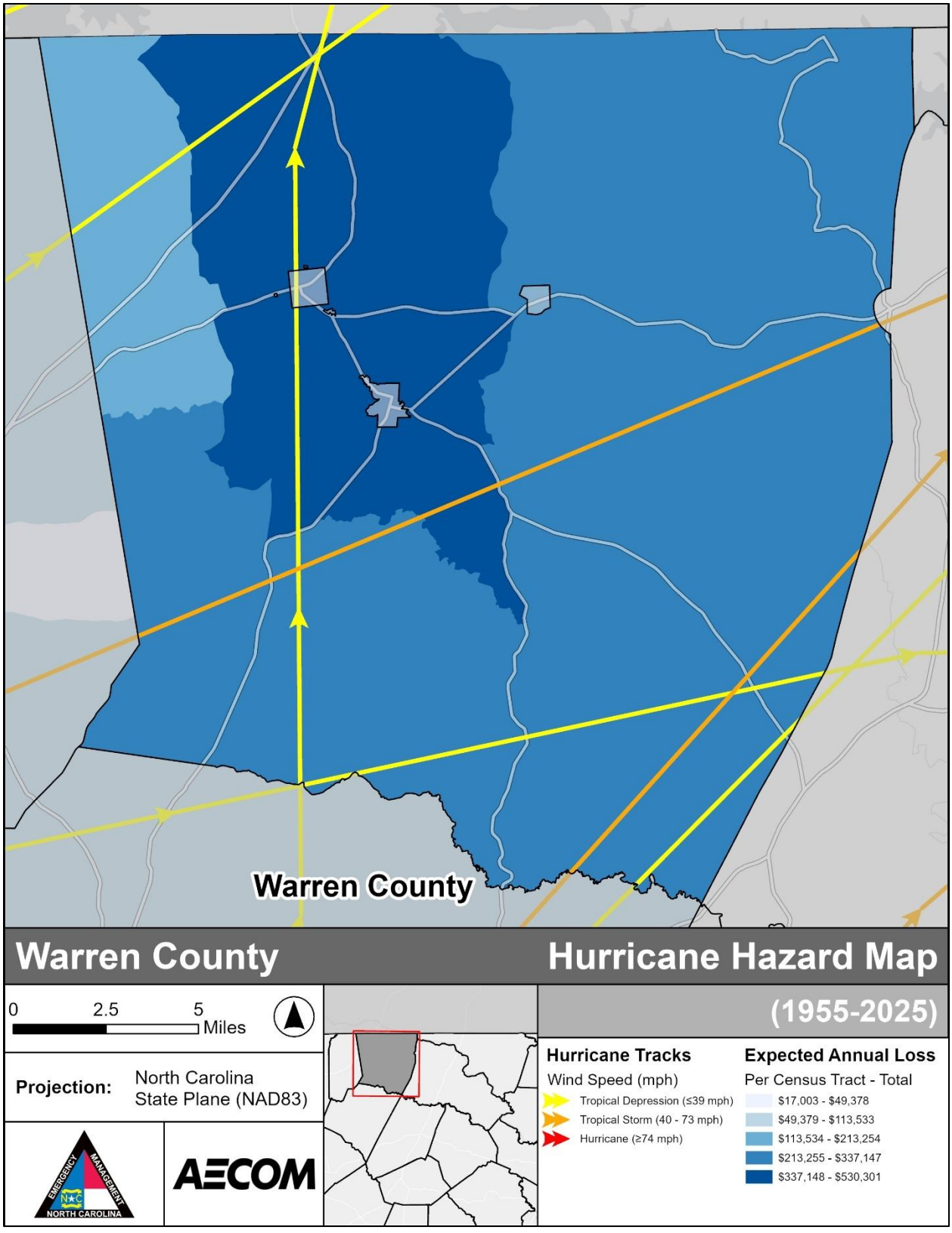


Figure 5-77: Hurricane Hazard Map - Warren County

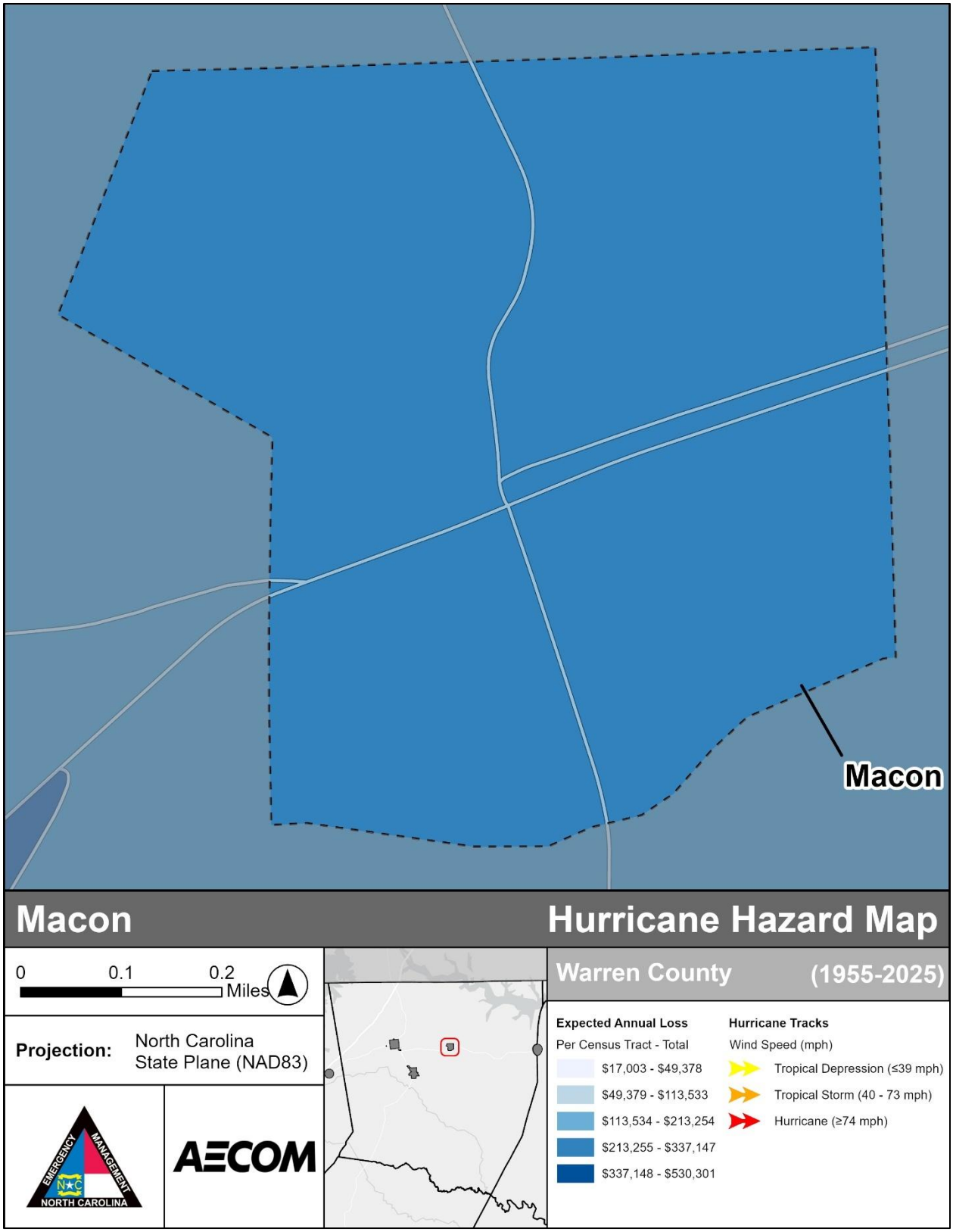


Figure 5-78: Hurricane Hazard Map – Macon

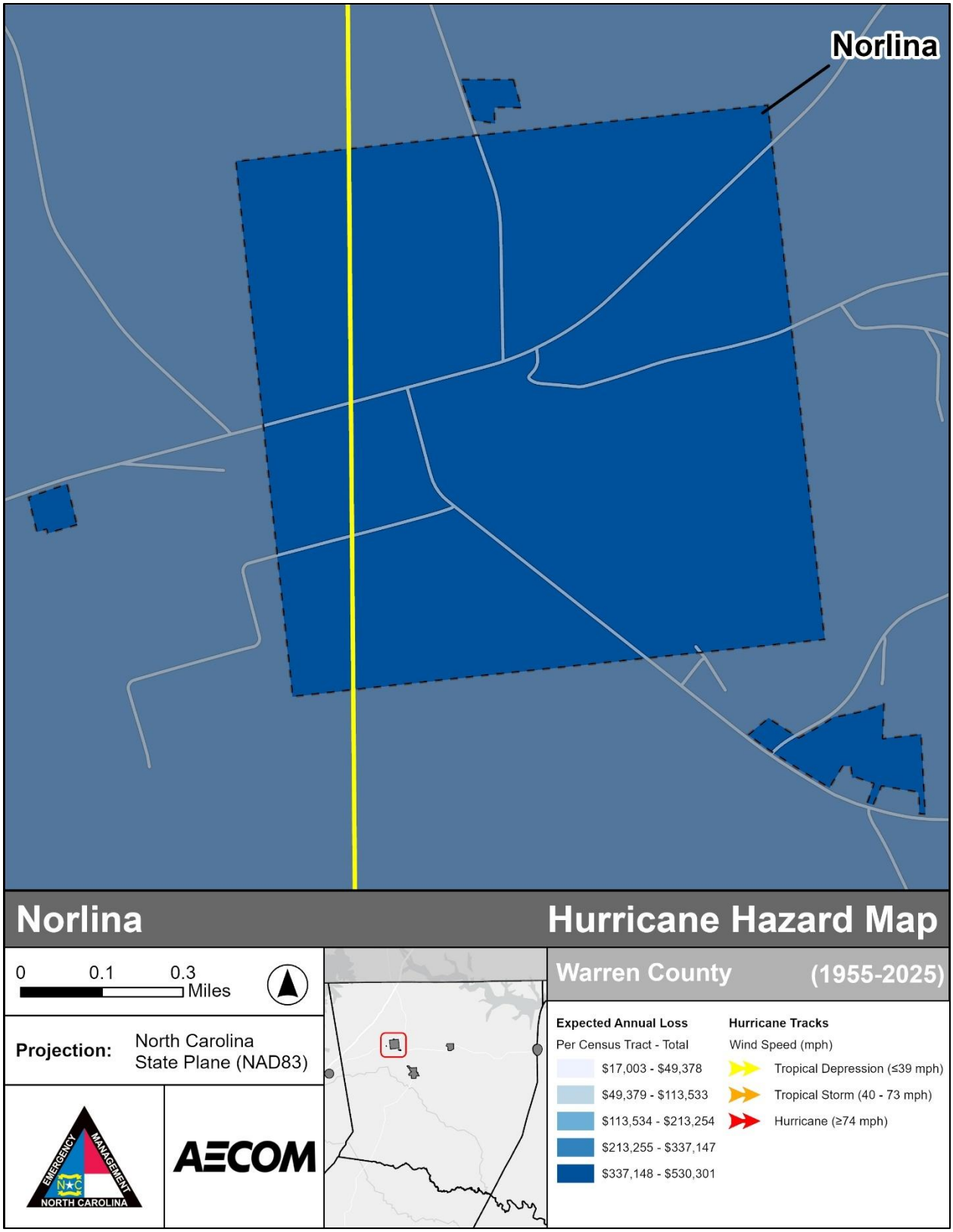


Figure 5-79: Hurricane Hazard Map – Norlina

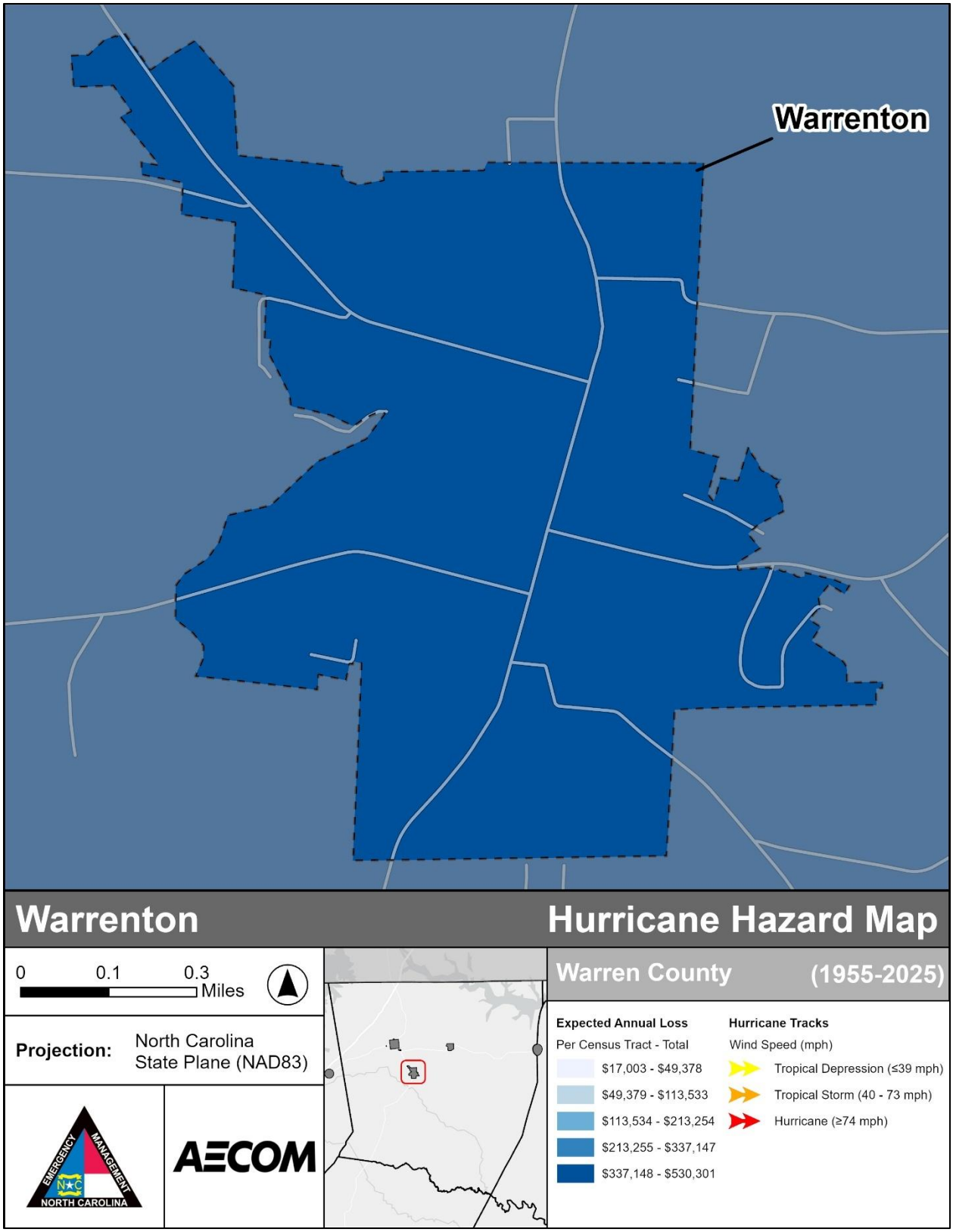


Figure 5-80: Hurricane Hazard Map - Warrenton

5.6.3. Extent

Hurricane extent is defined by the Saffir-Simpson Scale, which classifies hurricanes into Category 1 through Category 5. The most significant hurricane impact the Region has experienced was Hurricane Hazel in 1954, which was classified as a Category 4 hurricane before crossing Franklin County as a post-tropical storm, carrying tropical-force winds of 80 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:

Table 5-26: Most Intense Hurricane by Maximum One-Minute Mean Sustained Wind Speed (Knots) in Each County of the Tar River Region[37]

	Franklin	Granville	Vance	Warren
Storm Name	Hurricane Hazle	Hurricane Diane	Hurricane Cleo	Unnamed
Date	1954-10-15	1955-08-18	1964-08-31	1944-10-20
Max Wind Speed in County (1-min. mean in knots)	80	50	30	43
Saffir-Simpson Hurricane Scale* at Time of County Impact	Post Tropical	Tropical Storm (0)	Tropical Depression (-1)	Post Tropical

*Post Tropical: A cyclone that no longer possesses sufficient tropical characteristics to be considered a tropical cyclone. Post-tropical cyclones can continue to carry heavy rains and high winds. Note: former tropical cyclones that become extratropical and remnant lows are two specific classes of post-tropical cyclones.[39]

[39] National Oceanic and Atmospheric Administration. (n.d.). *Tropical Definitions*. National Weather Service. https://www.weather.gov/mob/tropical_definitions

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 differing impacts of 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 from the NCEI Storm Event Database is available for the major storms that have impacted the area between 1996 and 2025, as found below. There was one reported death in Franklin County during a Hurricane event on 9/18/2003; otherwise, there were no reported injuries or crop damage in the region. Reported property damage is included in the table below.

Table 5-27: Hurricanes and Tropical Storms Reported from 1996 to 2025 by the NCEI Storm Events Database[40]

County	Date	Event Type (Name)	Property Damage	Event Narrative	Episode Narrative
Granville	7/12/1996	Hurricane (Bertha)	$0	Hurricane Bertha moved along the edge of the National Weather Service Forecast Office (NWSFO) Raleigh county warning area. Three counties sustained substantial crop damage: Wayne, $12 million; Wilson, $7 million; and Johnston, $2 million. Structural damage was light and was primarily caused by trees on homes and cars. The hardest hit county was Wayne, where property damage was estimated at $500k. Power outages were widespread in the eastern counties as trees took down power lines. Two F0 tornadoes occurred: one in Wake and one in Wilson counties. No injuries or deaths were reported. The highest wind recorded was 60 mph at Seymour Johnson Air Force Base (AFB) near Goldsboro. The greatest rainfall was four inches, also at the AFB.	
Warren	7/12/1996		$0		
Franklin	7/12/1996		$0		
Vance	7/12/1996		$0		
Vance	9/5/1996	Hurricane (Fran)	$0	Hurricane Fran was the worst natural economic disaster in North Carolina's history. In the RAH county warning area, damage exceeded $2 billion. Damage to crops, livestock, farm equipment/buildings was over 400 million. The agricultural damage was the greatest in Sampson, Johnston, and Wayne counties. Several hundred thousand trees were uprooted or broken. Tens of thousands of homes were damaged by falling trees. In the path of the storm's center, almost every neighborhood was affected. The copious rainfall produced many severe flash and river floods. The flooding on the Haw River at the town of Haw River, the Neuse River at Smithfield and Goldsboro, and the Tar River at Louisburg and Rocky Mount, all neared or exceeded the highest flood on record. Many homes in the floodplain had to be evacuated. The most massive	
Franklin			$0		

[40] National Center for Environmental Information (NCEI). (2025). *Storm Events Database* [Tabular]. National Oceanic and Atmospheric Administration. https://www.ncei.noaa.gov/stormevents/

County	Date	Event Type (Name)	Property Damage	Event Narrative	Episode Narrative
Granville			$0	evacuation occurred in Goldsboro, where residents of 550 homes had to be moved to public shelters. Hundreds of cars in Goldsboro were damaged by water, many of them underwater with only their radio antennas visible. Many homes and businesses incurred heavy losses. Along the Crabtree Creek in Raleigh, which crested at its highest since 1973, hundreds of new cars from local dealerships floated in 6 feet of water. Scores of businesses reported heavy damage at the area's largest shopping center. The bare necessities of life were missing for several days: milk, bread, drinking water, power, and telephone service. It took more than 10 days for power to be restored in many areas. Schools were closed for a week in the hardest-hit counties. Automobile travel was hazardous for days after the storm due to fallen and falling trees. Twelve days after the event, 150 secondary roads were still closed.	
Warren			$0		
Franklin	8/27/1998	Hurricane (Bonnie)	$0	Hurricane Bonnie made landfall along the southern coast of North Carolina. Only fringe effects were felt in the state's central sections. Rainbands associated with Bonnie spread inland as far west as Louisburg...Raleigh...Raven Rock...Fort Bragg...and Fayetteville. Torrential rains and strong gusty winds accompanied the rainbands through the night on the 27th and into the daylight hours on the 28th. The strongest winds were recorded over Sampson and Wayne counties, where gusts over 50 mph occurred. Elsewhere, gusts to 40 mph were observed within the rainbands. Damage was sporadic and confined to the southeast portions of central North Carolina. About 20 roads were blocked for several hours in Harnett County, and numerous trees were blown down across Sampson, Wayne, Johnston, Wilson, Harnett, and Cumberland counties. About 10,000 people lost power in these areas at some point during the storm. Tobacco losses were extensive. The estimated total value of the tobacco crop lost due to Bonnie ranged from $25 to $50 million. Rainfall amounts averaged 2 to 4 inches over the eastern Piedmont and Sandhills, with amounts dropping rapidly west of Raleigh and Fayetteville. For example, downtown Raleigh recorded around 2 inches of rain while the Raleigh/Durham Airport, 10 miles west of downtown, recorded only 1/3 of an inch. Elsewhere, some of the higher amounts included: Wilson, 4.94 inches; Clinton, 4.45 inches; Goldsboro, 3.74 inches; Erwin, 2.80 inches; Clayton, 2.76 inches; Rocky Mount, 2.74 inches; and Fayetteville, 2.17 inches.	
Vance	9/4/1999	Hurricane (Dennis)	$0	After meandering off the coast and ruining the Labor Day weekend for millions, the remnants of Dennis finally moved inland across the central portion of the state. Its main impact was to end the drought in the eastern half of the state. The Triangle received from 6 to 8 inches of rain, with Chapel Hill peaking at 12 inches. The I-40 corridor of counties also received totals in the 6- to 10-inch range. This water caused considerable urban and lowland flooding. Several mainstem rivers also went into flood. The winds with the	
Warren			$0		
Franklin			$0		

County	Date	Event Type (Name)	Property Damage	Event Narrative	Episode Narrative
Granville			$0	remnants of Dennis were generally not a significant problem. Many old, larger trees were uprooted, and widespread limb damage was reported. However, the wind and rain caused considerable crop damage.	
Warren	9/15/1999	Hurricane (Floyd)	$0	Hurricane Floyd produced more human misery and environmental impact in North Carolina than any disaster in memory. The 15-20 inches of rain that fell across the eastern half of the state caused every river and stream to flood. Many rivers set new flood records. Whole communities were underwater for days, even weeks, in some areas. Thousands of homes were lost. Crop damage was extensive. The infrastructure of the eastern counties, mainly roads, bridges, water plants, etc., was heavily damaged. By the end of 1999, $1.5 billion had already been spent, with estimates that the cost would reach $3-4 billion. The counties within the Raleigh County warning area likely accounted for more than half of the state's total. Even worse was the loss of life, mainly due to flooding. Many Carolinians did not heed the call to evacuate, and many more drove into flooded streams and rivers. In the central part of the state, 21 people lost their lives. Also, livestock losses were significant, mainly swine and poultry. Floyd will indeed go down in history.	
Granville			$0		
Vance			$0		
Franklin			$0		
Franklin	9/18/2003	Hurricane (Isabel)	$209,000	Hurricane Isabel made landfall along the Outer Banks just north of Cape Lookout around 1 pm on September 18, 2003. The eye of the storm tracked northeast, passing over eastern Halifax County. Winds gusting to near Hurricane force were recorded over Halifax County. Many locations across the Coastal Plain and even back into the Triangle received wind gusts between 50 and 70 mph late in the afternoon until early evening. Many trees were uprooted, falling on vehicles and homes across the area. One person was killed in Franklin County when their vehicle struck a downed tree. Up to 6 inches of rain fell across Edgecombe, Halifax, and Wilson counties, causing flooding on several roads.	
Vance			$369,000		
Granville			$254,000		
Warren			$270,000		
Franklin	9/1/2006	Tropical Storm (Ernesto)	$0	Tropical Storm Ernesto produced high winds countywide. Emergency officials reported numerous downed trees and large tree limbs.	
Franklin	9/13/2018	Tropical Storm (Hurricane Florence)	$500,000	Frequent wind gusts of 30 to 50 mph resulted in numerous trees down across Franklin County, including on homes, cars, power lines, and damage to structures. Numerous customers lost power in Franklin County as a result of the tropical storm-force winds.	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

County	Date	Event Type (Name)	Property Damage	Event Narrative	Episode Narrative
					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.
Granville	10/11/2018	Tropical Storm (Michael)	$500,000	Tropical storm wind gusts downed numerous trees, caused widespread power outages, and produced a variety of damage to homes throughout the county.	Tropical Storm Michael moved through North Carolina on Thursday, October 11th. Michael brought heavy rain and strong, damaging winds to central North Carolina. While heavy rainfall of 3 to 6 inches produced minor flash flooding across the area, high wind gusts of 40 to 60 mph caused the most significant problems, knocking down a score of trees, blocking roadways, and leaving thousands without power.
Vance			$500,000	Tropical storm wind gusts downed numerous trees, caused widespread power outages, and produced a variety of damage to homes throughout the county. An apartment complex in Henderson was evacuated when a gas line was damaged by a downed tree.	
Warren			$250,000	Tropical storm wind gusts downed numerous trees, caused widespread power outages, and produced a variety of damage to homes throughout the county.	
Franklin			$250,000	Tropical storm wind gusts downed numerous trees, caused widespread power outages, and produced a variety of damage to homes throughout the county.	
Warren	8/4/2020	Tropical Storm	$250,000	Frequent wind gusts of 30 to 40 mph caused scattered trees and power lines to come	Hurricane Isaias made landfall in southeastern North Carolina and then moved north through coastal North Carolina.

County	Date	Event Type (Name)	Property Damage	Event Narrative	Episode Narrative
		(Hurricane Isaias)		down across Warren County, including some on structures. This led to power outages in Warren County due to tropical storm-force winds.	Significant rain fell across the Coastal Plain, Sandhills, and eastern Piedmont of North Carolina as Isaias moved northward through the state, accompanied by gusty winds of 50 to 60 miles per hour. Isaias produced two to five inches of rain across much of eastern NC, resulting in flash flooding and minor flooding along the Neuse River.
Franklin			$250,000	Frequent wind gusts of 30 to 40 mph resulted in scattered trees and power lines down across Franklin County, including some on structures. This led to power outages in Franklin County due to tropical-storm-force winds.	
Granville			$5,000	A couple of trees were reported down across the county due to high winds from Tropical Cyclone Isaias. One tree was reported down near the intersection of Highway 15 and Munns Road, and the other tree down was located in the 2600 block of Brogden Road.	
Franklin	9/30/2022	Tropical Storm (Hurricane Ian)	$750,000	Frequent wind gusts of 40 to 60 mph resulted in scattered to numerous trees and power lines down across Franklin County, including some on homes. Numerous customers lost power in Franklin County as a result of the tropical storm-force wind gusts.	Hurricane Ian made landfall along the South Carolina coast near Georgetown during the early afternoon hours of September 30, 2022. Widespread wind gusts over tropical storm force and heavy rainfall occurred across much of central North Carolina through the afternoon and evening hours. There were numerous reports of wind damage and power outages due to the storm.

The following are summaries of notable hurricanes that have occurred in the planning area:

Hurricane Ian: 9/30/2022

According to the NC State Climate Office (NCSCO) Hurricane Ian Climate Blog post,[41] the hurricane's remnants passed through NC and SC on Friday and Saturday, and inland. The storm made landfall in Georgetown, SC, as a Category 1 storm, resulting in impacts across NC. While the hurricane affected areas across NC, the impacts were recorded in the NCEI Storm Events Database only for Franklin County. According to the Storm Events Database, in Franklin County, tropical storm-force winds and frequent gusts of 40–60mph caused Numerous trees and power lines to be downed across the county, including on some homes. The impacts caused approximately $750,000 of damage in Franklin County alone.[42]



Figure 5-81: Hurricane Ian Satellite Imagery from September 30, 2022, at 9 am.[43]

[41] Davis, C., North Carolina State Climate Office [NCSCO], & North Carolina State University [NCSU]. (2022, October 3). Rapid reaction: Windy, wet Ian sweeps through North Carolina - North Carolina State Climate Office. North Carolina State Climate Office - A Public Service Center. Retrieved January 13, 2026, from https://climate.ncsu.edu/blog/2022/10/rapid-reaction-windy-wet-ian-sweeps-through-north-carolina/

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

[43] Davis, C., North Carolina State Climate Office [NCSCO], & North Carolina State University [NCSU]. (2022, October 3). Rapid reaction: Windy, wet Ian sweeps through North Carolina - North Carolina State Climate Office. *North Carolina State Climate Office - A Public Service Center*. Retrieved January 13, 2026, from https://climate.ncsu.edu/blog/2022/10/rapid-reaction-windy-wet-ian-sweeps-through-north-carolina/

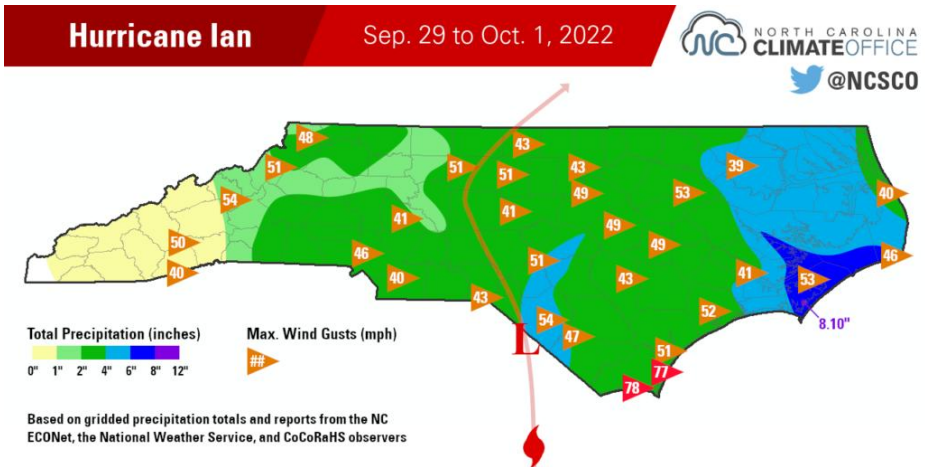


Figure 5-82: Hurricane Ian Impacts Across NC from the NC Climate Office[44]

Hurricane Isaias: 8/4/2020

Hurricane Isaias reached southeast NC before moving north through coastal NC. Isaias brought significant rain to the Coastal Plain, Sandhills, and eastern Piedmont, along with 50–60mph wind gusts. According to the NCEI Storm Events Database, $250,000 in damage was reported in Warren County when frequent gusts of 30-40mph scattered trees and downed power lines, leading to power outages across the county. Franklin County also had approximately $250,000 in damages attributed to Hurricane Isaias, resulting from frequent 30-40mph gusts that led to power outages, scattered trees, and downed power lines, some of which landed on structures. Granville County had significantly lower reported damage, including a few trees downed due to high winds and one tree down on Highway 15 and Munns Road.

Tropical Storm Michael: 10/11/2018

Tropical Storm Michael reached NC on October 11, 2018, bringing heavy rain and damaging winds to central NC. Heavy rain was reported across central NC, with 2 to 6 inches of rain, causing flash flooding in some areas. High winds were reported between 40 and 60mph, knocking down trees, blocking roads, and leaving thousands without power across the planning area and NC. According to the NCEI Storm Events Database, Granville County had $500,000 in damages, Vance County had $500,000 in damages, Warren County had $250,000 in damages, and Franklin County had $250,000 in damages.

[44] Davis, C., North Carolina State Climate Office [NCSCO], & North Carolina State University [NCSU]. (2022, October 3). Rapid reaction: Windy, wet Ian sweeps through North Carolina - North Carolina State Climate Office. North Carolina State Climate Office - A Public Service Center. Retrieved January 13, 2026, from https://climate.ncsu.edu/blog/2022/10/rapid-reaction-windy-wet-ian-sweeps-through-north-carolina/

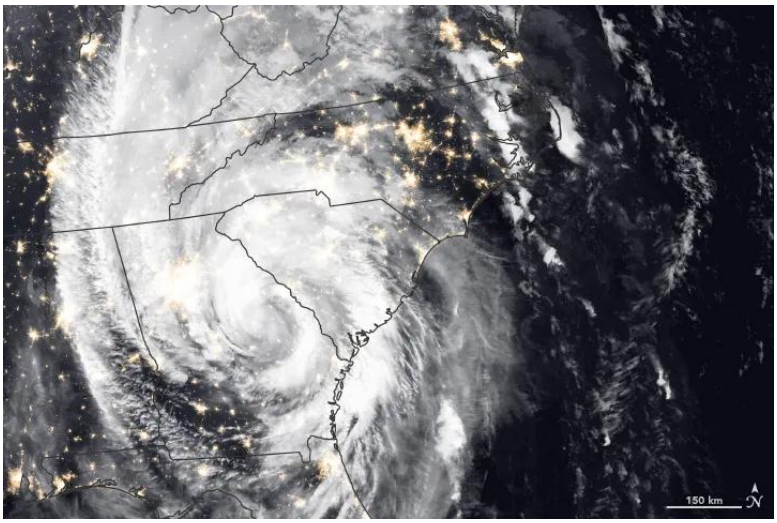


Figure 5-83: Hurricane Michael Imagery from the National Aeronautics and Space Administration (NASA) Earth Observatory[45]

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, Franklin County has an annualized hurricane frequency of 0.19, a total EAL of $2,071,344, an EAL Score of 73.11, and a Hazard Risk Index Score of 76.4. In unincorporated areas, the average annualized frequency is 0.201 events per year; the total EAL is $776,072; the average EAL Score is 61.71; and the average Hazard Risk Index Score is 63.43. The jurisdictions with the highest total EAL are Youngsville ($533,493), Louisburg ($447,885), and Franklinton ($462,062).

Granville County has an annualized hurricane occurrence frequency of 0.15, a total EAL of $4,173,564, an EAL Score of 79.25, and a Hazard Risk Score of 82.55. The unincorporated areas of Granville County have an annualized frequency of 0.153, a total EAL of $604,591, an average EAL Score of 66.4, and an average Hazard Risk Index Score of 69.08. The jurisdictions with the highest total EAL are Oxford ($1,322,501), Butner ($1,279,072), and Creedmoor ($1,116,713).

Vance County has an annualized frequency of 0.15 events, a total EAL of $2,476,810, an EAL Score of 74.23, and a Hazard Risk Index Score of 79.18. The unincorporated areas in Vance County have an average annual frequency of 0.145 events, a total EAL of $412,150, an EAL Score of 66.82, and an average Hazard Risk Index Score of 79.18. The jurisdiction with the highest total EAL is Henderson ($1,835,680), followed by Kittrell ($292,522) and Middleburg ($228,978).

Warren County has an annualized frequency of 0.17 events, a total EAL of $2,844,408, an EAL Score of 75.66, and a Hazard Risk Index Score of 81.16. The unincorporated areas of Warren

[45] NASA Earth Observatory, & Patel, K. (2018a, October 11). Hurricane Michael Reaches North Carolina - NASA Science. NASA Science. Retrieved January 14, 2026, from https://science.nasa.gov/earth/earth-observatory/hurricane-michael-reaches-north-carolina-92873/

County have an average annualized frequency of 0.159 events per year, a total EAL of $555,288, an average EAL Score of 76.03, and an average Hazard Risk Index Score of 81.71. The jurisdiction with the highest total EAL is Macon ($735,036), followed by Warrenton ($680,422) and Norlina ($570,441).

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 Index Rating
Franklin County (Unincorporated Area)	**0.201**	**$776,072**	**61.71**	**Relatively High**	**63.43**	**Relatively High**
Bunn	0.210	$122,890	66.07	Relatively High	71.16	Relatively High
Franklinton	0.158	$462,063	61.92	Relatively High	64.63	Relatively High
Louisburg	0.199	$447,885	73.82	Relatively High	80.49	Very High
Youngsville	0.158	$533,493	76.44	Relatively High	77.38	Relatively High
Franklin County Total	**0.19**	**$2,071,345**	**73.11**	**Relatively High**	**76.40**	**Relatively High**
Granville County (Unincorporated Area)	**0.153**	**$604,591**	**66.40**	**Relatively High**	**69.08**	**Relatively High**
Butner	0.158	$1,279,072	75.13	Relatively High	78.17	Relatively High
Creedmoor	0.158	$1,116,714	76.31	Relatively High	76.73	Relatively High
Oxford	0.154	$1,322,501	78.68	Relatively High	82.98	Very High
Stem	0.158	$391,521	80.73	Very High	81.57	Very High
Stoval	0.140	$369,666	80.09	Very High	82.10	Very High
Granville County Total	**0.15**	**$4,173,564**	**79.25**	**Relatively High**	**82.55**	**Very High**
Vance County (Unincorporated Area)	**0.145**	**$412,151**	**66.82**	**Relatively High**	**68.67**	**Relatively High**
Henderson	0.145	$1,835,681	73.37	Relatively High	79.37	Relatively High
Kittrell	0.158	$292,522	77.58	Relatively High	82.72	Very High
Middleburg	0.140	$228,978	74.65	Relatively High	77.92	Relatively High
Vance County Total	**0.15**	**$2,476,810**	**74.23**	**Relatively High**	**79.18**	**Relatively High**
Warren County (Unincorporated Area)	**0.159**	**$555,288**	**76.03**	**Relatively High**	**81.71**	**Very High**
Macon	0.170	$735,036	79.85	Relatively High	83.17	Very High
Norlina	0.165	$570,442	84.41	Very High	88.05	Very High
Warrenton	0.169	$680,422	85.99	Very High	91.13	Very High
Warren County Total	**0.17**	**$2,844,408**	**75.66**	**Relatively High**	**81.16**	**Very High**

5.6.6. Consequence and Impact Analysis

People

Hurricanes may affect people in several ways, including death, injury, 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 (3.6% in Franklin County, 3.5% in Granville County, 8.2% in Vance County, and 8.3% in Warren County[46]), have a disability (16.5% in Franklin County, 16.2% in Granville County, 18.9% in Vance County, and 21.2% in Warren County), or have an independent living difficulty (7.8% in Franklin County, 6.3% in Granville County, 9.0% in Vance County, and 9.6% in Warren County).[47] To ensure residents in the planning area can evacuate promptly, emergency services should consider developing specialized evacuation plans to assist people 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 8.0% of housing units in Franklin County, 5.7% in Granville County, 10.8% in Vance County, and 14.7% in Warren County lack computing devices, further limiting residents' access to public awareness information. Additionally, an estimated 11.6% of households in Franklin County, 11.0% in Granville County, 17.4% in Vance County, and 23.0% in Warren County lack internet subscriptions, limiting 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% in Franklin County, 1.4% in Granville County, 1.4% in Vance County, and 1.4% in Warren County), which means these residents may lack access to critical, time-sensitive emergency alerts.

- Develop a plan to ensure that all residents have a way to receive emergency alerts and inform residents about the different ways they can receive them.
- Ensure that all residents have an evacuation plan and that individuals who require extra assistance can be assisted during an evacuation.

Changes in Development

Depending on a tropical storm or hurricane's strength, structural damage to buildings may occur. A weak tropical storm may cause no damage whatsoever. The most likely impact from a

[46] U.S. Census Bureau. (2023). *Selected Housing Characteristics* (No. ACSDP5Y2023.DP04; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSDP5Y2023.DP04
[47] U.S. Census Bureau. (2023). *Disability Characteristics* (No. ACSST5Y2023.S1810; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S1810

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 are 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 (23.2% of housing units in Franklin County, 17.9% in Granville County, 25.0% in Vance County, and 39.7% in Warren County) or Boats, RVs, and Vans (0.2% of housing units in Franklin County, 0.0% in Granville County, 0.0% in Vance County, and 0.1% in Warren County) may be at a higher risk of damage during hurricanes and tropical storms.[48] 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.

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, including roads, water, power, and municipal buildings, affects all jurisdictions in the Region. Hurricanes and tropical storms can impose financial burdens on those affected in the planning area, including repair, replacement, and displacement costs, as well as the disruption of day-to-day activities.

Natural Environment

Hurricanes can devastate wooded ecosystems, removing all foliage from forest canopies and changing habitats so drastically that indigenous animal populations suffer. Specific foods may be removed because high winds 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.

First Responders

First responders responding to the impacts of a tropical storm or hurricane face many risks to their health and life safety. Responders risk injury or death during a storm event from flooding and high winds. Personnel or their families may be harmed, limiting their ability to respond. Downed trees, power lines, and floodwaters may prevent access to areas in need, thereby prolonging response time. Furthermore, hurricanes typically impact a large area, thereby increasing the number of emergency responses required.

[48] U.S. Census Bureau. (2023). *Selected Housing Characteristics* (No. ACSDP5Y2023.DP04; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSDP5Y2023.DP04

Future Conditions

According to the NCCSR,[49] 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 increased climate change impacts will likely be associated with higher frequencies and/or severities of hurricanes and tropical storms in the future.

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

5.7. 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.
- **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 stormwater system's capacity is exceeded or when the conveyance is obstructed by debris, sediment, or other materials that reduce drainage capacity.

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 used by communities to regulate their floodplains through the National Flood Insurance Program (NFIP). A 500-year flood is one that has a 0.2 percent chance of being equaled or exceeded in any given year. The potential for flooding can increase due to land-use changes and land-surface alterations that alter the floodplain. A change in the environment can create localized flooding inside and outside 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, known magnitudes, depths, and velocities for each event, and, in most cases, a map indicating where they will occur, they are, in many ways, the most predictable and manageable hazard.

The area adjacent to the channel is the floodplain, as shown in Figure 5-84. 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 form the floodplain floor. Floodplains generally contain unconsolidated sediments, often extending below the bed of the stream.

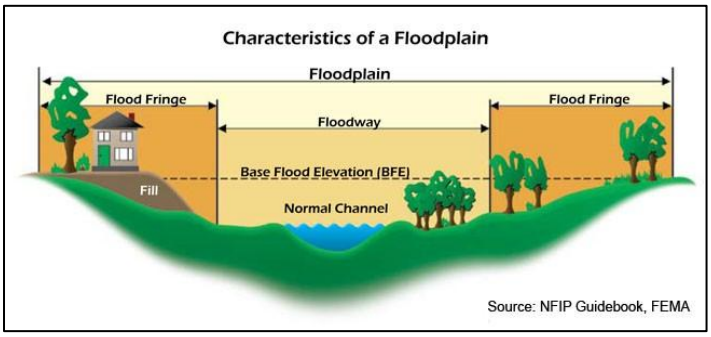


Figure 5-84: Characteristics of a Floodplain

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 Special Flood Hazard Areas (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 Digital Flood Insurance Rate Maps (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 Base Flood Elevations (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 with differing BFEs and possible wave effects, 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 are generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no 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 BFEs 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, and areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile. 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. SFHA in the Region were mapped using a Geographic Information System (GIS) and FEMA DFIRMs. 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 and County Boundaries

County	Jurisdiction	Total Flood Hazard Zone (miles^2)				
		0.2% Annual Chance Flood	Zone A	Zone AE	Zone AE (Floodway)	Zone X
Franklin County	Bunn	-	-	-	-	0.55
	Franklinton	-	-	0.06	-	2.27
	Louisburg	0.09	-	0.27	0.13	2.78
	Youngsville	-	-	0.04	-	3.07
	Unincorporated Area	1.64	-	30.49	5.82	447.16
	Franklin County Total	**1.73**	**0.00**	**30.86**	**5.95**	**455.83**
Granville County	Butner	0.15	-	0.26	0.08	13.43
	Creedmoor	0.01	-	0.42	0.25	5.00
	Oxford	0.08	-	0.26	0.13	7.25
	Stem	0.01	-	0.02	0.02	1.17
	Stovall	-	-	-	-	1.06
	Unincorporated Area	1.57	-	26.57	5.07	474.84

County	Jurisdiction	Total Flood Hazard Zone (miles^2)				
		0.2% Annual Chance Flood	Zone A	Zone AE	Zone AE (Floodway)	Zone X
	Granville County Total	**1.82**	**0.00**	**27.53**	**5.55**	**502.75**
Vance County	Henderson	0.08	-	0.16	0.03	8.36
	Kittrell	-	-	-	-	0.19
	Middleburg	-	-	-	-	0.79
	Unincorporated Area	0.23	-	32.51	0.76	225.60
	Vance County Total	**0.31**	**0.00**	**32.67**	**0.79**	**234.94**
Warren County	Macon	-	-	-	-	0.50
	Norlina	-	-	-	-	1.02
	Warrenton	-	-	0.03	-	0.93
	Unincorporated Area	0.61	-	34.93	4.39	401.92
	Warren County Total	**0.61**	**0.00**	**34.96**	**4.39**	**404.37**
Planning Area Total		**4.47**	**0.00**	**126.02**	**16.68**	**1597.89**

Table 5-31: Tar River Regional Flood Hazard Area as a Percent of Total Jurisdictional Land Area

Jurisdiction	Total Land Area	0.2% Annual Chance Flood	Zone A	Zone AE	Zone AE (Floodway)	Zone X
Bunn	0.55	0.0%	0.0%	0.0%	0.0%	100.0%
Franklinton	2.33	0.0%	0.0%	2.6%	0.0%	97.4%
Louisburg	3.27	2.8%	0.0%	8.3%	4.0%	85.0%
Youngsville	3.11	0.0%	0.0%	1.3%	0.0%	98.7%
Unincorporated Area	485.28	0.3%	0.0%	6.3%	1.2%	92.1%
Franklin County Total	**494.54**	**0.3%**	**0.0%**	**6.2%**	**1.2%**	**92.2%**
Butner	13.92	1.1%	0.0%	1.9%	0.6%	96.5%
Creedmoor	5.67	0.2%	0.0%	7.4%	4.4%	88.2%
Oxford	7.71	1.0%	0.0%	3.4%	1.7%	94.0%
Stem	1.22	0.8%	0.0%	1.6%	1.6%	95.9%

Jurisdiction	Total Land Area	0.2% Annual Chance Flood	Zone A	Zone AE	Zone AE (Floodway)	Zone X
Stovall	1.06	0.0%	0.0%	0.0%	0.0%	100.0%
Unincorporated Area	485.28	0.3%	0.0%	5.5%	1.0%	97.8%
Granville County Total	**514.86**	**0.4%**	**0.0%**	**5.3%**	**1.1%**	**97.6%**
Henderson	8.63	0.9%	0.0%	1.9%	0.3%	96.9%
Kittrell	0.19	0.0%	0.0%	0.0%	0.0%	100.0%
Middleburg	0.79	0.0%	0.0%	0.0%	0.0%	100.0%
Unincorporated Area	259.11	0.1%	0.0%	12.5%	0.3%	87.1%
Vance County Total	**268.72**	**0.1%**	**0.0%**	**12.2%**	**0.3%**	**87.4%**
Macon	0.5	0.0%	0.0%	0.0%	0.0%	100.0%
Norlina	1.02	0.0%	0.0%	0.0%	0.0%	100.0%
Warrenton	0.96	0.0%	0.0%	3.1%	0.0%	96.9%
Unincorporated Area	441.89	0.1%	0.0%	7.9%	1.0%	91.0%
Warren County Total	**444.37**	**0.1%**	**0.0%**	**7.9%**	**1.0%**	**91.0%**
Planning Area Total	**1,722.49**	**0.3%**	**0.0%**	**7.3%**	**1.0%**	**92.8%**

It is important to note that while FEMA digital flood data is recognized as the best available for planning, it does not always reflect the most accurate or 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:

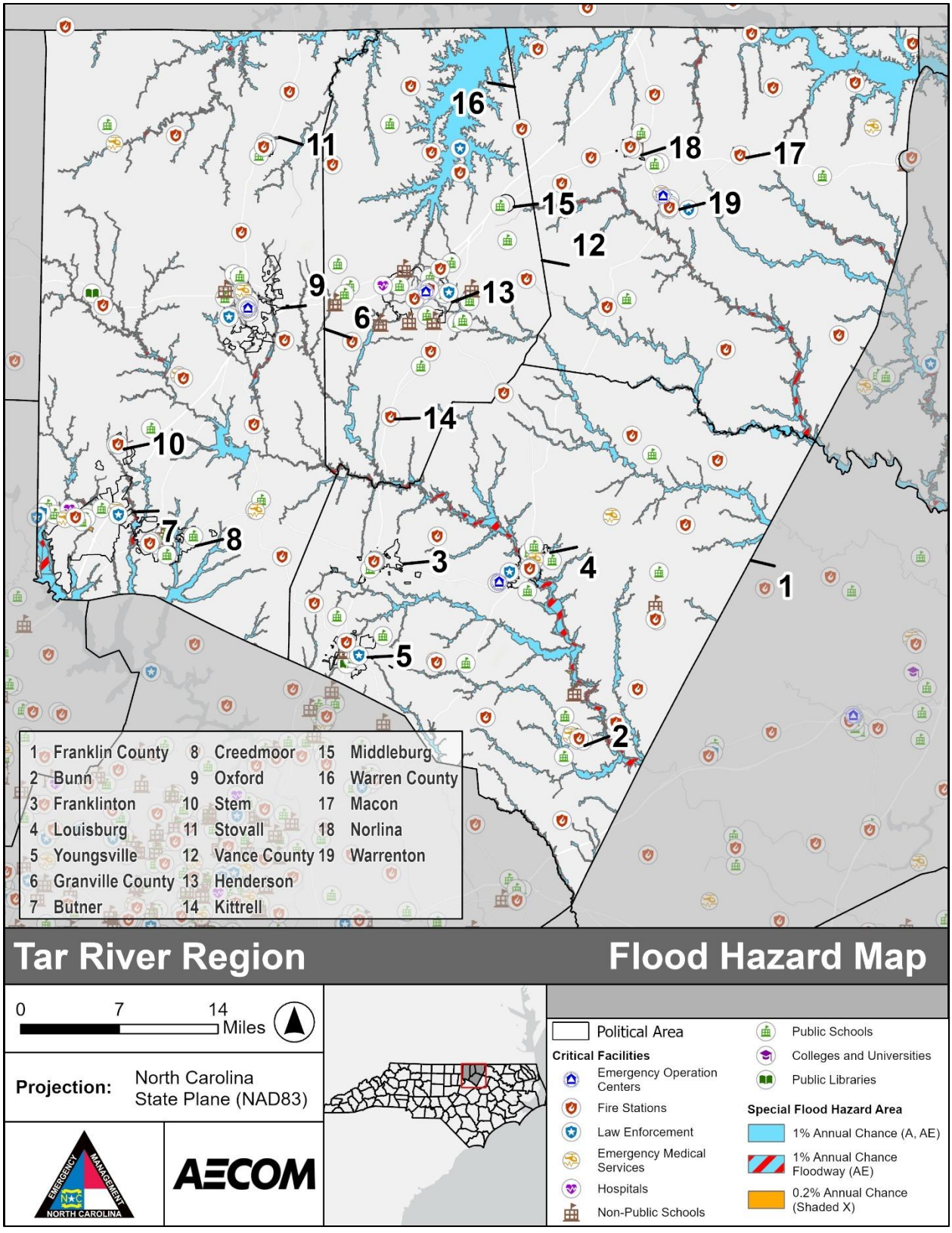


Figure 5-85: Flood Hazard Map - Tar River Region

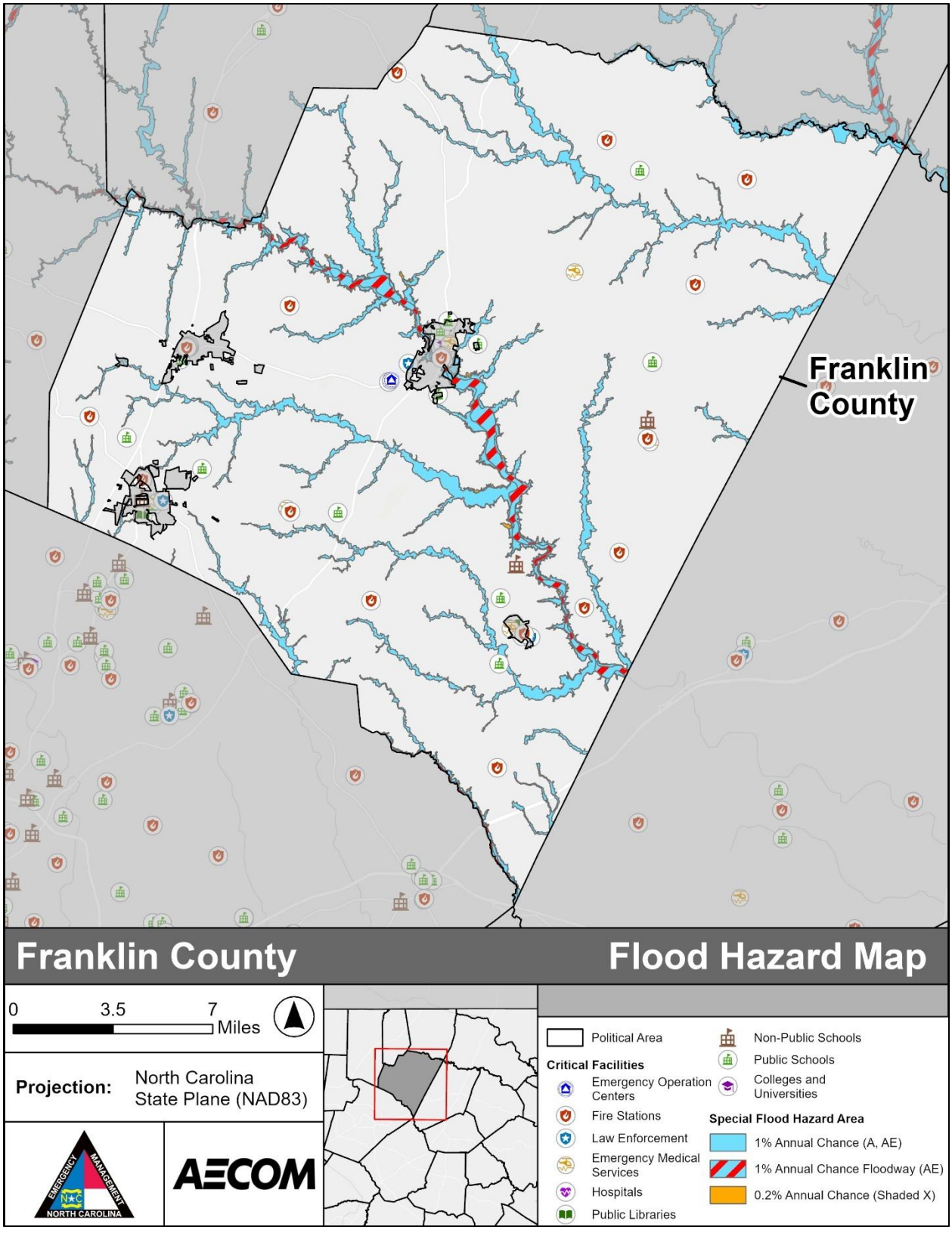


Figure 5-86: Flood Hazard Maps - Franklin County

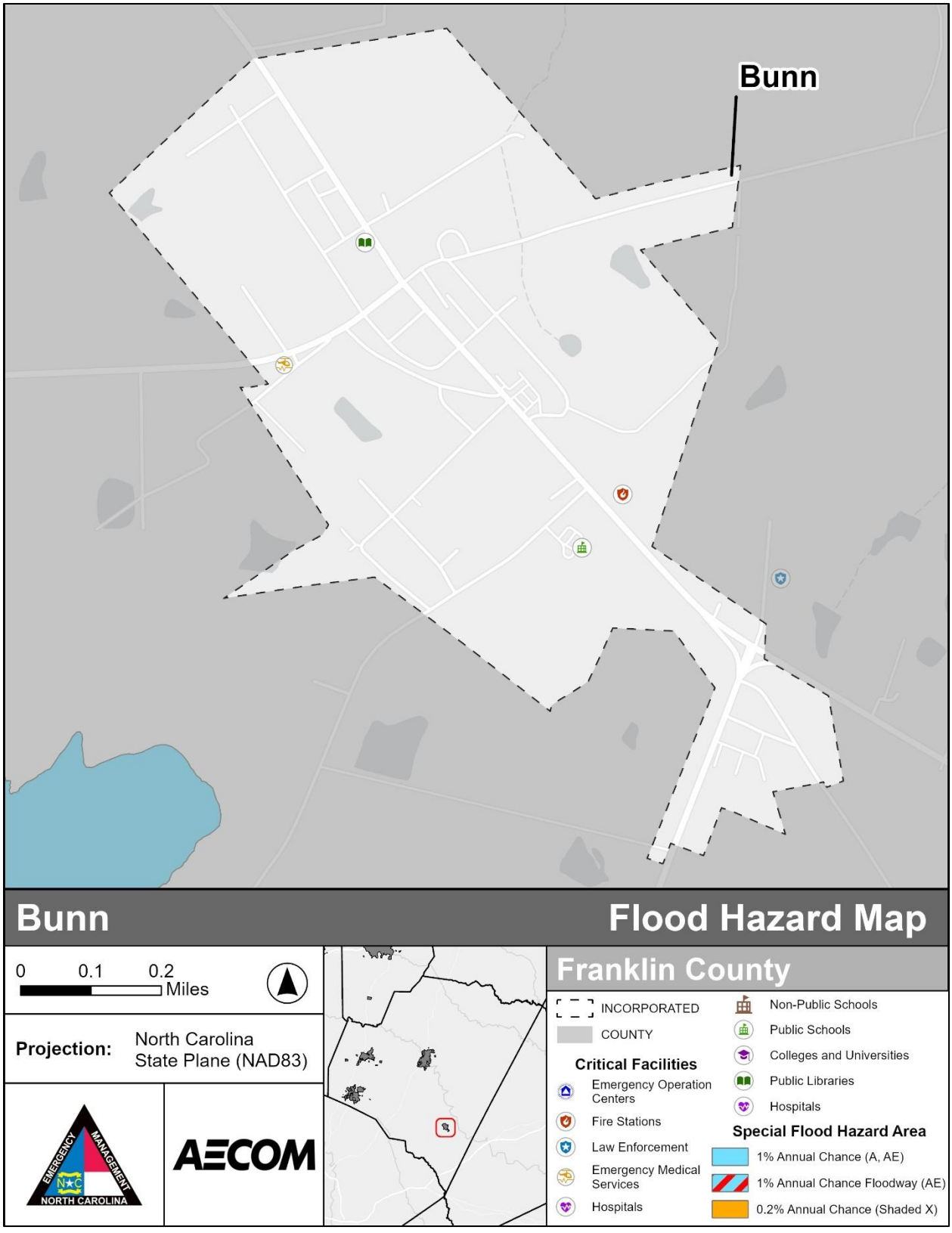


Figure 5-87: Flood Hazard Map - Bunn

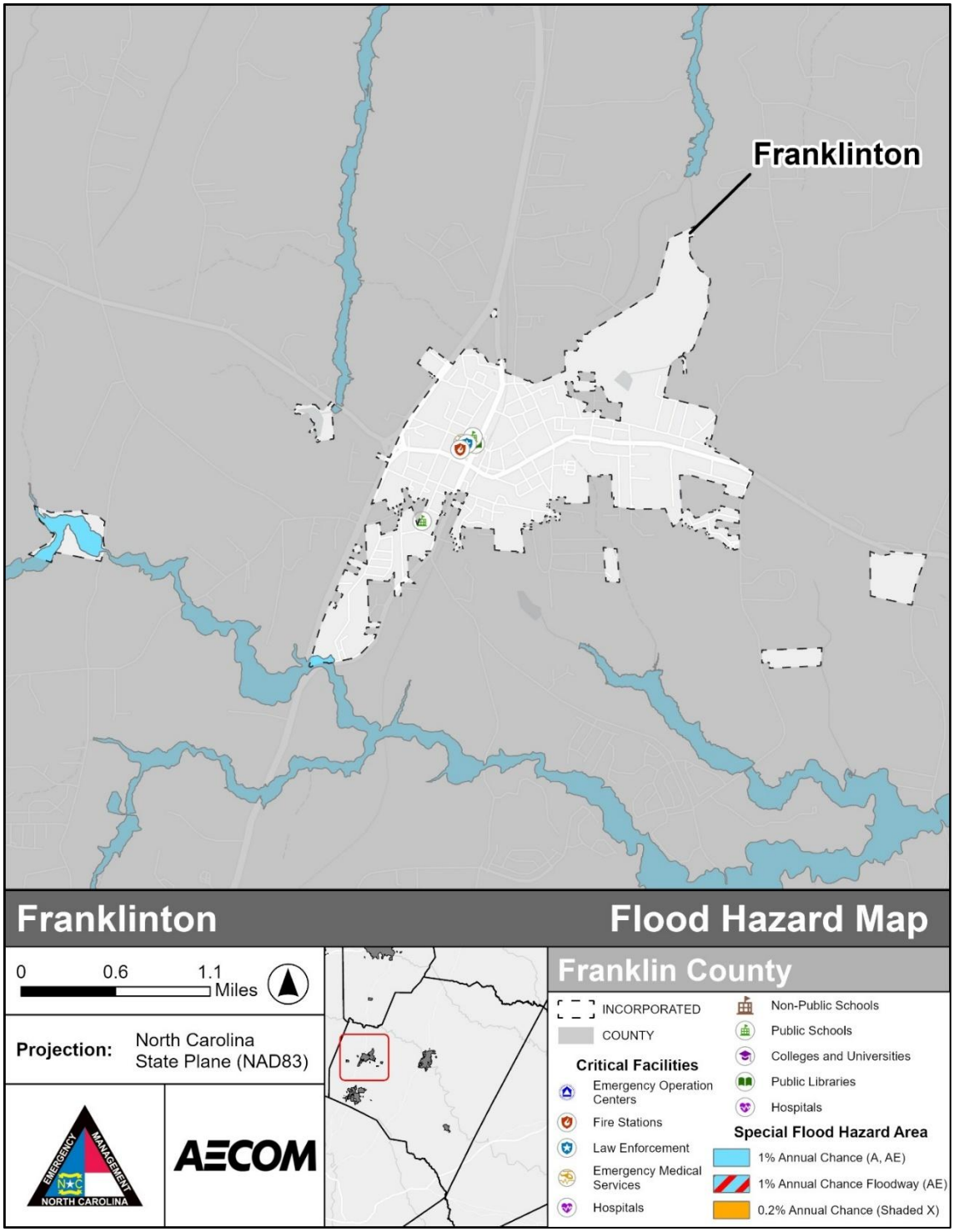


Figure 5-88: Flood Hazard Map - Franklinton[50]

[50] The Municipal Boundaries (2025) GIS layer obtained from NCDOT and used for the maps in this plan contained slightly outdated jurisdictional boundaries for the Town of Franklinton due to recent annexations between 2023 and 2025. However, given the map scale, hazard data can still be viewed for the missing incorporated areas of Franklinton. Please see Section 3 – Figure 3-29 for the Town of Franklinton's up-to-date boundary map, based on the incorporated boundary corrections from the U.S. Census Boundary and Annexations Survey.

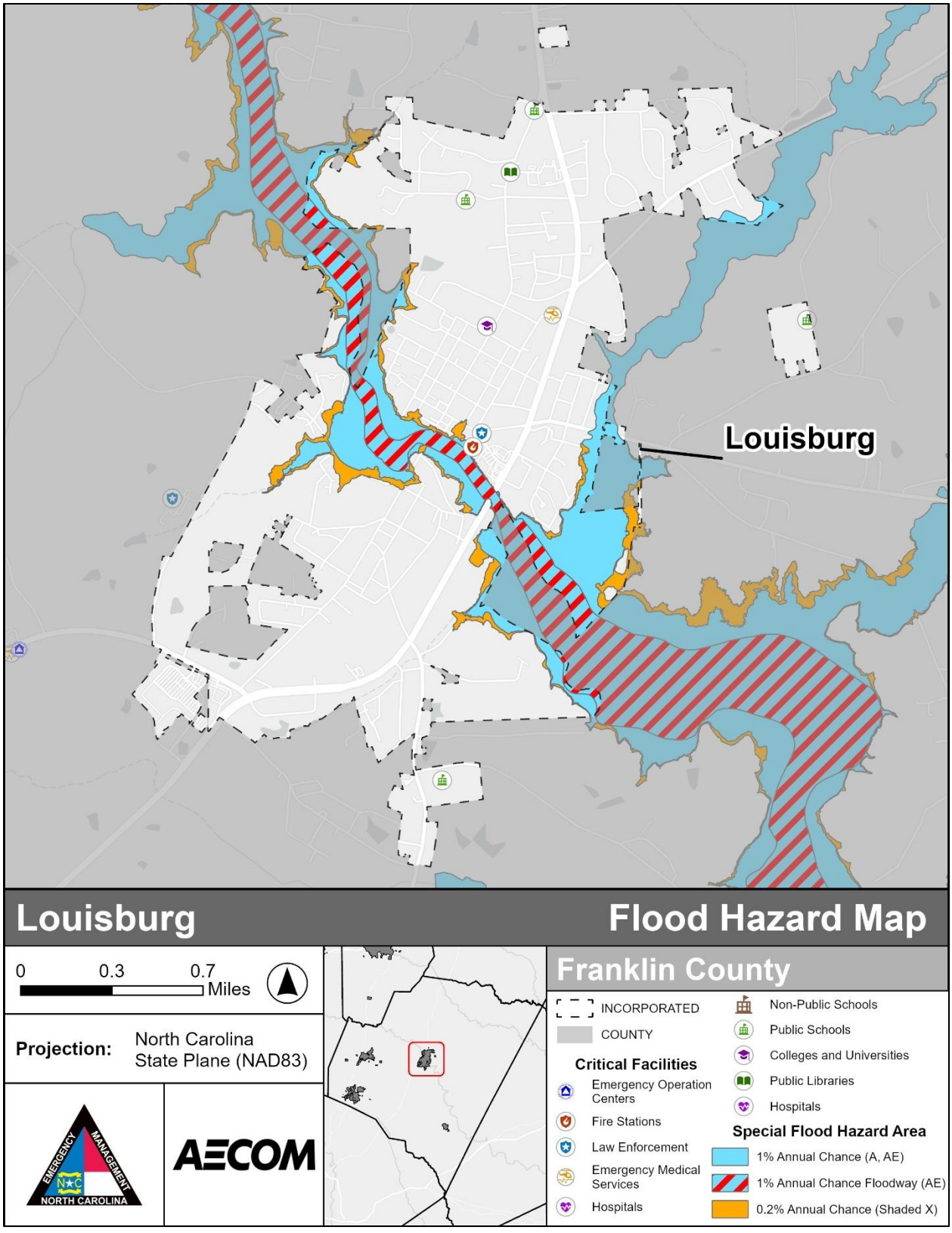


Figure 5-89: Flood Hazard Map - Louisburg

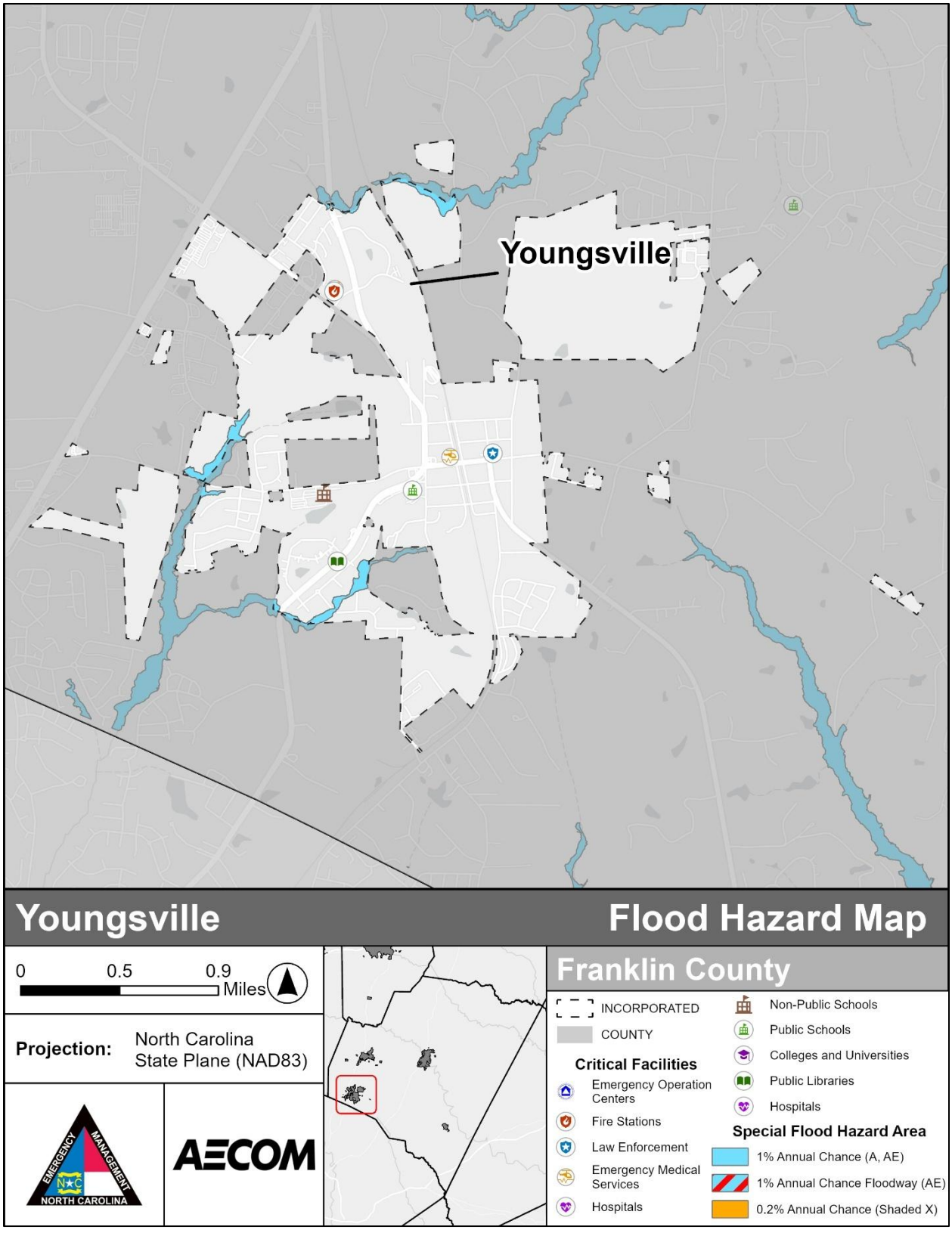


Figure 5-90: Flood Hazard Map - Youngsville

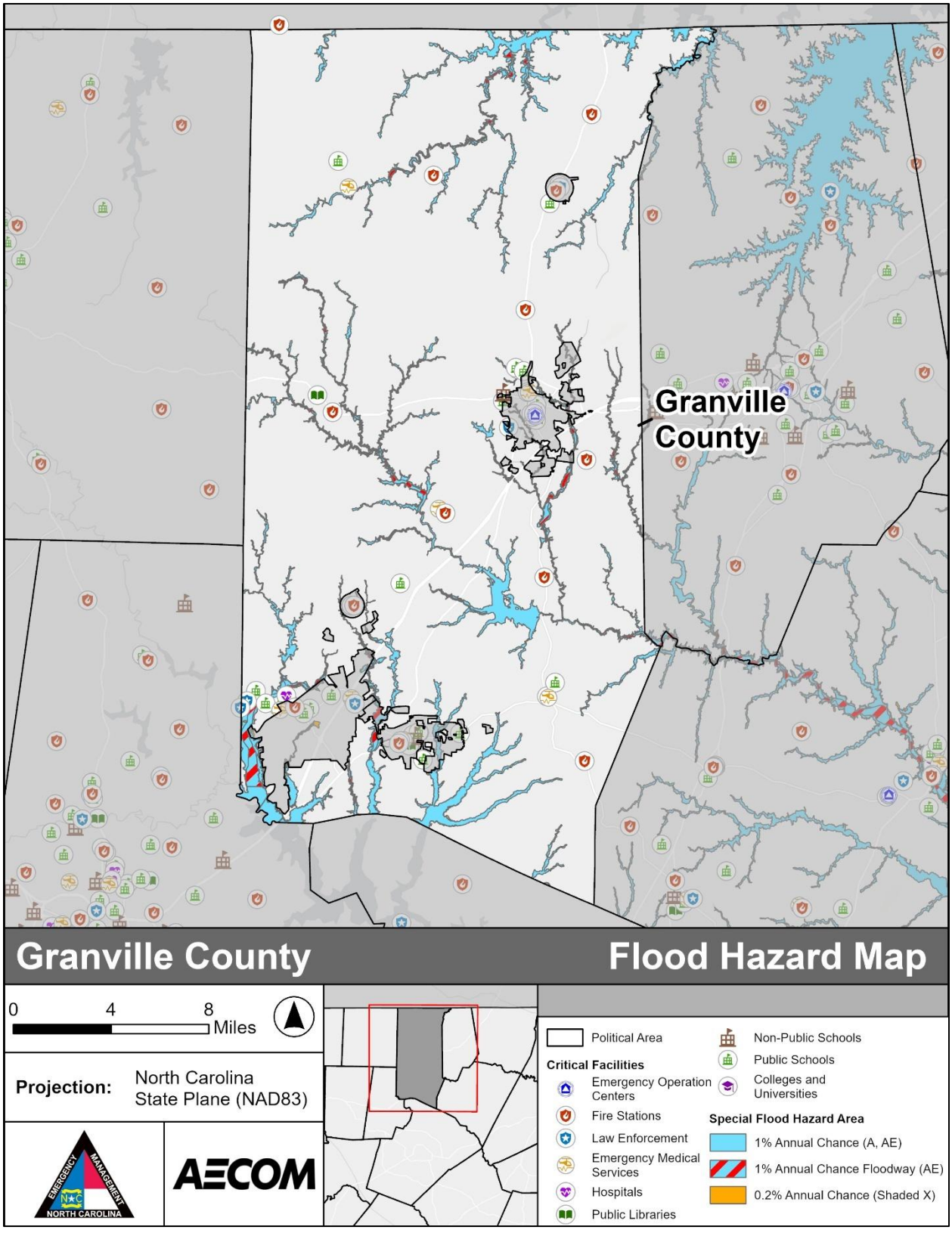


Figure 5-91: Flood Hazard Map - Granville County

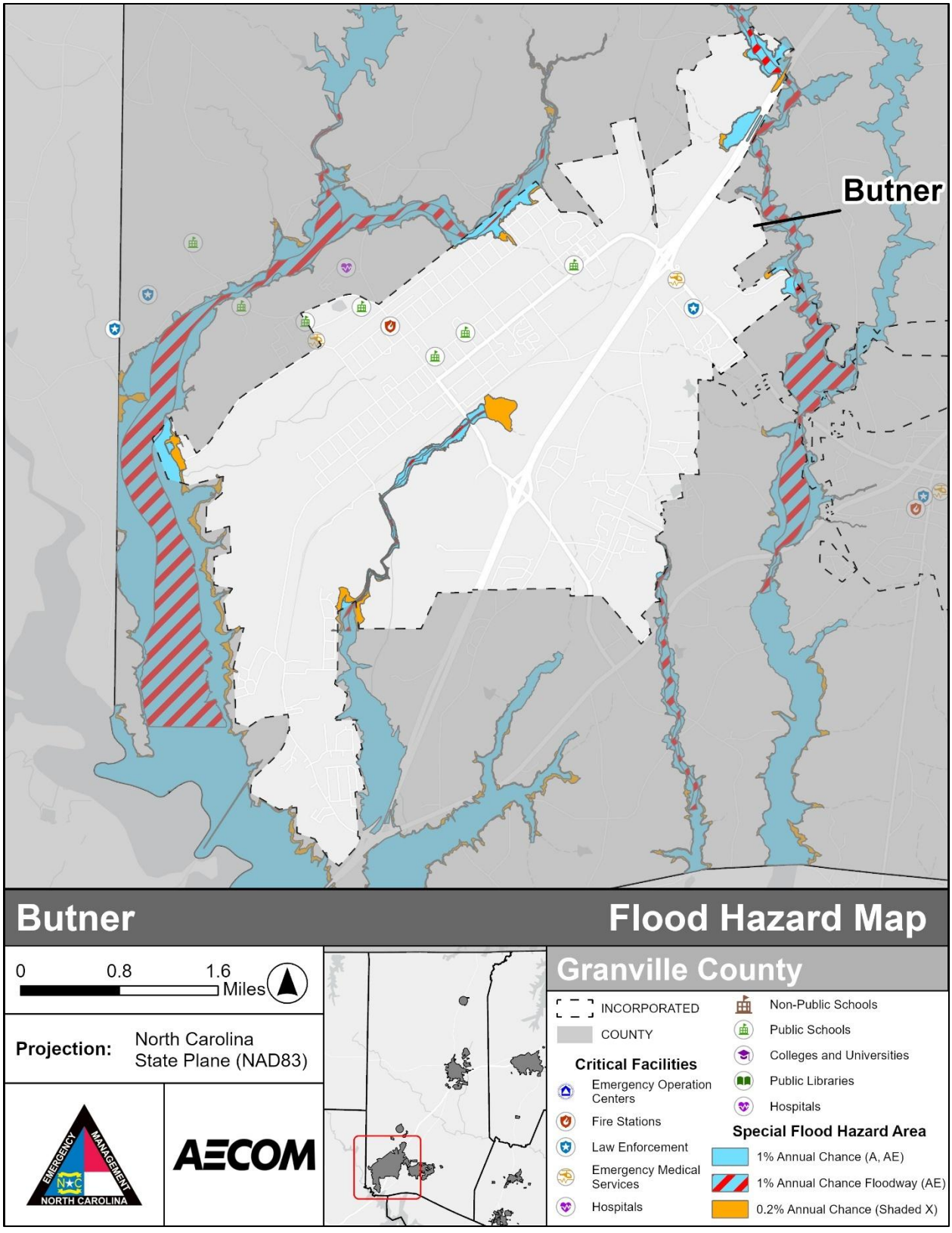


Figure 5-92: Flood Hazard Map - Butner

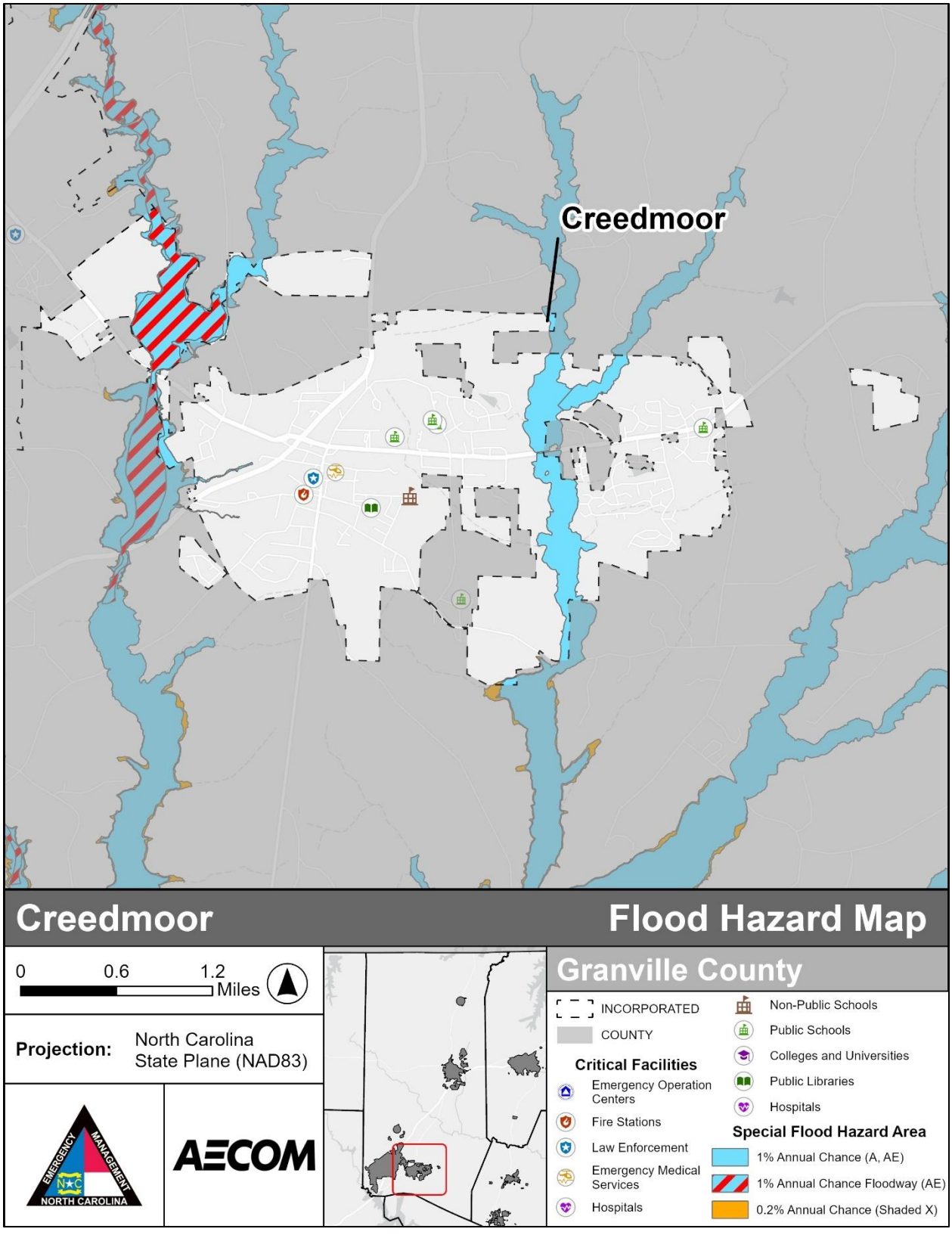


Figure 5-93: Flood Hazard Map - Creedmoor

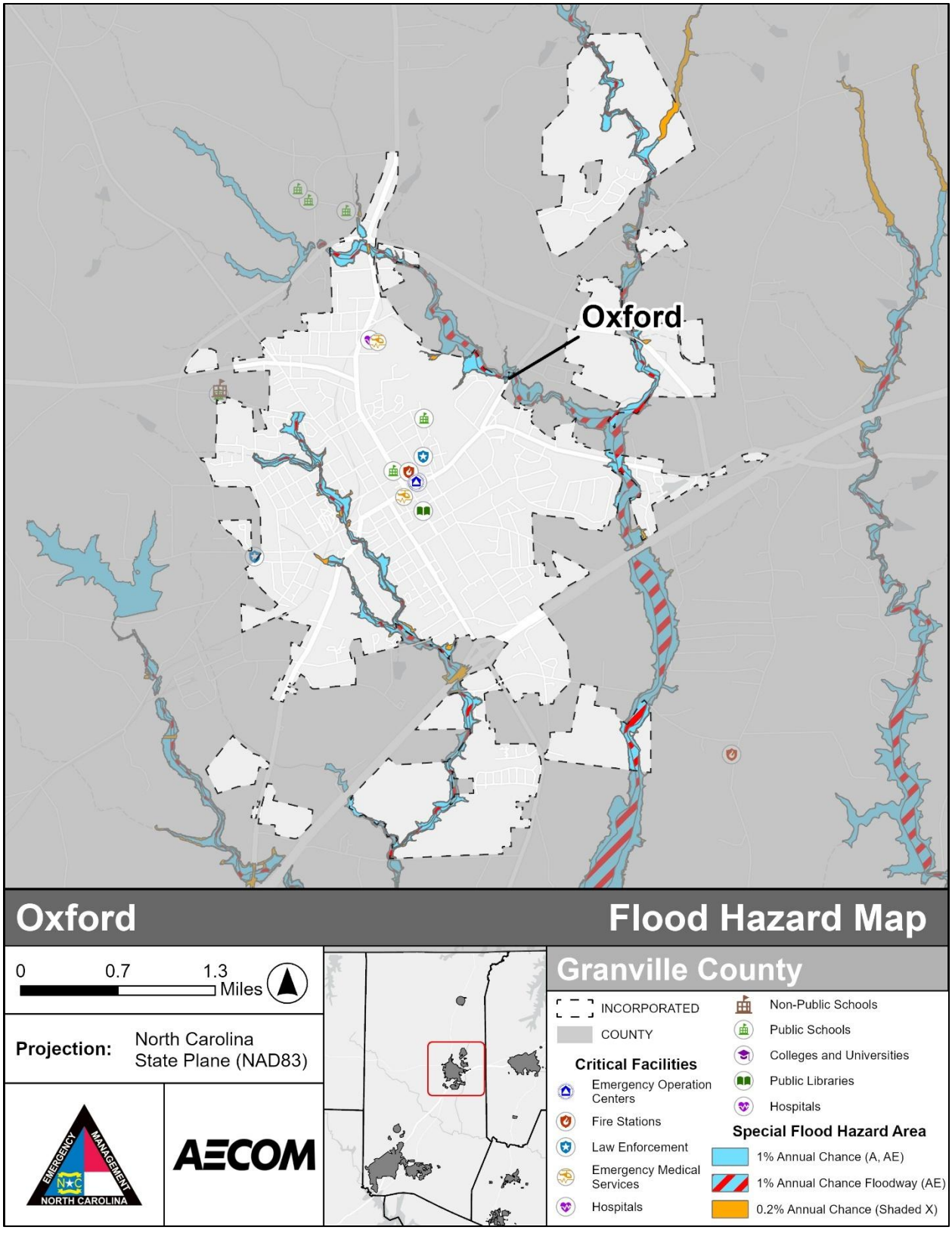


Figure 5-94: Flood Hazard Map - Oxford

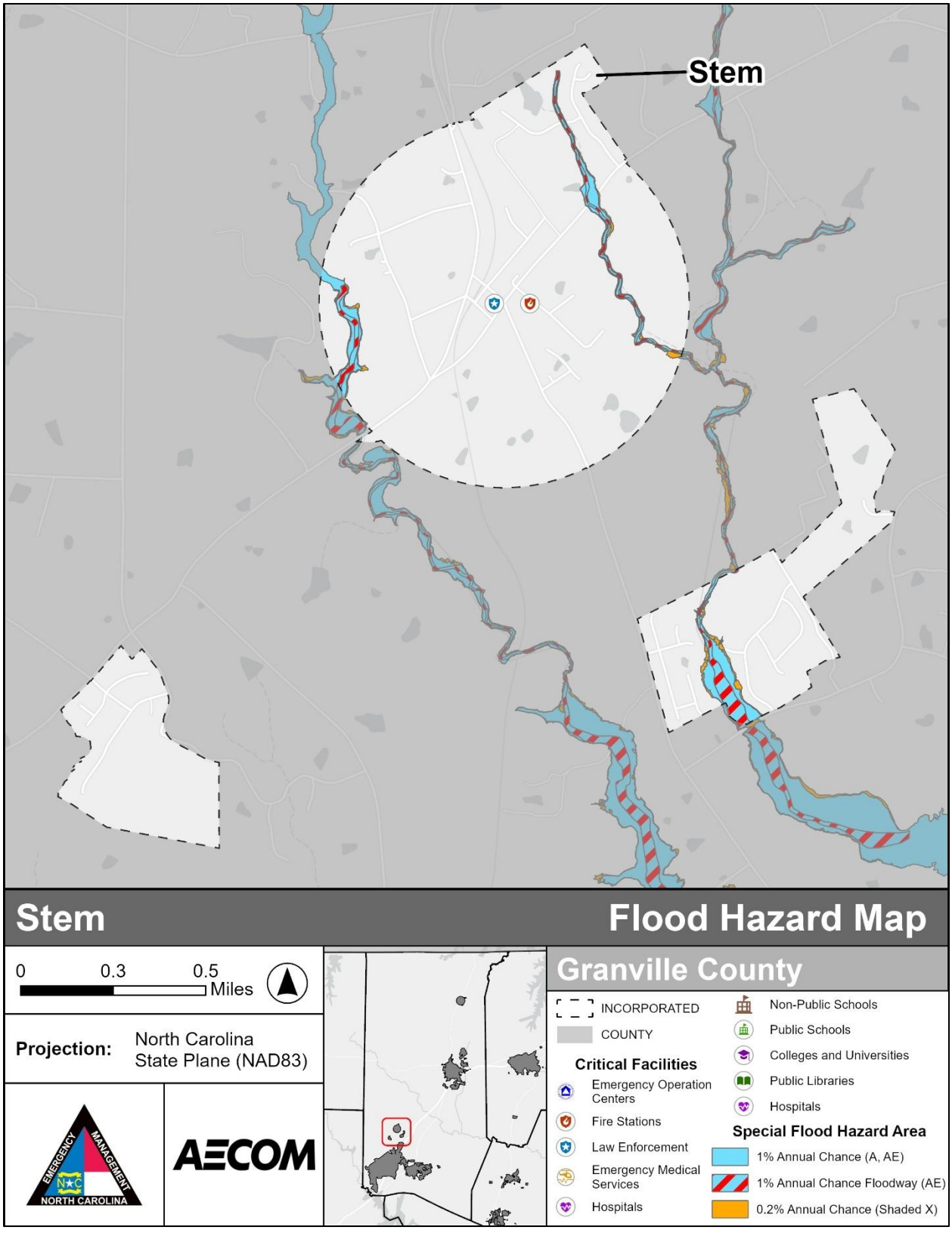


Figure 5-95: Flood Hazard Map - Stem

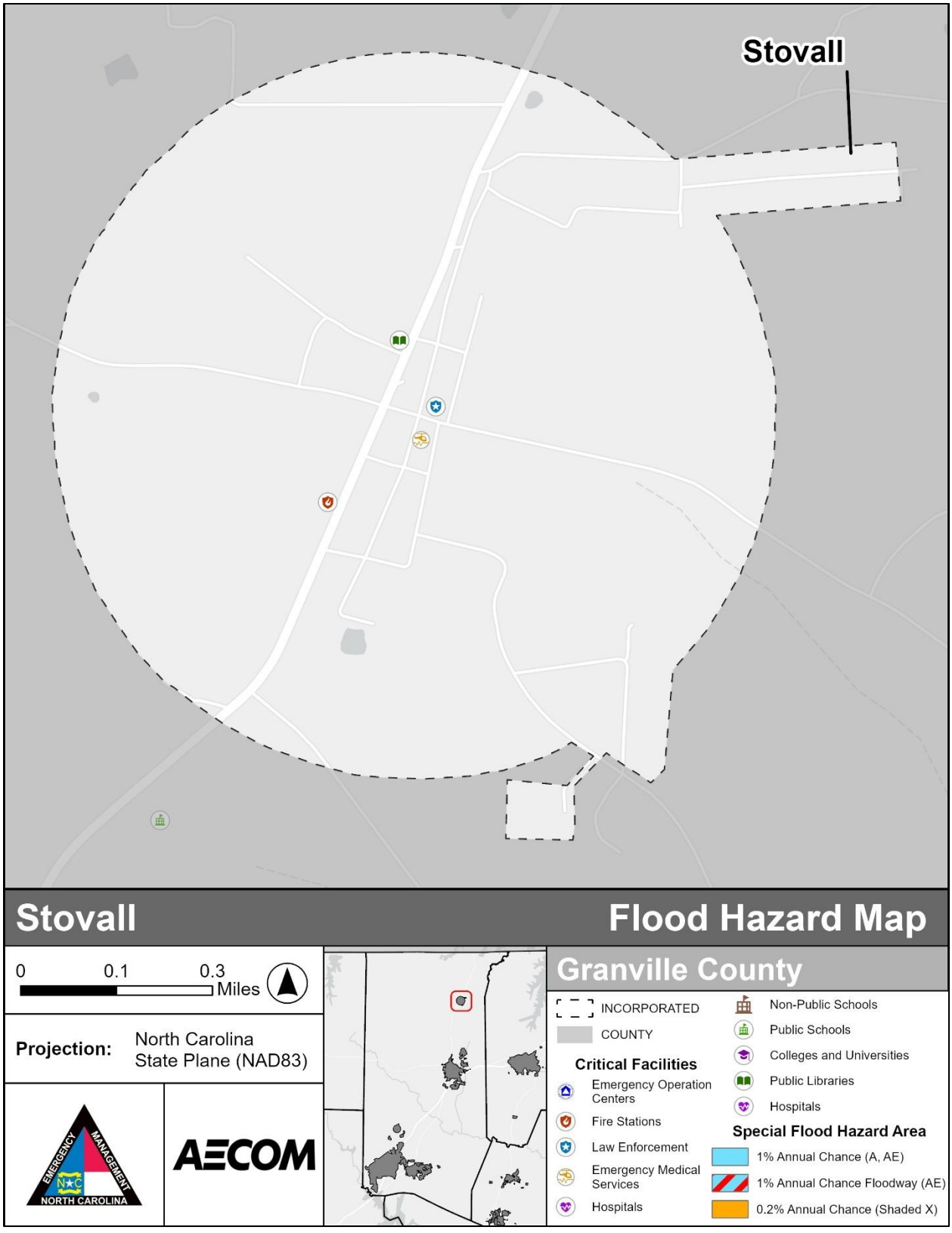


Figure 5-96: Flood Hazard Map - Stovall

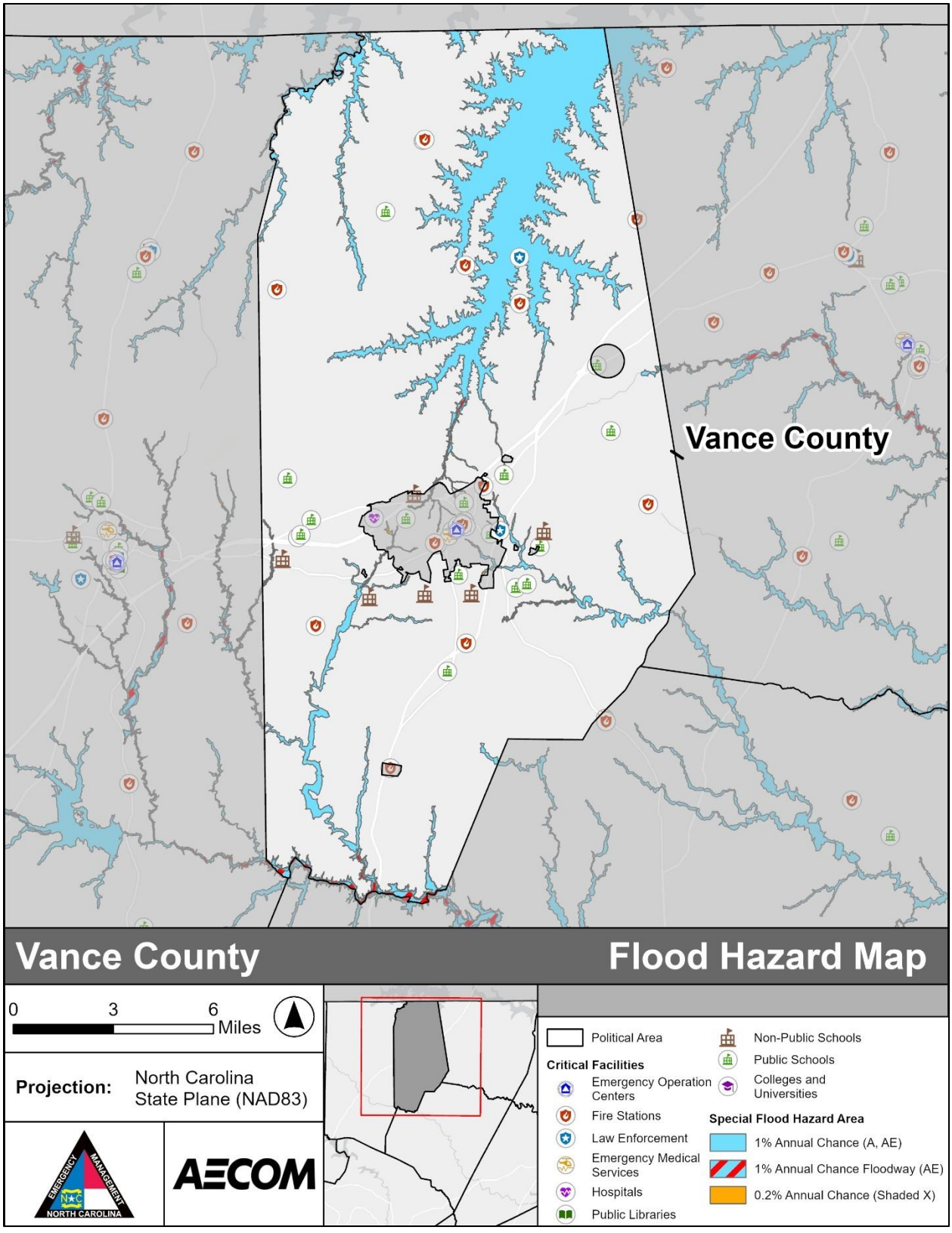


Figure 5-97: Flood Hazard Map – Vance County

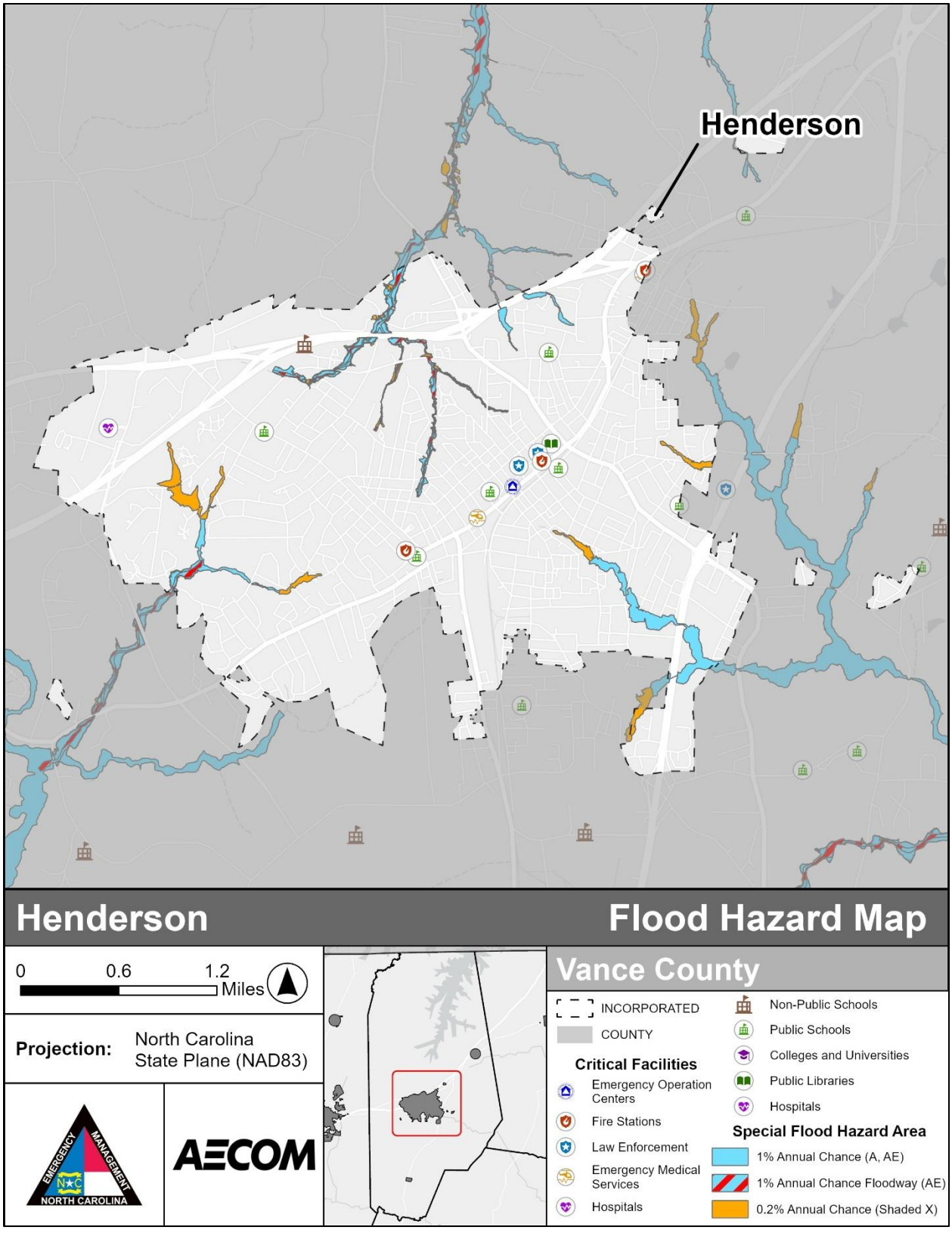


Figure 5-98: Flood Hazard Map - Henderson

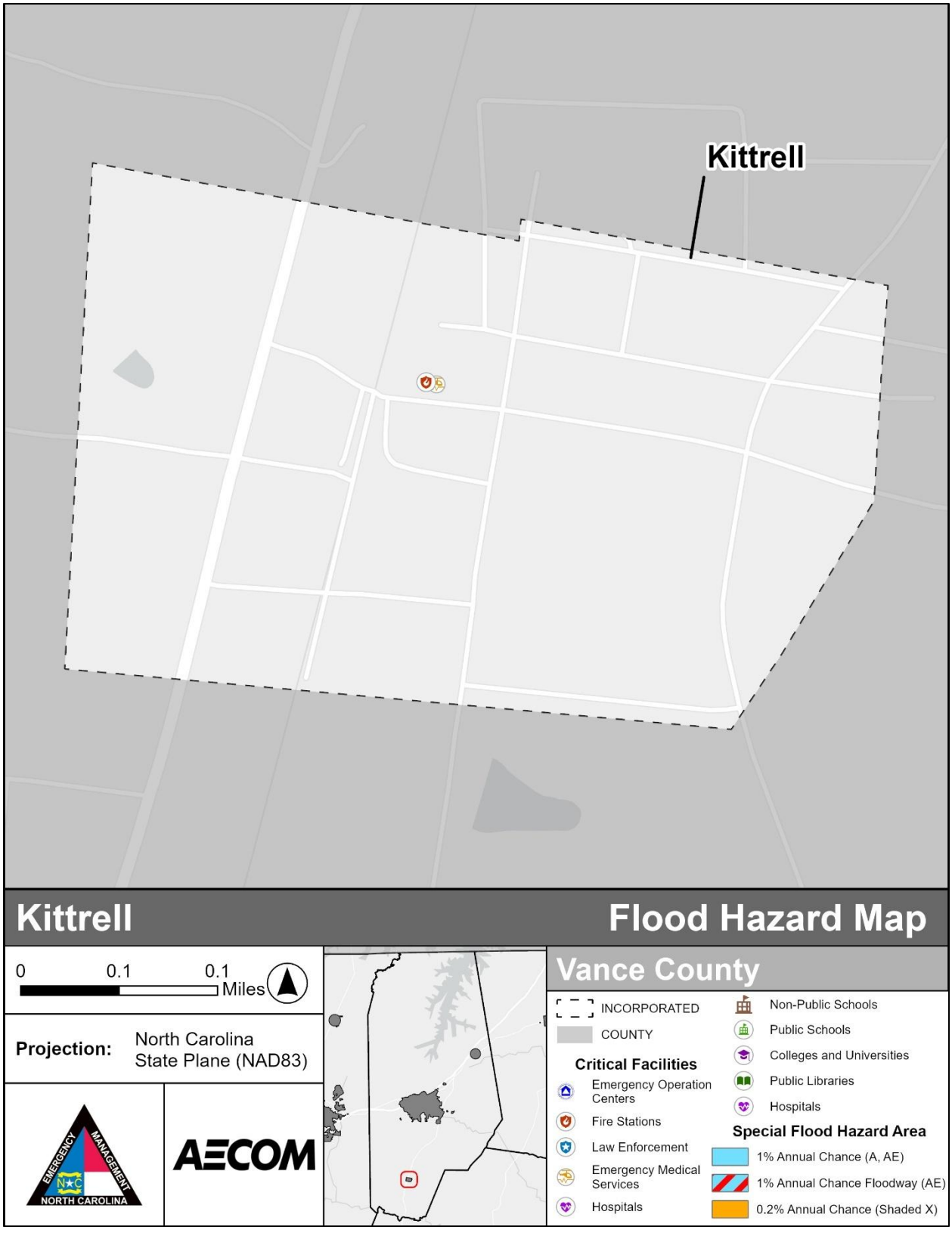


Figure 5-99: Flood Hazard Map - Kittrell

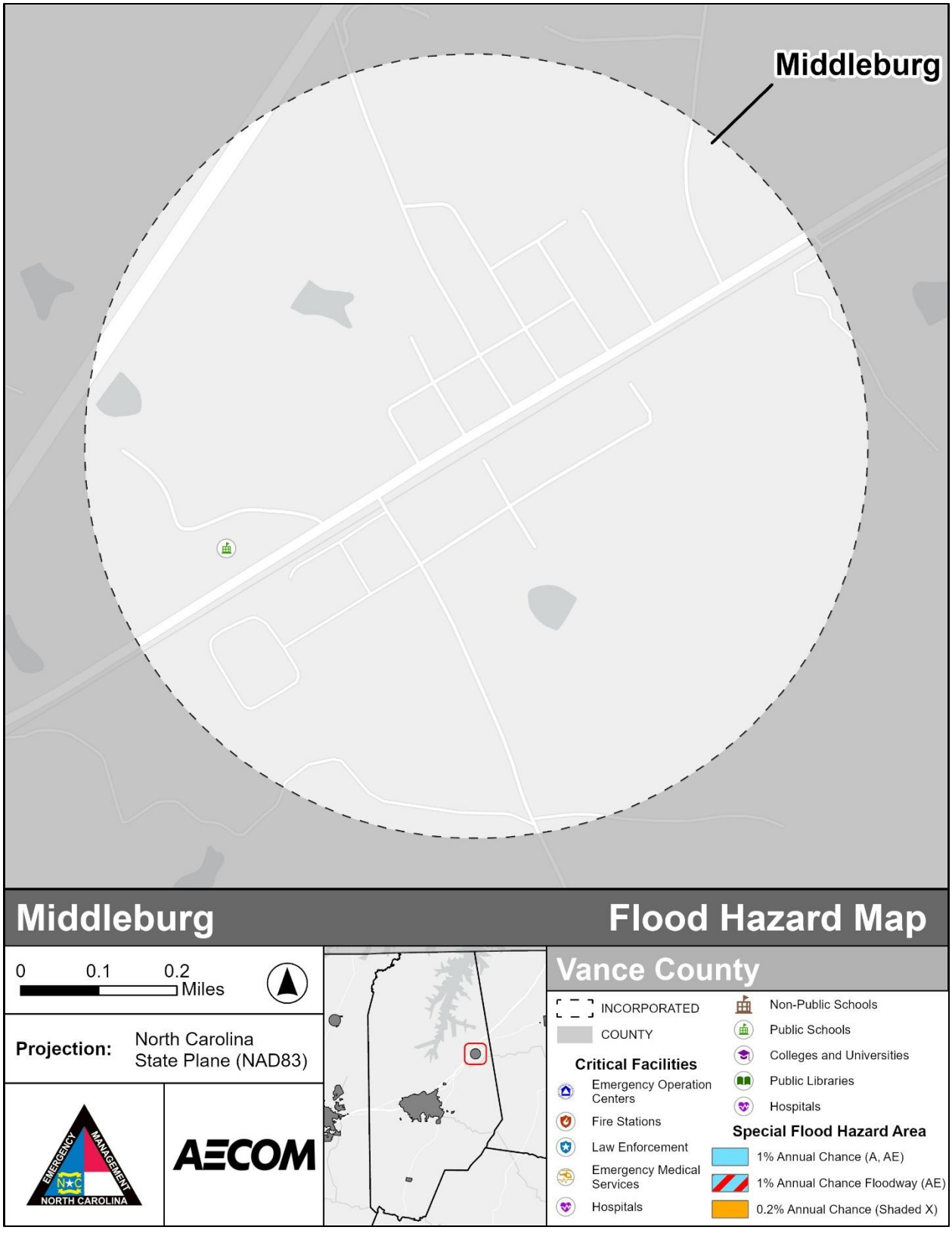


Figure 5-100: Flood Hazard Map - Middleburg

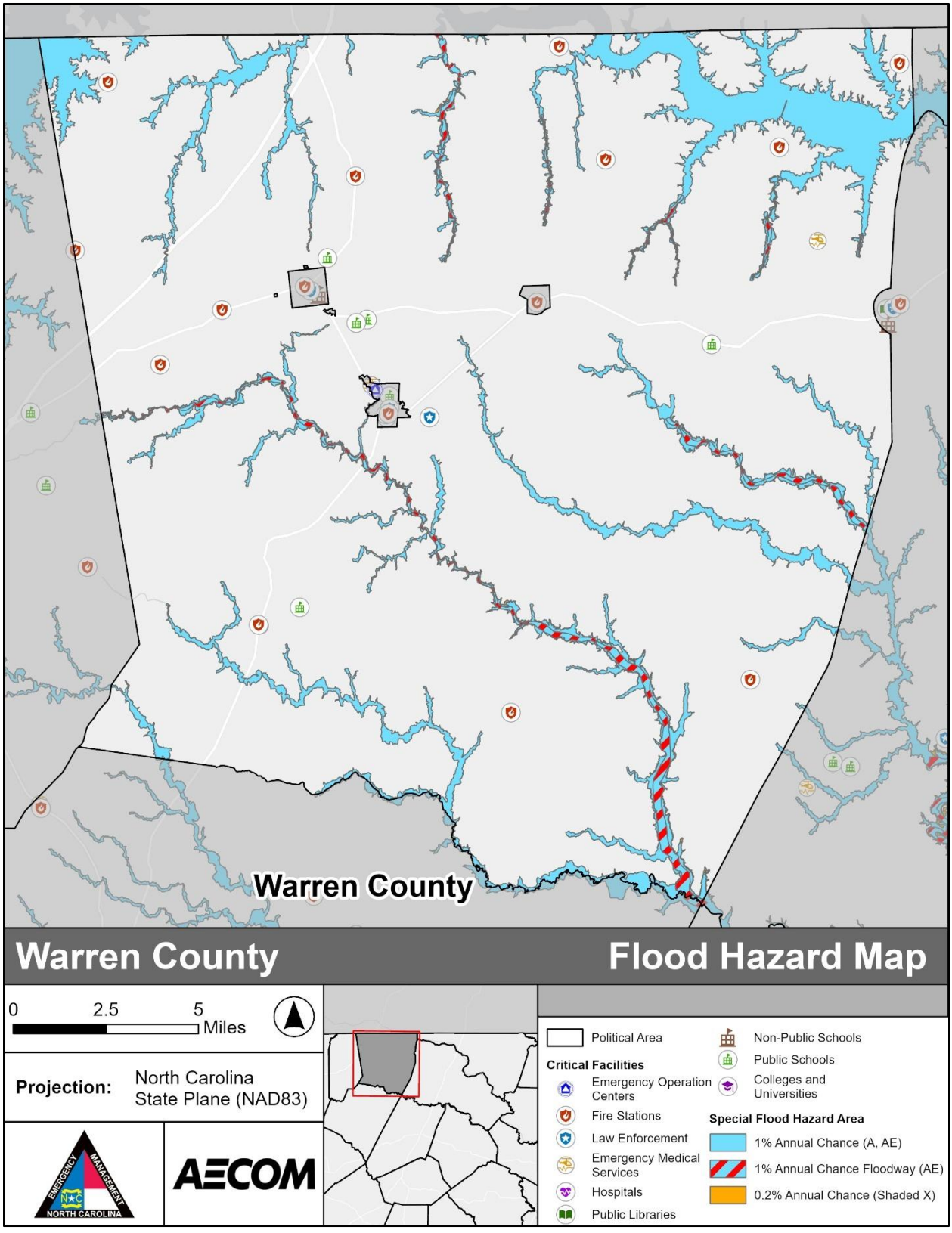


Figure 5-101: Flood Hazard Map - Warren County

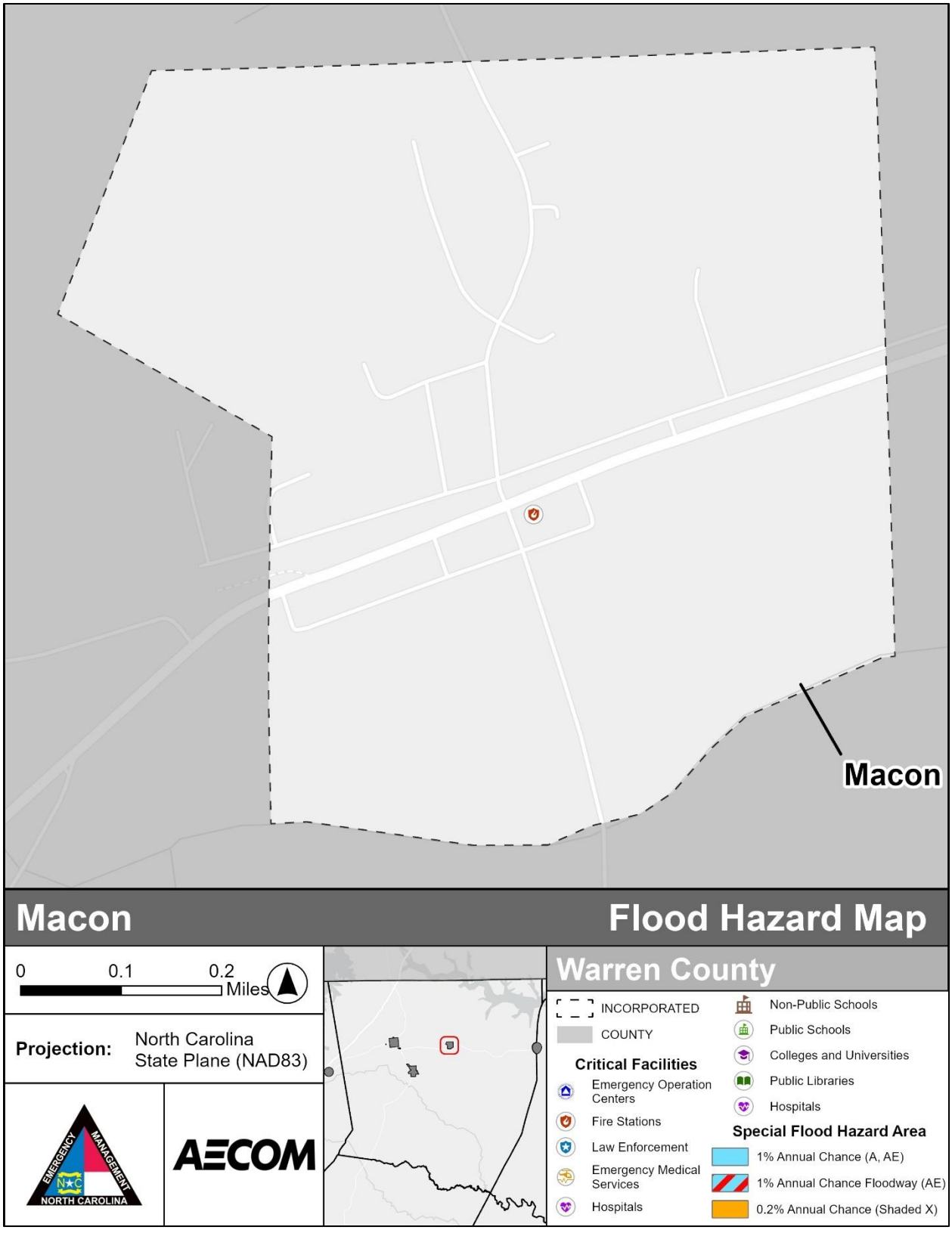


Figure 5-102: Flood Hazard Map - Macon

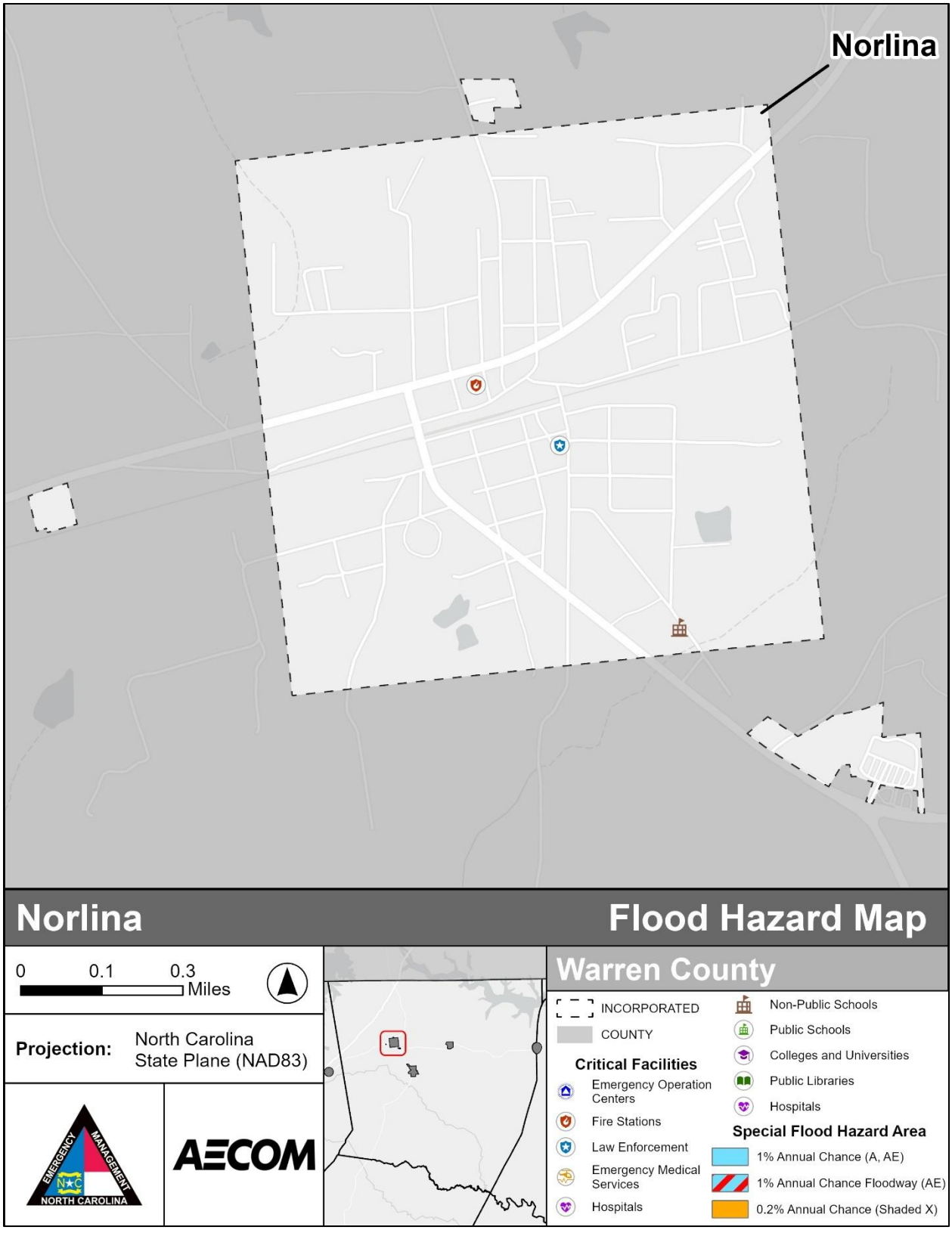


Figure 5-103: Flood Hazard Map - Norlina

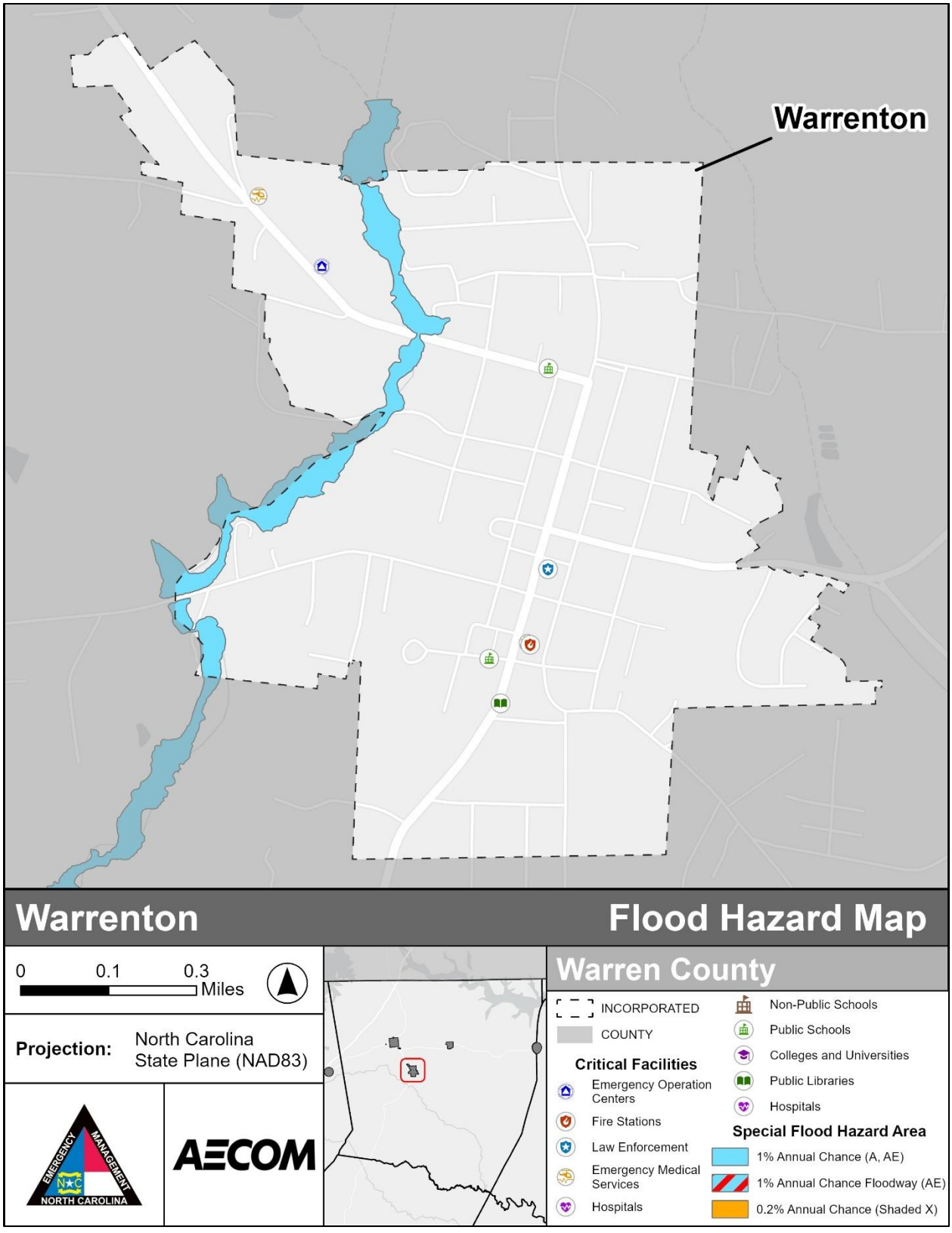


Figure 5-104: Flood Hazard Map - Warrenton

5.7.3. Extent

Table 5-32 provides peak river-stage data from the USGS, showing the highest recorded stage for each jurisdiction.

Table 5-32: Peak Streamflow in the Planning Area from the USGS[51]

County	River	Jurisdiction	USGS Gage Number	Hydrologic Unit Code (HUC)	Drainage Area (Square Miles)	Date Of Peak	Gage Height (Ft)	Stream Flow (Cfs)
Franklin	Tar River at US 401	Louisburg	02081747	03020101	427	1999-09-17	26.05	23,700
Franklin	Cedar Creek	Louisburg	02081800	03020101	47.80	1973-06-29	8.32	3,560
Franklin	Wildcat Branch	Mapleville	02082540	03020101	0.32	1959-10-10	25.49	210
Franklin	Devils Cradle Creek at SR1412	Alert	02082731	03020101	13.4	1996-09-06	9.24	987
Granville	Shelton Creek	Oxford	02081210	03020101	22.2	1955-08-17	21.39	2,400
Granville	Tar River	--	02081500	03020101	167	1996-09-06	24.06	19,900
Granville	Knap of Reeds Creek	Butner	02086624	03020101	43	1989-07-16	8.79	8,600
Vance	Long Creek	Kittrell	02081710	03020101	7.25	1973-06-29	19.71	1,180
Warren	Fishing Creek	Warrenton	02082835	03020102	46.5	1954-01	23.17	5,300

[51] United States Geological Survey. (2025). *Peak Streamflow for the Nation* [Tabular]. National Water Information System: Web Interface. https://nwis.waterdata.usgs.gov/usa/nwis/peak

5.7.4. Past Occurrences

The following historical occurrences, spanning 2010 to 2025, have been identified from the NCEI Storm Events database (Table 5-33). It should be noted that only those historical occurrences listed in the NCEI Storm Events database are shown here and that other, unrecorded, or unreported events may have occurred within the planning area during this timeframe.

Table 5-33: Historical Occurrences of River Flooding (2010 to 2025[52])

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Granville	Lewis	1/25/2010	Flash Flood	0	0	$0	$0	Heavy Rain	Gela Road was closed due to high water.	Heavy rain and severe thunderstorms overspread central North Carolina during the late evening hours of the 24th and into the overnight hours as a slow-moving cold front approached from the west. Two to three inches of rain caused flash flooding across the western and central Piedmont. A convective bow segment also produced localized thunderstorm wind damage in Johnston County.
Franklin	Louisburg	5/24/2012	Flash Flood	0	0	$0	$0	Heavy Rain	Industrial Drive was closed due to water covering the road. High water closed the intersection of North Carolina Route 561 and United States Highway 401.	Isolated to widely scattered showers and thunderstorms developed along an axis of weak surface convergence across the Northeast Piedmont and Coastal Plain. Several of these storms repeatedly redeveloped over the same area and caused localized flash flooding in Franklin County, North Carolina.

[52] National Center for Environmental Information (NCEI). (2025). *Storm Events Database* [Tabular]. National Oceanic and Atmospheric Administration. https://www.ncei.noaa.gov/stormevents/

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Warren	Enterprise	7/21/2012	Flash Flood	0	0	$0	$0	Heavy Rain	Red Man Road near Highway 43 and also Enterprise Road near Highway 158 were reported to be flooded.	With a nearly stationary front just to the north of central North Carolina and an approaching mid-level trough/shear axis, scattered to numerous showers and thunderstorms developed during the afternoon/evening hours in a very moist and moderately unstable air mass. Several of these storms became severe, with damaging winds as the main issue; one report of quarter-sized hail was received. Also, some flash flooding occurred.
Franklin	Louisburg	6/7/2013	Flash Flood	0	0	$0	$0	Heavy Rain / Tropical System	The 400 Block of East River Road was closed due to flooding.	Tropical Storm Andrea tracked northeast up the East Coast and through North Carolina on June 7th, bringing a swath of heavy rain of 3 to 6 inches across central and eastern portions of the area. This heavy rain caused numerous road closures and overflowed several small creeks and streams.
Franklin	Franklinton			0	0	$0	$0		The 300 block of NC Highway 56 was closed due to flooding.	
Warren	Afton		Flash Flood	0	0	$0	$0		Numerous road closures, including but not limited to Parktown Road, Baltimore Road, Warren Plains Road, Mountain View Road, and Reedy Creek Road.	
Franklin	Rocky Ford			0	0	$0	$0		Balance Rock Road was closed due to flash flooding.	

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Franklin	Bunn	7/8/2013	Flash Flood	0	0	$0	$0	Heavy Rain	Dead Road was closed near Bunn Elementary Road due to high water.	With a broad upper-level trough over the area, diurnal destabilization combined with ample moisture to produce scattered showers and thunderstorms. A couple of these storms produced 2-4 inches of rain, resulting in flash flooding.
Warren	Warrenton	4/25/2014	Flash Flood	0	0	$0	$0	Heavy Rain	Several roads within the Warrenton city limits were flooded.	Airmass became increasingly unstable as a warm front retreated northward during the morning hours, in advance of a compact but potent shortwave trough and associated surface cold front into the area from the west. Early in the event, discrete cells produced a weak EF-1 tornado touchdown in Halifax County, along with severe hail ranging from quarter- to golf-ball-size. As the storms progressed eastward into the coastal plain, they consolidated into a line and produced scattered wind damage before exiting the forecast area.
Warren	Grove Hill	9/8/2014	Flash Flood	0	0	$0	$0	Heavy Rain	Several roads in eastern Warren County were closed due to high water, including Mountain View Road near Reedy Creek and Briston Brown Road near Little Fishing Creek.	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

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Warren	Warrenton			0	2	$0	$0		Up to 9 inches of rain fell in Warren County, causing flash flooding and many road closures. A 25-foot section of Airport Road in Warrenton collapsed where it crossed Reedy Creek, causing two cars and an underground pipe to be swept away. One car contained a woman and her daughter, who both clung to a tree until they were rescued. The mother had to have surgery on her leg, while the daughter sustained minor injuries. One male was in the other car that was swept away, but he sustained no injuries. Also, the side of Hester Road in Warrenton collapsed.	Warren County, where up to 9 inches of rain fell, causing the collapse of two roads and minor injuries.

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Warren	Paschall	10/8/2016	Flash Flood	0	0	$250,000	$0	Heavy Rain / Tropical System	Heavy rainfall of 5 to 7 inches triggered widespread flash flooding across the county, with numerous creeks overflowing their banks. Numerous roads were closed due to flooding, and multiple people trapped in vehicles were rescued.	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 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 one fatality, when a tree fell onto a moving vehicle. Finally, the EF-1 tornado in Wayne County caused $75,000 in property damage.
Granville	Virgilina			0	0	$0	$0		Heavy rainfall of 4 to 6 inches caused flooding on several roads across the county.	
Vance	Townsville			0	0	$50,000	$0		Heavy rainfall of 4 to 6 inches caused widespread flash flooding across the county, with several road closures.	

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Warren	Embro	5/21/2018	Flash Flood	0	0	$0	$0	Heavy Rain	Warrenton-Embro Road was closed due to flash flooding.	An outflow-augmented back-door cold front served as the foci for a slow northeast to southwest-moving cluster of storms and torrential rainfall across the northern Piedmont and northern Coastal Plain counties. The heaviest rainfall, 3 to 5 inches, fell across North Raleigh, causing Crabtree Creek to flood. Multiple road closures were reported in northwest Raleigh, and several cars were stranded on a flooded road.
Warren	Macon	7/27/2018	Flash Flood	0	0	$0	$0	Heavy Rain	Wise-Five Forks Road was closed due to flooding.	Dominated by outflow and sea-breeze boundaries, a few multicell clusters developed across the NC Sandhills, eastern Piedmont, and coastal plain counties. Two thunderstorm clusters produced some scattered wind damage. A backward building cluster produced heavy rainfall of 3 to 4 inches, resulting in isolated flash flooding.
Granville	Cozart	10/11/2018	Flash Flood	0	0	$25,000	$0	Heavy Rain / Tropical System	Heavy rainfall of 2 to 4 inches flooded several roads across the southern half of the county, most of which were in the Creedmoor area.	Tropical Storm Michael moved through North Carolina on Thursday, October 11th. Michael brought heavy rain and strong, damaging winds to central North Carolina. While heavy rainfall of 3 to 6 inches produced minor flash flooding across the area, the high wind gusts of 40 to 60 mph caused the most significant problems, knocking down a score of trees, blocking roadways, and leaving thousands without power.
Franklin	Youngsville	6/8/2019	Flash Flood	0	0	$0	$0	Heavy Rain	Multiple road closures due to flooding were reported in Youngsville.	A stalled front over the region, interacting with a very moist and slightly unstable atmosphere, produced slow-moving thunderstorms across central NC. Two swaths of heavy rainfall of 3 to 5

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Franklin	Franklinton			0	0	$0	$0		Multiple road closures due to flooding were reported in Franklinton.	inches over Cumberland County, northeastern Wake County, and southern Franklin County produced minor flash flooding.
Franklin	Seven Paths	6/17/2020	Flash Flood	0	0	$0	$0	Heavy Rain	Ruffin Collie Road was closed due to flash flooding.	A slow-moving upper-level low combined with a surge of warmer and more moist air that moved over a cooler air mass near the surface produced multiple rounds of rain, showers, and thunderstorms across the Coastal Plain and the northeast Piedmont of North Carolina during the morning hours. Widespread rain fell across the area during the previous day or two, saturating the soil and raising stream and creek levels. A narrow corridor of heavy rain moved across this area overnight and into the morning, causing flash flooding. Several locations reported between 5 and 6 inches of rain. Many roads were flooded, with at least one water rescue, and some roads were damaged.
Vance	North Henderson			0	0	$0	$0		Several roads near Carey Chapel Road were reported flooded.	
Franklin	Alert			0	0	$0	$0		United States Highway 401 was closed at Cheeks Quarter Road due to flash flooding.	
Franklin	Hickory Rock			0	0	$0	$0		Flash flooding was reported near the intersection of Ronald Tharrington Road and Firetower Road.	
Franklin	Ingleside			0	0	$0	$0		United States Highway 401 was closed due to flash flooding at Sutton Road.	
Granville	Oxford		Flood	0	0	$0	$0		Roads were reported to be flooded across the area due to heavy rain.	

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Franklin	Seven Paths			0	0	$0	$0		High water flooded Sagamore Drive at Cypress Creek Crossing.	
Franklin	Moulton			0	0	$0	$0		High water flooded Sutton Road.	
Vance	Kittrell			0	0	$0	$0		High water flooded Geranium Lane from Long Creek.	
Franklin	Louisburg	8/15/2020	Flash Flood	0	0	$0	$0	Heavy Rain	Numerous roads were reported closed due to flooding in and around Louisburg.	Training thunderstorms along a stalled front bisecting central North Carolina produced pockets of 3 to 6 inches of rain across Wake, Franklin, and Harnett counties. The storms flooded numerous roads in Harnett and Franklin counties.
Warren	Norlina	8/31/2020	Flash Flood	0	0	$20,000	$0	Heavy Rain	Multiple roads were reported flooded due to flashing flooding in Norlina. Two water rescues were also performed in Norlina.	Warm, moist air lifted along a wavy, stationary front. This, combined with slow-moving and merging thunderstorms, resulted in heavy rain and flash flooding, including a dam break in Johnston County and two fatalities.

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Warren	Drewry	9/1/2020	Flash Flood	1	0	$10,000	$0	Heavy Rain	Flash flooding was reported at the intersection of Ridgeway Drewry Road and Bloomsbury Road. A car drove into the floodwater, and a person was swept away and drowned while trying to escape.	Flash flooding that originated on August 31st continued across portions of the northeast Piedmont and central Coastal Plain of central North Carolina during the early morning hours of September 1st. Rainfall amounts of up to 11 inches were reported across this area, resulting in lingering flash flooding.
Warren	Norlina			0	0	$0	$0		Multiple roads and bridges were reported to be flooded in and around Norlina.	
Warren	Grove Hill	11/12/2020	Flash Flood	0	0	$0	$0	Heavy Rain	Flash flooding was reported along Davis Bugg Road near Macon.	Moisture from Tropical Storm Eta was drawn northward into the Mid Atlantic during the day of Wednesday, November 11th. Meanwhile, a slow-moving cold front moved through central North Carolina on Thursday, producing 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.

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Warren	Warrenton	9/8/2021	Flash Flood	0	0	$0	$0	Heavy Rain	Flash flooding was reported along several roads on US Highway 401.	A cluster of showers and storms producing heavy rain develops across Warren County in central North Carolina along a slow-moving mid-level disturbance in advance of a slow-moving cold front. Heavy rain prompted a couple of reports of flash flooding across Warren County.
Warren	Warrenton			0	0	$0	$0		Flash flooding was reported on Main Street near West Ridgeway Street.	
Granville	Grissom	7/14/2023	Flash Flood	0	0	$0	$0	Heavy Rain	The roadway was closed near the intersection of Rodinson Ln and Woodland Church Rd due to high water.	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. A combination of slow-moving showers and thunderstorms caused damaging wind gusts and flash flooding.
Franklin	Raynor	8/29/2023	Flash Flood	0	0	$0	$0	Heavy Rain	Bennette Perry Road was closed near Springfield Lane due to flooding.	A stalled front interacted with a moist, unstable air mass, resulting in showers and storms across central North Carolina. There were several reports of flash flooding in Stanly and Franklin counties during the evening.
Franklin	Louisburg			0	0	$0	$0		Flash flooding was reported on North Carolina Highway 39 at Louisburg Road.	

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Franklin	Louisburg	7/12/2024	Flood	0	0	$0	$0	Heavy Rain	One lane of Timberlake Road was closed near Highway 56 due to flooding from a nearby field.	A stalled frontal boundary over eastern sections of North Carolina retrograded westward during the afternoon and evening as a surface low formed along the front. Ongoing showers and storms become more numerous in the late morning and early evening. Heavy embedded storms were particularly prevalent across Wake and Orange Counties, leading to isolated flash flooding.
Franklin	Youngsville	8/3/2024	Flash Flood	0	0	$2,000	$0	Heavy Rain	Roadway flooding was reported near Park Ave.	A stalled front over the lower Ohio and eastern Tennessee valleys moved into western North Carolina. Showers and thunderstorms initially developed over the Piedmont of North Carolina, coalescing into a line of severe storms that downed numerous trees and power lines. Flash flooding also occurred in the urban areas of Raleigh and Durham, as well as in Franklin County. An EF1 Tornado also developed in southern Wake County.
Franklin	Franklinton			0	0	$2,000	$0		Roadway flooding was reported in the town of Franklinton.	
Franklin	Youngsville			0	0	$20,000	$0		Flooding on Cottage Ct in Youngsville impacted home basements and crawl spaces.	
Franklin	Franklinton			0	0	$5,000	$0		Roads around Franklinton were flooded, resulting in several closures.	

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Franklin	Youngsville	8/8/2024	Flash Flood	0	0	$2,000	$0	Heavy Rain	Flooding occurred near the intersection of Moores Pond Rd and Flat Rock Church Rd near Youngsville.	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 August 6th and another on August 8th, the latter a rare EF-3 tornado associated with a tropical cyclone.
Franklin	Bunn			0	0	$5,000	$0		There were numerous reports of flooding, including Randsdell Rd, N Cross and E Winston streets, and Long Mill Rd between Youngsville and Bunn.	
Franklin	Franklinton			0	0	$4,000	$0		Several roads in the area were flooded, including one lane of US Highway 1.	
Granville	Clay			0	0	$1,000	$0		Creeks overflowing flooded Sam Usry Rd.	
Granville	Butner			0	0	$2,000	$0		Central Ave in Butner is flooded.	

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Vance	Gillburg	9/24/2024	Flash Flood	0	0	$1,000	$0	Heavy Rain	A flooded road was reported in Henderson, briefly closing it.	A stalled frontal boundary over central North Carolina slowly edged northward into Virginia. That northward movement, combined with forcing aloft, produced scattered to numerous showers and storms in the evening and into the early morning hours of 25 September. Severe gusts occurred in Randolph County, as well as flash flooding over the northern and northeast Piedmont.
Granville	Oxford	5/29/2025	Flash Flood	0	0	$0	$0	Heavy Rain	Penn Avenue in Oxford was closed due to high water.	Storms over South Carolina in association with a mid-level system tracked into central North Carolina in the afternoon and evening hours. The storms initially produced wind damage and an isolated hail threat. Thereafter, the event evolved into a flash flood threat, with training and back-building storms resulting in rainfall rates of 3 or more inches per hour from Albemarle to Greensboro to Burlington to Henderson.
Vance	Henderson			0	0	$20,000	$0		A car was stuck in flood waters at Dabney Drive and Corbitt Road.	
Vance	Henderson			0	0	$0	$0		Water was reported on the roadway at Hamilton Street and North Garnett Street.	
Vance	Greystone			0	0	$0	$0		Kirby Lane at US Highway 1 was closed due to high water.	
Vance	Henderson			0	0	$0	$0		Nicholas Street at Epsom Road was closed due to high water.	
Vance	Henderson			0	0	$0	$0		Marsha Avenue at Cameron Drive was closed due to flooding.	

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Granville	Kinton Fork	7/9/2025	Flash Flood	0	0	$4,000	$0	Heavy Rain	The Granville County Sheriff's Office reported the road is underwater at the intersection of US Highway 158 and Graham Hobgood Road west of Oxford.	A weak trough of low pressure over the Ohio and Tennessee valley region was in place, along with very anomalous moisture over the Carolinas. Scattered showers and storms over the Appalachians became widespread as they moved into central North Carolina in the evening and overnight hours. Numerous wind and flash flooding reports were recorded over the region.
Granville	Oxford			0	0	$0	$0		The Granville County Sheriff's Office reported at least two feet of water near the C.G. Credle Elementary School in Oxford.	
Granville	Culbreth			0	0	$0	$0		The Granville County Sheriff's Office reported a flooded roadway at the intersection of Goochs Mill Road and Enon Road.	
Franklin	Daddysville	8/6/2025	Flash Flood	0	0	$3,000	$0	Heavy Rain	Osage Drive was flooded and impassable.	Within cool northeasterly surface flow, several upper-level disturbances tracked across central North Carolina, following a persistent weak trough of low pressure over the Ohio Valley. Significant moisture remained from the 5th of August. A wedge front was also in place along Interstate 95. Several reports of flash flooding were reported over the eastern Piedmont and northern Coastal Plain, including two fatalities in Nash County.

County	Jurisdiction	Date	Event Type	Direct Deaths	Direct Injuries	Property Damage	Crop Damage	Flood Cause	Event Narrative	Episode Narrative
Franklin	Pearces	8/11/2025	Flash Flood	0	0	$5,000	$0	Heavy Rain	The 860 block of Pilot-Riley Road was completely flooded, with water flowing across the roadway.	A weak frontal zone was oriented southwest to northeast across central North Carolina. Scattered showers and storms developed during the late afternoon and evening within a highly anomalous moisture environment. Some training storms caused several instances of flash flooding across the eastern and northeastern Piedmont, especially in Wake County.
Franklin	Pilot			0	0	$5,000	$0		Clyde Pearce Road, near the 80 block, was washed out.	
Vance	Epsom			0	0	$0	$0		A flooded roadway was near the intersection of New Bethel Church Road and North Carolina Highway 39.	
Franklin	Rocky Ford			0	0	$0	$0		Flooding was reported along Opie Frazier Road near Frazier Dement Road.	

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 sustained repeated flooding damage are currently limited to residential structures. According to FEMA, the following are definitions of the NFIP and FEMA Severe Repetitive Loss (SRL) and Repetitive Loss (RL) 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))
- **Flood Mitigation Assistance (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 Tar River Region[53]

NFIP Community Name	Occupancy Type	NFIP Repetitive Loss	FMA Repetitive Loss	NFIP Severe Repetitive Loss	FMA Severe Repetitive Loss	Total Losses
Franklin County (Unincorporated Area)	--	--	--	--	--	--
Bunn	--	--	--	--	--	--
Franklinton	--	--	--	--	--	--
Louisburg	Single Family Residence	4	0	0	0	4
Youngsville	Single Family Residence	1	0	0	0	1
Franklin Total		**5**	**0**	**0**	**0**	**5**
Granville County (Unincorporated Area)	--	--	--	--	--	--
Butner	--	--	--	--	--	--
Creedmoor	--	--	--	--	--	--
Oxford	A Non-Residential Building	1	0	1	1	3
Stem	--	--	--	--	--	--
Stoval	--	--	--	--	--	--
Granville Total		**1**	**0**	**1**	**1**	**3**
Vance County (Unincorporated Area)	--	--	--	--	--	--
Henderson	--	--	--	--	--	--
Kittrell	--	--	--	--	--	--
Middleburg	--	--	--	--	--	--
Vance Total		**0**	**0**	**0**	**0**	**0**
Warren County (Unincorporated Area)	--	--	--	--	--	--
Macon	--	--	--	--	--	--
Norlina	--	--	--	--	--	--
Warrenton	--	--	--	--	--	--
Warren Total		**0**	**0**	**0**	**0**	**0**
Region Total		**6**	**0**	**1**	**1**	**8**

[53] Federal Emergency Management Agency. (2025). *NFIP Multiple Loss Properties* (Version 1) [Tabular]. OpenFEMA. https://www.fema.gov/openfema-data-page/nfip-multiple-loss-properties-v1

5.7.6. Probability of Future Occurrences

The NRI calculates the probability and risk of riverine flooding using the NFIP National Flood Hazard Layer, which depicts the 1% annual-chance floodplain. According to the NRI, Franklin County has an annualized frequency of 0.79 events per year, a total EAL of $213,262, an EAL Score of 37.51, and a Hazard Risk Index Score of 39.99. The unincorporated areas of Franklin County have a total EAL of $1,797, an average EAL Score of 30.81, and an average Hazard Risk Index Rating of 31.5. The jurisdiction with the highest EAL total is Louisburg ($69,197), followed by Youngsville ($28,419), Franklinton ($22,122), and Bunn ($11,716).

Granville County has an annualized frequency of 0.67 flooding events, a total EAL of $20,606, an EAL Score of 11.39, and a Hazard Risk Index of 11.04. The unincorporated areas of Granville County have a total EAL of $1,797, an average EAL Score of 30.81, and an average Hazard Risk Index Score of 31.5.

Vance County has a 0.38 annual frequency of riverine flooding events, a total EAL of $28,353, an EAL Score of 13.15, and a Hazard Risk Index Score of 13.9. The unincorporated area of Vance County has a total EAL of $9,815, an average EAL Score of 37.86, and a Hazard Risk Score of 39. The jurisdiction with the highest EAL is Henderson ($11,072), followed by Middleburg ($7,465) and Kittrell ($1,531).

Warren County has a 0.75 annualized frequency of riverine flooding events, a total EAL of $62,131, an EAL Score of 20.09, and a Hazard Risk Index Score of 20.3. The unincorporated area of Warren County has a total EAL of $10,881, an average EAL Score of 47.14, and an average Risk Index Score of 20.3. The jurisdiction with the highest EAL is Macon ($32,011), followed by Warrenton ($6,662) and Norlina ($1,523).

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 Index Rating
Franklin County (Unincorporated Area)	**0.79**	**$94,200**	**54.78**	**Relatively Moderate**	**55.98**	**Relatively Moderate**
Bunn	0.79	$11,717	56.92	Relatively Moderate	61.42	Relatively High
Franklinton	0.79	$22,123	45.19	Relatively Moderate	47.00	Relatively Moderate
Louisburg	0.79	$69,198	69.35	Relatively High	75.31	Relatively High
Youngsville	0.79	$28,419	59.50	Relatively Moderate	59.26	Relatively Moderate
Franklin County Total	**0.79**	**$213,262**	**37.51**	**Relatively Low**	**39.99**	**Relatively Low**
Granville County (Unincorporated Area)	**0.67**	**$1,797**	**30.81**	**Relatively Low**	**31.50**	**Relatively Low**
Butner	0.67	$4,423	31.83	Relatively Low	31.96	Relatively Low
Creedmoor	0.67	$3,297	32.14	Relatively Low	32.02	Relatively Low
Oxford	0.67	$7,843	36.10	Relatively Low	37.95	Relatively Low
Stem	0.67	$2,581	39.72	Relatively Low	39.49	Relatively Low
Stoval	0.67	$4,827	45.94	Relatively Moderate	46.97	Relatively Moderate
Granville County Total	**0.67**	**$20,607**	**11.39**	**Very Low**	**11.04**	**Very Low**

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Index Rating
Vance County (Unincorporated Area)	**0.38**	**$9,815**	**37.86**	**Relatively Low**	**39.00**	**Relatively Low**
Henderson	0.33	$11,072	30.82	Relatively Low	33.15	Relatively Low
Kittrell	0.38	$1,531	35.99	Relatively Low	38.61	Relatively Low
Middleburg	0.38	$7,465	51.07	Relatively Moderate	53.10	Relatively Moderate
Vance County Total	**0.38**	**$28,353**	**13.15**	**Very Low**	**13.90**	**Very Low**
Warren County (Unincorporated Area)	**0.75**	**$10,881**	**47.14**	**Relatively Moderate**	**52.54**	**Relatively Moderate**
Macon	0.75	$32,011	55.13	Relatively Moderate	57.22	Relatively Moderate
Norlina	0.75	$1,523	35.96	Relatively Low	38.72	Relatively Low
Warrenton	0.75	$6,662	49.61	Relatively Moderate	57.17	Relatively Moderate
Warren County Total	**0.75**	**$62,132**	**20.09**	**Relatively Low**	**20.30**	**Relatively Low**

5.7.7. Consequence and Impact Analysis

People

Certain health hazards are common to flood events. While such problems are often not reported, three general types of health hazards accompany floods. The first comes from the water itself. Floodwaters carry anything 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 waste is stored, can contribute to polluted water 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 promote mold and mildew growth. 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 a jurisdiction's 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 required to repair a flood-damaged home put a severe strain on people, especially those who are 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 (16.5% in Franklin County, 16.2% in Granville County, 18.9% in Vance County, and 21.2% in Warren County)[54] 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 8.0% of housing units in Franklin County, 5.7% in Granville County, 10.8% in Vance County, and 14.7% in Warren County lack computing devices, further limiting residents' access to public awareness information.[55] Additionally, an estimated 11.6% of households in Franklin County, 11.0% in Granville County, 17.4% in Vance County, and 23.0% in Warren County lack internet subscriptions, limiting residents' access to a wide range of publicly available preparedness materials online.[55] 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 households are estimated not to have telephone service (0.9% in Franklin County, 1.4% in Granville County, 1.4% in Vance County, and 1.4% in Warren County), which means these residents may lack access to critical, time-sensitive emergency alerts.[56] It is important that residents in the planning area have a way to receive emergency alerts and preparedness information.

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 be designed to reduce the impacts of flooding and avoid areas with increased flood risk.

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 rebuild and for businesses to return to normal.

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[54] U.S. Census Bureau. (2023). *Disability Characteristics* (No. ACSST5Y2023.S1810; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S1810

[55] U.S. Census Bureau. (2023). *Types of Computers and Internet Subscriptions* (No. ACSDP5Y2023.S2801; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S2801

[56] U.S. Census Bureau. (2023). *Selected Housing Characteristics* (No. ACSDP5Y2023.DP04; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSDP5Y2023.DP04

Natural Environment

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

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. Floodwater may prevent access to areas requiring a response or to critical facilities, prolonging response time. Flooding may also trap residents, so first responders may be at increased risk when responding to emergency calls during and after flood events when infrastructure or roads are damaged.

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 one another and grow 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 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. The figures below show the locations of recorded thunderstorms and lightning events, with data ranging from 2010 to the present. Per the NWS 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 maps show reported hail, wind, and lightning events in the planning area between 2000 and 2025, along with the NRI Average Risk Score for Hail, Lightning, and Strong Wind.

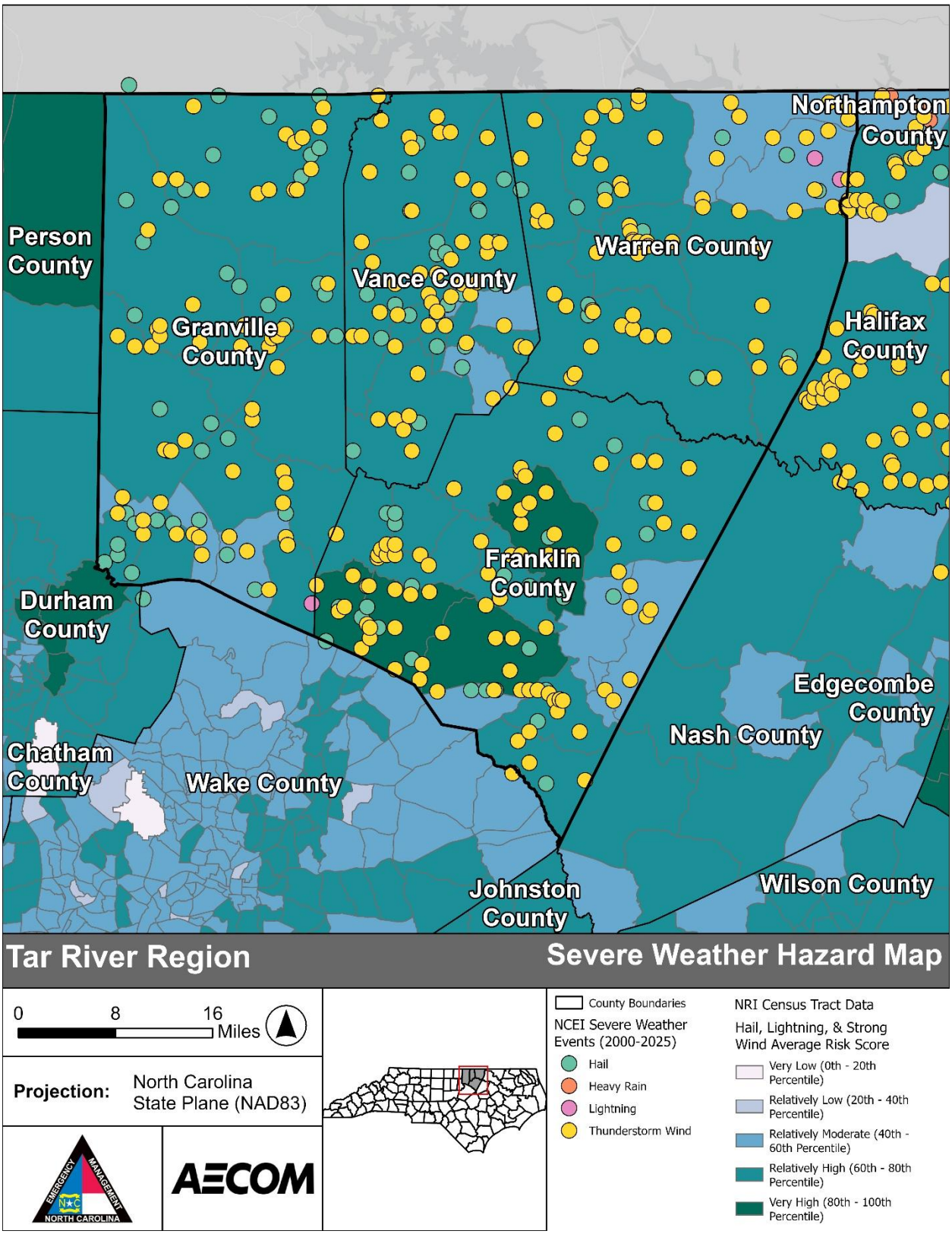


Figure 5-105: Severe Weather Hazard Map - Tar River Region

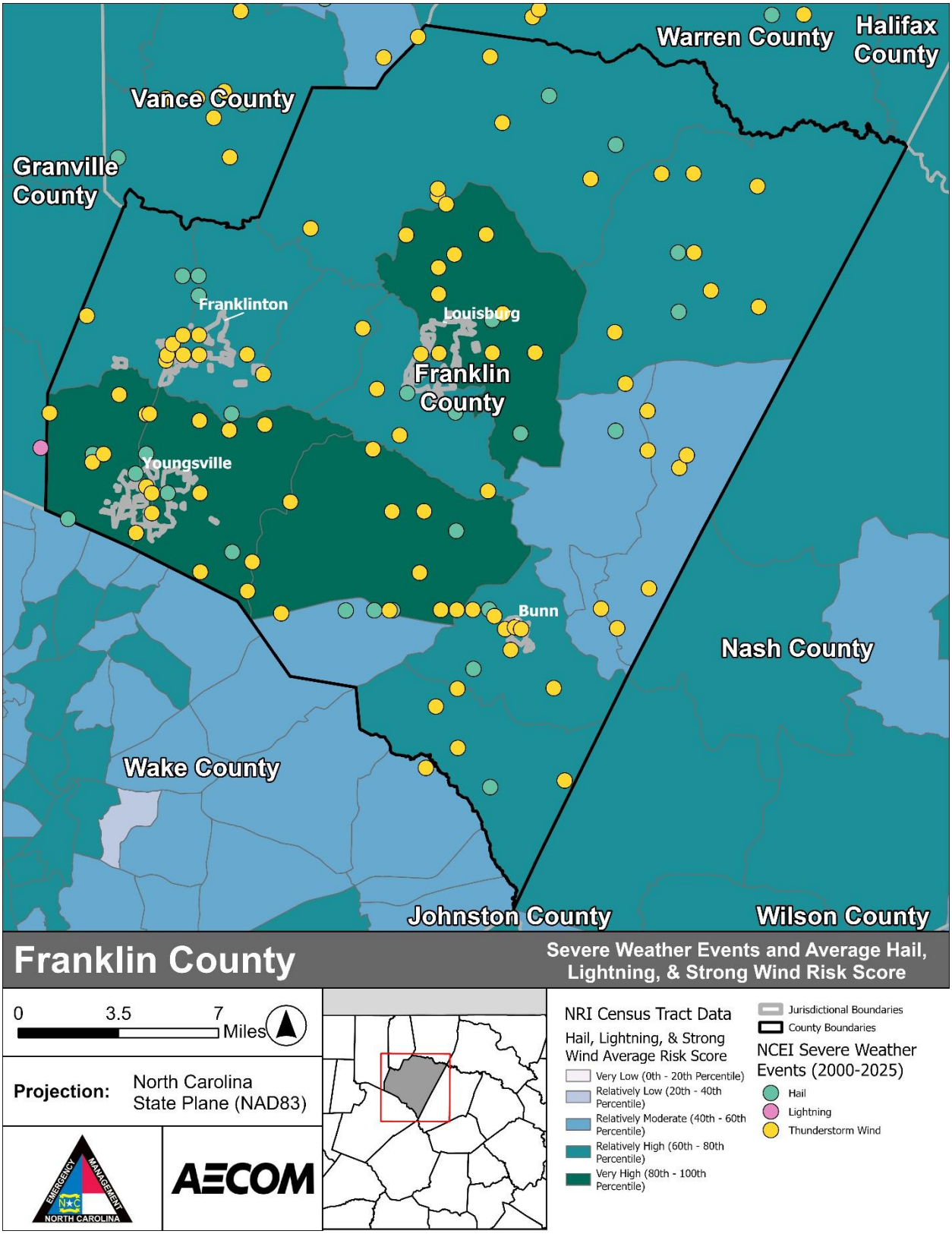


Figure 5-106: Severe Weather Hazard Map - Franklin County

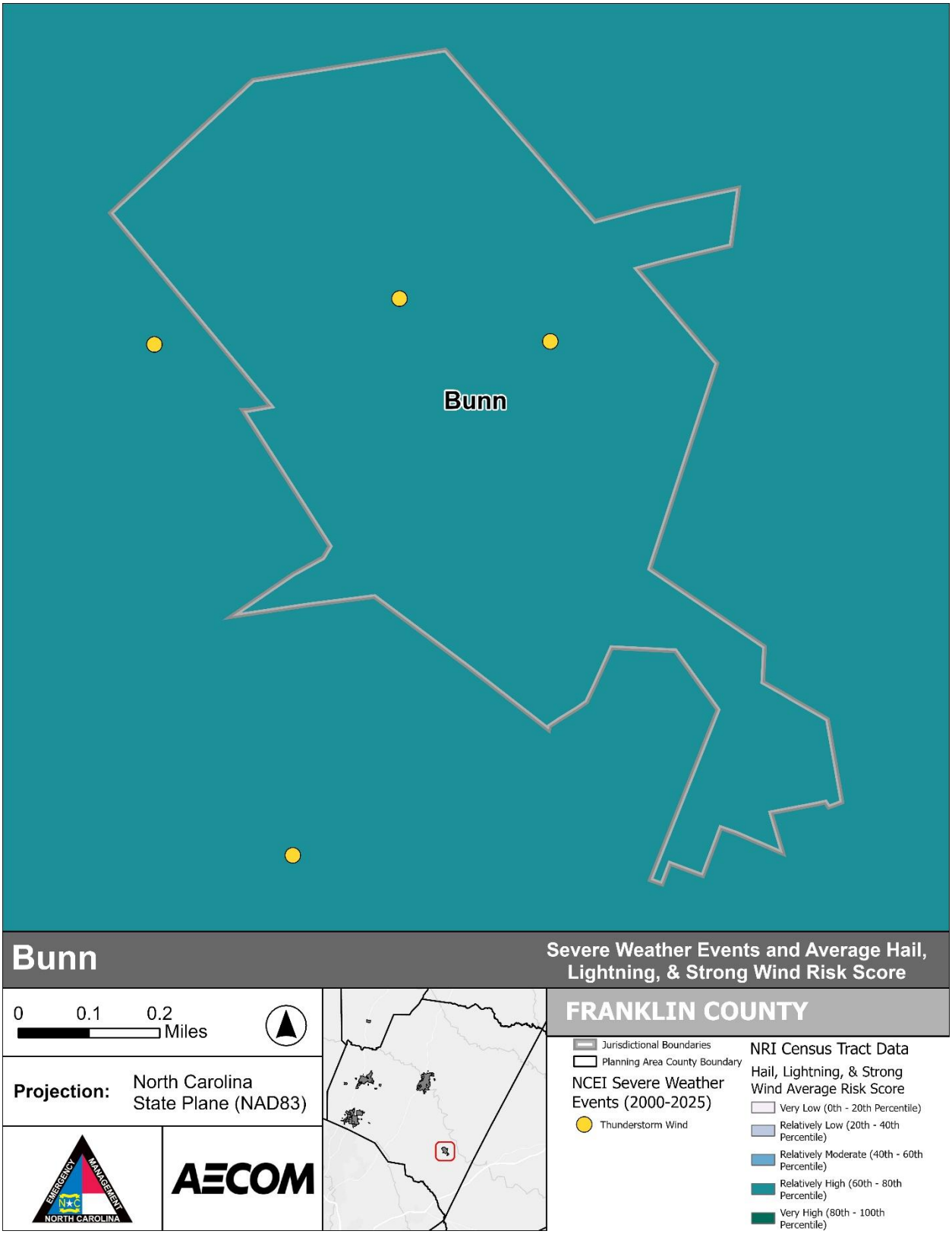


Figure 5-107: Severe Weather Hazard Map - Bunn

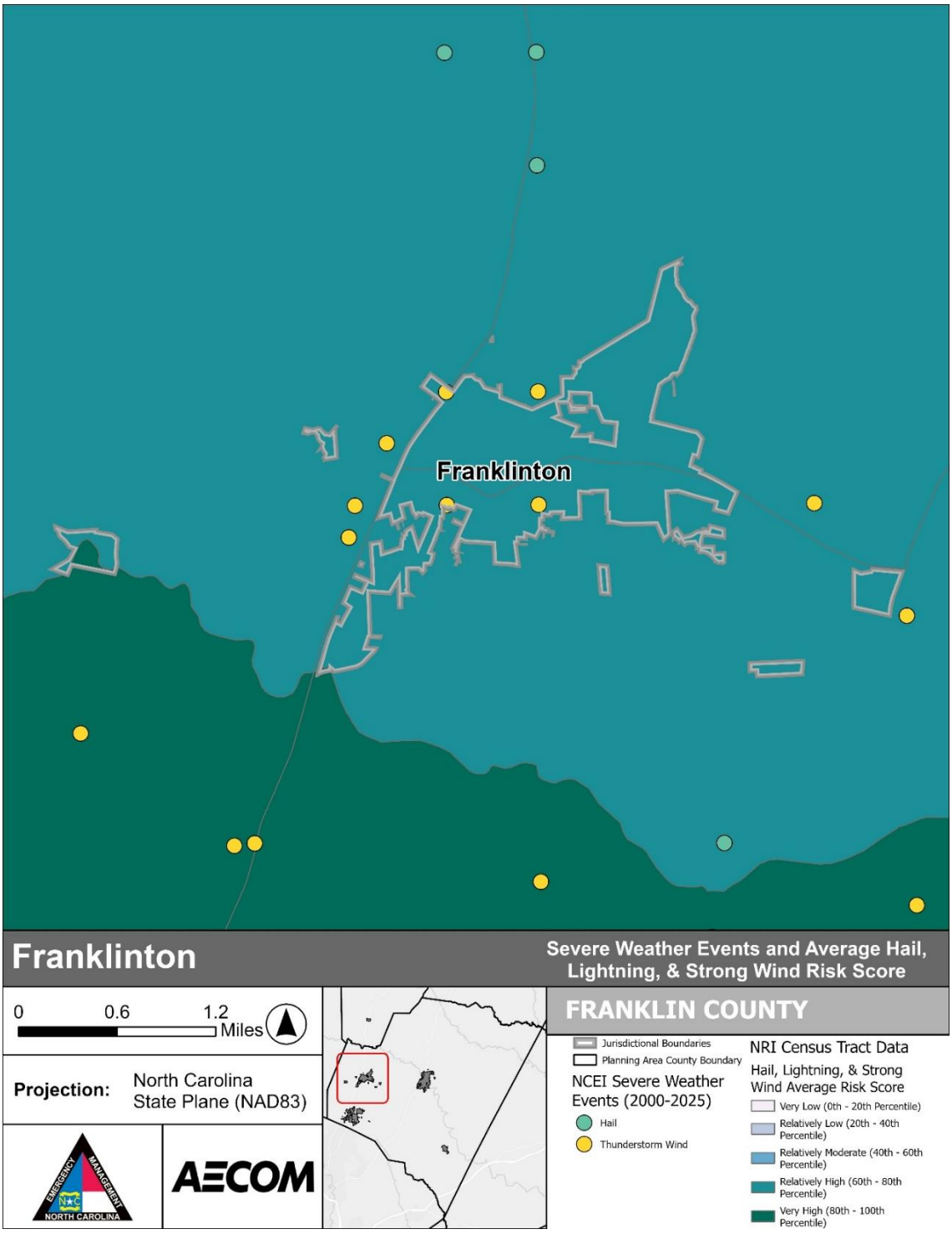


Figure 5-108: Severe Weather Hazard Map - Franklinton[57]

[57] The Municipal Boundaries (2025) GIS layer obtained from NCDOT and used for the maps in this plan contained slightly outdated jurisdictional boundaries for the Town of Franklinton due to recent annexations between 2023 and 2025. However, given the map scale, hazard data can still be viewed for the missing incorporated areas of Franklinton. Please see Section 3 – Figure 3-29 for the Town of Franklinton's up-to-date boundary map, based on the incorporated boundary corrections from the U.S. Census Boundary and Annexations Survey.

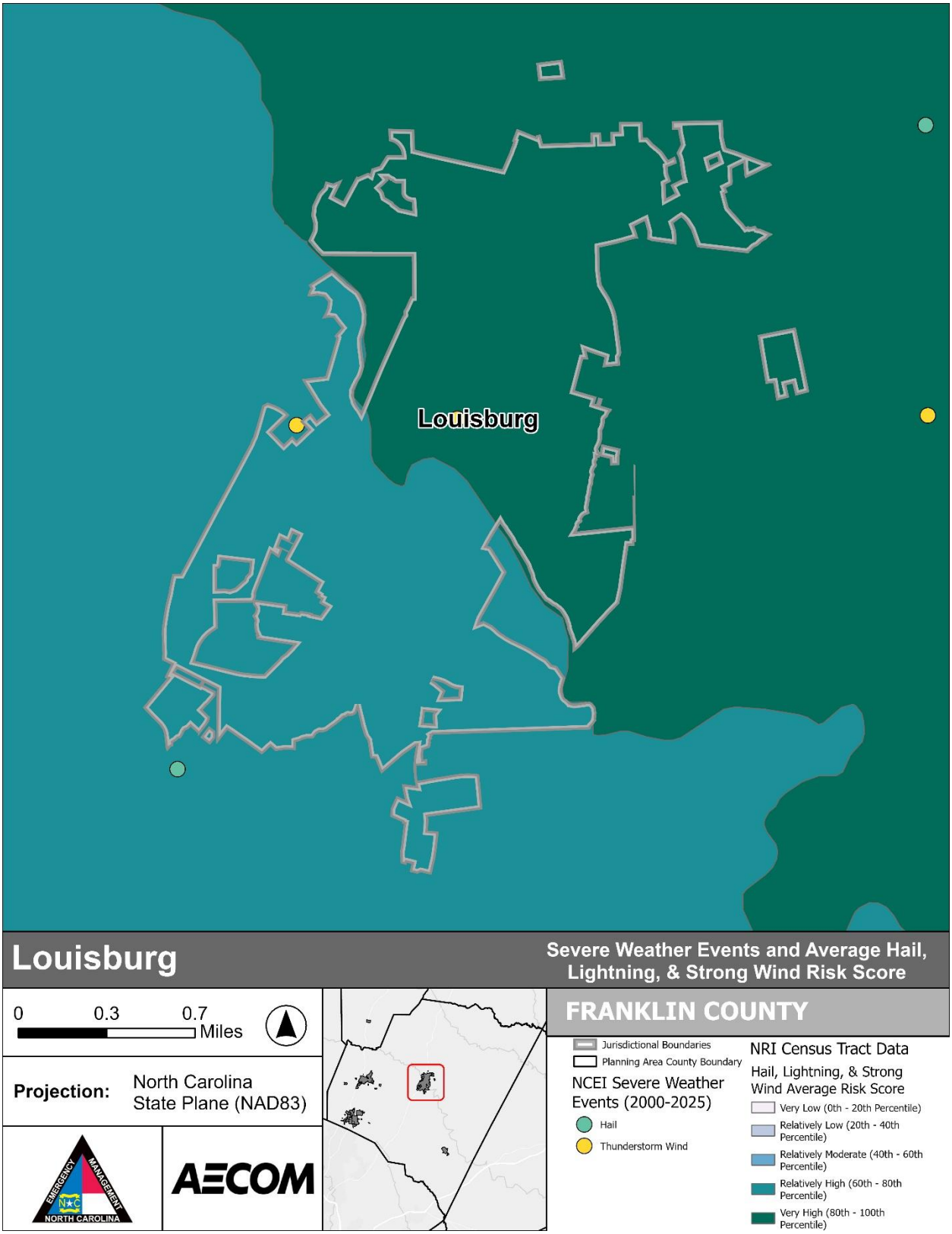


Figure 5-109: Severe Weather Hazard Map - Louisburg

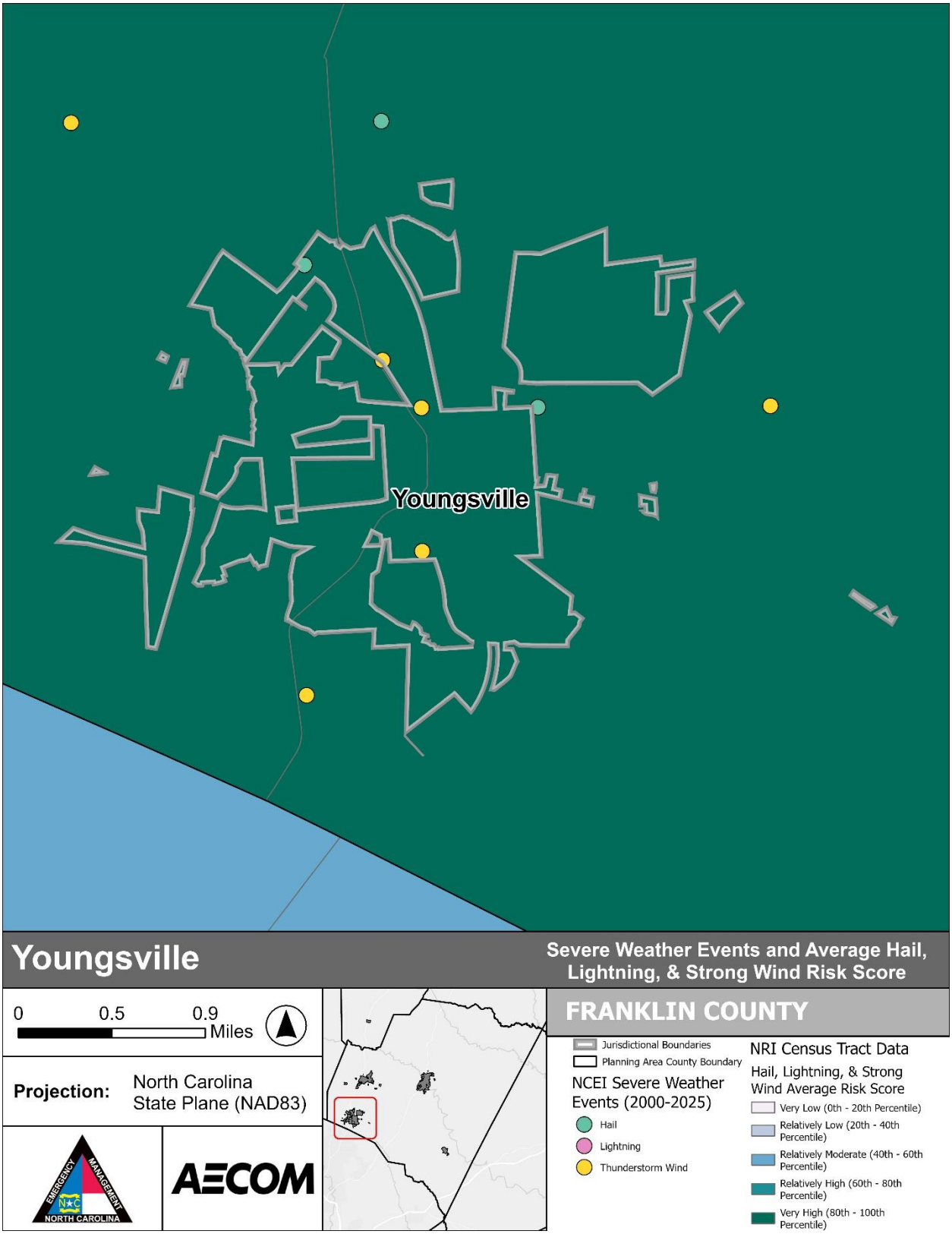


Figure 5-110: Severe Weather Hazard Map - Youngsville

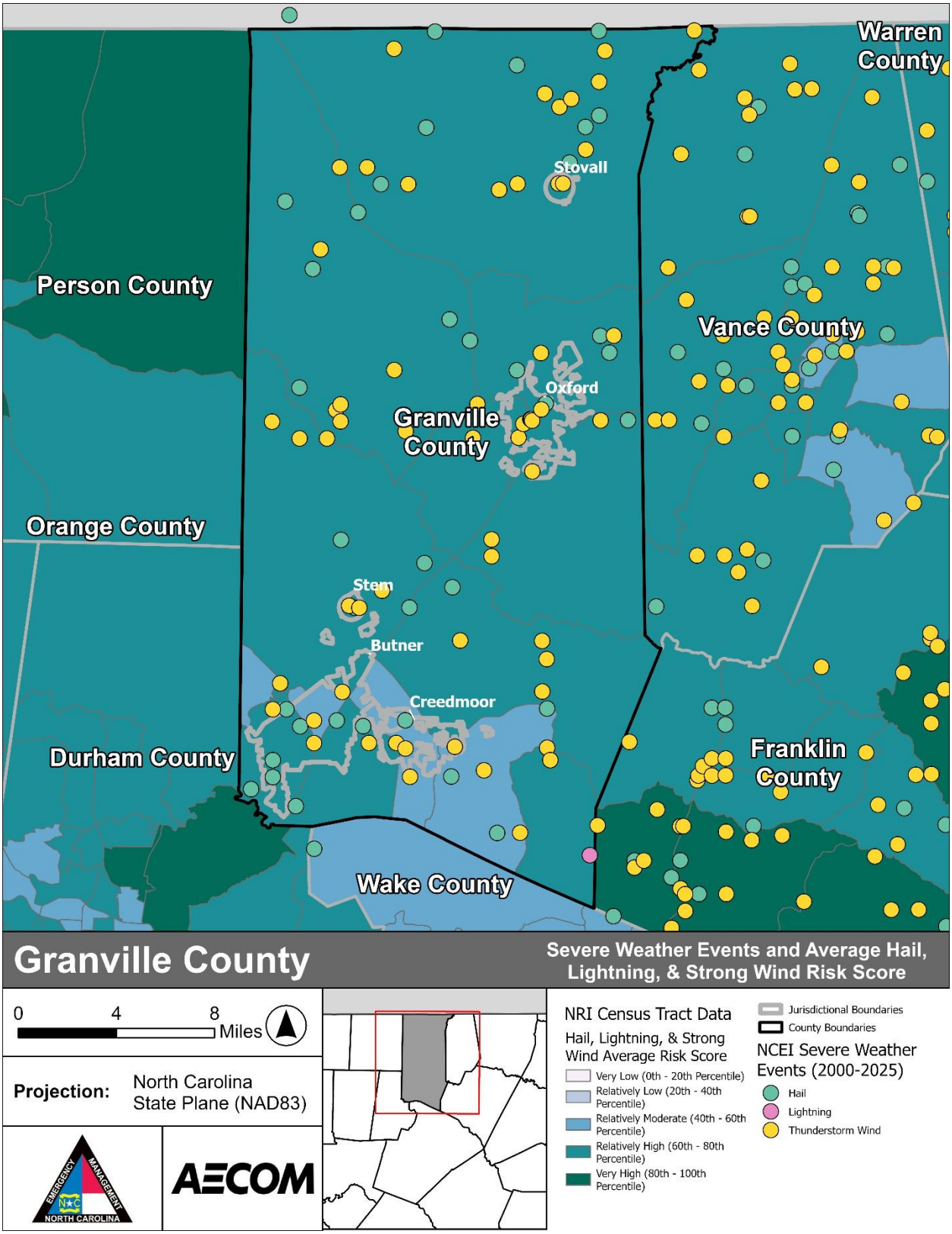


Figure 5-111: Severe Weather Hazard Map - Granville County

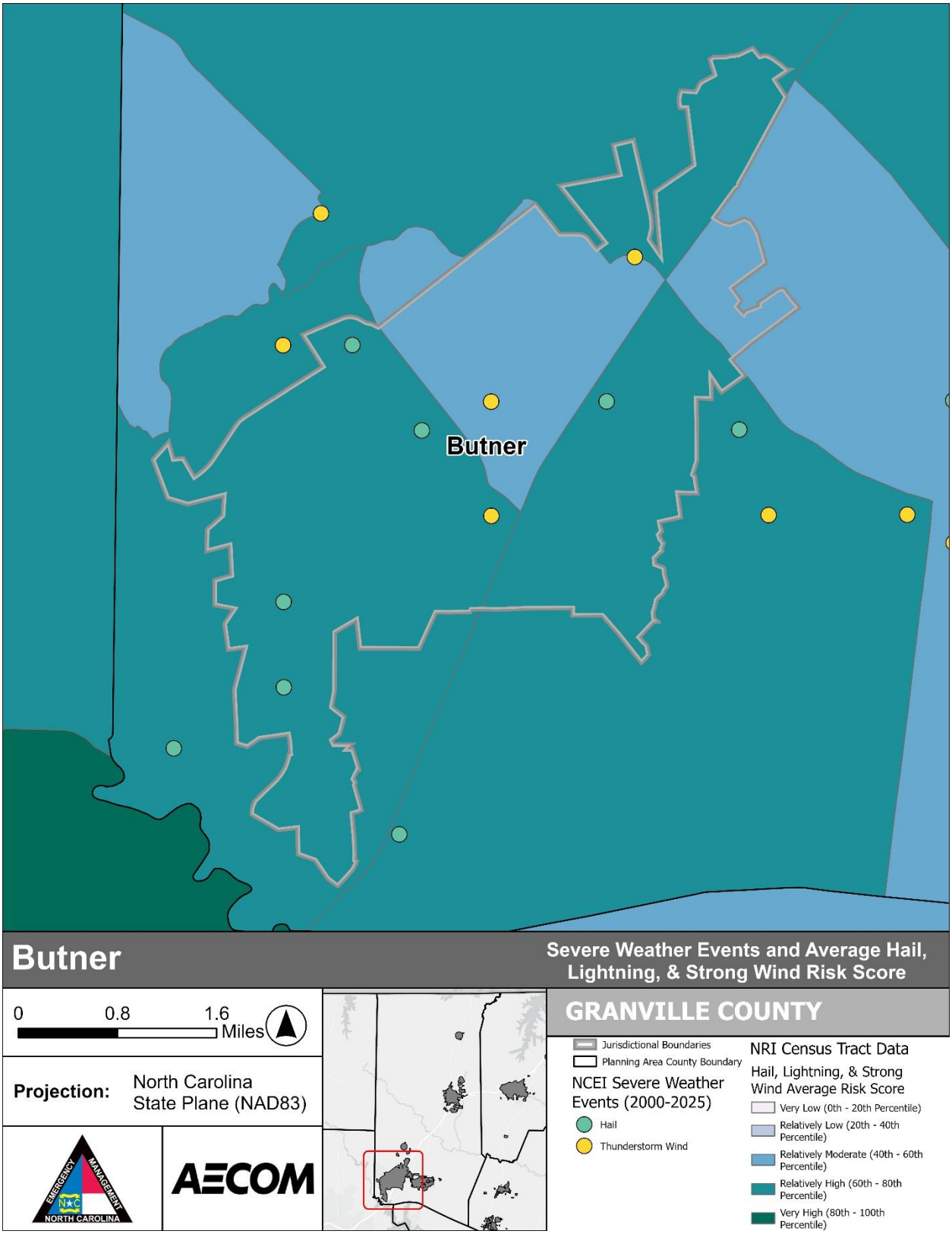


Figure 5-112: Severe Weather Hazard Map - Butner

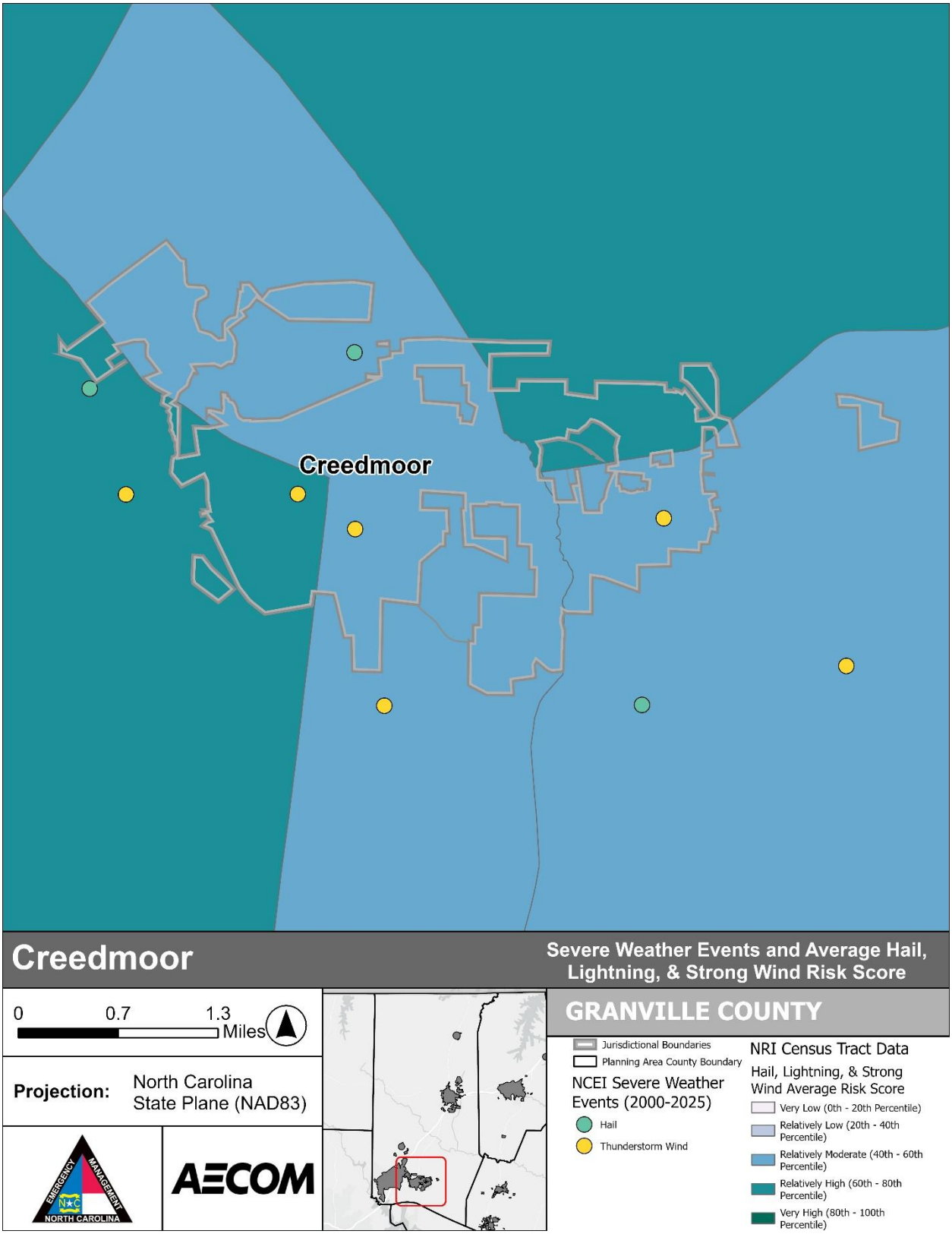


Figure 5-113: Severe Weather Hazard Map - Creedmoor

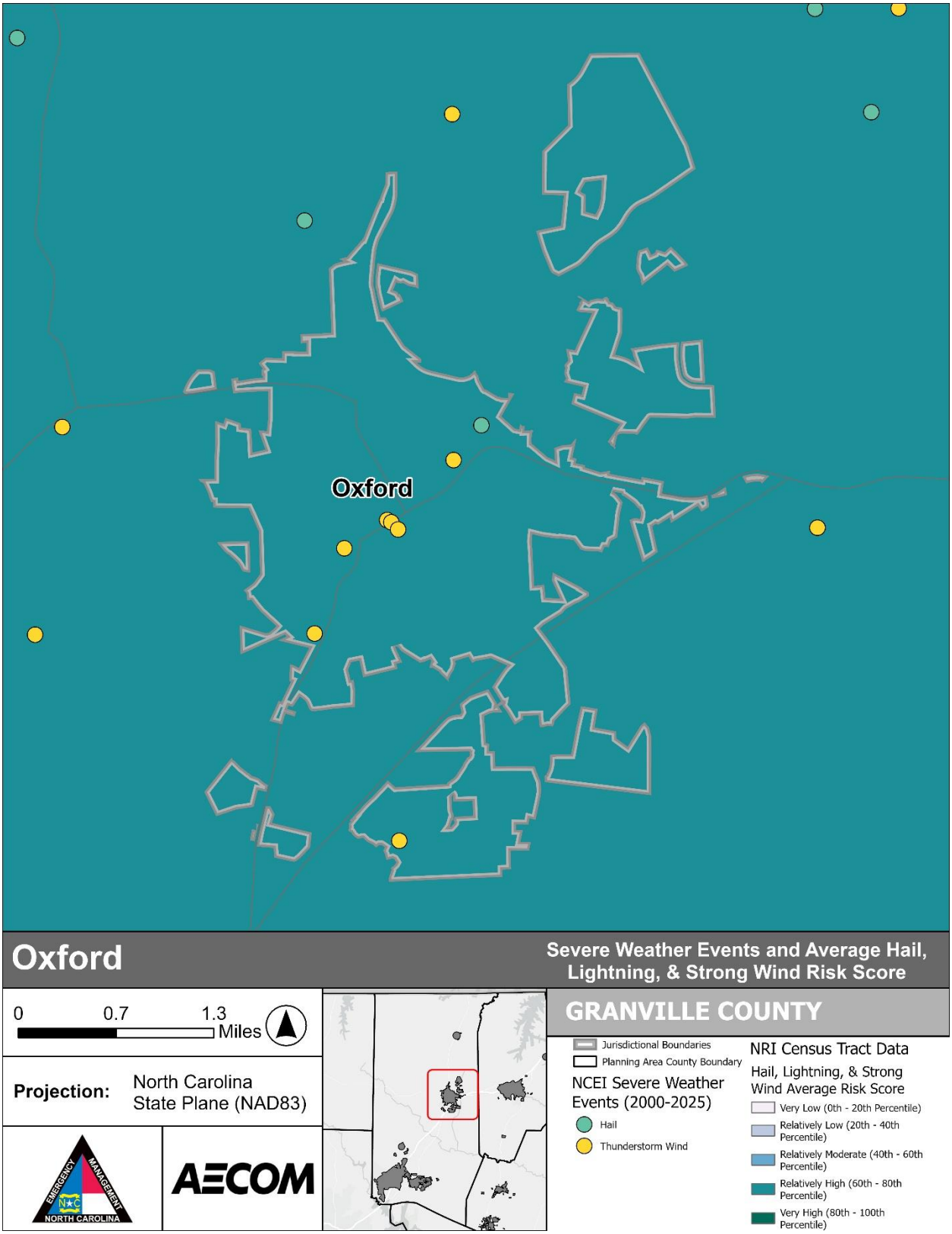


Figure 5-114: Severe Weather Hazard Map - Oxford

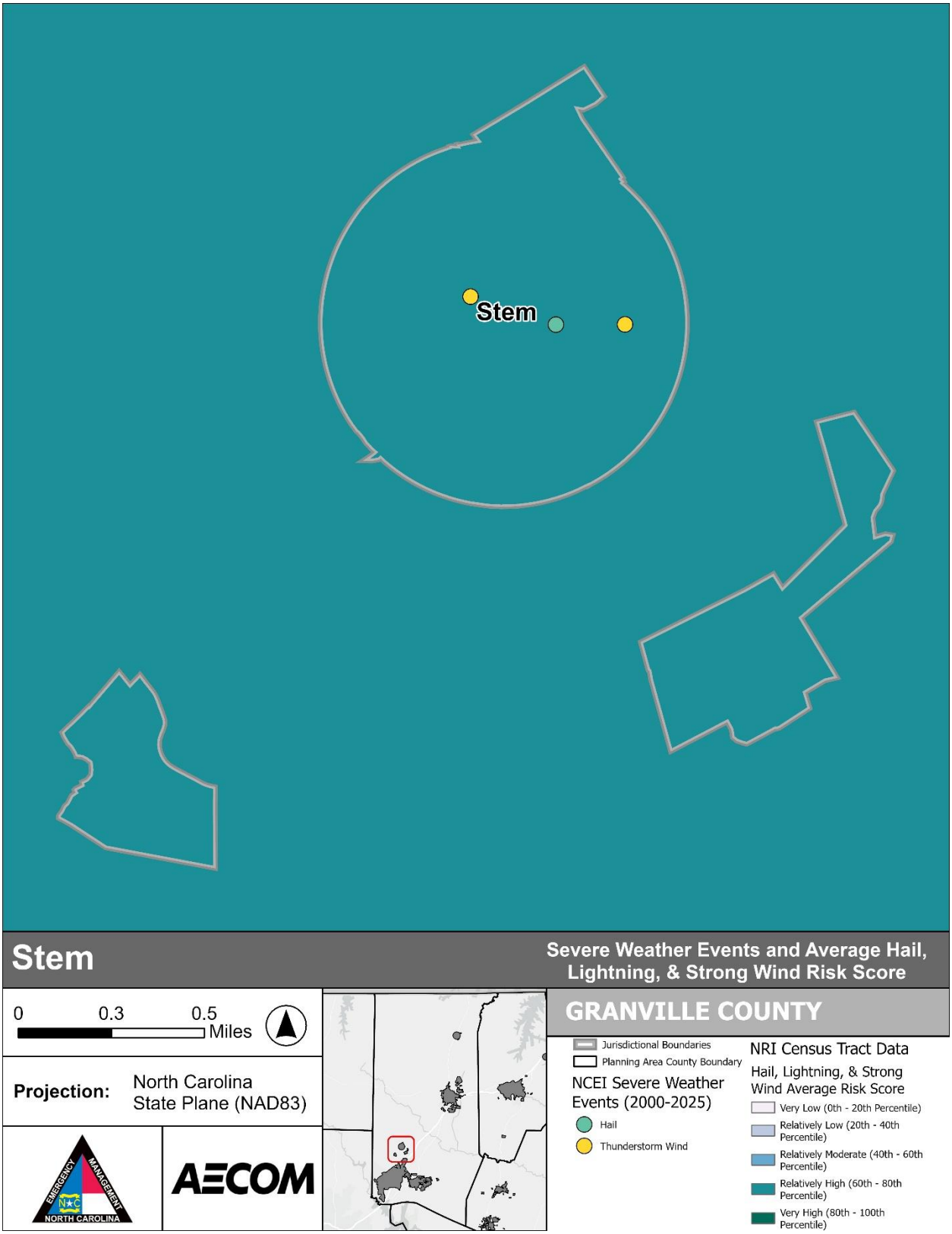


Figure 5-115: Severe Weather Hazard Map - Stem

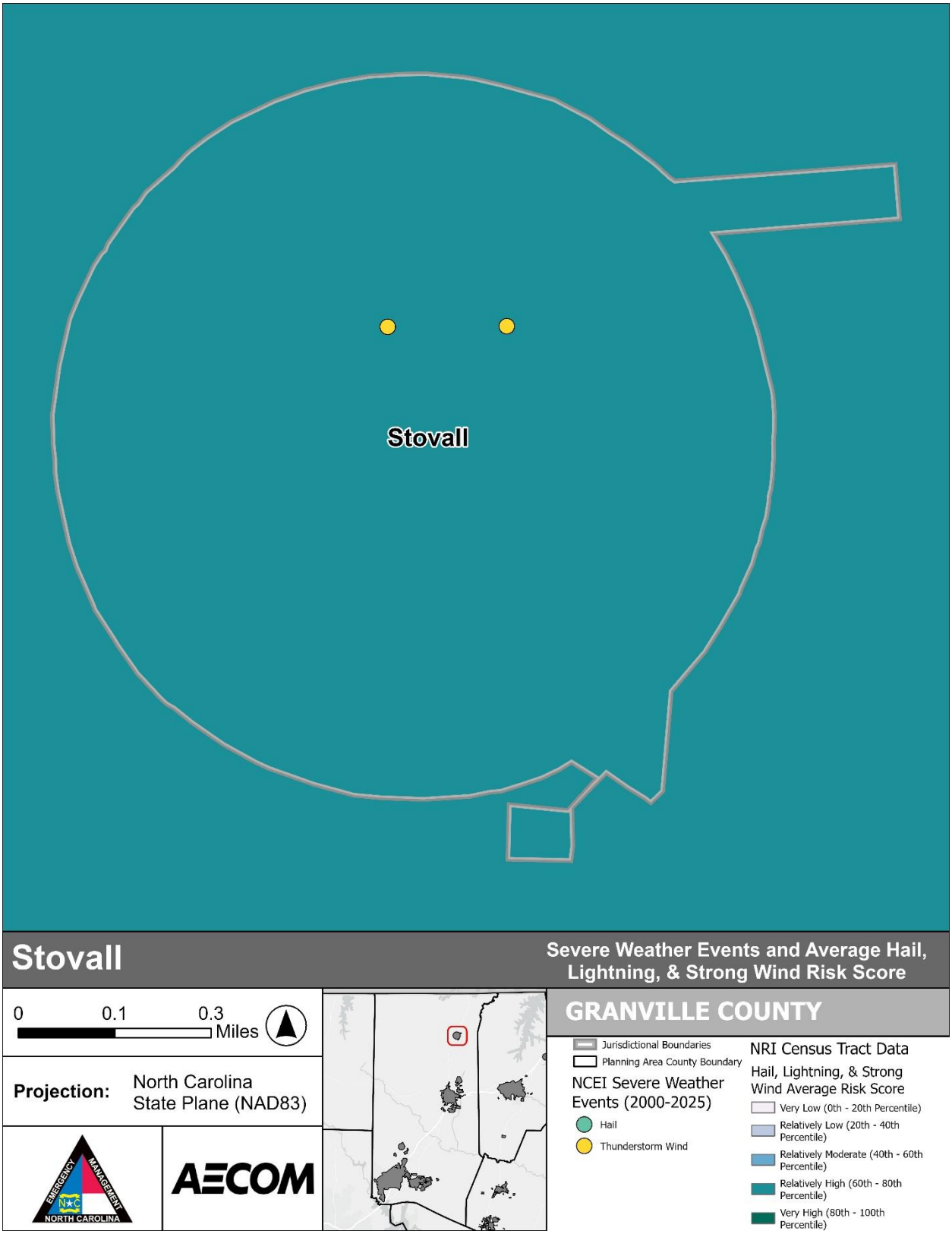


Figure 5-116: Severe Weather Hazard Map - Stovall

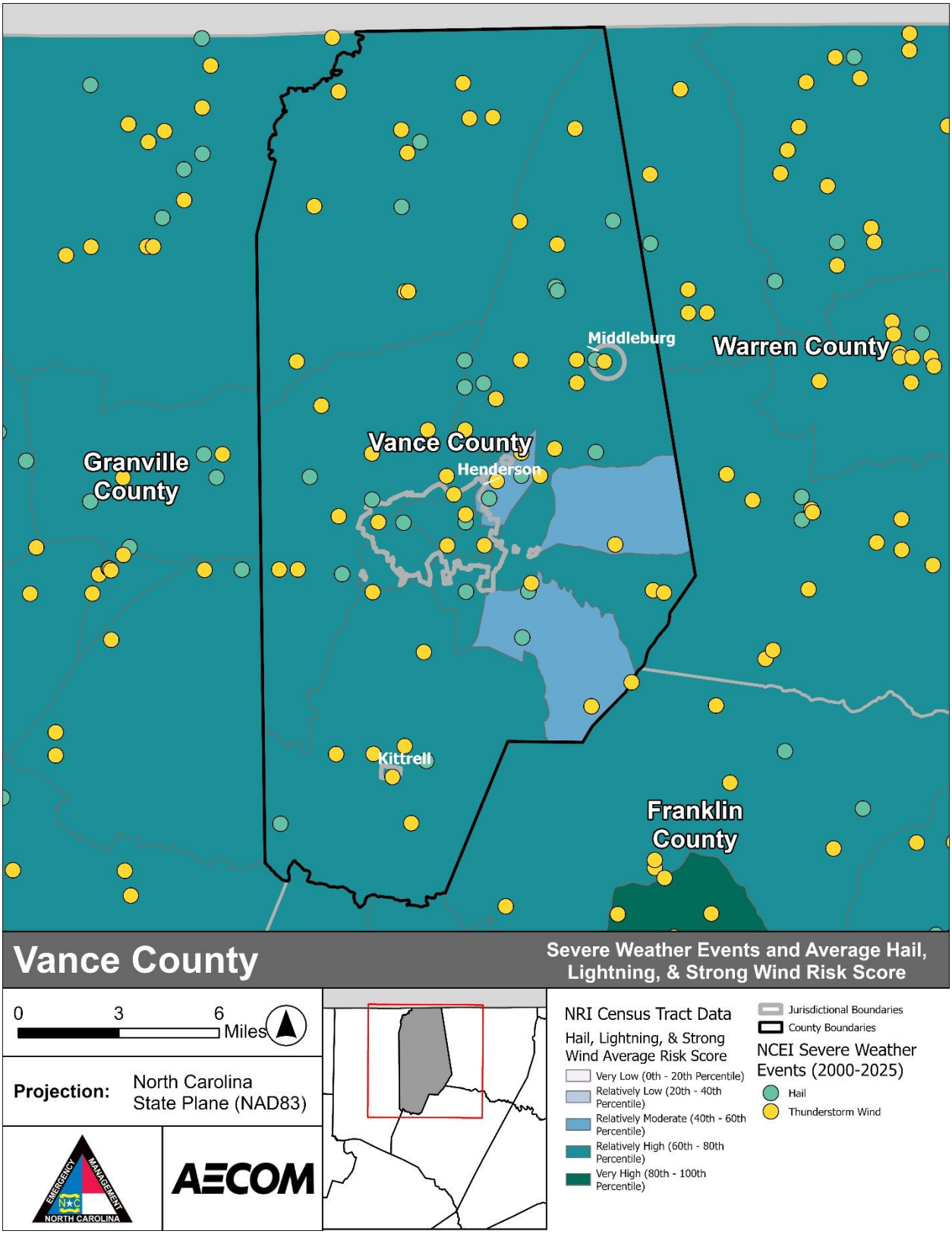


Figure 5-117: Severe Weather Hazard Map - Vance County

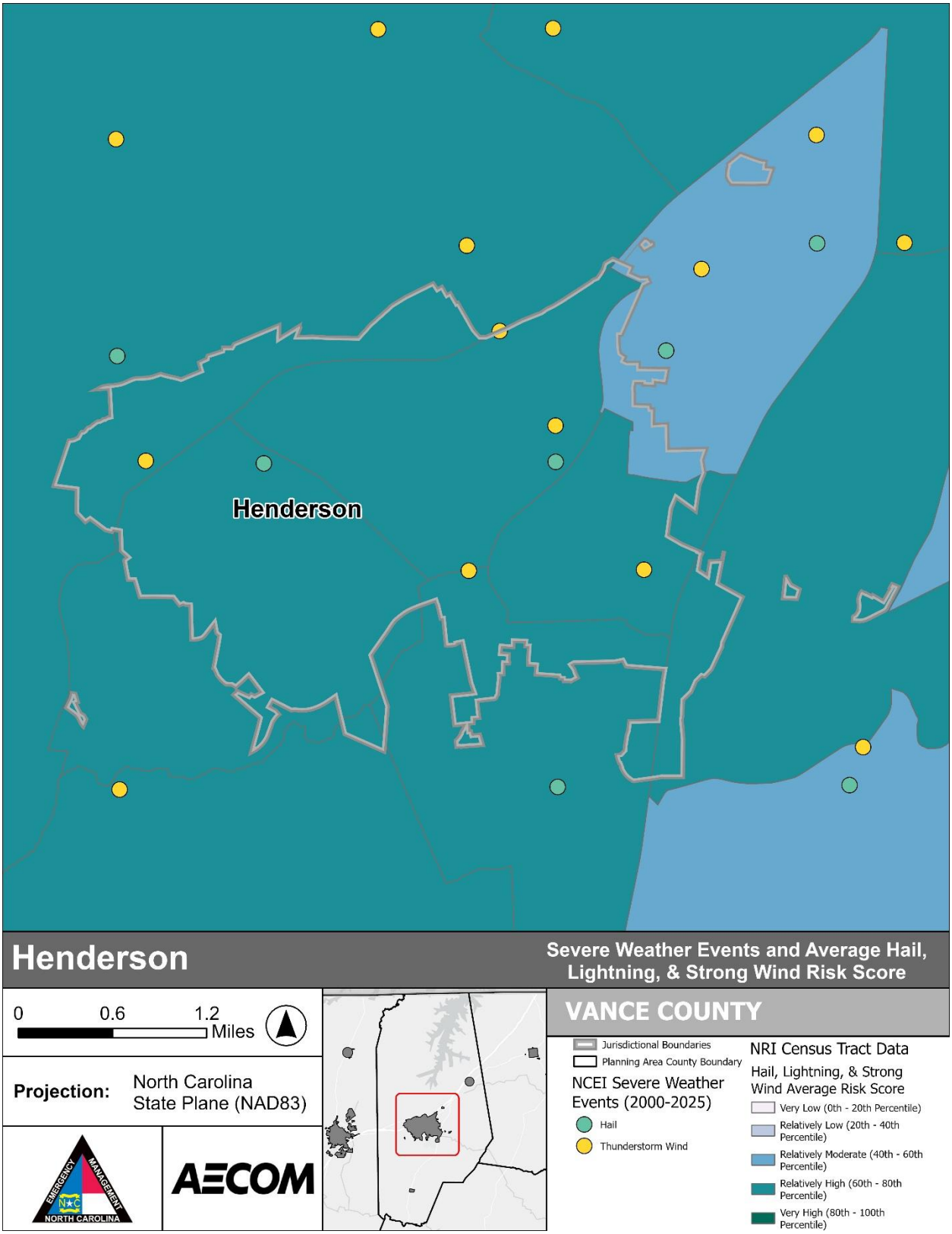


Figure 5-118: Severe Weather Hazard Map - Henderson

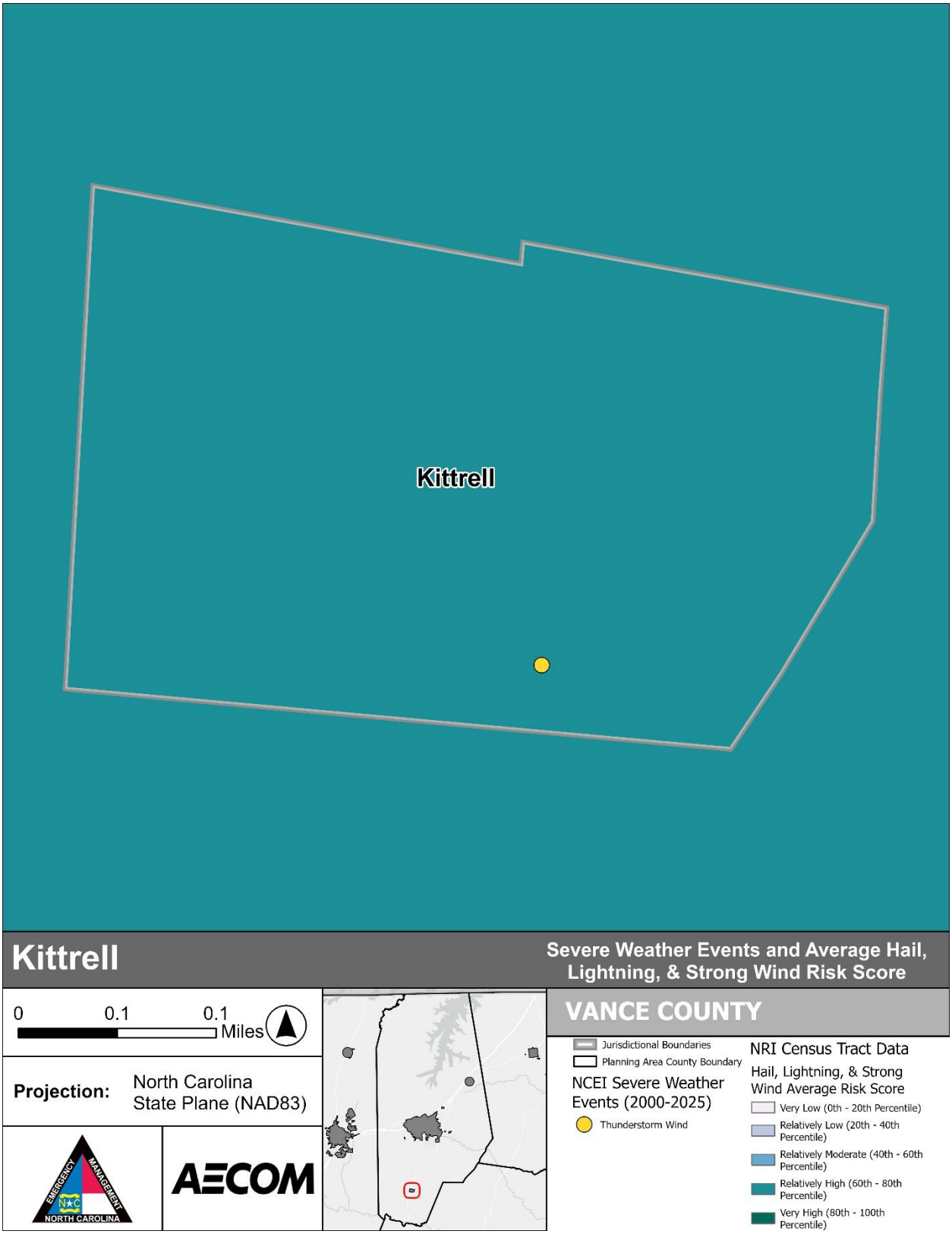


Figure 5-119: Severe Weather Hazard Map - Kittrell

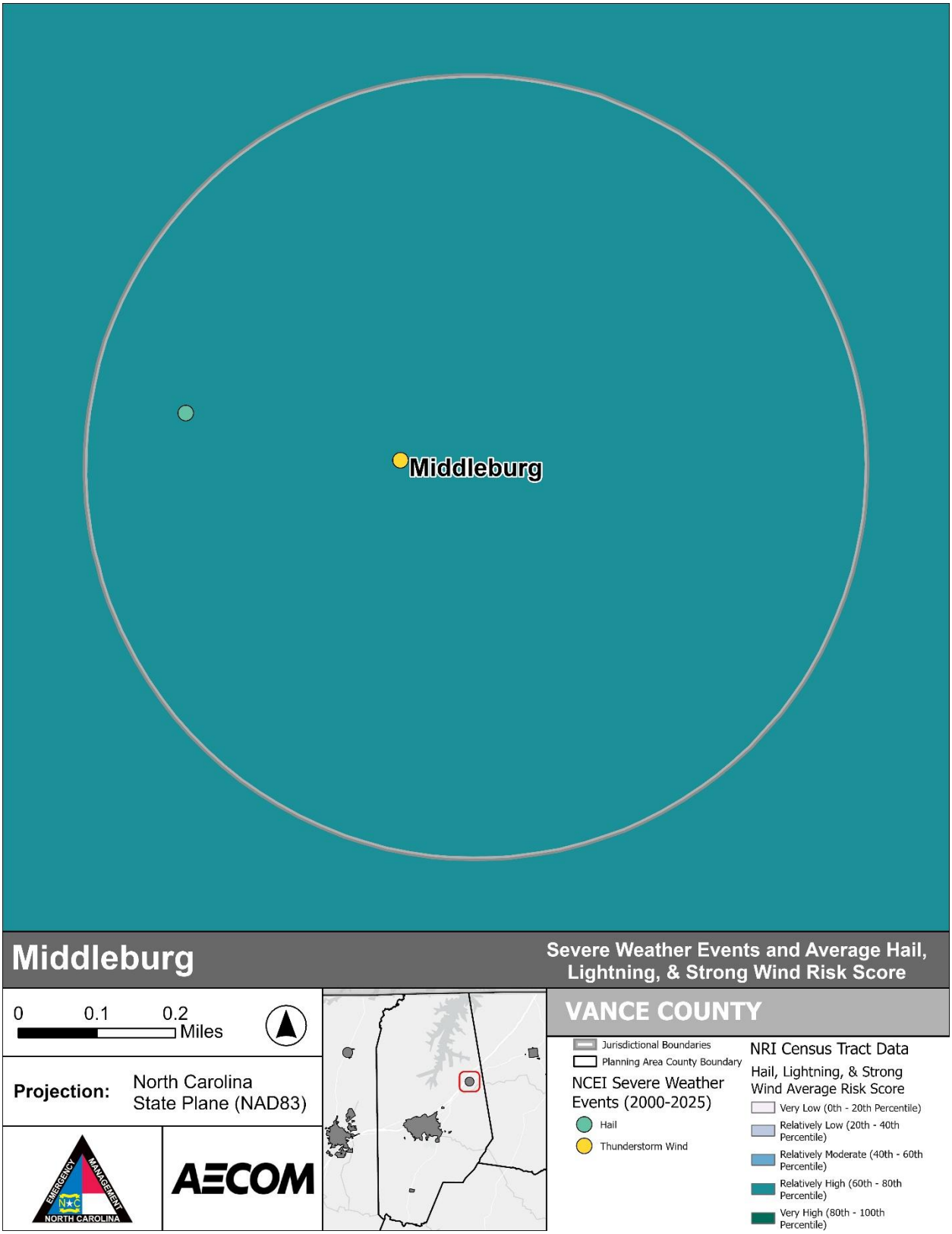


Figure 5-120: Severe Weather Hazard Map - Middleburg

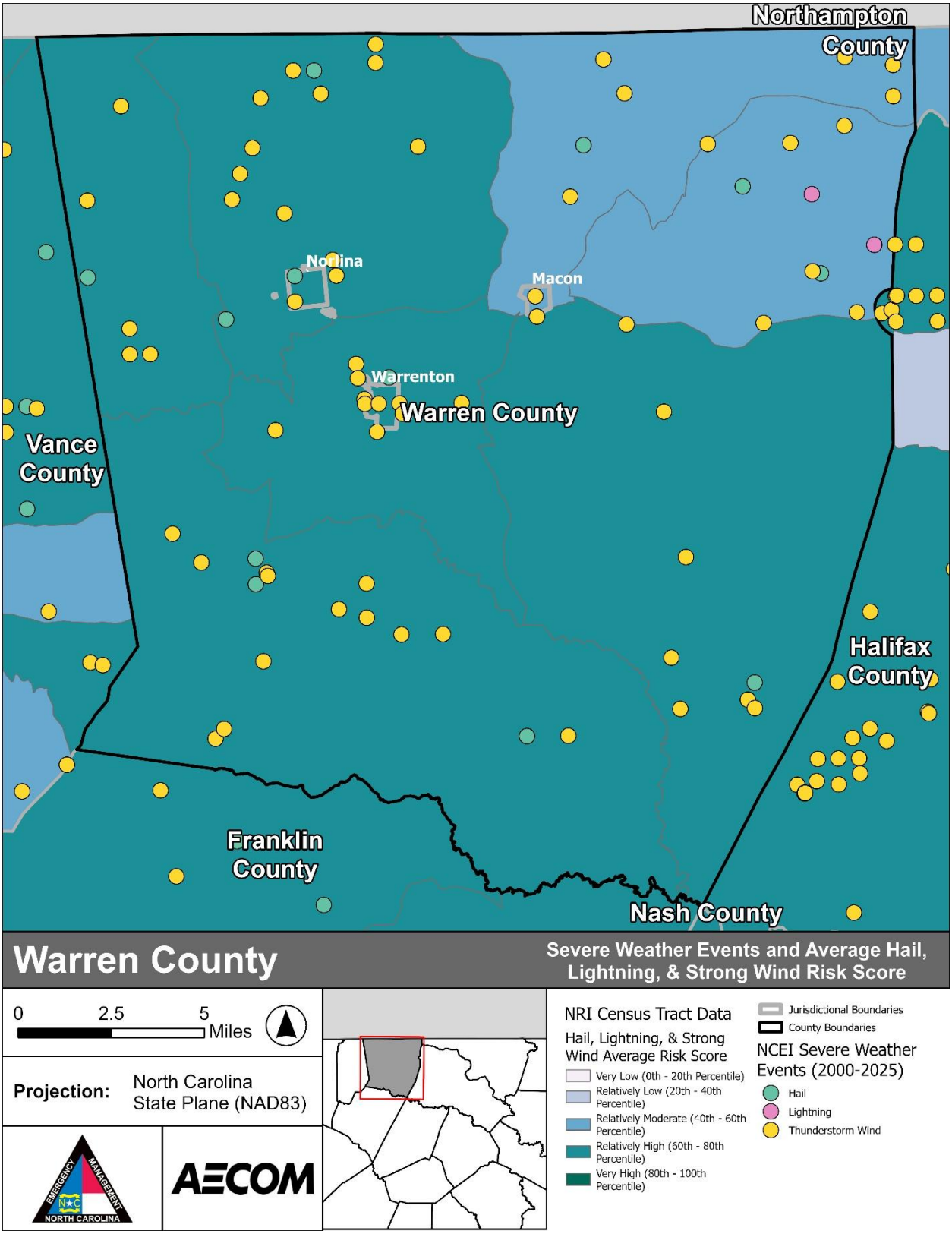


Figure 5-121: Severe Weather Hazard Map - Warren County

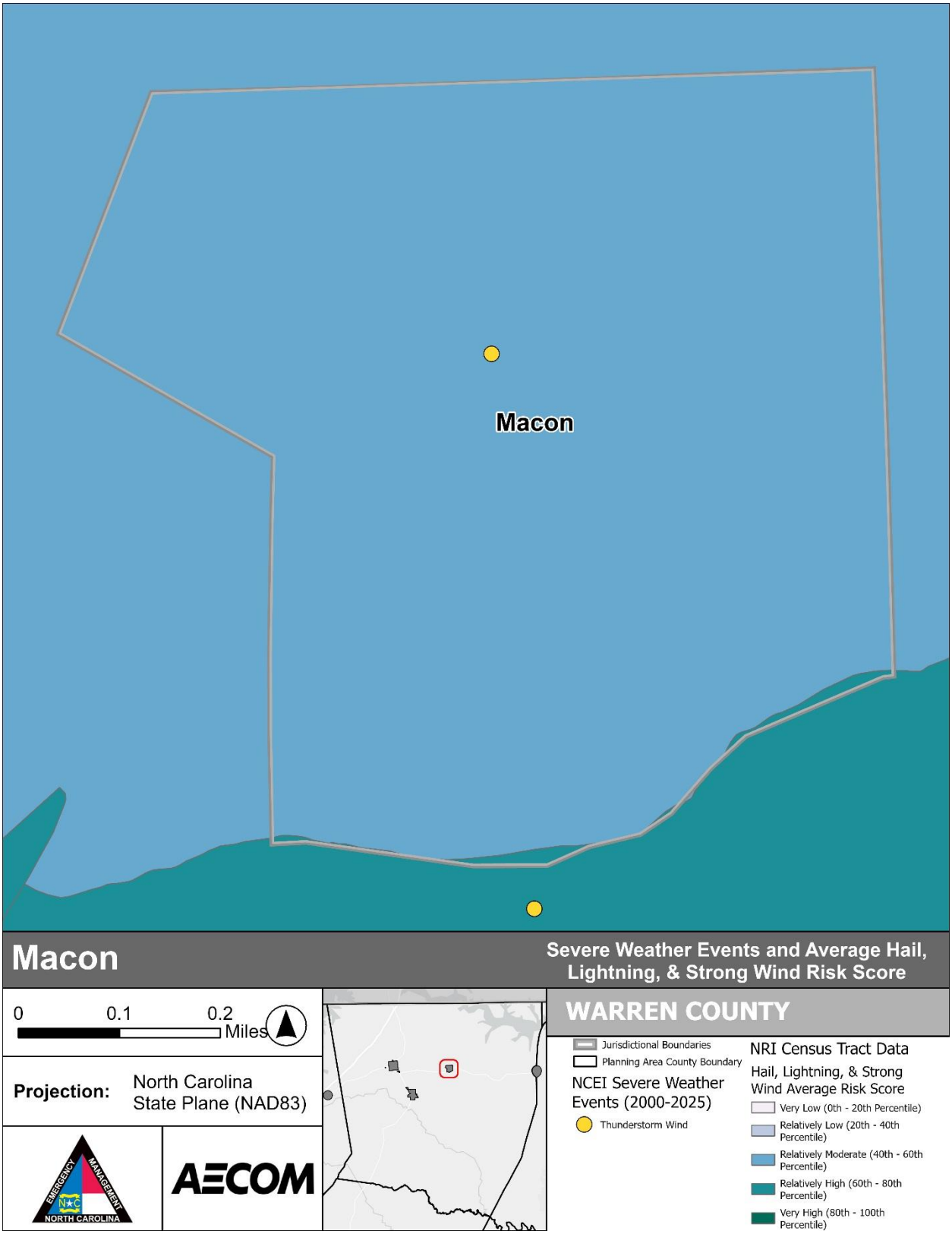


Figure 5-122: Severe Weather Hazard Map - Macon

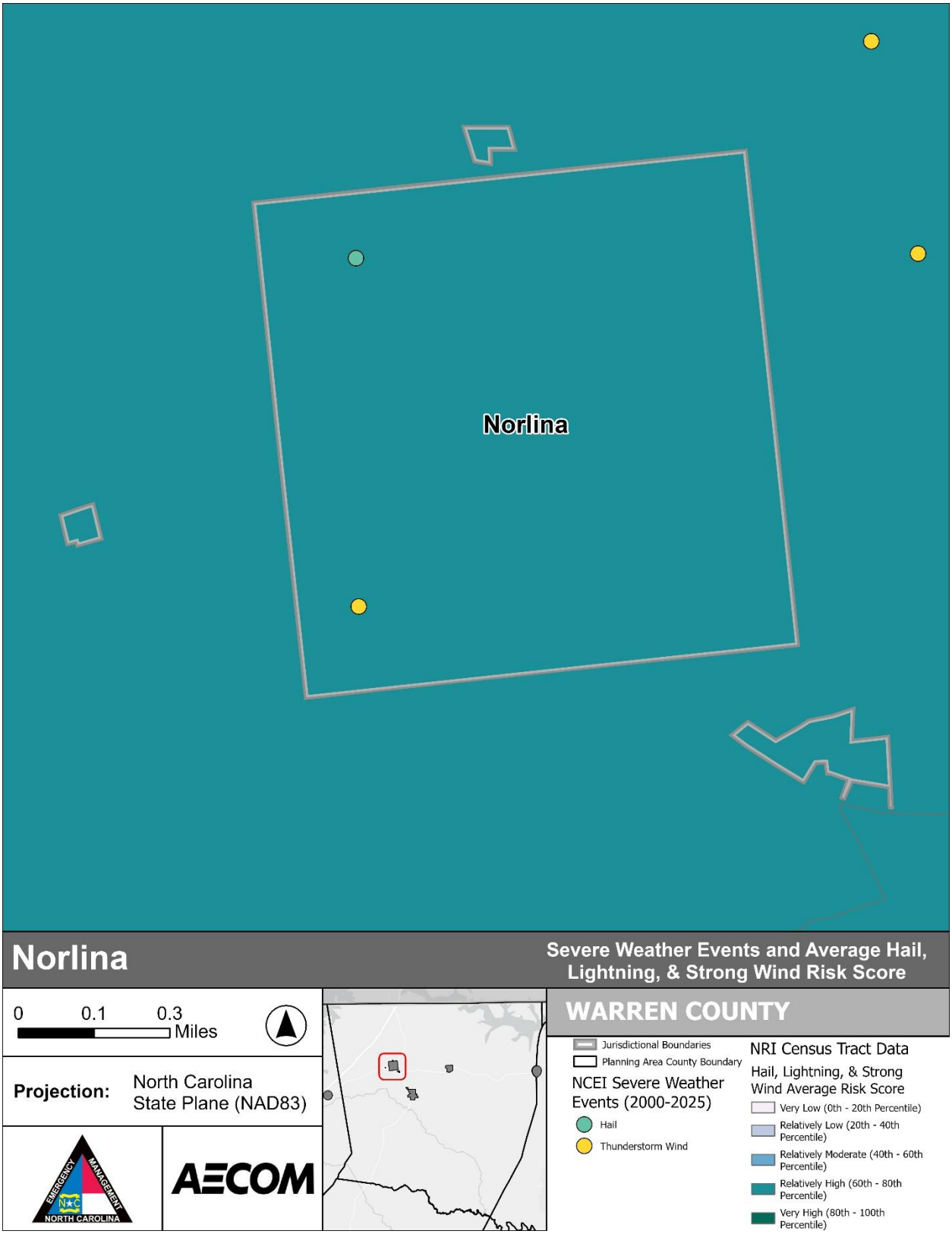


Figure 5-123: Severe Weather Hazard Map - Norlina

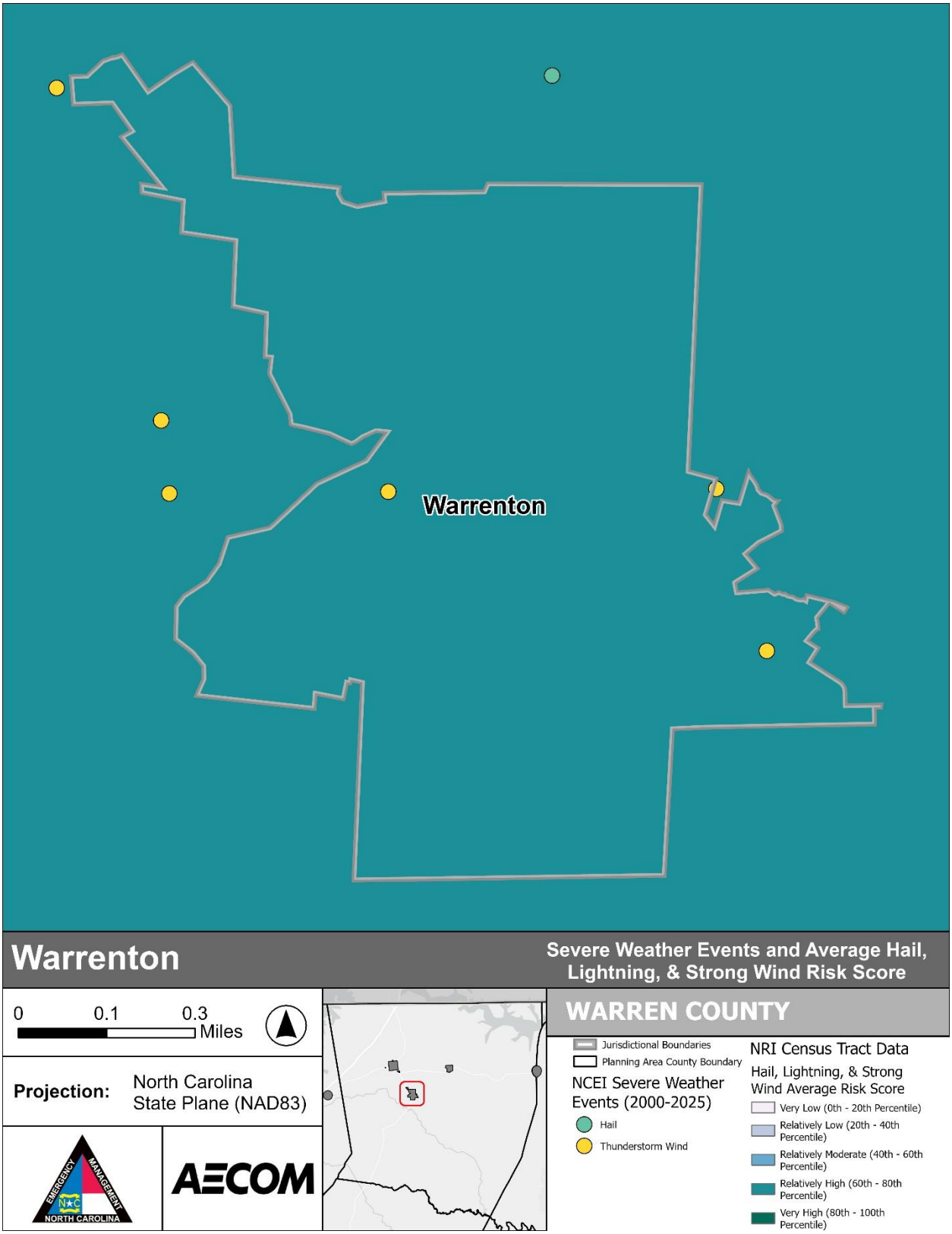


Figure 5-124: Severe Weather Hazard Map - Warrenton

5.8.3. Extent

The number of thunder events and reported wind speeds determine the extent of thunderstorms. According to the NCEI Storm Events Database, the strongest recorded wind event in Franklin County is 65 mph, 65 mph in Granville County, 60 mph in Vance County, and 52 mph in Warren County, with the largest recorded hail size in all four counties being 3 inches.

Table 5-36: Summary of Hail, Heavy Rain, Lightning, Strong Wind, and Thunderstorm Wind Events Reported by the NCEI Storm Events Database[58]

County	Hail			Heavy Rain			Lightning			Strong Wind			Thunderstorm Wind		
	Events	Deaths	Injuries	Events	Deaths	Injuries	Events	Deaths	Injuries	Events	Deaths	Injuries	Events	Deaths	Injuries
Franklin	68	0	0	7	0	0	2	1	0	13	1	0	240	1	4
Granville	95	0	0	5	0	0	3	0	1	13	0	0	159	0	0
Vance	53	0	0	5	0	0	3	0	1	13	0	0	123	0	0
Warren	35	0	0	4	0	0	2	0	1	13	0	0	144	0	0
Total	**251**	**0**	**0**	**21**	**0**	**0**	**10**	**1**	**3**	**52**	**1**	**0**	**666**	**1**	**4**

Table 5-37: Maximum Recorded Wind Speed and Hail Size in the Planning Area from the NCEI Storm Events Database[58]

Jurisdiction	Maximum Event Wind Speed (mph)	Maximum Hail Size (in)
Franklin County (Unincorporated Area)	**65**	**2**
Bunn	50	1.75
Franklinton	56	1
Louisburg	50	2
Youngsville	50	1.75
Granville County (Unincorporated Area)	**65**	**2.75**
Butner	50	1.5
Creedmoor	60	1.75
Oxford	50	2.5
Stem	50	1
Stoval	50	1.75
Vance County (Unincorporated Area)	**52**	**3**
Henderson	60	1.75

[58] National Center for Environmental Information (NCEI). (2025). *Storm Events Database* [Tabular]. National Oceanic and Atmospheric Administration. https://www.ncei.noaa.gov/stormevents/

Jurisdiction	Maximum Event Wind Speed (mph)	Maximum Hail Size (in)
Kittrell	50	1.75
Middleburg	50	1.75
Warren County (Unincorporated Area)	**52**	**2**
Macon	50	--
Norlina	50	0.88
Warrenton	50	1

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 of severe weather events reported by the NCEI Storm Events Database since 1966 for the Region. The NCEI has recorded 1,000 events in the planning area that have caused three deaths, seven injuries, and over $26,345,850 in property and crop 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)[59]

Jurisdiction	Damage Reported				
	Hail	Heavy Rain	Lightning	Strong Wind	Thunderstorm Wind
Franklin County (Unincorporated Area)	$10,000,000	$0	$0	$1,528,200	$6,352,000
Bunn	$0	$0	$0	$0	$107,000
Franklinton	$0	$0	$0	$0	$343,000
Louisburg	$0	$0	$0	$0	$179,000
Youngsville	$0	$0	$20,000	$0	$51,000
Franklin Total	**$10,000,000**	**$0**	**$20,000**	**$1,528,200**	**$7,032,000**
Granville County (Unincorporated Area)	$100,000	$0	$150,000	$1,221,200	$204,000
Butner	$0	$0	$0	$0	$32,500
Creedmoor	$0	$0	$250,000	$0	$60,000
Oxford	$1,000	$0	$0	$0	$153,000
Stem	$0	$0	$0	$0	$1,000
Stoval	$0	$0	$0	$0	$0
Granville Total	**$101,000**	**$0**	**$400,000**	**$1,221,200**	**$450,500**
Vance County (Unincorporated Area)	$0	$0	$10,000	$1,235,700	$208,750
Henderson	$0	$0	$500,000	$0	$104,000
Kittrell	$0	$0	$0	$0	$22,000

[59] National Center for Environmental Information (NCEI). (2025). *Storm Events Database* [Tabular]. National Oceanic and Atmospheric Administration. https://www.ncei.noaa.gov/stormevents/

Jurisdiction	Damage Reported				
	Hail	Heavy Rain	Lightning	Strong Wind	Thunderstorm Wind
Middleburg	$2,500	$0	$0	$0	$11,500
Vance Total	**$2,500**	**$0**	**$510,000**	**$1,235,700**	**$346,250**
Warren County (Unincorporated Area)	$1,850,000	$0	$1,000	$1,257,500	$340,000
Macon	$0	$0	$0	$0	$14,000
Norlina	$0	$0	$0	$0	$1,000
Warrenton	$0	$0	$0	$0	$35,000
Warren Total	**$1,850,000**	**$0**	**$1,000**	**$1,257,500**	**$390,000**
Region Total	**$11,953,500**	**$0**	**$931,000**	**$5,242,600**	**$8,218,750**

Table 5-39: 10 Events with the Highest Damage Reported in the Planning Area in the NCEI Storm Events Database Reported After 2015[60]

County	Location	Date	Event Type	Magnitude	Deaths	Injuries	Damage	Event Narrative	Episode Narrative
Franklin	Sutton (Unincorporated Area)	4/8/2015	Hail	2 in	0	0	$10,000,000	A swath of hail up to the size of hen eggs was reported from near Bunn to near Pilot. Several homes had holes in their siding and windows, and several cars' windshields were damaged.	With a front draped across the area, an Mesoscale Convective Vortex (MCV) tracked over the region. Given the unstable air mass in place, convection developed, and several of the storms became severe. The main impact was very large hail up to the size of hen eggs (around 2 inches). One of the storms caused significant damage in Franklin County, with holes in several homes' siding and windows, and multiple car windshields were damaged.

[60] National Center for Environmental Information (NCEI). (2025). *Storm Events Database* [Tabular]. National Oceanic and Atmospheric Administration. https://www.ncei.noaa.gov/stormevents/

County	Location	Date	Event Type	Magnitude	Deaths	Injuries	Damage	Event Narrative	Episode Narrative
Franklin	Raynor (Unincorporated Area)	7/6/2022	Thunderstorm Wind	50 mph	0	0	$1,000,000	There was significant damage to various aircraft at the Triangle North Executive Airport, including a glider belonging to the Franklin Composite Squadron of the Civil Air Patrol. A few hangers were also damaged.	Morning thunderstorms over the Ohio Valley, along with a surface trough over western Piedmont, created several boundaries, leading to afternoon and evening thunderstorms across central North Carolina. The storms formed over the western Piedmont and Virginia, tracking into the central and eastern Piedmont and the Coastal Plain in the mid- to late evening hours. The storms reached the far eastern portions of North Carolina in the early hours of the night. Numerous trees and wind damage were reported as a result of these thunderstorms.
Warren	Unincorporated Area	10/29/2020	Strong Wind	40 mph	0	0	$1,000,000	Frequent wind gusts of 40 to 55 mph resulted in scattered to numerous trees and power lines down across Warren County, including some on homes. Numerous customers lost power in Warren County due to strong winds.	Hurricane Zeta made landfall along the Louisiana coast during the afternoon of October 28th. It quickly lifted off to the north and northeast, moving across the southern Appalachians and the southern Mid-Atlantic region on October 29th as it transitioned to an extratropical cyclone. This resulted in numerous reports of wind damage across the area, especially

County	Location	Date	Event Type	Magnitude	Deaths	Injuries	Damage	Event Narrative	Episode Narrative
Vance	Unincorporated Area			40 mph	0	0	$1,000,000	Frequent wind gusts of 40 to 55 mph resulted in scattered to numerous trees and power lines down across Vance County, including some on homes. Numerous customers in Vance County lost power due to strong winds.	across the northern Piedmont of central North Carolina.
Granville	Unincorporated Area			40 mph	0	0	$1,000,000	Frequent wind gusts of 40 to 55 mph caused scattered to numerous trees and power lines to come down across Granville County, including some on homes. Numerous customers in Granville County lost power due to strong winds.	

County	Location	Date	Event Type	Magnitude	Deaths	Injuries	Damage	Event Narrative	Episode Narrative
Franklin	Unincorporated Area			40 mph	0	0	$1,000,000	Frequent wind gusts of 40 to 55 mph resulted in scattered to numerous trees and power lines down across Franklin County, including some on homes. Numerous customers lost power in Franklin County due to strong winds.	
Vance	Unincorporated Area	10/8/2016	Strong Wind	39 mph	0	0	$100,000	Frequent wind gusts of 40 to 50 mph resulted in numerous trees down across Vance County, including on homes, cars, and power lines. Numerous customers in Vance County lost power due to strong winds.	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 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,
Franklin	Unincorporated Area			39 mph	0	0	$100,000	Frequent wind gusts of 40 to 50 mph resulted in numerous trees down across Franklin County, including on homes, cars, and power lines. Numerous customers lost power in Franklin County due to strong winds.	

County	Location	Date	Event Type	Magnitude	Deaths	Injuries	Damage	Event Narrative	Episode Narrative
Warren	Unincorporated Area			39 mph	0	0	$100,000	Frequent wind gusts of 40 to 50 mph brought down numerous trees across Warren County, including on homes, cars, and power lines. Numerous customers lost power in Warren County due to strong winds.	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 one fatality when a tree fell onto a moving vehicle. Finally, the EF-1 tornado in Wayne County caused $75,000 in property damage.
Granville	Unincorporated Area			39 mph	0	0	$100,000	Frequent wind gusts of 40 to 50 mph resulted in numerous trees down across Granville County, including on homes, cars, and power lines. Numerous customers in Granville County lost power due to strong winds.	

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 NWS 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 that 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 Franklin County, there is a 4.15 annualized frequency of hail events, a total EAL of $313,315, an EAL Score of 75.68, and a Hazard Risk Index Score of 77. The unincorporated areas of Franklin County have an average annualized frequency of 4.12, a total EAL of $119,955, an average EAL Score of 76.95, and an average Hazard Risk Index Score of 76.86. The jurisdiction with the highest EAL is Youngsville ($89,934), followed by Franklinton ($81,429), Louisburg ($50,901), and Bunn ($16,995).

Granville County has an annual frequency of 4.03 hail events, a total EAL of $127,787, a 58.28 EAL Score, and a 58.73 Hazard Risk Index Score. The unincorporated areas of Granville County have an average annual frequency of 4.14 events, an average EAL Score of 69.59, and an average Hazard Risk Index Score of 70.67. The jurisdiction with the highest total EAL is Butner ($37,623), followed by Creedmoor ($33,921), Oxford ($32,817), Stem ($13,348), and Stoval ($13,434).

In Vance County, the annualized frequency of hail events is 3.86 events per year, a total EAL of $70,350, an EAL Score of 45.66, and a Hazard Risk Index Score of 49.41. The unincorporated areas of Vance County have a total EAL of $15,941, an average EAL Score of 65.8, and an average Hazard Risk Index Score of 66.04. The jurisdiction with the highest total EAL is Henderson ($46,435), followed by Kittrell ($9,985) and Middleburg ($7,972).

Warren County has an annual frequency of 3.38 events, a total EAL of $82,181, an EAL Score of 49.1, and a Hazard Risk Index Score of 54.72. The unincorporated areas of Warren County have a total EAL of $22,638, an average EAL Score of 74.94, and an average Hazard Risk Index Score of 78.79. The jurisdiction with the highest total EAL is Macon ($19,369), followed by Norlina ($18,038) and Warrenton ($15,512).

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 Index Rating
Franklin County (Unincorporated Area)	**4.12**	**$119,955**	**76.95**	**Relatively High**	**76.86**	**Relatively High**
Bunn	4.08	$16,995	79.71	Relatively High	82.04	Very High
Franklinton	4.29	$81,430	78.85	Relatively High	80.36	Very High

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Index Rating
Louisburg	4.12	$50,901	83.14	Very High	86.65	Very High
Youngsville	4.29	$89,935	88.15	Very High	87.57	Very High
Franklin County Total	**4.15**	**$313,316**	**75.68**	**Relatively High**	**77.00**	**Relatively High**
Granville County (Unincorporated Area)	**4.14**	**$22,961**	**69.59**	**Relatively High**	**70.67**	**Relatively High**
Butner	4.29	$37,623	69.37	Relatively High	70.15	Relatively High
Creedmoor	4.29	$33,921	70.97	Relatively High	69.60	Relatively High
Oxford	4.15	$32,818	71.53	Relatively High	74.33	Relatively High
Stem	4.29	$13,349	77.16	Relatively High	76.03	Relatively High
Stoval	3.69	$13,435	77.22	Relatively High	77.45	Relatively High
Granville County Total	**4.03**	**$127,787**	**58.28**	**Relatively Moderate**	**58.73**	**Relatively Moderate**
Vance County (Unincorporated Area)	**3.86**	**$15,942**	**65.80**	**Relatively High**	**66.04**	**Relatively High**
Henderson	3.83	$46,435	66.10	Relatively High	70.23	Relatively High
Kittrell	4.28	$9,985	73.93	Relatively High	77.46	Relatively High
Middleburg	3.69	$7,973	71.29	Relatively High	72.18	Relatively High
Vance County Total	**3.86**	**$70,350**	**45.66**	**Relatively Moderate**	**49.41**	**Relatively Moderate**
Warren County (Unincorporated Area)	**3.59**	**$22,639**	**74.94**	**Relatively High**	**78.79**	**Relatively High**
Macon	3.29	$19,370	73.59	Relatively High	75.25	Relatively High
Norlina	3.34	$18,038	80.32	Very High	83.42	Very High
Warrenton	3.28	$15,512	78.74	Relatively High	83.62	Very High
Warren County Total	**3.38**	**$82,181**	**49.10**	**Relatively Moderate**	**54.72**	**Relatively Moderate**

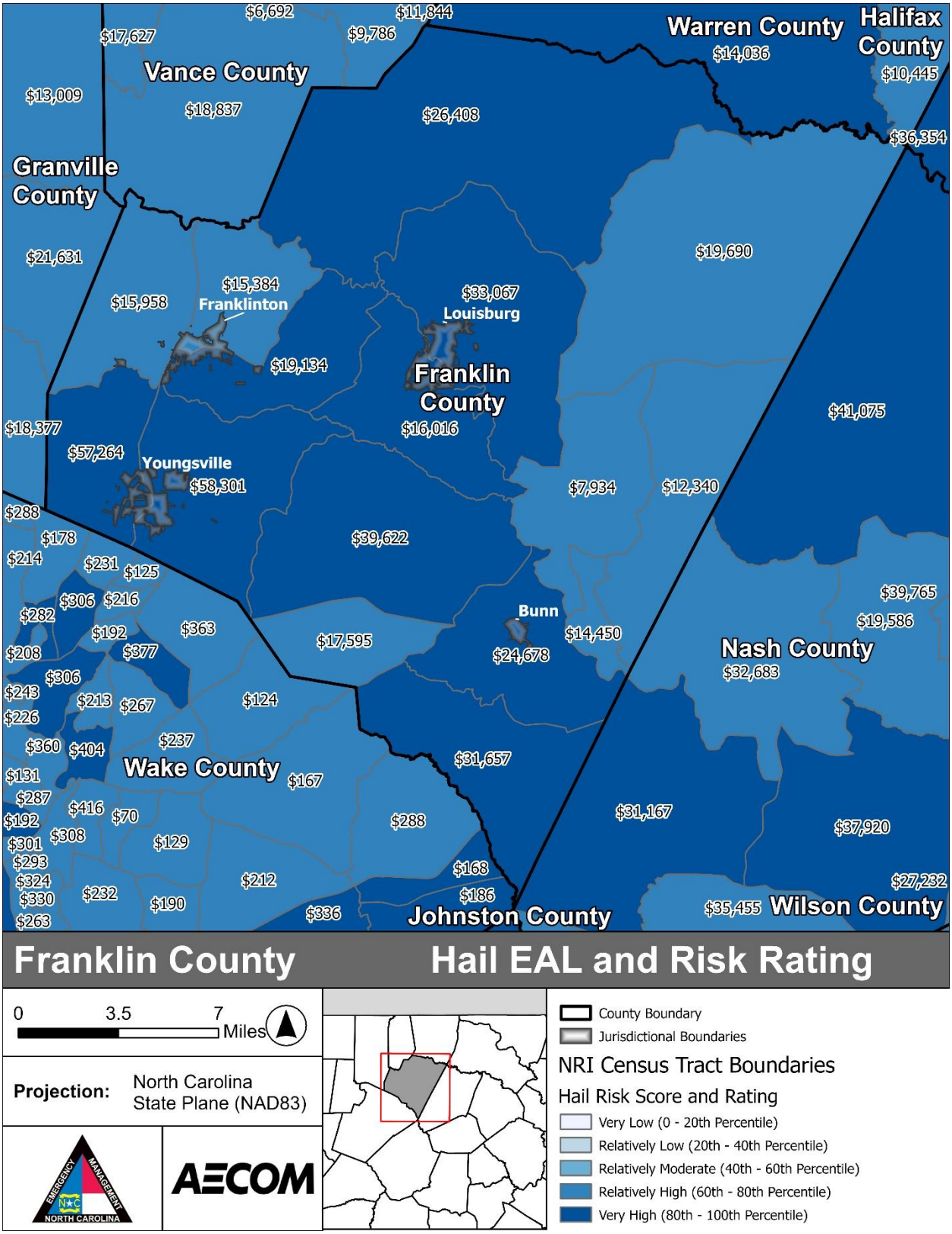


Figure 5-125: Hail Risk Map - Franklin County

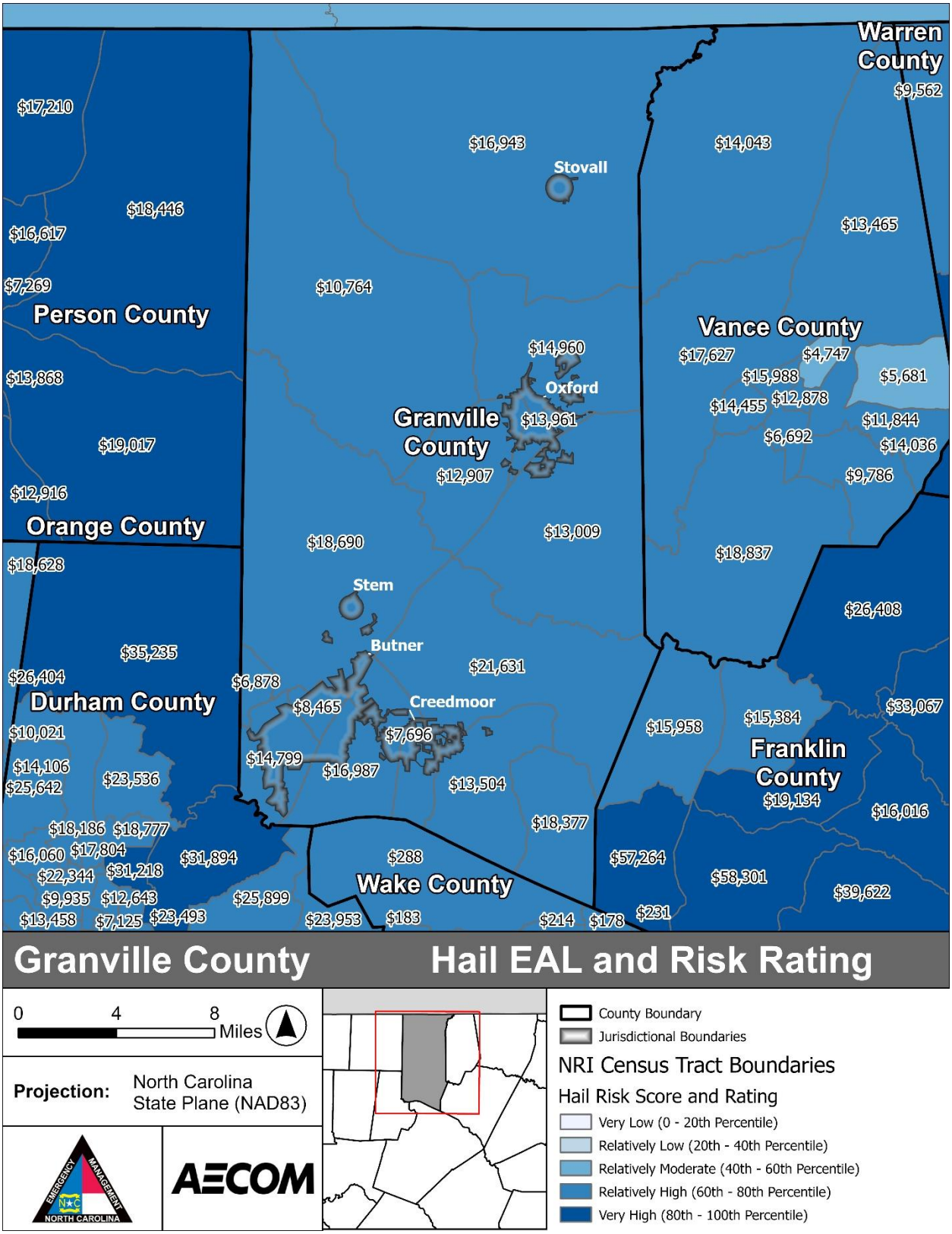


Figure 5-126: Hail Risk Map - Granville County

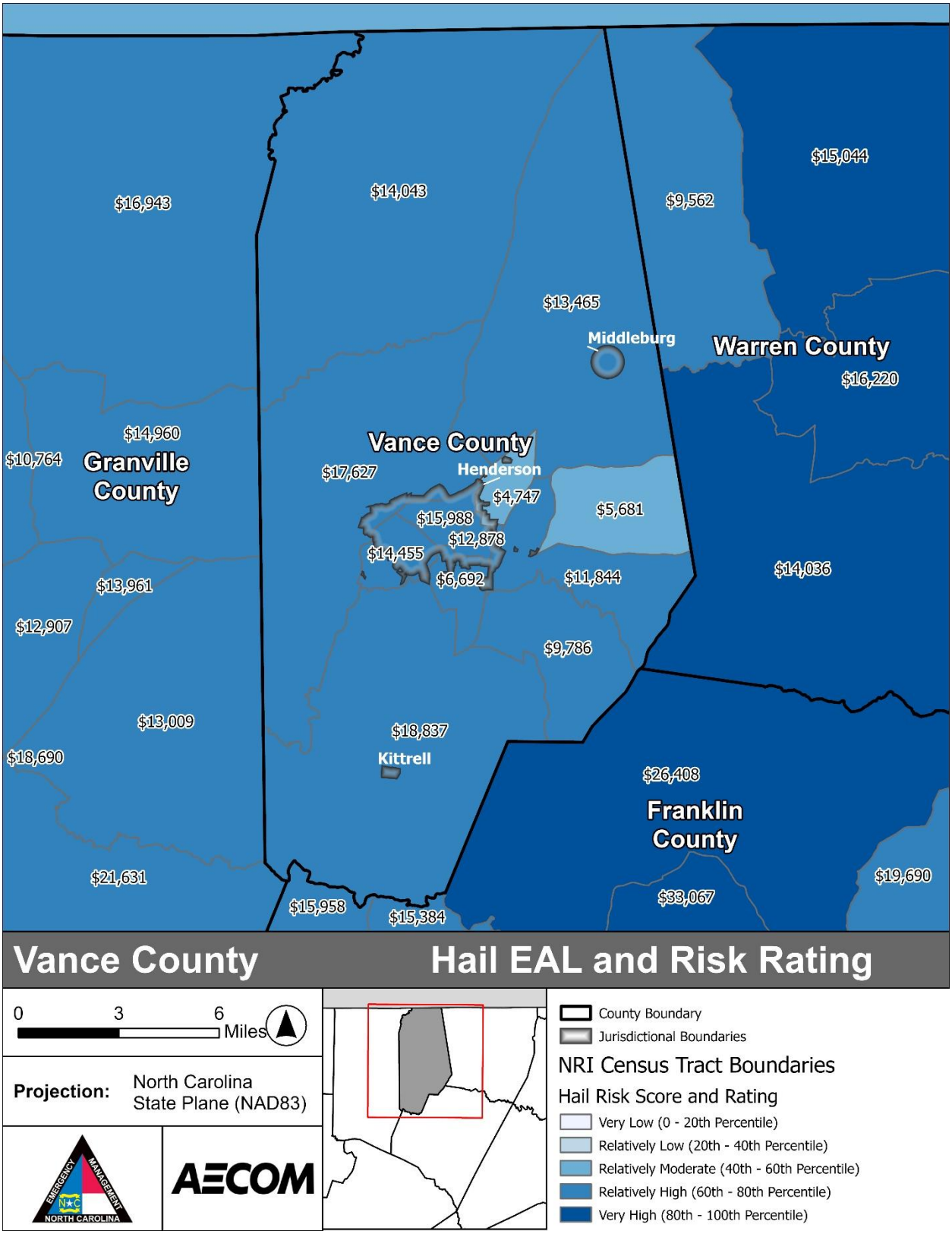


Figure 5-127: Hail Risk Map - Vance County

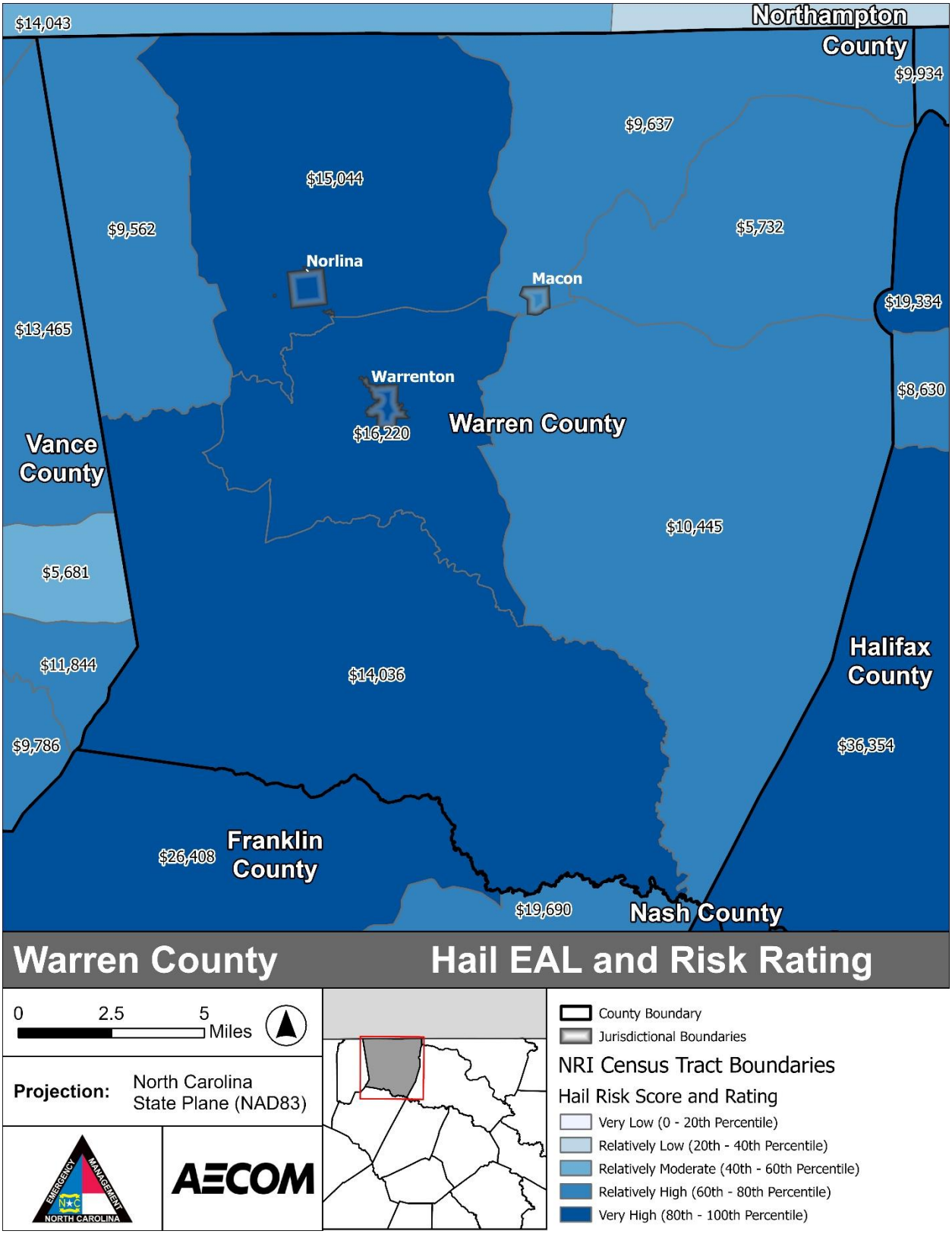


Figure 5-128: Hail Risk Map - Warren County

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 (NLDN), 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.

In Franklin County, there is a 54.62 annualized frequency of lightning events, a total EAL of $201,324, an EAL Score of 73.52, and a 75.32 Hazard Risk Score. The unincorporated areas of Franklin County have a 54.75 annualized frequency of occurrence, a total EAL of $84,268, an average EAL Score of 65.34, and an average Hazard Risk Index Score of 66.34. The jurisdictions with the highest total EAL are Youngsville ($58,286) and Franklinton ($54,030).

In Granville County, there is an annualized frequency of lightning events of 51.74, a total EAL of $94,310, an EAL Score of 51.61, and a Hazard Risk Index Score of 53.06. The unincorporated areas of Granville County have an average annualized frequency of 52.21, a total EAL of $15,473, an average EAL Score of 44.84, and an average Hazard Risk Score of 48.12. The jurisdiction with the highest total EAL is Butner ($29,804), followed by Creedmoor ($26,787) and Oxford ($25,822).

In Vance County, the annualized frequency is 47.98 events, the total EAL is $73,319, the EAL Score is 44.53, and the Hazard Risk Index Score is 50.71. The unincorporated areas of Vance County have an average annualized frequency of 48.97, a total EAL of $13,660, an average EAL Score of 43.41, and a Hazard Risk Index Score of 46.26. The jurisdiction with the highest total EAL is Henderson ($52,732), followed by Kittrell ($8,681) and Middleburg ($6,926).

In Warren County, there are 55.85 events per year, a total EAL of $42,208, an EAL Score of 26.74, and a Hazard Risk Index Score of 36.1. The unincorporated areas of Warren County have an average annual frequency of 51.81 events, a total EAL of $11,909, an average EAL Score of 50.98, and an average Hazard Risk Index Score of 63.38. The jurisdiction with the highest total EAL is Macon ($11,121), followed by Warrenton ($8,591) and Norlina ($7,505).

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 Index Rating
Franklin County (Unincorporated Area)	**54.75**	**$84,268.10**	**65.34**	**Relatively High**	**66.34**	**Relatively High**
Bunn	54.41	$12,349.78	73.89	Relatively High	80.92	Very High
Franklinton	53.18	$54,030.27	69.15	Relatively High	74.64	Relatively High
Louisburg	50.39	$21,930.39	67.40	Relatively High	78.95	Relatively High

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Index Rating
Youngsville	55.43	$58,286.43	93.51	Very High	91.53	Very High
Franklin County Total	**54.62**	**$201,324.80**	**73.52**	**Relatively High**	**75.32**	**Relatively High**
Granville County (Unincorporated Area)	**52.21**	**$15,473.23**	**44.84**	**Relatively Moderate**	**48.12**	**Relatively Moderate**
Butner	51.74	$29,804.04	50.63	Relatively Moderate	54.56	Relatively Moderate
Creedmoor	52.56	$26,787.07	54.00	Relatively Moderate	52.75	Relatively Moderate
Oxford	49.59	$25,822.55	53.58	Relatively Moderate	62.90	Relatively High
Stem	50.85	$8,407.48	62.06	Relatively High	60.88	Relatively High
Stoval	53.43	$7,951.25	60.29	Relatively High	62.68	Relatively High
Granville County Total	**51.74**	**$94,310.94**	**51.61**	**Relatively Moderate**	**53.06**	**Relatively Moderate**
Vance County (Unincorporated Area)	**48.97**	**$13,660.70**	**43.41**	**Relatively Moderate**	**46.26**	**Relatively Moderate**
Henderson	48.08	$52,732.56	53.47	Relatively Moderate	65.19	Relatively High
Kittrell	46.60	$8,681.27	63.09	Relatively High	73.76	Relatively High
Middleburg	49.84	$6,926.69	56.06	Relatively Moderate	60.76	Relatively High
Vance County Total	**47.98**	**$73,319.95**	**44.53**	**Relatively Moderate**	**50.71**	**Relatively Moderate**
Warren County (Unincorporated Area)	**51.81**	**$11,909.14**	**50.98**	**Relatively Moderate**	**63.38**	**Relatively High**
Macon	59.53	$11,121.60	49.63	Relatively Moderate	56.56	Relatively Moderate
Norlina	52.86	$7,505.50	58.51	Relatively Moderate	70.26	Relatively High
Warrenton	55.32	$8,591.85	62.77	Relatively High	78.40	Relatively High
Warren County Total	**55.85**	**$42,208.96**	**26.74**	**Relatively Low**	**36.10**	**Relatively Low**

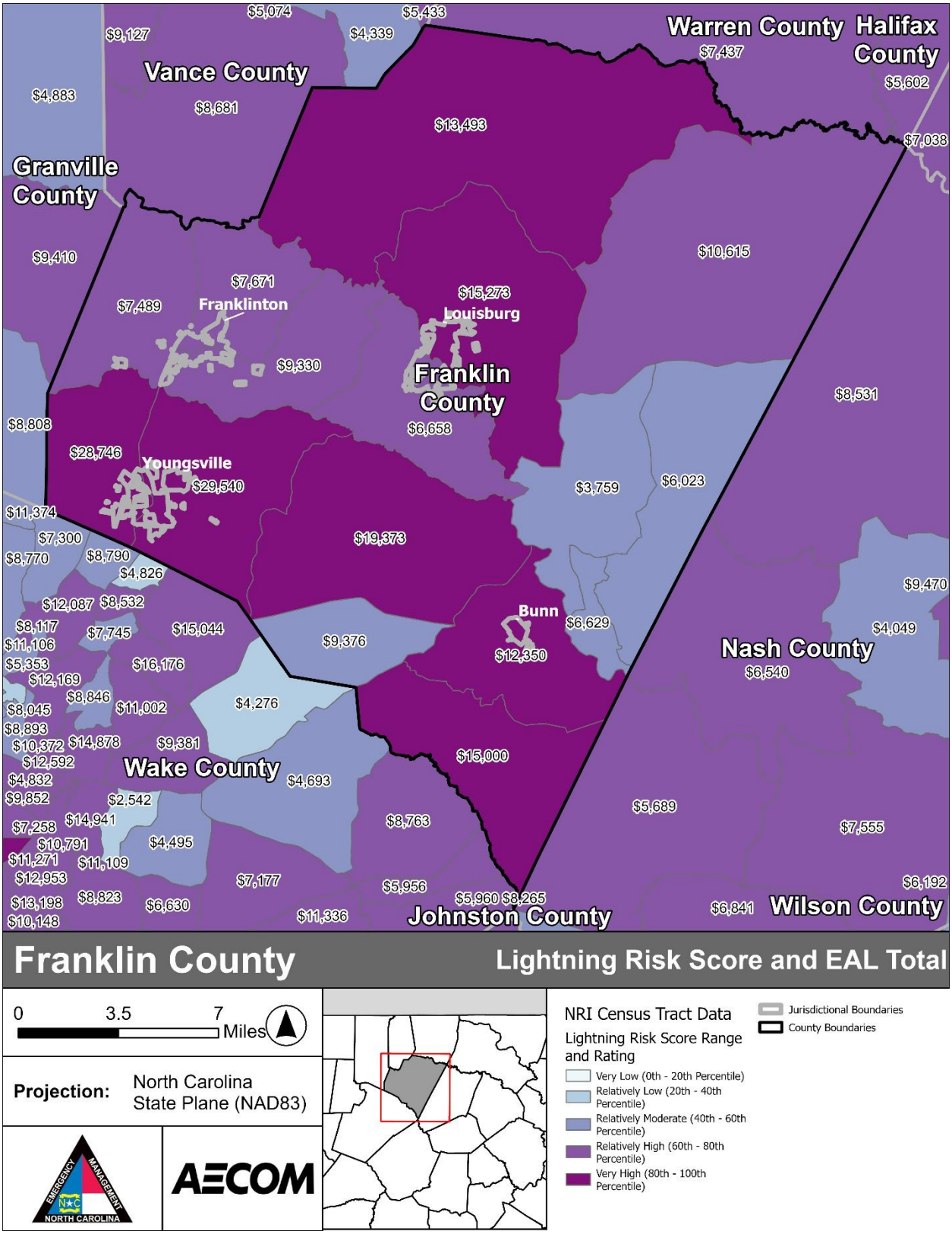


Figure 5-129: Lightning Risk Map - Franklin County

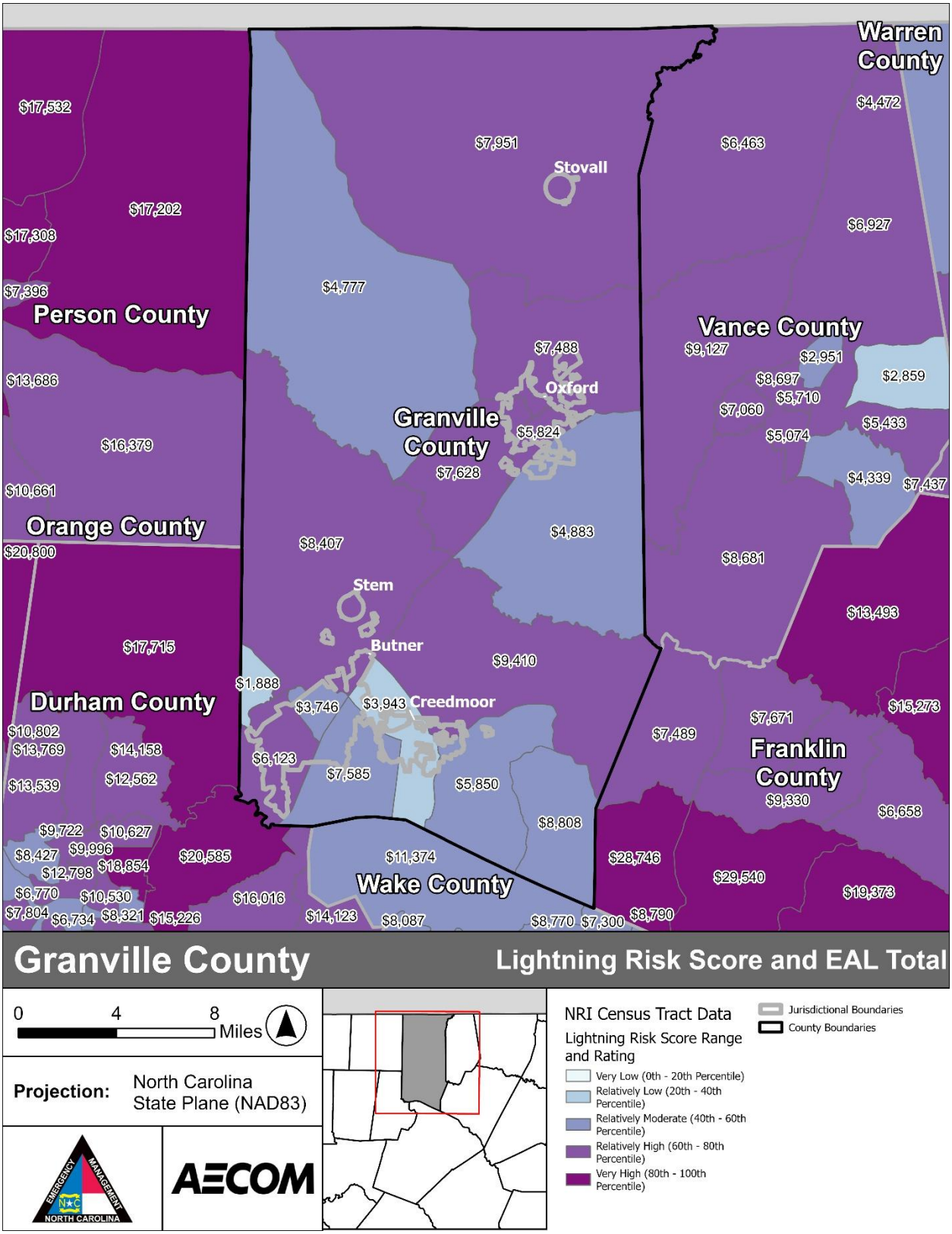


Figure 5-130: Lightning Risk Map - Granville County

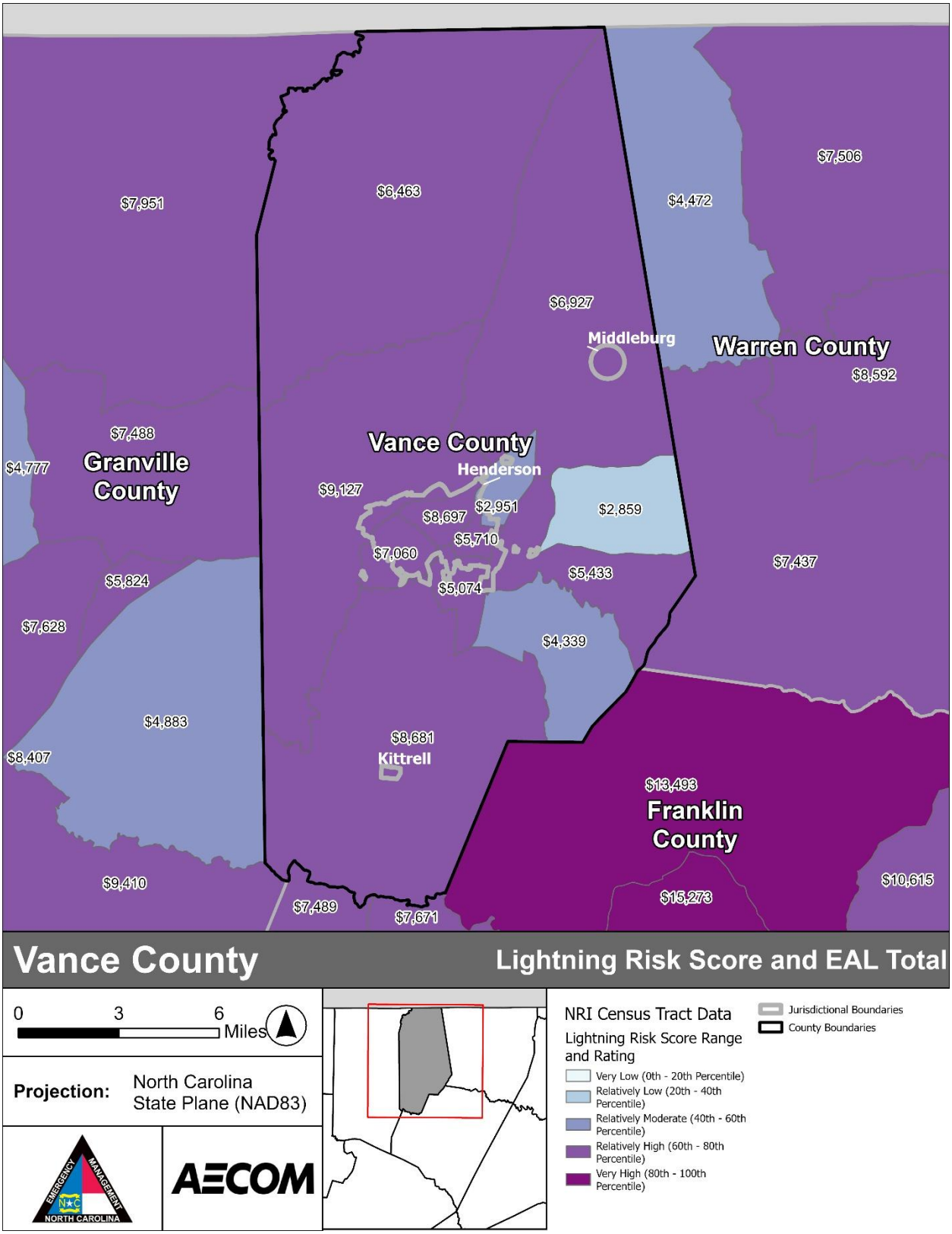


Figure 5-131: Lightning Risk Map - Vance County

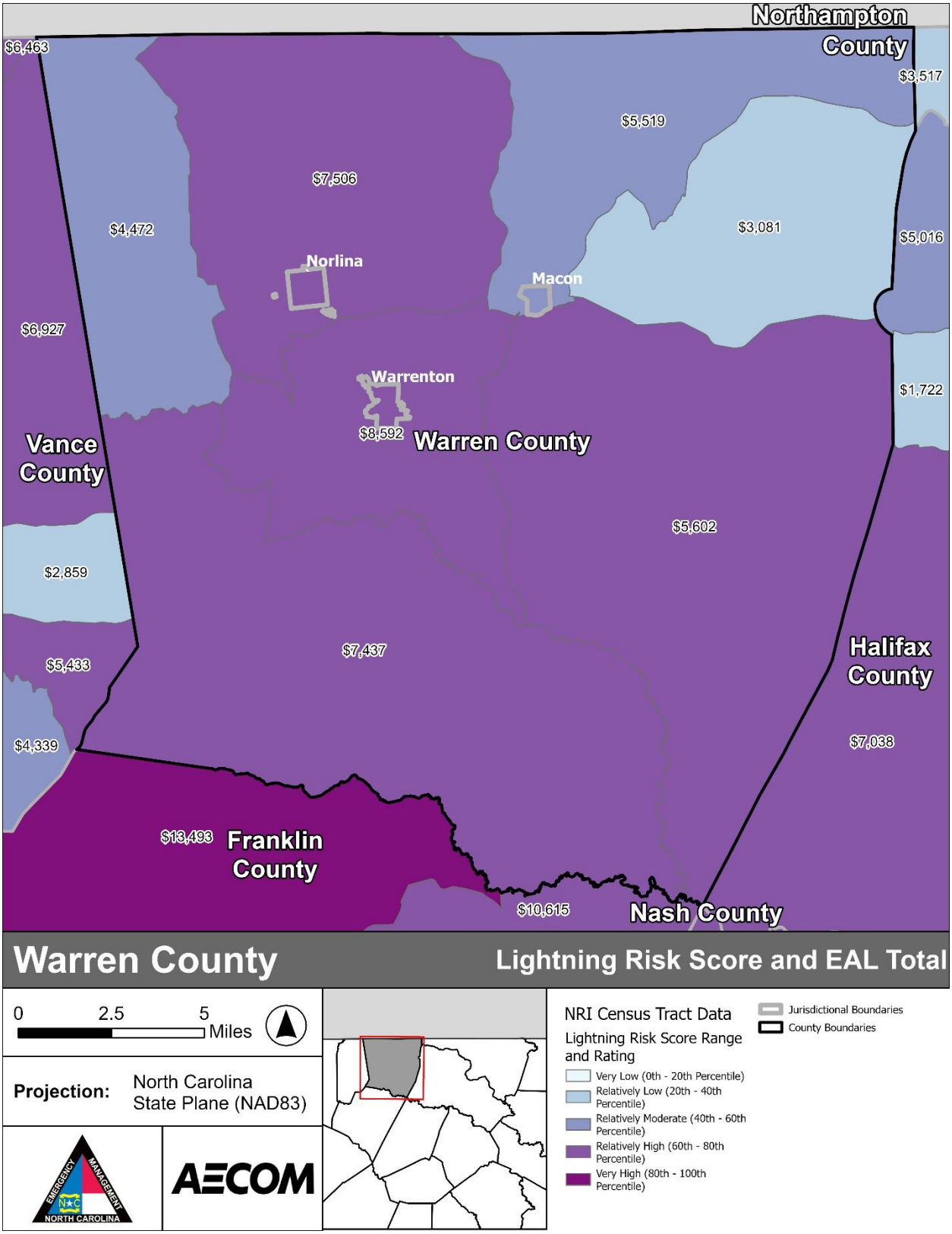


Figure 5-132: Lightning Risk Map - Warren County

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, Franklin County has an annualized frequency of 0.97 strong wind events per year, a total EAL of $232,716, an EAL Score of 41.25, and a Hazard Risk Index Score of 41.68. The unincorporated census tracts of Franklin County have an average annualized frequency of 0.91 events per year, a total EAL of $82,602, an average EAL Score of 50.53, and an average Hazard Risk Index Score of 51.69. The jurisdiction with the highest total EAL is Youngsville ($77,957), followed by Franklinton ($70,481), Louisburg ($30,004), and Bunn ($11,004).

Granville County has an annual frequency of 1.27 strong wind events, a total EAL of $164,797, an EAL Score of 32.32, and a Hazard Risk Index Score of 31.85. The unincorporated areas of Granville County have an average annualized frequency of 1.23, a total EAL of $27,415, an average EAL Score of 48.36, and an average Hazard Risk Index Score of 50.28. The jurisdiction with the highest total EAL is Butner ($49,126), followed by Oxford ($45,741), Creedmoor ($43,763), Stoval ($17,315), and Stem ($14,583).

Vance County has an annual frequency of 1.33 strong wind events, a total EAL of $134,321, an EAL Score of 28.5, and a Hazard Risk Index Score of 31.31. In the unincorporated areas of Vance County, the average annualized frequency of occurrence is 1.33, the total EAL is $24,699, the average EAL Score is 46.97, and the average Hazard Risk Index Score is 48.2. The jurisdiction with the highest total EAL is Henderson ($97,060), followed by Kittrell ($14,141) and Middleburg ($12,561).

Warren County has an annual frequency of 0.87 strong wind events, a total EAL of $75,839, an EAL Score of 19.94, and a Hazard Risk Index Score of 21.64. The unincorporated areas in Warren County have an annualized frequency of 1.11, a total EAL of $20,441, an average EAL Score of 52.29, and an average Hazard Risk Index Score of 60.91. The jurisdiction with the highest total EAL is Macon ($18,017), followed by Warrenton ($16,442) and Norlina ($14,053).

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 Index Rating
Franklin County (Unincorporated Area)	**0.91**	**$82,602.05**	**50.53**	**Relatively Moderate**	**51.69**	**Relatively Moderate**
Bunn	0.86	$11,004.37	53.88	Relatively Moderate	59.75	Relatively Moderate
Franklinton	1.16	$70,481.32	59.93	Relatively Moderate	63.27	Relatively High
Louisburg	0.92	$30,004.80	60.18	Relatively High	69.57	Relatively High
Youngsville	1.16	$77,957.58	81.84	Very High	80.32	Very High
Franklin County Total	**0.97**	**$232,716.02**	**41.25**	**Relatively Moderate**	**41.68**	**Relatively Moderate**
Granville County (Unincorporated Area)	**1.23**	**$27,415.39**	**48.36**	**Relatively Moderate**	**50.28**	**Relatively Moderate**
Butner	1.16	$49,126.16	50.60	Relatively Moderate	52.64	Relatively Moderate
Creedmoor	1.16	$43,762.97	52.87	Relatively Moderate	51.18	Relatively Moderate
Oxford	1.22	$45,741.00	54.55	Relatively Moderate	60.67	Relatively High
Stem	1.16	$14,583.31	60.23	Relatively High	58.44	Relatively Moderate
Stoval	1.39	$17,315.28	64.23	Relatively High	65.11	Relatively High
Granville County Total	**1.27**	**$164,797.62**	**32.32**	**Relatively Low**	**31.85**	**Relatively Low**
Vance County (Unincorporated Area)	**1.33**	**$24,699.19**	**46.97**	**Relatively Moderate**	**48.20**	**Relatively Moderate**
Henderson	1.34	$97,060.64	55.16	Relatively Moderate	63.37	Relatively High
Kittrell	1.16	$14,141.61	59.50	Relatively Moderate	67.27	Relatively High
Middleburg	1.39	$12,561.69	56.76	Relatively Moderate	59.34	Relatively Moderate
Vance County Total	**1.33**	**$134,321.52**	**28.50**	**Relatively Low**	**31.31**	**Relatively Low**
Warren County (Unincorporated Area)	**1.11**	**$20,441.94**	**52.29**	**Relatively Moderate**	**60.91**	**Relatively High**
Macon	0.80	$18,017.40	49.52	Relatively Moderate	53.54	Relatively Moderate

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Index Rating
Norlina	0.89	$14,053.06	59.35	Relatively Moderate	67.53	Relatively High
Warrenton	0.80	$16,442.62	63.01	Relatively High	74.95	Relatively High
Warren County Total	**0.87**	**$75,839.32**	**19.94**	**Very Low**	**21.64**	**Relatively Low**

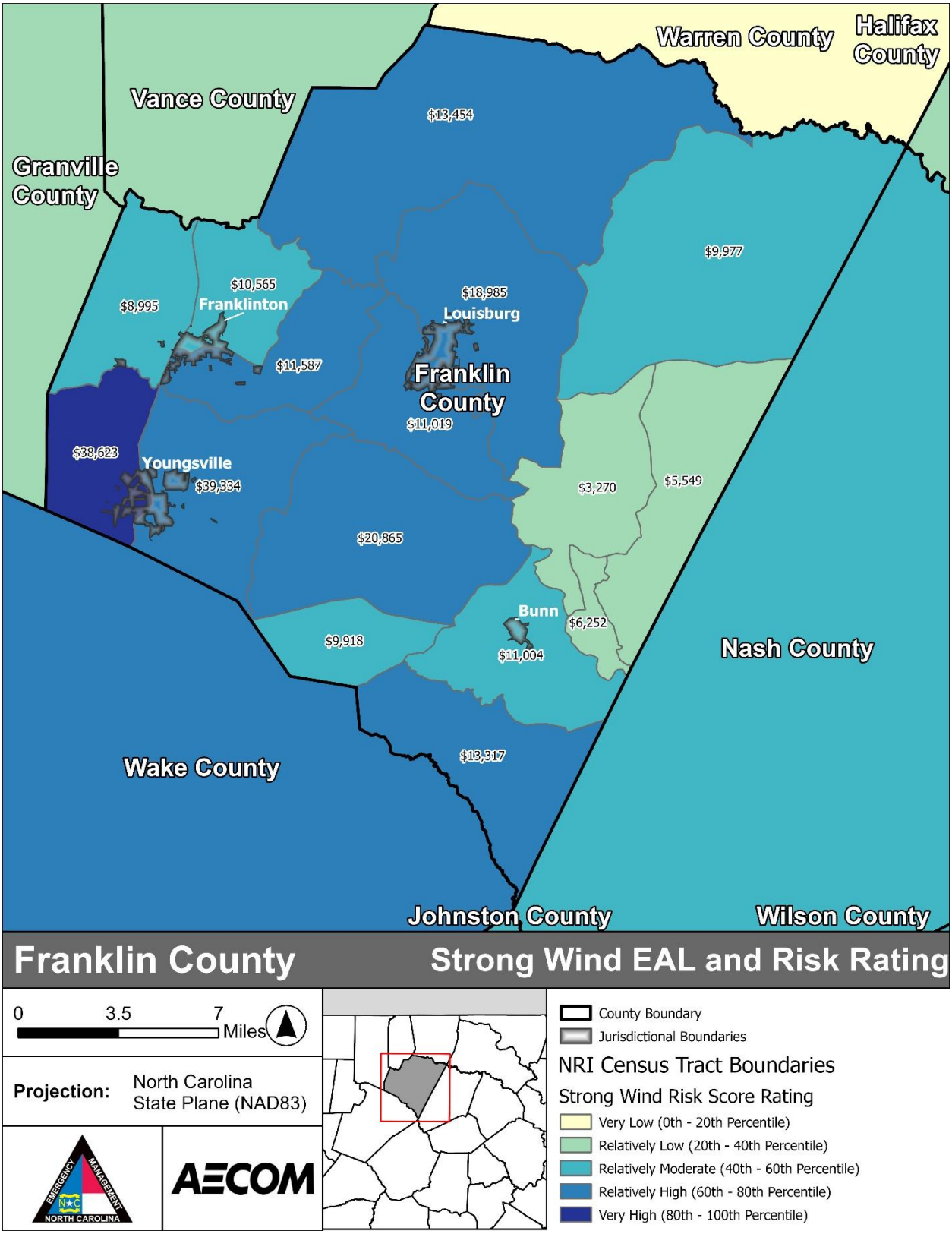


Figure 5-133: Strong Wind Risk Map - Franklin County

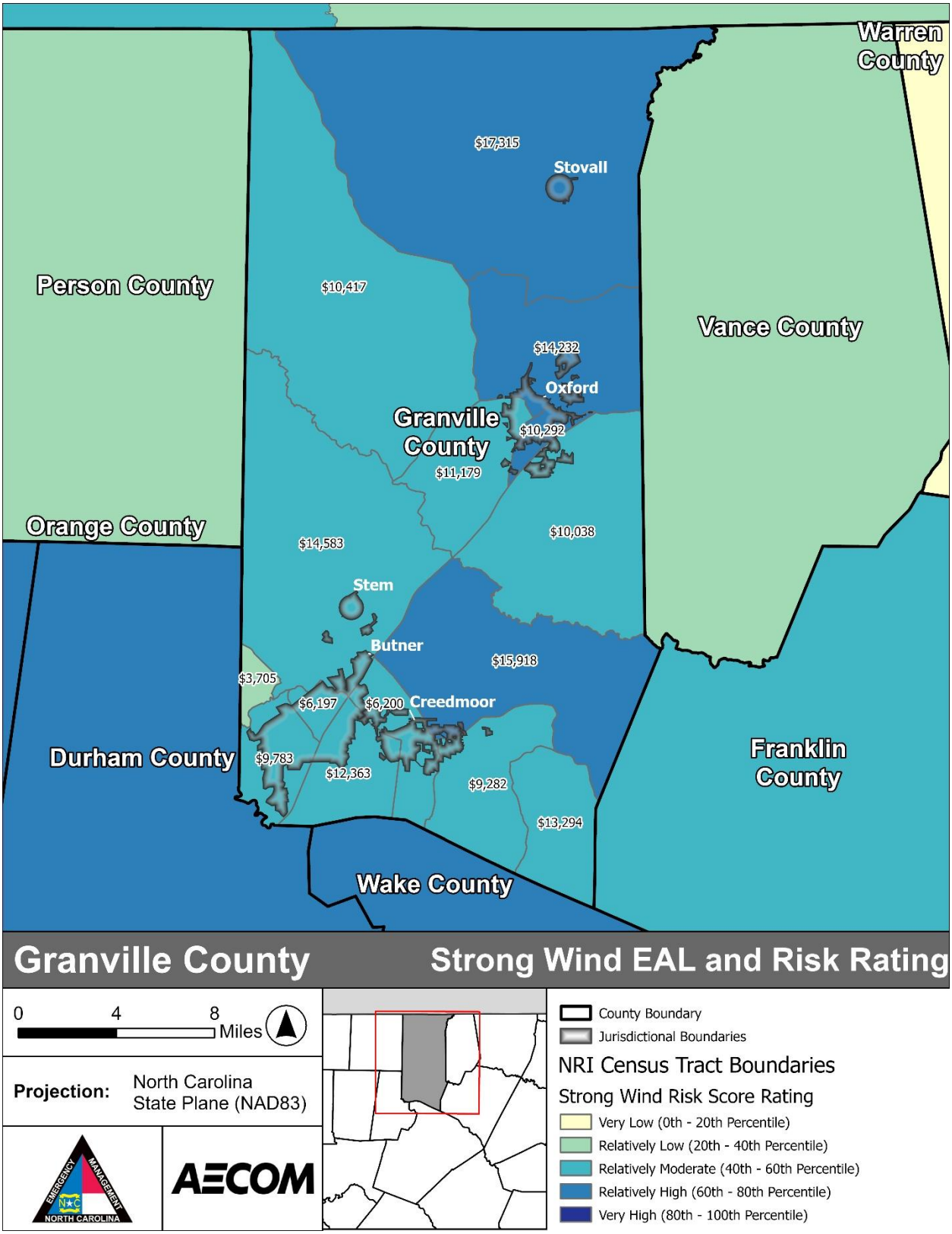


Figure 5-134: Strong Wind Risk Map - Granville County

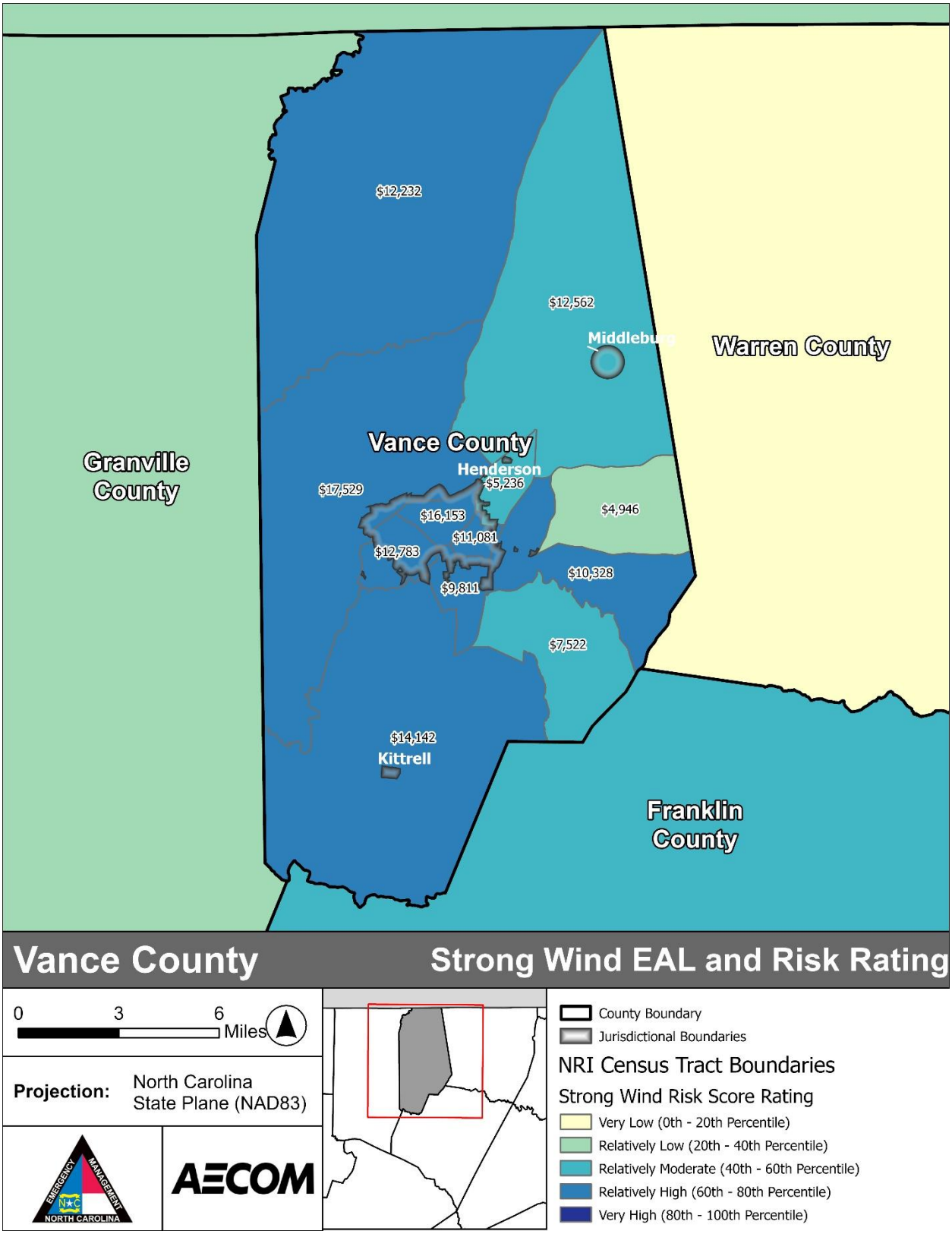


Figure 5-135: Strong Wind Risk Map - Vance County

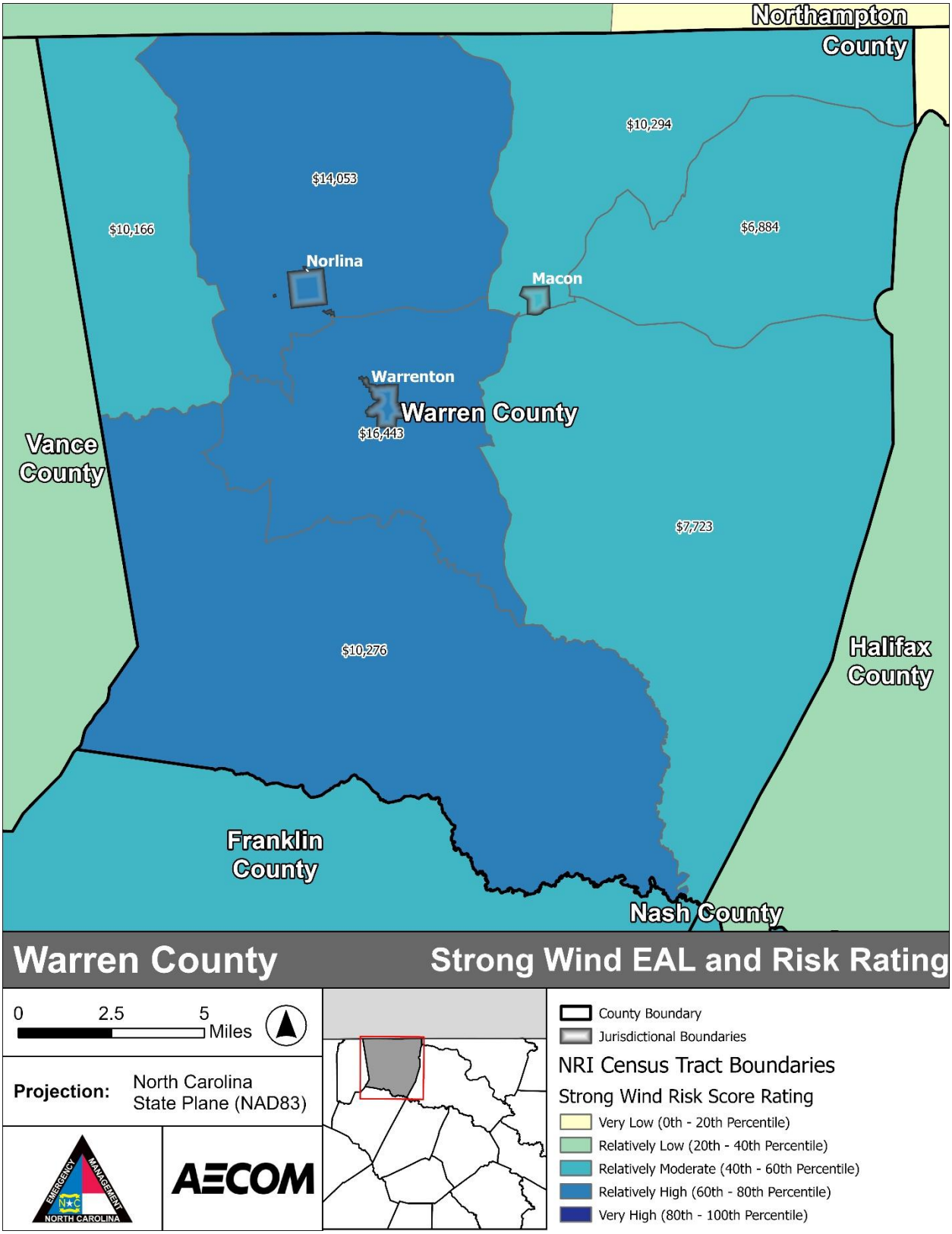


Figure 5-136: Strong Wind Risk Map - Warren County

5.8.6. Consequence and Impact Analysis

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 through power outages, blocked roads, and damage to property and infrastructure. Residents who have a disability (16.5% in Franklin County, 16.2% in Granville County, 18.9% in Vance County, and 21.2% in Warren County) or an independent living difficulty (7.8% in Franklin County, 6.3% in Granville County, 9.0% in Vance County, and 9.6% in Warren 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.[61]

Critical emergency alerts are often transmitted via radio, reverse 911, or text message. Residents in the planning area who lack telephone service[62] (0.9% of Housing Units in Franklin County, 1.4% in Granville County, 1.4% in Vance County, and 1.4% in Warren County), don't have a computing device[63] (8.0% of Housing Units in Franklin County, 5.7% in Granville County, 10.8% in Vance County, and 14.7% in Warren County), or those who do not have an internet subscription[63] (11.6% of Households in Franklin County, 11.0% in Granville County, 17.4% in Vance County, and 23.0% in Warren County) may have a limited capacity to receive information over the telephone, the internet, or essential emergency alerts, and 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 severe brain injury, burns, cardiovascular damage, nervous system damage, and death.

Changes in Development

Thunderstorms can damage commercial buildings and homes due to strong winds, lightning, and hail. Heavy rains associated with thunderstorms may also cause flash flooding, which can damage roads and bridges. Residents who live in Boats, RVs, or Vans (0.2% in Franklin County, 0.0% in Granville County, 0.0% in Vance County, and 0.1% in Warren County) and who live in mobile homes (23.2% in Franklin County, 17.9% in Granville County, 25.0% in Vance County, and 39.7% in Warren County) may experience disproportionate damage to their housing unit in the event of severe weather.[62] 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.

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[61] U.S. Census Bureau. (2023). *Disability Characteristics* (No. ACSST5Y2023.S1810; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S1810
[62] U.S. Census Bureau. (2023). *Selected Housing Characteristics* (No. ACSDP5Y2023.DP04; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSDP5Y2023.DP04
[63] U.S. Census Bureau. (2023). *Types of Computers and Internet Subscriptions* (No. ACSDP5Y2023.S2801; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S2801

Economy

Economic damage includes property damage from wind, lightning, and hail, as well as intangibles such as business interruption and additional living expenses.

Natural Environment

Thunderstorms have a significant impact on the environment. One of the most dangerous environmental outcomes is when lightning ignites flares in surrounding forests or dense shrubs. This is often the cause of brushfires, which then spread quickly because of the storm's high winds. High winds can also damage crops and trees. Flooding can kill animals and cause soil erosion.

First Responders

First responders can be impacted in the same way as the public. Downed trees, power lines, and floodwaters may prevent access to areas in need, thereby prolonging 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.

Future Conditions

According to the NCCR,[64] the frequency and severity of thunderstorms in NC are likely to increase due to climate change impacts. This includes increased frequency of extreme precipitation and flooding in the planning area.

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

5.9. Tornado

5.9.1. Hazard Description

According to the Glossary of Meteorology (American Meteorological Society - 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 more than 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 those 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 (Table 5-44). 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 and 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 resulting damage at different intensity levels.

Table 5-43: The Fujita Scale (Effective Before 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	Roofs 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). shows tornado activity in the United States based on the number of recorded tornadoes per 1,000 square miles.

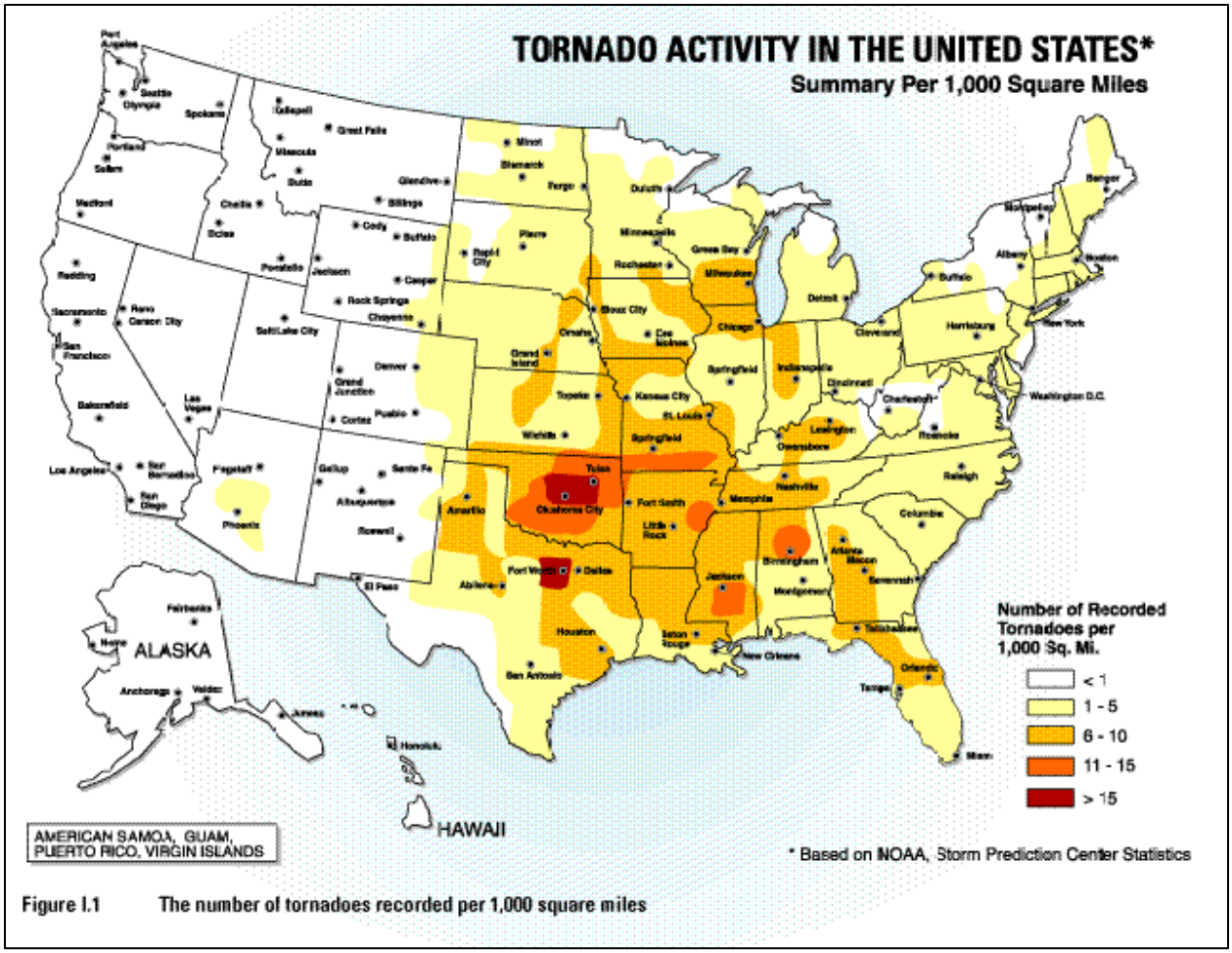


Figure 5-137: Tornado Activity in the United States

Tornadoes occur throughout North Carolina, and thus in the Region. Tornadoes typically impact a relatively small area, but the damage can 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.[65] 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

[65] Storm Prediction Center, & National Oceanic and Atmospheric Administration. (2024). *Tornado Tracks* [Geodatabase]. Federal Emergency Management Administration Geospatial Resource Center. https://gis-fema.hub.arcgis.com/datasets/fedmaps::tornado-tracks-1/about

SPC Severe Weather Database[66] 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.

[66] Storm Prediction Center. (2021). *Severe Weather Database Files, Tornado, 1950-2021* [Dataset]. National Weather Service. https://www.spc.noaa.gov/wcm/#torclim

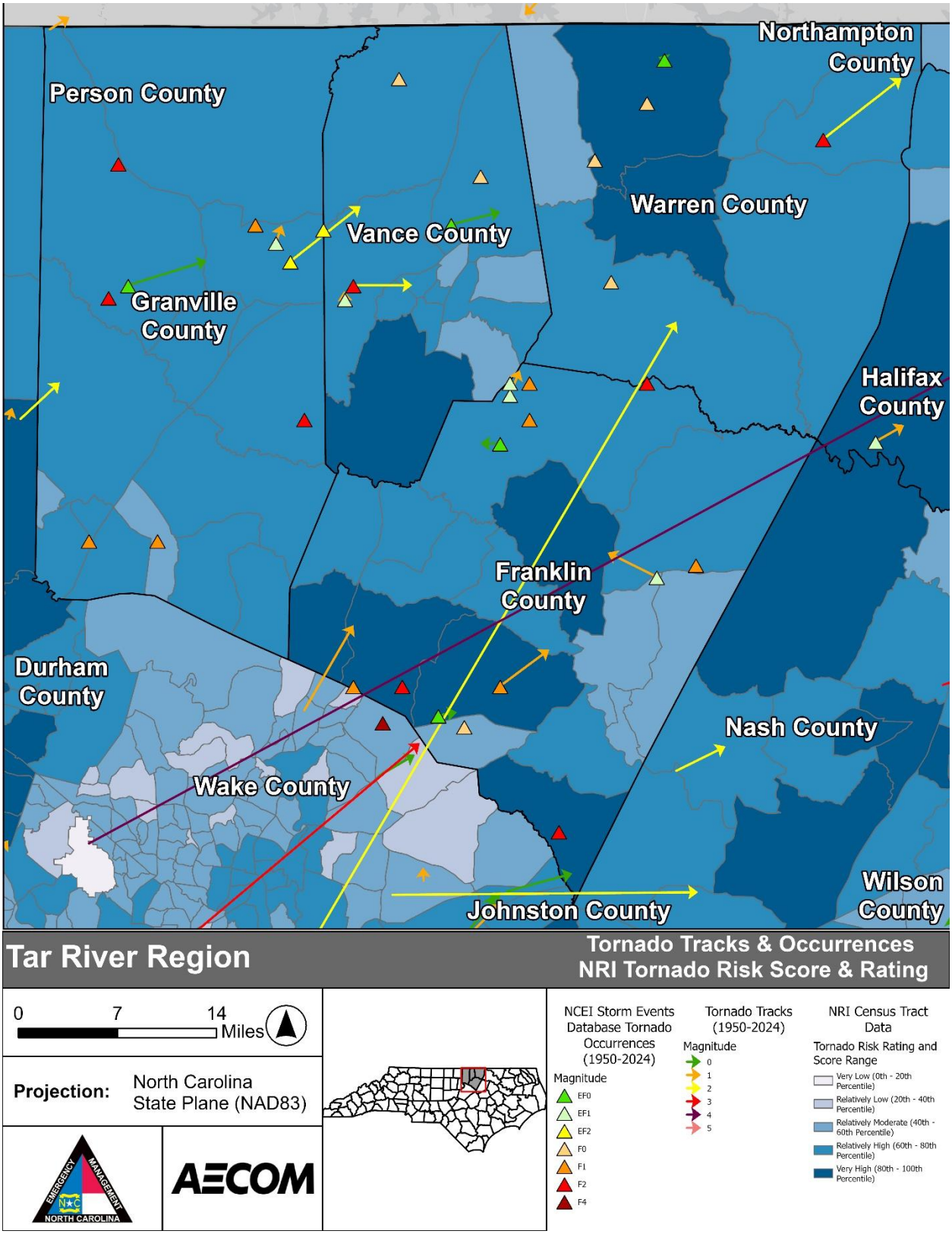


Figure 5-138: Tornado Risk Map - Tar River Region

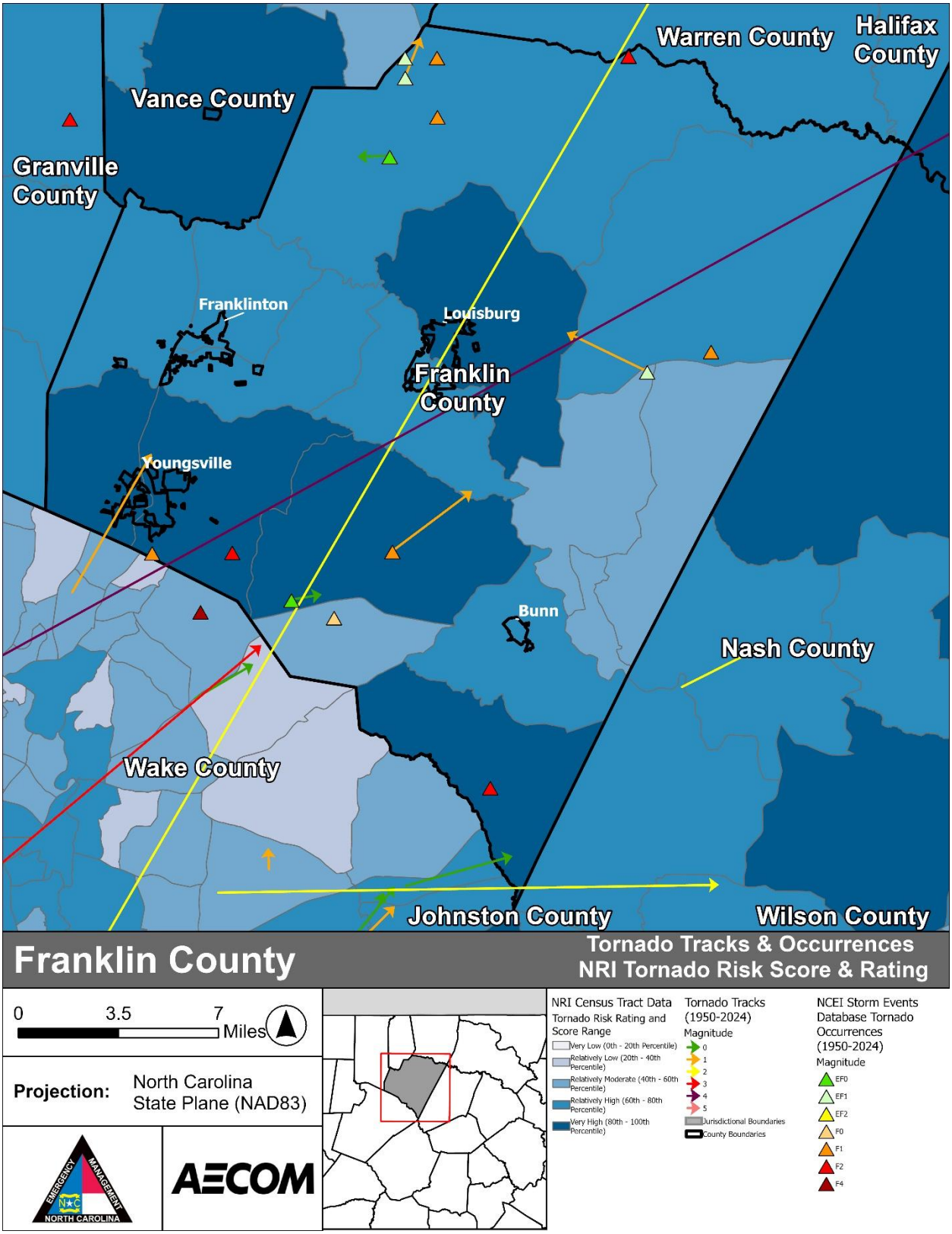


Figure 5-139: Tornado Risk Map - Franklin County

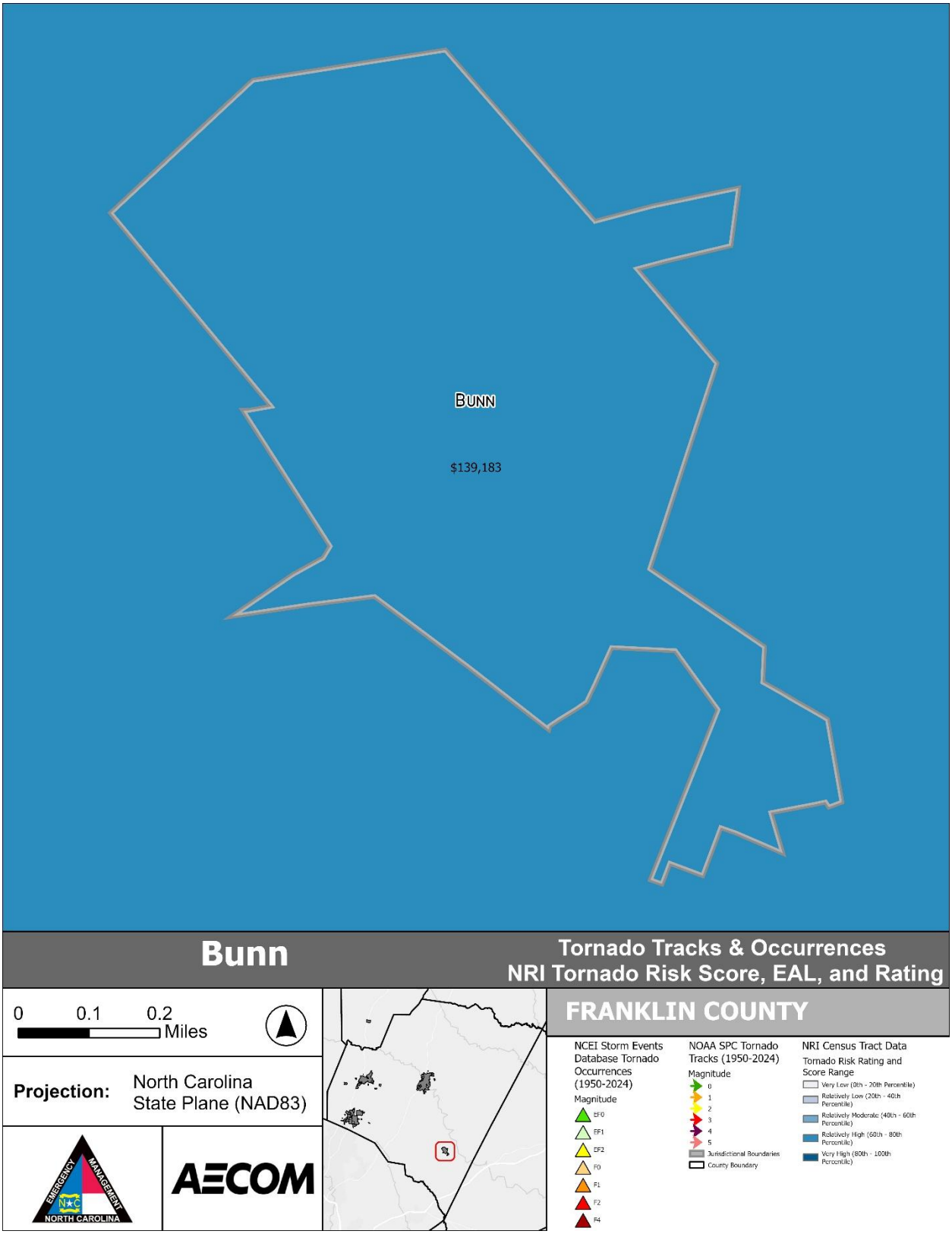


Figure 5-140: Tornado Risk Map - Bunn

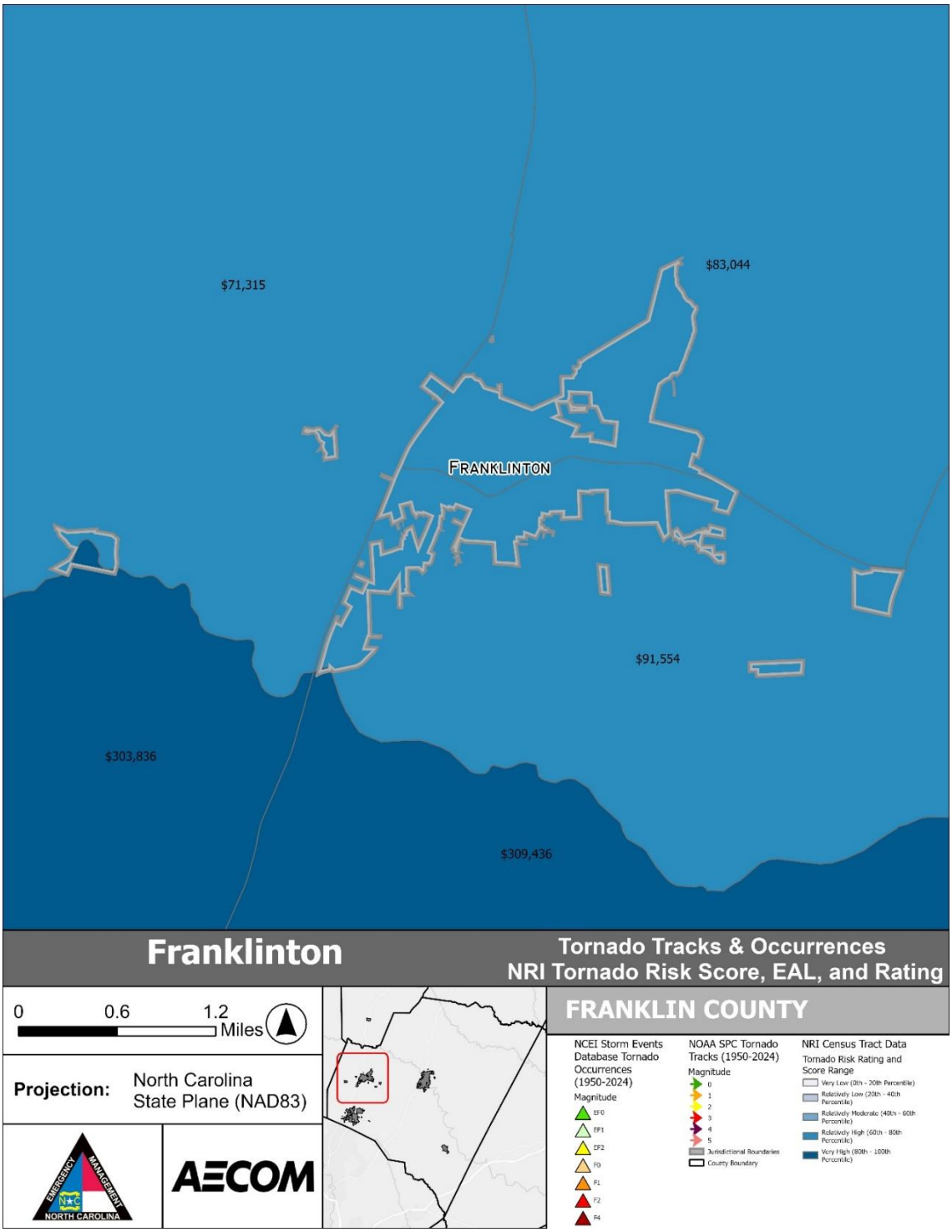


Figure 5-141: Tornado Risk Map - Franklinton[67]

[67] The Municipal Boundaries (2025) GIS layer obtained from NCDOT and used for the maps in this plan contained slightly outdated jurisdictional boundaries for the Town of Franklinton due to recent annexations between 2023 and 2025. However, given the map scale, hazard data can still be viewed for the missing incorporated areas of Franklinton. Please see Section 3 – Figure 3-29 for the Town of Franklinton's up-to-date boundary map, based on the incorporated boundary corrections from the U.S. Census Boundary and Annexations Survey.

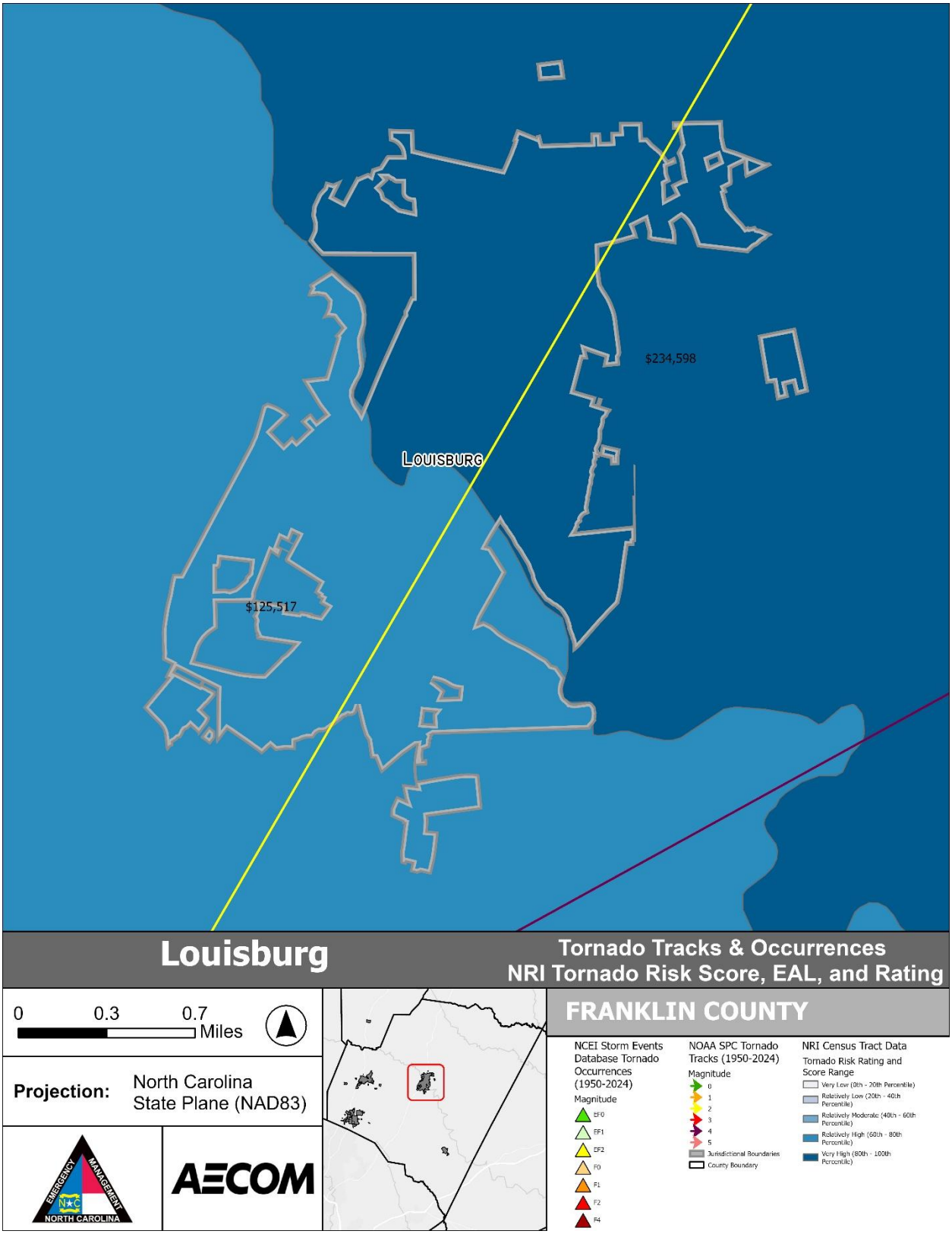


Figure 5-142: Tornado Risk Map - Louisburg

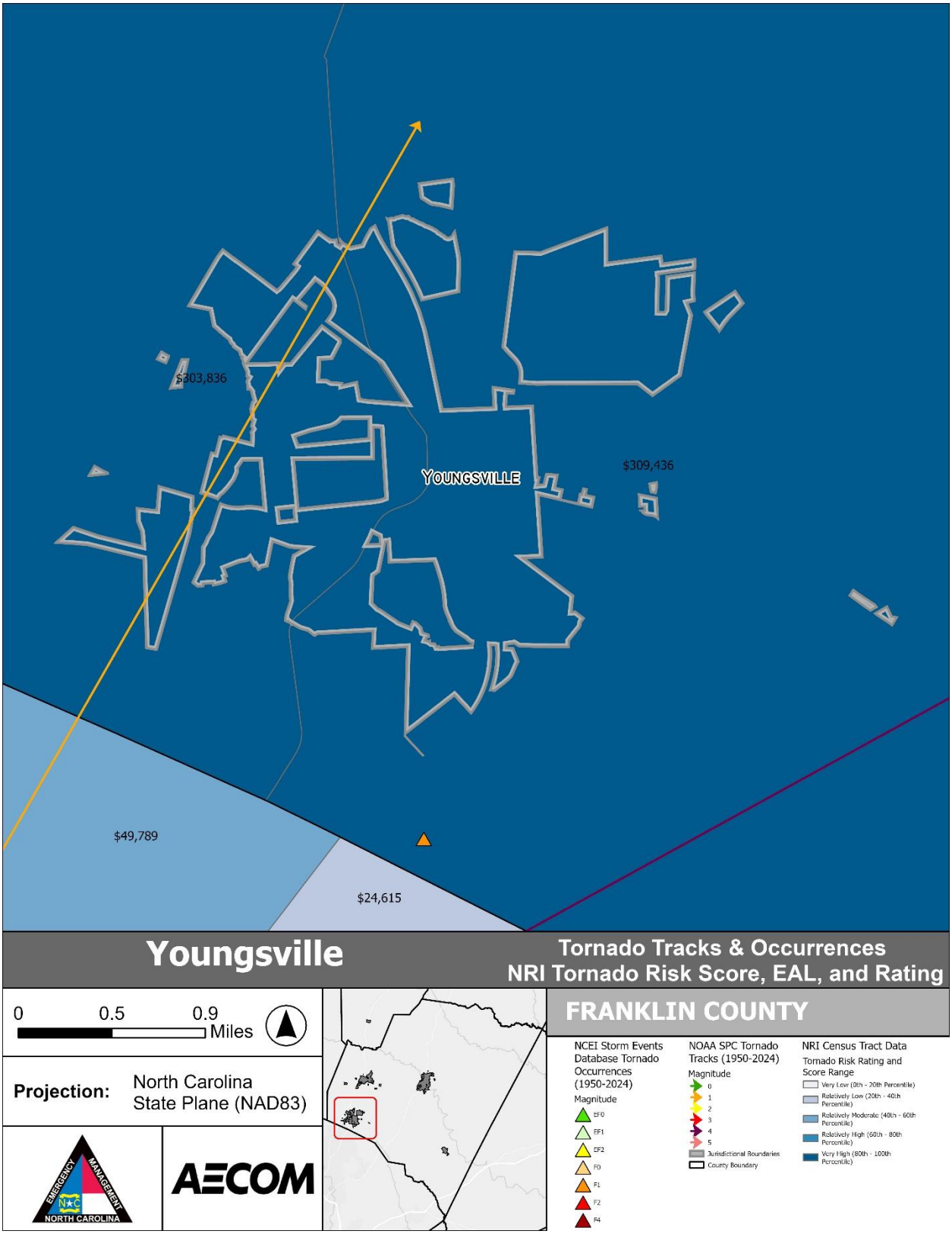


Figure 5-143: Tornado Risk Map - Youngsville

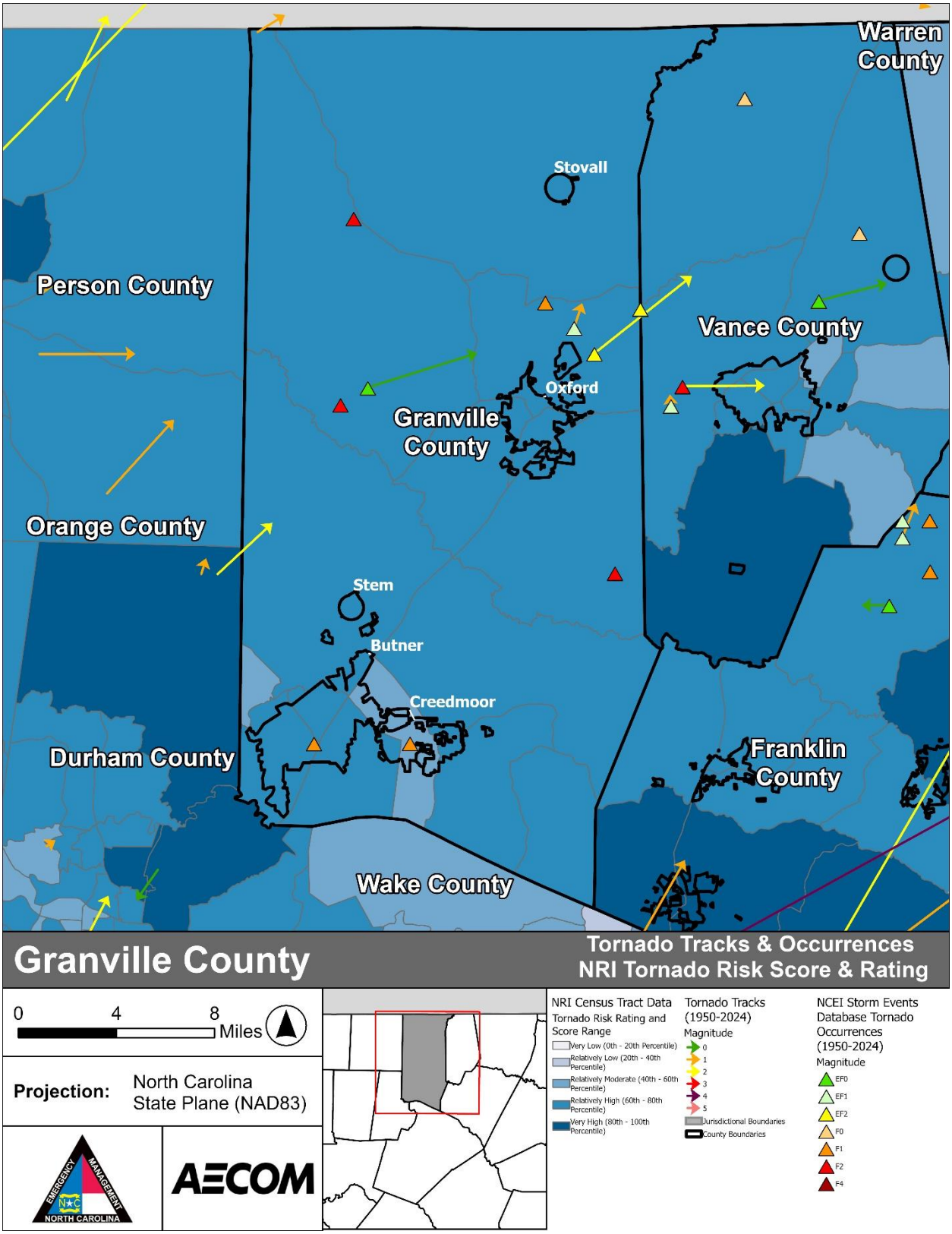


Figure 5-144: Tornado Risk Map - Granville County

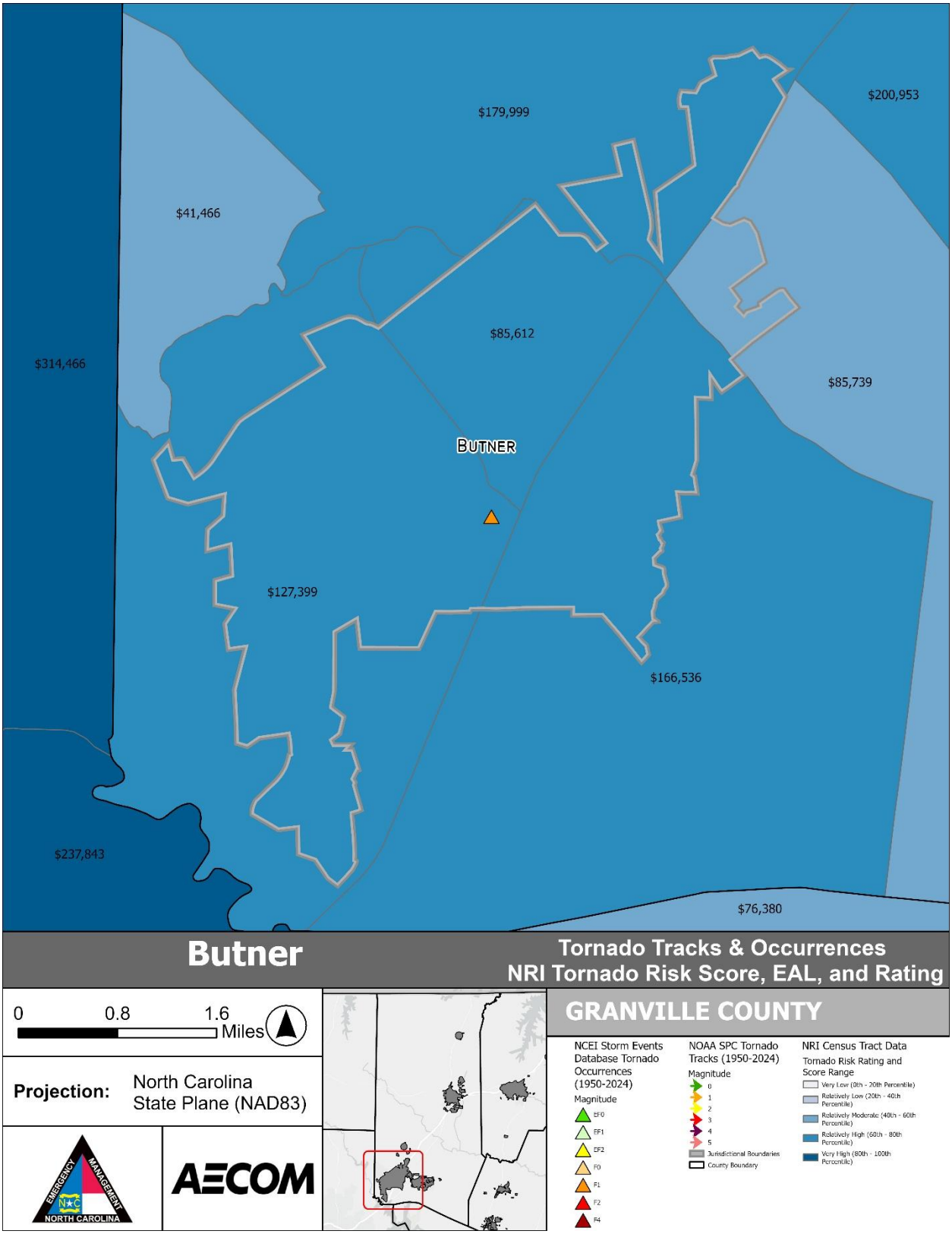


Figure 5-145: Tornado Risk Map – Butner

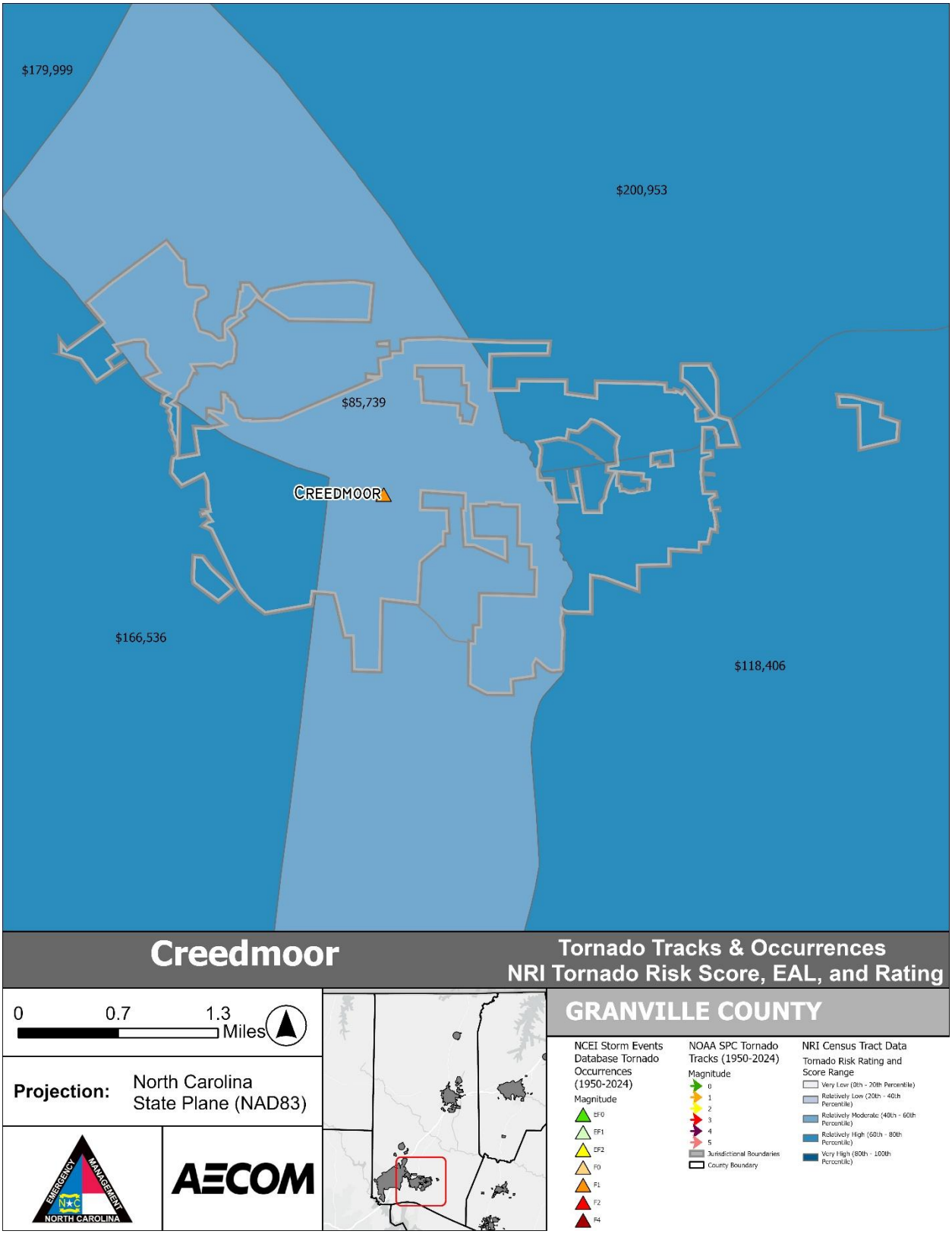


Figure 5-146: Tornado Risk Map – Creedmoor

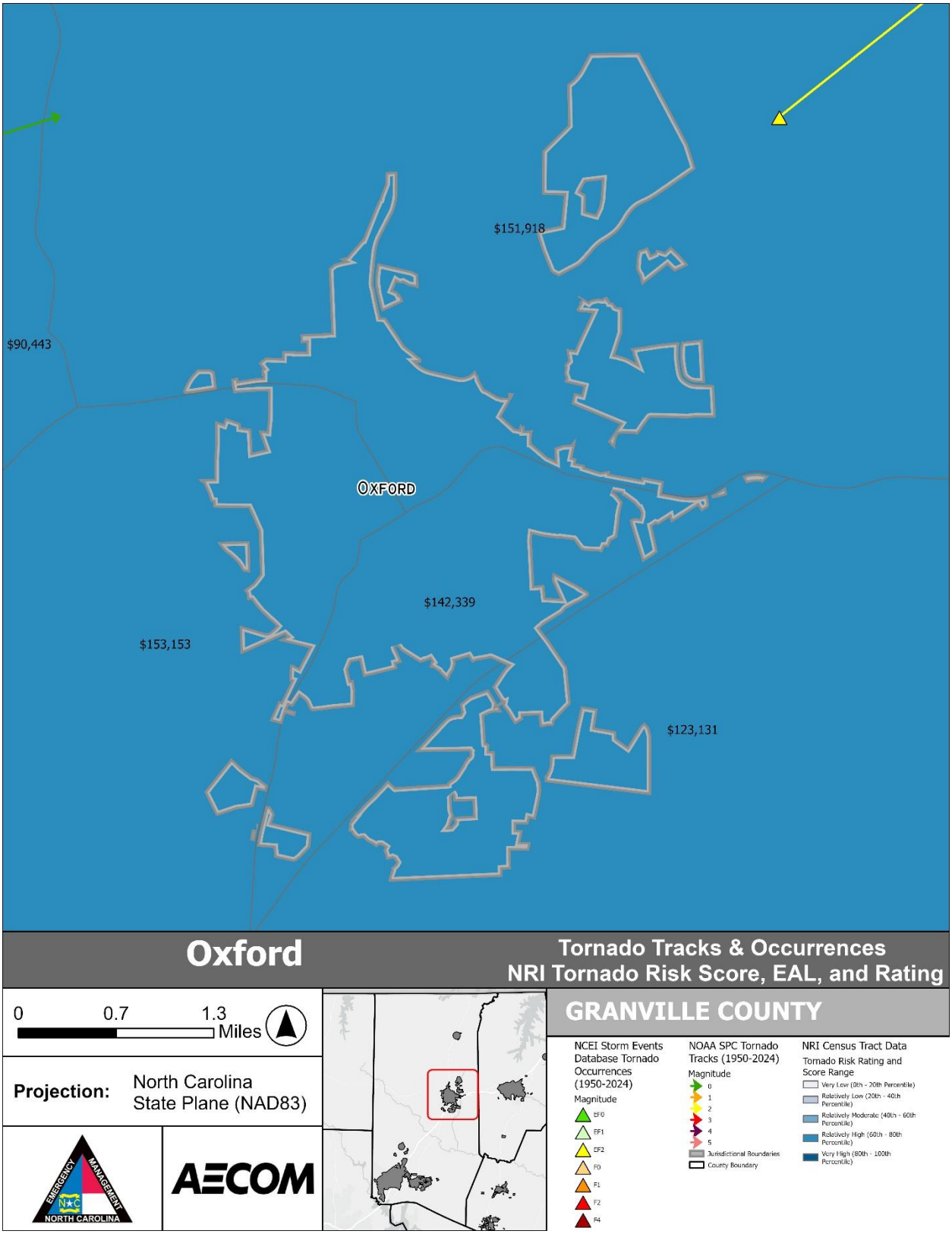


Figure 5-147: Tornado Risk Map – Oxford

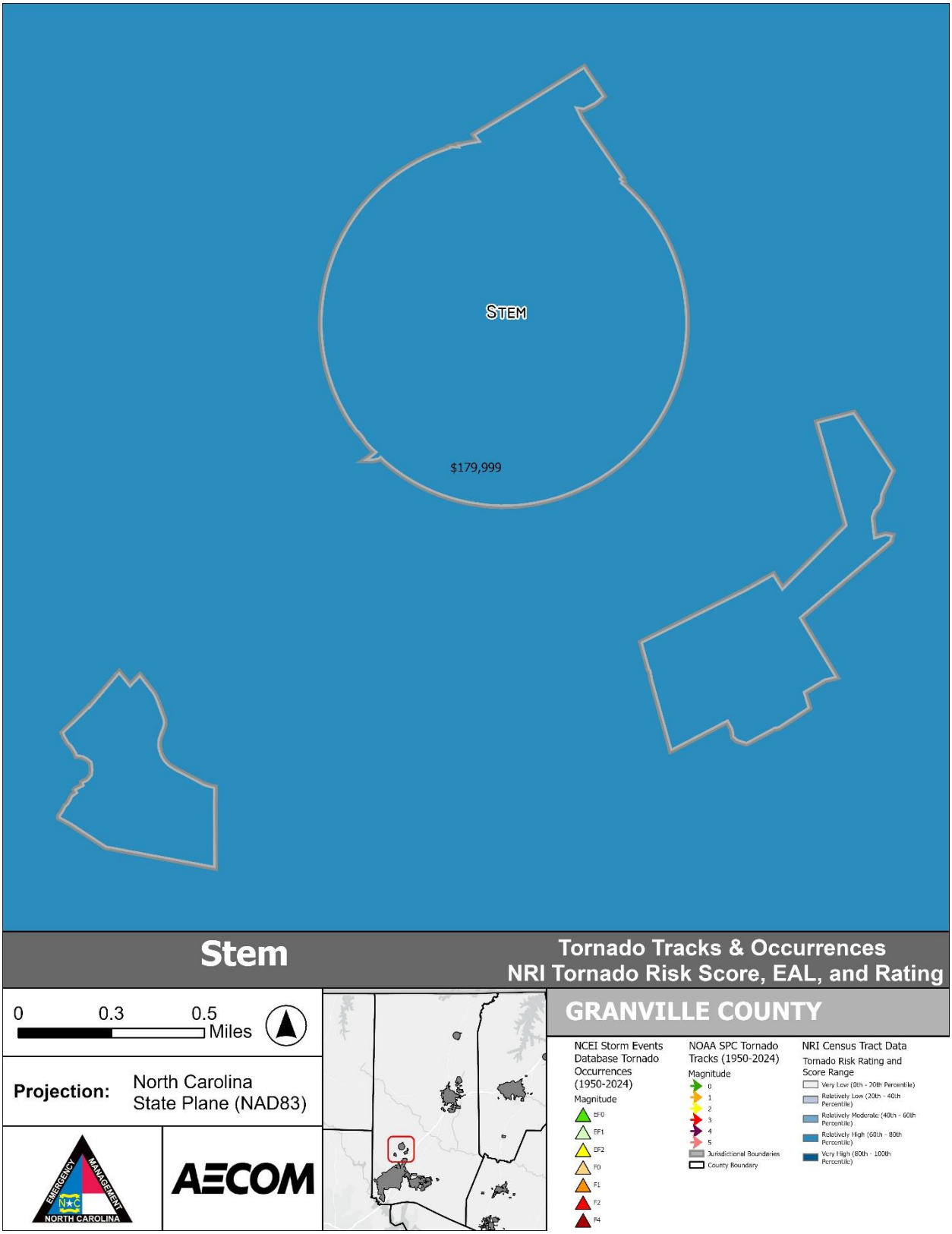


Figure 5-148: Tornado Risk Map – Stem

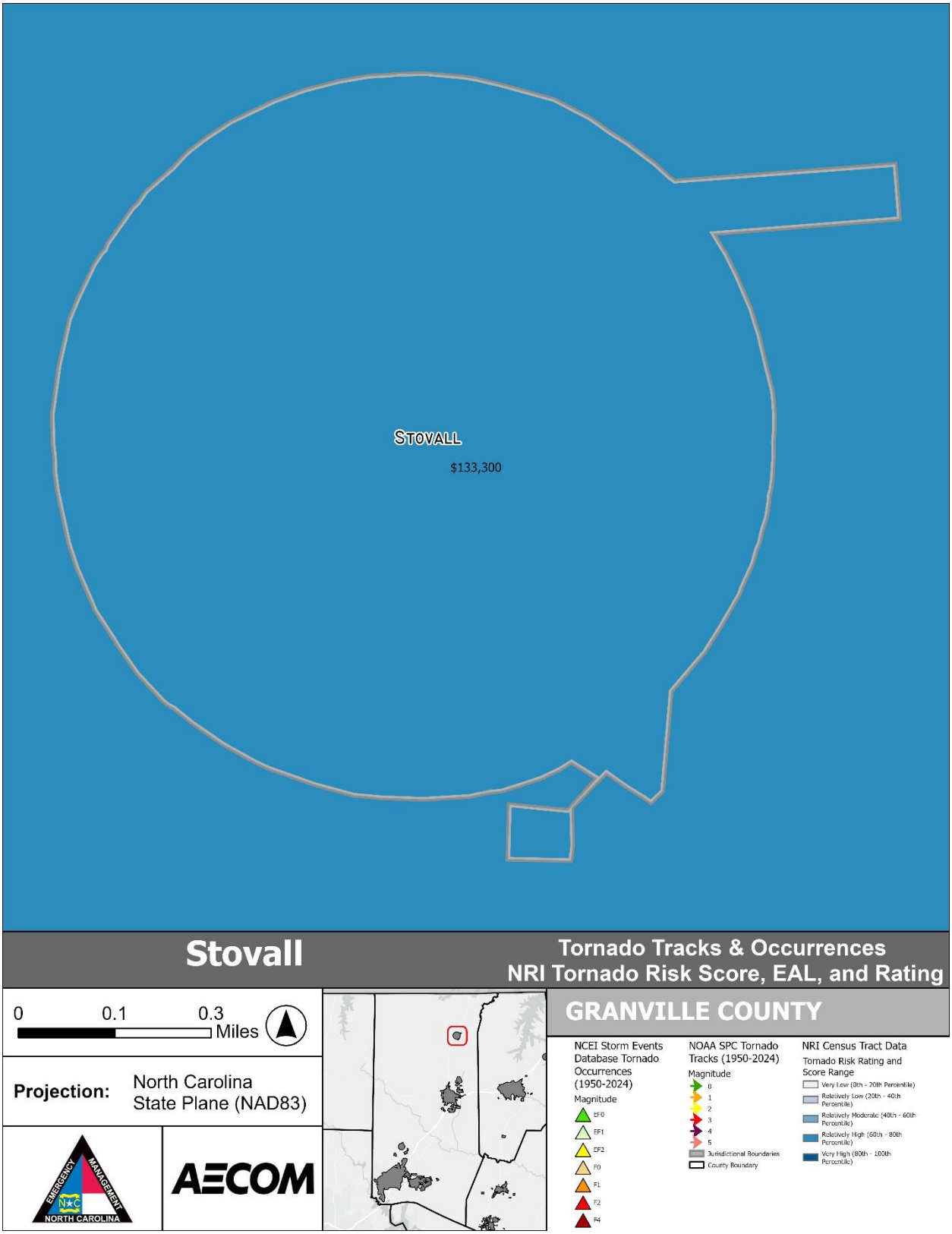


Figure 5-149: Tornado Risk Map - Stovall

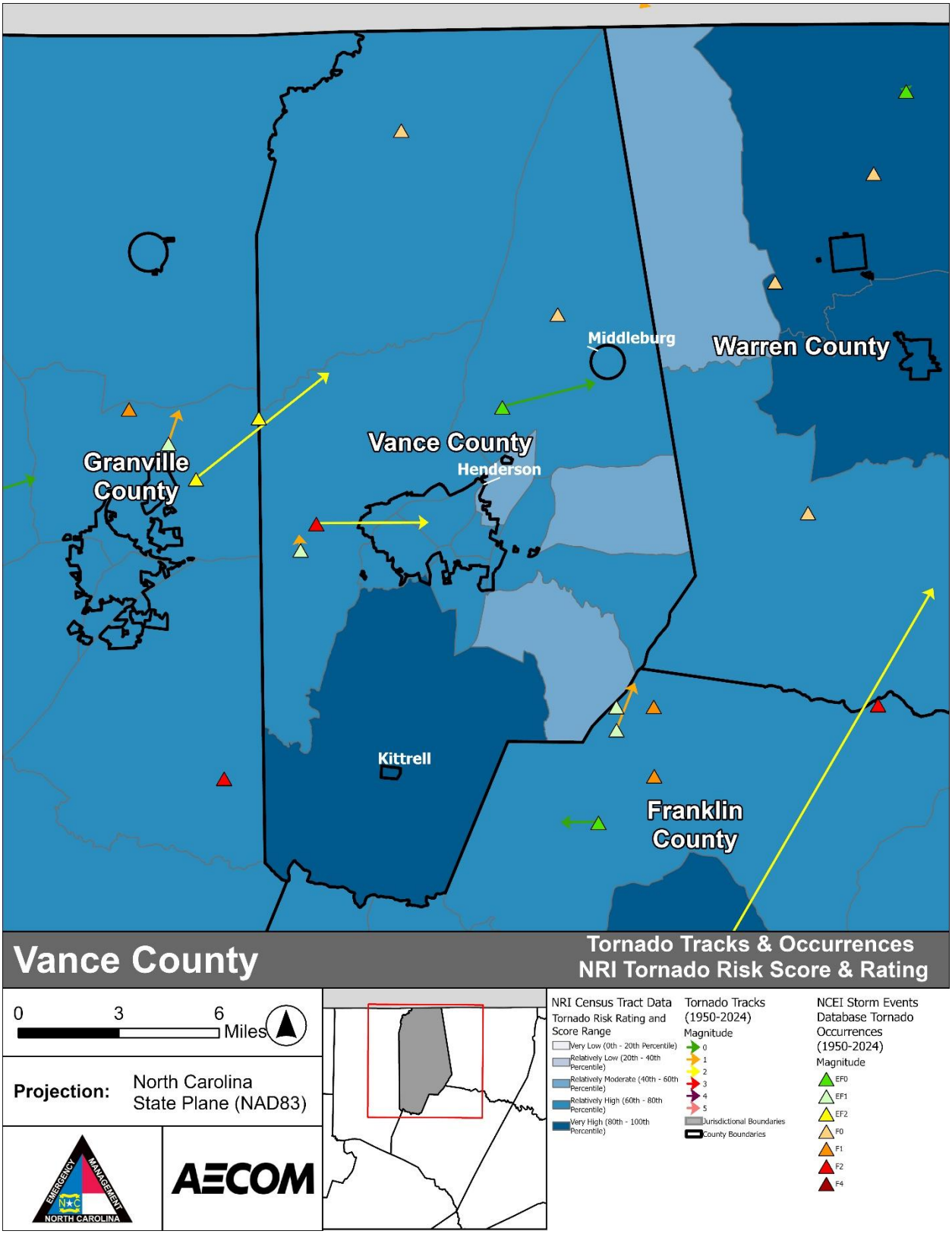


Figure 5-150: Tornado Risk Map - Vance County



Figure 5-151: Tornado Risk Map - Henderson

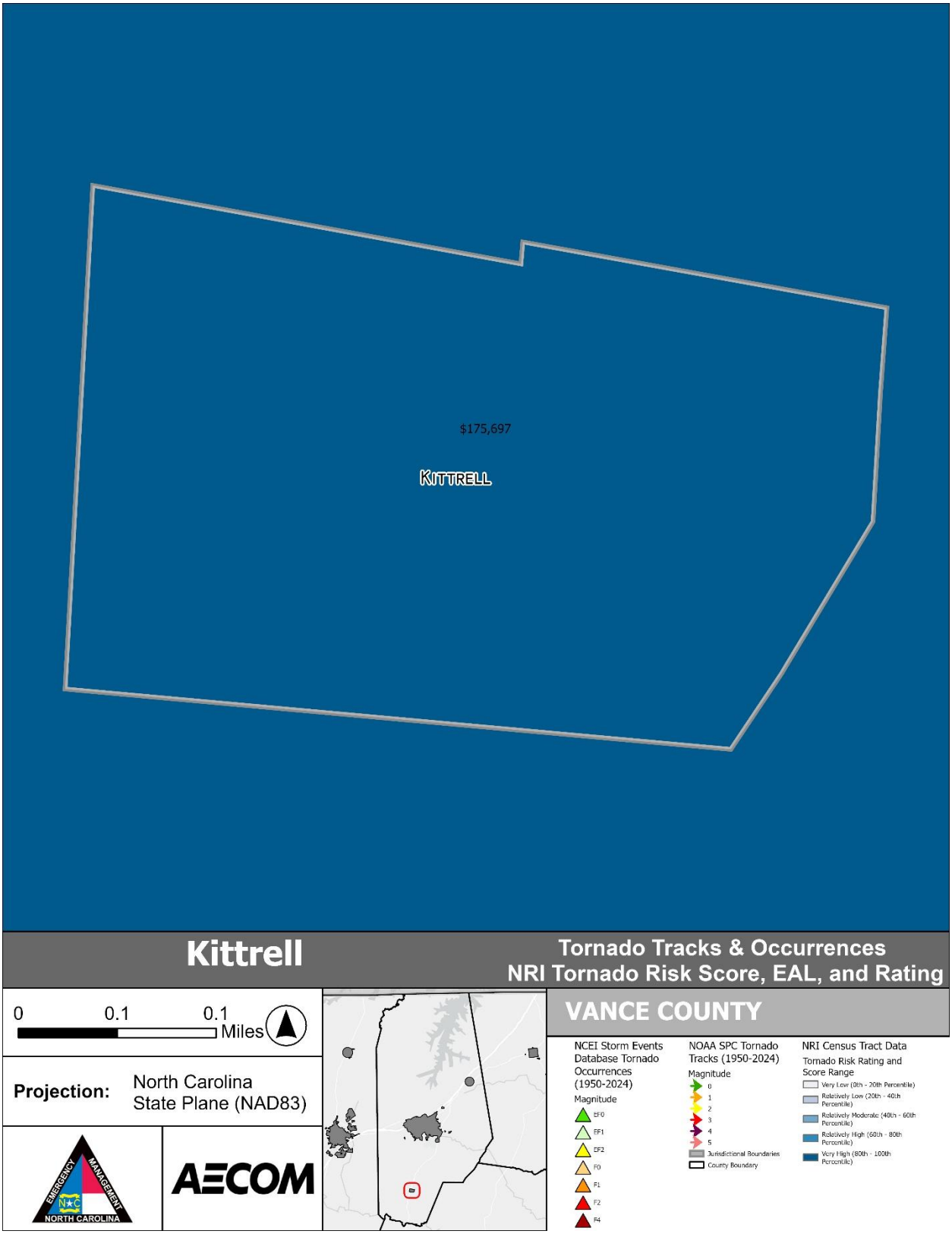


Figure 5-152: Tornado Risk Map - Kittrell

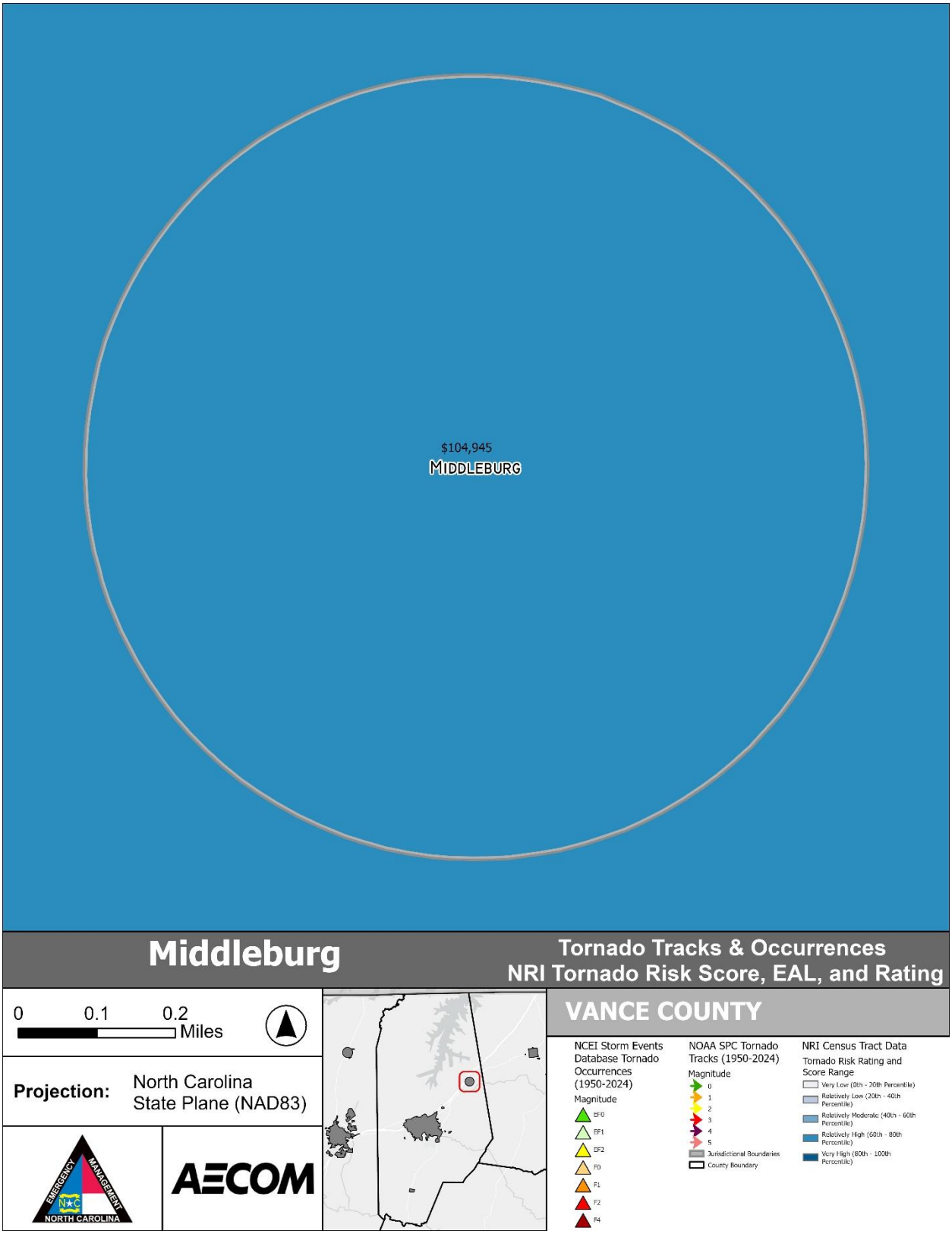


Figure 5-153: Tornado Risk Map - Middleburg

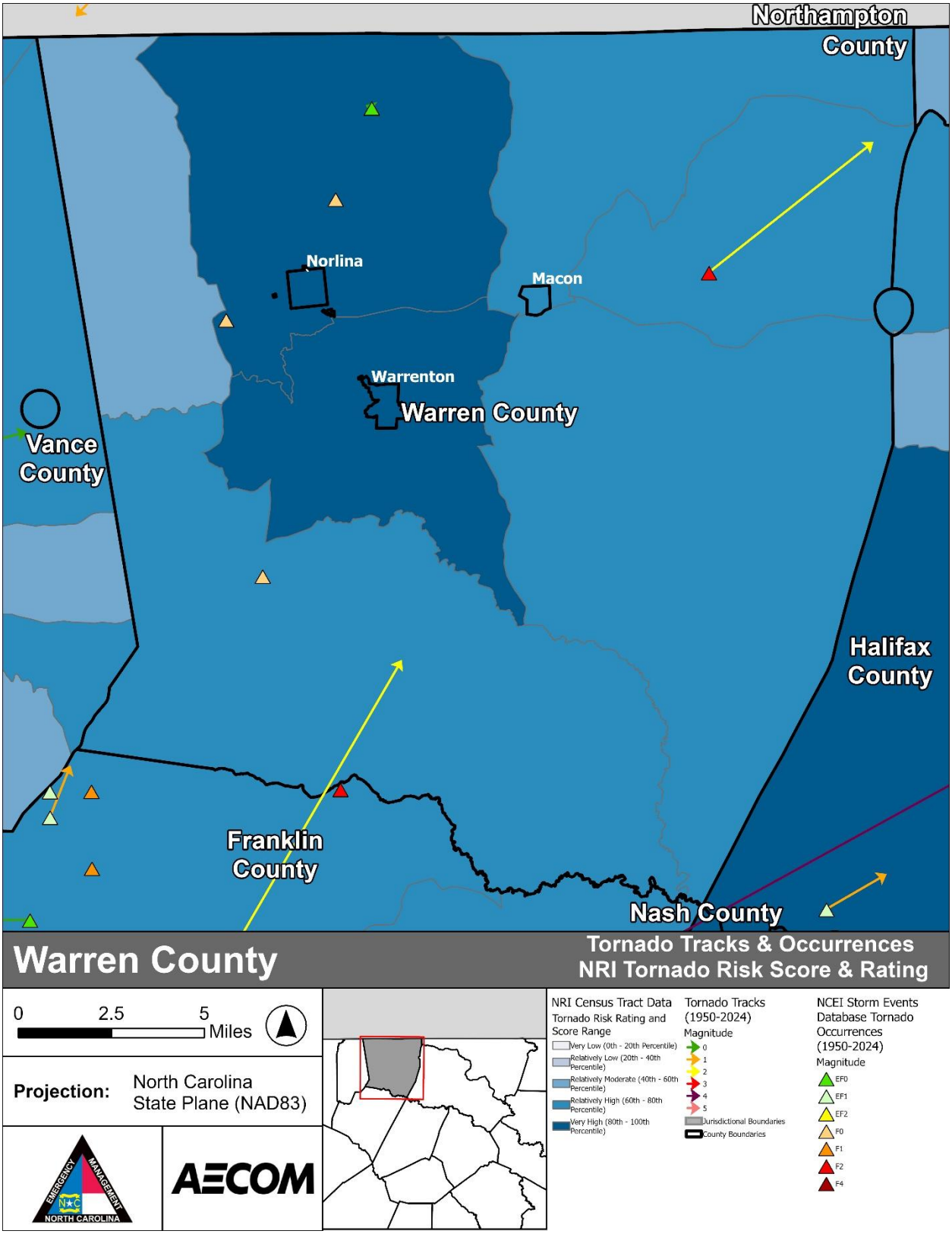


Figure 5-154: Tornado Risk Map - Warren County

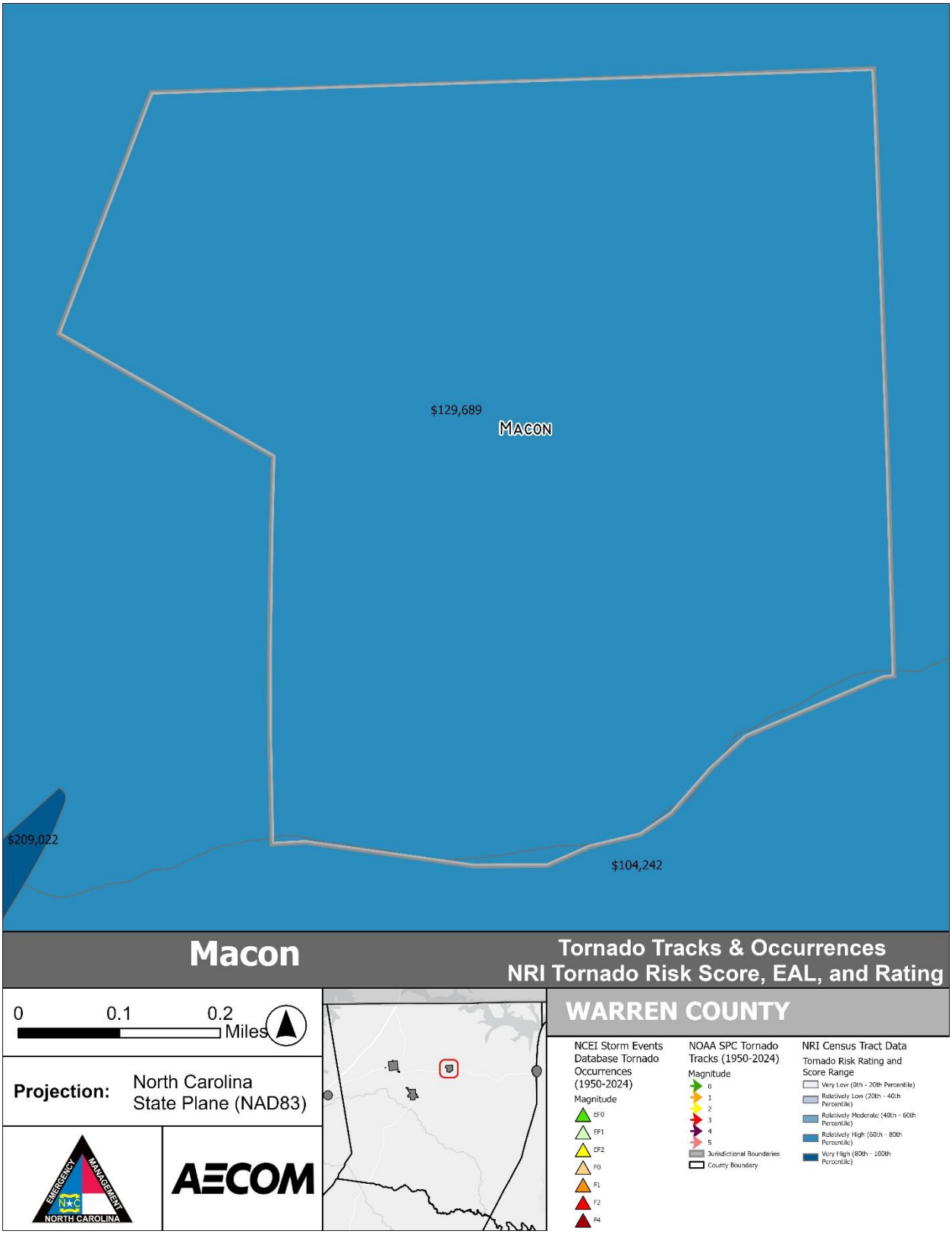


Figure 5-155: Tornado Risk Map – Macon

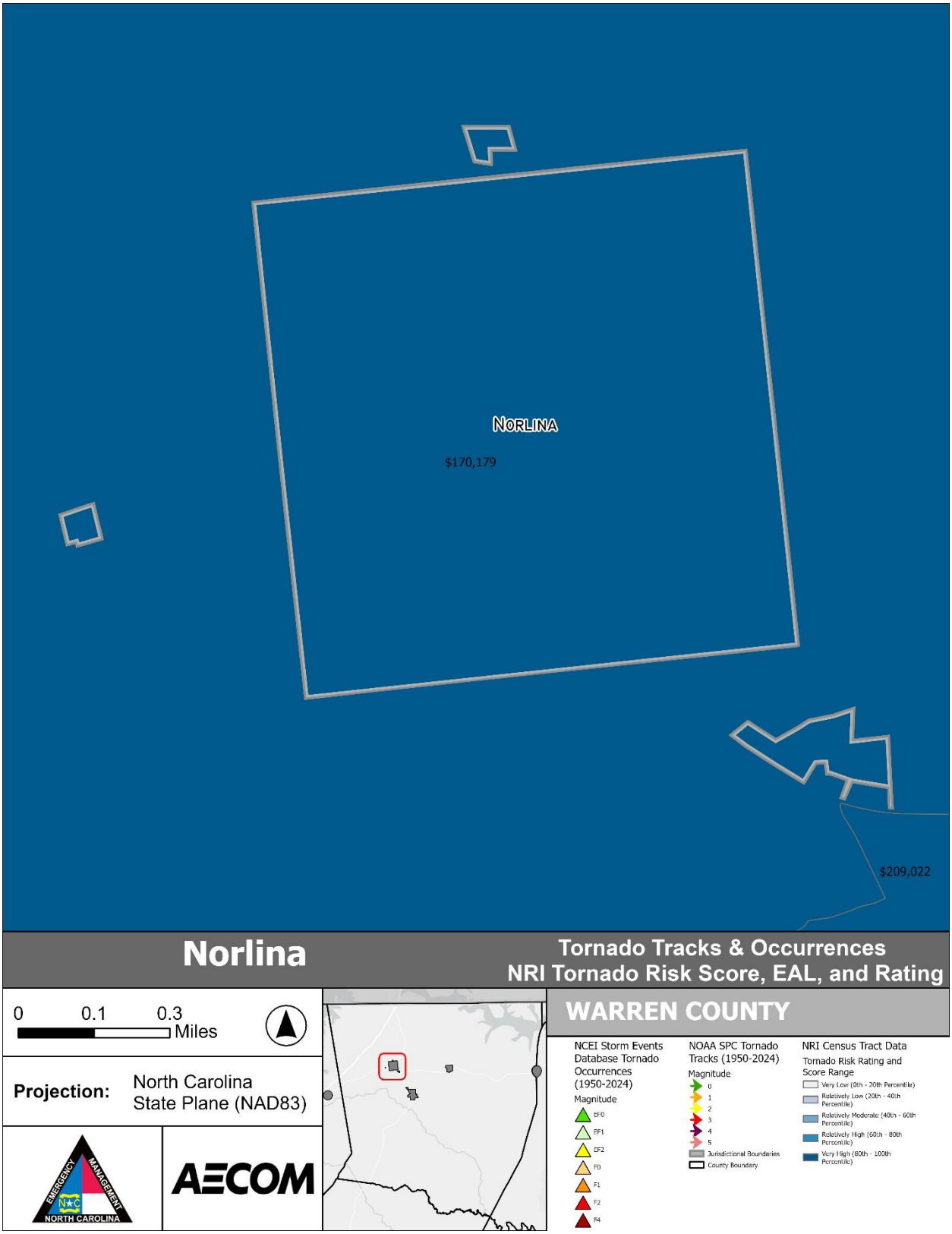


Figure 5-156: Tornado Risk Map – Norlina

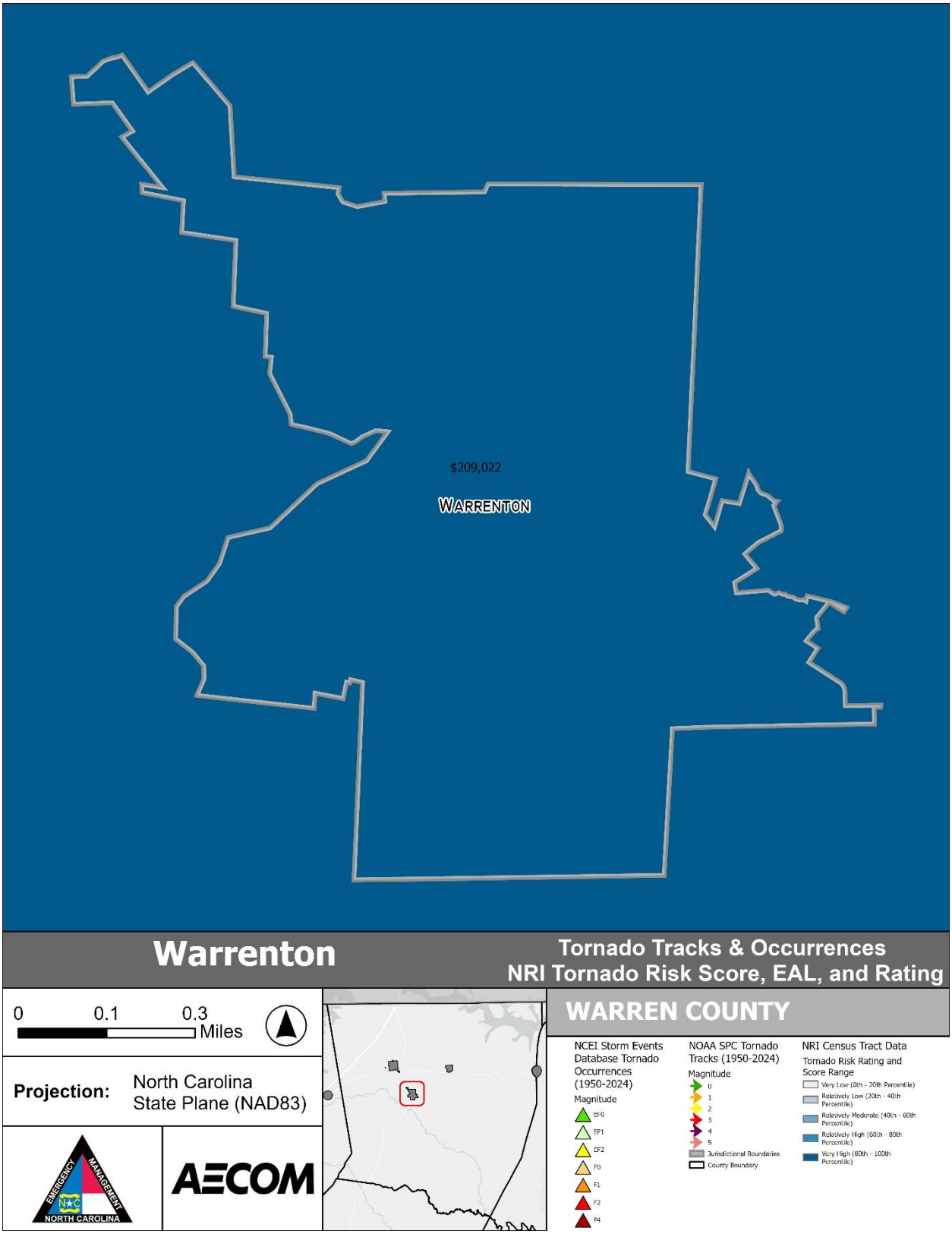


Figure 5-157: Tornado Risk Map - Warrenton

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 Bunn, Franklinton, Oxford, Stem, Stovall, Kittrell, Middleburg, Macon, Norlina, or Warrenton, which haven't experienced tornadoes in their jurisdictions) in the Region. It should be noted that jurisdictions can be affected by these events even though they are not depicted in the table.

Table 5-45: Greatest Magnitude Tornado Hazard Event to Impact the Planning Area[65]

Jurisdiction	Date of Event	Magnitude
Franklin County (Unincorporated Area)	1988-11-27	F4
Bunn	--	--
Franklinton	--	--
Louisburg	1966-11-02	F2
Youngsville	1973-05-28	F1
Granville County (Unincorporated Area)	1952-11-19	F2
Butner	1959-09-29	F1
Creedmoor	1989-05-05	F1
Oxford	--	--
Stem	--	--
Stovall	--	--
Vance County (Unincorporated Area)	2016-02-24	F2
Henderson	1995-10-27	F2
Kittrell	--	--
Middleburg	--	--
Warren County (Unincorporated Area)	1969-10-02	F2
Macon	--	--
Norlina	--	--
Warrenton	--	--

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.

Some notable tornado events that occurred in the planning area are summarized below:

F4 Tornado: 11/27/1988

According to the Tornado Tracks data from the SPC and NOAA,[68] the F4 tornado traveled 83 miles through Wake, Franklin, Halifax, and Northampton County, causing 4 deaths and 154 injuries, along with an estimated $50 million - $500 million in damages. According to the Storm Events Database, there were 17 injuries and $25 million in damages in Franklin County alone. The tornado touched down at 1:00 am near Umstead State Park, despite no severe thunderstorm or tornado watches being issued for Wake County, leaving the most intense damage in NW Raleigh, where it tore through densely populated areas.[69]

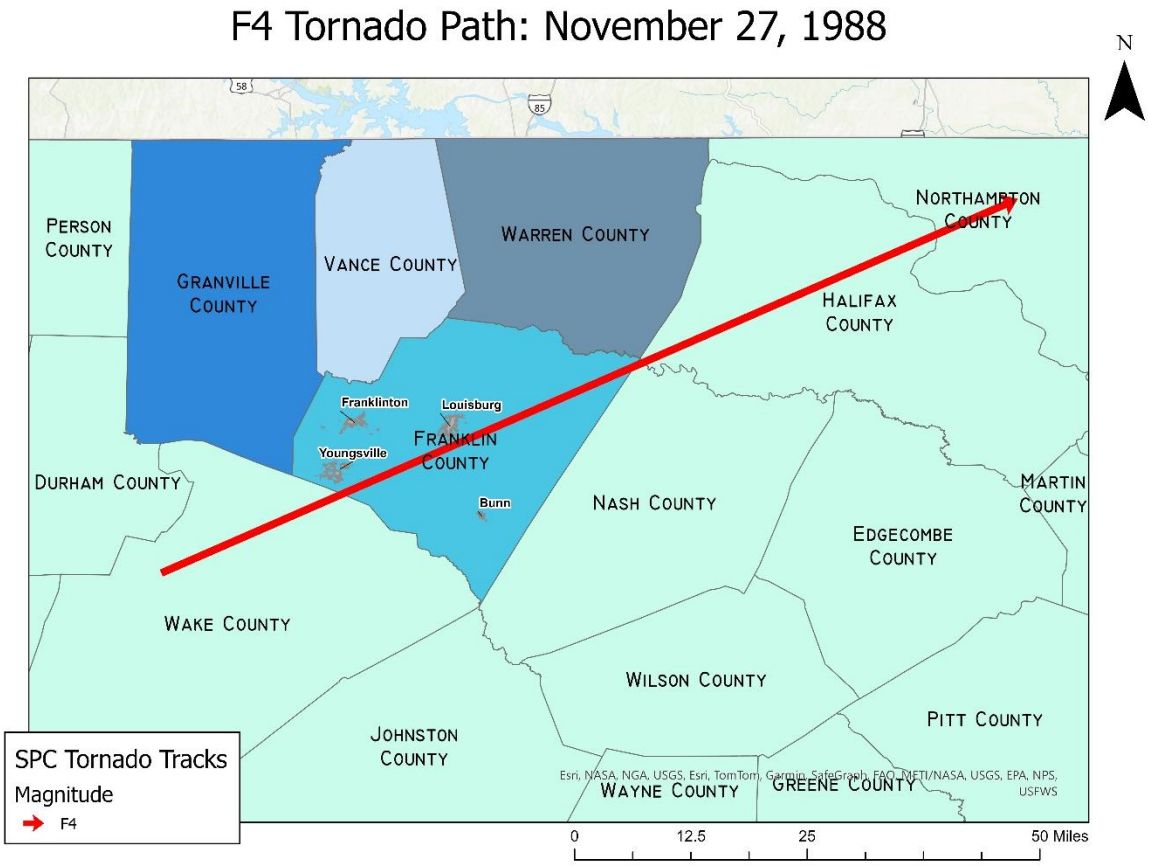


Figure 5-158: SPC Tornado Track from November 27, 1988[70]

[68] 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

[69] Patrick, J. (2022, November 28). This day in history: Deadly EF-4 tornado rips through Raleigh, killing 4. WRAL.com. https://www.wral.com/story/this-day-in-history-deadly-ef-4-tornado-rips-through-raleigh-killing-4/20602101/

[70] 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

F2 Tornado: 11/2/1966

On November 2, 1966, an F2 tornado touched down in northern Harnett County before travelling about 64 miles through Wake, Franklin, and Warren County. According to the NCEI Storm Events Database, there was approximately $250,000 in Franklin County and $250,000 in Warren County of damages, but there were no injuries or fatalities documented in association with the event in the planning area. According to the SPC Storm Tracks data, there were a total of 9 injuries and approximately $50,000 - $500,000 associated with the tornado through its entire path.

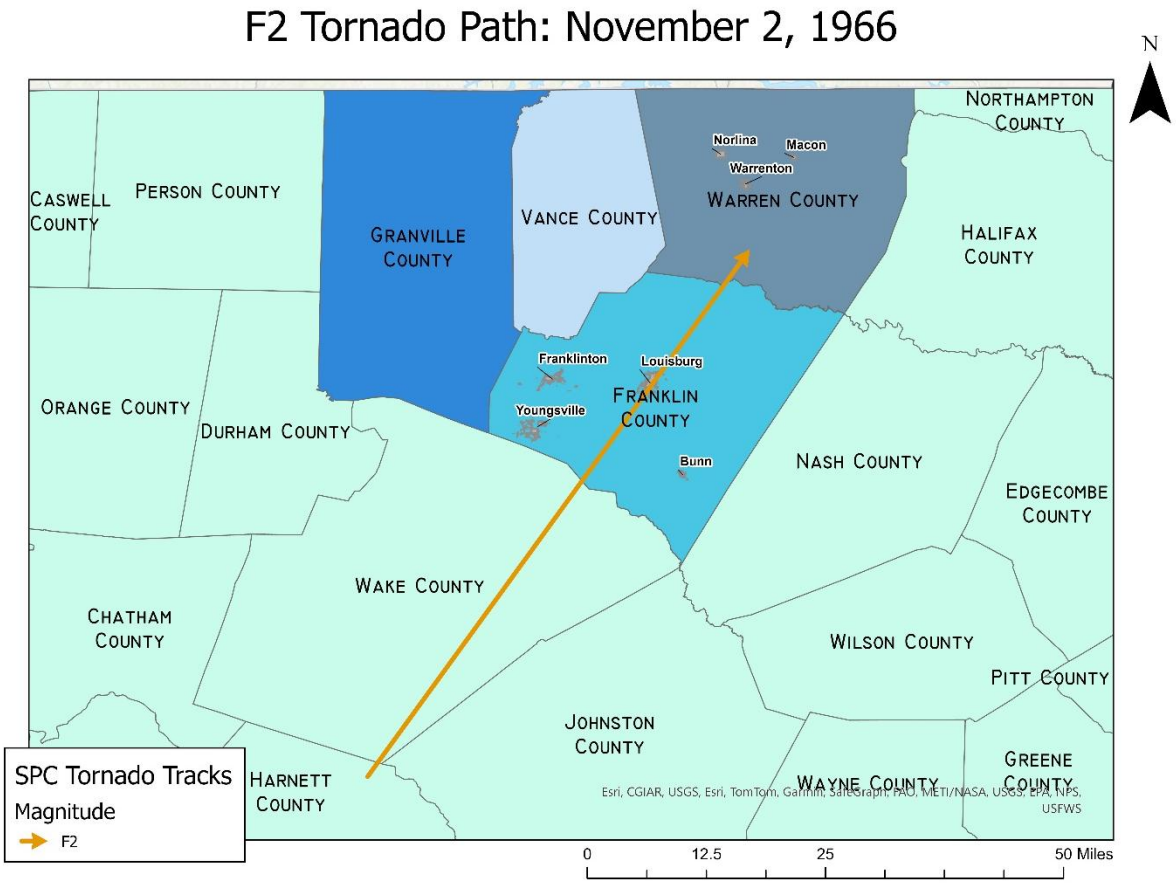


Figure 5-159: SPC F2 Tornado Path from November 2, 1966[71]

EF1 and EF0 Tornadoes: 8/8/2024

SPC Tornado Track data reports that three tornadoes, two EF1 and one EF0, touched down in the planning area on August 8, 2024. The NCEI Storm Events Database reports that Tropical Depression Debby traveled through Florida, off the South Carolina Coast, and then across the western Piedmont region of NC, causing heavy rain and tornadoes. However, no injuries or deaths were reported because of the tornadoes that occurred in the planning area.

[71] 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

One EF1 tornado touched down in Franklin County, traveled about 2.9 miles NW, and then lifted off the ground. This tornado snapped and uprooted numerous trees, with the worst damage near Hickory Rock Road and White Level Road. There was approximately $25,000 in damage attributed to the tornado, but no deaths or injuries were reported.

The other EF1 tornado in the planning area touched down 1.1 miles SE of Epson, along NC 39 Hwy S, and then continued for approximately 1 mile before lifting. The tornado snapped and uprooted trees, destroying a single-wide home and several soft and hardwood trees. This tornado created approximately $60,000 in damage in Vance County and $60,000 in damage in Rocky Ford.

The EF0 tornado reported in the planning area touched down at the Rocky Ford Community in Franklin County, continued for about 2 miles before lifting, uprooting, snapping trees, and snapping one utility pole. A well-defined tornado debris signature was visible on the radar because of the event, and approximately $15,000 of damages were attributed to the EF0 tornado.

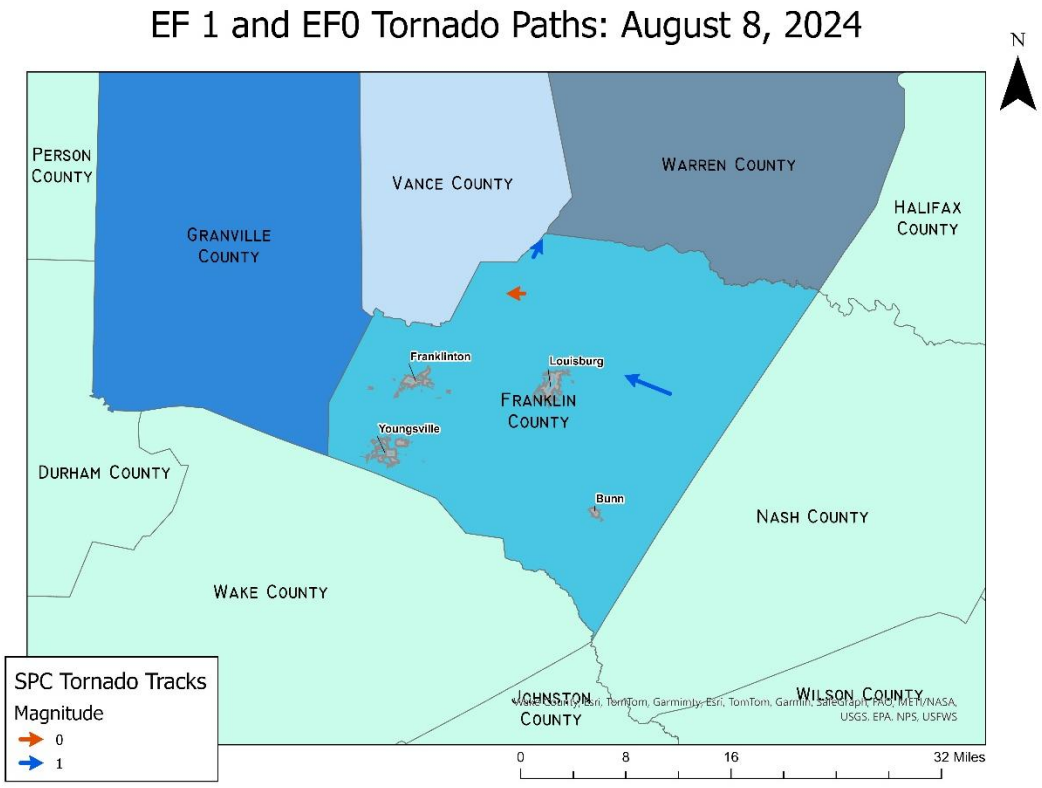


Figure 5-160: SPC Tornado Paths on August 8, 2024[72]

[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

Table 5-46: Tornado Events in the Planning Area from the NCEI Storm Events Database[73]

County	Location	Date	Magnitude	Deaths	Injuries	Property Damage	Event Narrative	Episode Narrative
Franklin	Unincorporated Area	6/9/1951	F1	0	0	$25,000	--	--
Granville	Unincorporated Area	11/19/1952	F2	0	1	$250,000	--	--
Franklin	Unincorporated Area	3/18/1956	F1	0	0	$25,000	--	--
Granville	Unincorporated Area	9/29/1959	F1	0	0	$2,500	--	--
Franklin	Unincorporated Area	11/2/1966	F2	0	0	$250,000	--	--
Warren	Unincorporated Area			0	0	$250,000		
Warren	Unincorporated Area	10/2/1969	F2	0	0	$250,000	--	--
Franklin	Unincorporated Area	5/28/1973	F1	0	2	$25,000	--	--
Franklin	Unincorporated Area	5/8/1984	F1	0	0	$250,000	--	--
Granville	Unincorporated Area	8/29/1988	F1	0	1	$250,000	--	--
Franklin	Unincorporated Area	11/28/1988	F4	0	17	$25,000,000	--	--
Granville	Unincorporated Area	5/5/1989	F1	0	0	$2,500,000	--	--

[73] National Center for Environmental Information (NCEI). (2025). *Storm Events Database* [Tabular]. National Oceanic and Atmospheric Administration. https://www.ncei.noaa.gov/stormevents/

County	Location	Date	Magnitude	Deaths	Injuries	Property Damage	Event Narrative	Episode Narrative
Vance	Henderson	4/16/1993	F0	0	0	$500,000	A small, narrow tornado extensively damaged three mobile homes.	--
Granville	Corinth	10/27/1995	F2	0	0	$250,000	A tornado touched down in the community of Corinth. Numerous large trees were downed, and a new home lost its roof. Numerous barns and farm outbuildings were destroyed. At the intersection of Highway 96 and SR 1643, a home was damaged when a large tree was blown onto it, lifting the roof. Numerous 100-year-old trees were twisted and snapped. A truck and cement outbuilding were also destroyed.	
Vance	Henderson		F2	0	0	$10,000,000	A tornado first touched down 4 W of Henderson near Interstate 85. The storm moved north and crossed Interstate 85. Sporadic damage occurred to mostly pine trees around the Ruin Creek Road area until the storm hit the Camperland business sales lot. Here, 25 RVs and five Uhauls were destroyed. The business roof was blown off. A few blocks away, a medical clinic was destroyed. For several blocks down the road, there was damage to the roofs of a department store, a grocery store, a hospital, and a shopping center.	
Warren	Wise		F0	0	0	$10,000	A steeple was blown off a church in the Wise community. Numerous trees were damaged and twisted within a few blocks of the church.	
Franklin	Pilot	4/15/1996	F2	0	5	$1,000,000	The storm moved into Franklin County and destroyed a cement block building 1 mile southwest of the community of Pilot. The storm then crossed over Hwy 64, where numerous trees were twisted and downed. Several outbuildings were also destroyed. The storm then entered Pilot, where the damage path reached 250 yards across. A frame house was rotated, lifted off its foundation, and moved 30 feet. Cars were thrown into a local farm pond along with other debris. As the tornado left Pilot and approached Highway 39, the tornado reached its greatest width of nearly 400 yards. Damage was evident at every home in its path. The storm then weakened before it moved into Nash County.	
Granville	Berea	3/20/1998	F2	0	0	$100,000	This tornado occurred with the same parent thunderstorm that produced a tornado earlier in northeast Durham County. The tornado touched down in Berea on Highway 158. A brick ranch home sustained significant	

County	Location	Date	Magnitude	Deaths	Injuries	Property Damage	Event Narrative	Episode Narrative
							damage to the roof and the garage. The subsequent damage appeared 1 mile to the northeast on Hebron Road (State Road 1150). The tornado destroyed several barns on both sides of NC-1150, uprooted several trees, and destroyed the roof of a farmhouse. The tornado reached F2 at this point. The debris from the home and barns were strewn across fields and treetops. The tornado then moved over a wooded area, snapping trees and finally reaching NC-1306, where it produced F0 damage to outbuildings and a farmhouse.	
Franklin	Louisburg		F1	0	0	$50,000	The same thunderstorm complex that produced tornadoes in Wake County produced yet another small tornado just east of Louisburg on Hwy 158. Six houses sustained minor damage, and one mobile home received significant damage. Numerous trees were uprooted and snapped in the area.	
Vance	Middleburg	5/19/2001	F0	0	0	$0	The Kerr Lake Park Ranger reported about ten trees blown down and damage to trailers at the Satterwhite Point Recreation Area. A tornado sighting was also reported.	
Warren	Ridgeway			0	0	$0	The roof of a chicken house was damaged, and numerous trees were blown down in the same area.	
Vance	Townsville	5/9/2003	F0	0	0	$400,000	Trees were downed, and a marina was damaged between Townsville and the Nutbush recreational area at Kerr Lake. Golf ball-sized hail was also reported.	
Warren	Afton			0	0	$0	Trees were blown down and twisted, and a mobile home was destroyed.	
Franklin	Bunn	5/14/2006	F0	0	0	$0	--	--
Granville	Berea	10/27/2010	EF0	0	0	$100,000	A supercell thunderstorm moving northeast across Orange and Person counties had already produced a tornado near Cedar Grove in northern Orange County. The same storm produced a second tornado that touched down just east of Berea in Granville County. This EF-0 tornado	Two supercell thunderstorms developed along a slow-moving cold front in a high shear, low Convective Available Potential Energy (CAPE) environment along the southern periphery of a

County	Location	Date	Magnitude	Deaths	Injuries	Property Damage	Event Narrative	Episode Narrative
							tracked over 5 miles with a path width near 100 yards and winds of 80 to 85 mph. The tornado touched down north of Highway 158 near the intersection of Bob Daniel Road and Hebron Road. Numerous trees were uprooted, and shingles were blown off houses. The tornado continued moving east-northeast, partially removing the roof from a house on Hebron Road and destroying two sheds at 1657 Elam Currin Road. The tornado then crossed Pine Town Road, where more minor damage to tin roofing and shingles was noted before crossing Graham-Hobgood Road. Numerous outbuildings were severely damaged along Joe Pruitt Road near its intersection with Graham-Hobgood Road. At least two outbuildings were destroyed, and as many as four others suffered substantial damage. A single wide mobile home was shifted about 2 feet; however, the tie-downs and anchors held, keeping the trailer from overturning. Winds in this area were rated around 80 to 85 mph based on the noted damage. The tornado then turned a little more to the northeast, crossing Bodie Currin Road, causing minor roof damage to a residence at 2543 Bodie Currin Road. Numerous trees were blown down in this area, and other homes suffered shingle and siding damage. The tornado then crossed Highway 96, lifting	strong upper vortex over the northern Great Lakes. These supercells produced five weak tornadoes across Person, Orange, Granville, and Vance counties during the afternoon and evening.

County	Location	Date	Magnitude	Deaths	Injuries	Property Damage	Event Narrative	Episode Narrative
							off the ground near the intersection of Cornwall Road and Sterl Carrington Road.	
Vance	Greystone			0	0	$30,000	A supercell thunderstorm moving northeast across Orange, Person, and Granville counties had already produced a tornado near Cedar Grove in Orange County and a second tornado near Berea in Granville County. The same storm produced a third tornado north of Henderson and just west of Middleburg. This EF-0 tornado, which was the weakest of the three, tracked nearly 3 miles with a path width of 50 yards and winds of 75 to 80 mph. The tornado initially touched down on Coopers Grove Road, blowing limbs out of trees and causing minor damage to a couple of sheds and outbuildings. The tornado tracked east-northeast, crossing Satterwhite Point Road, blowing down, and snapping numerous trees. Some minor damage to 2 homes and to an above-ground pool occurred. The tornado then crossed Mabry Mill Road, causing extensive tree damage that blocked the road and damaged the guardrails. As the tornado continued east, it crossed Interstate 85 and caused some minor awning and roof damage to the Snackers BP gas station at exit 220. The tornado then lifted off the ground after striking the gas station.	

County	Location	Date	Magnitude	Deaths	Injuries	Property Damage	Event Narrative	Episode Narrative
Franklin	New Hope	6/18/2013	EF0	0	0	$150,000	The National Weather Service confirmed that a tornado with a 1.25-mile damage path briefly touched down approximately 6 miles southeast of Youngsville in Franklin County, North Carolina. A significant area of tree damage was noted along Highway 401, near the intersection of Thompson Lane. The damage here consisted of a large stand of trees that had been blown down. The damage here suggested wind gusts with speeds of 80 mph. The most significant damage from this event was observed in the Wyndfield Neighborhood. The tornado reached its widest point at this location, reaching a maximum width of 150 yards. The damage at this location consisted of partial uplift of roofing material, shingle damage, and siding damage. In addition, dozens of hard and soft wood trees were blown down. The damage here suggested wind gusts with speeds of 85 mph. To the east-northeast of this location, the tornado path appeared to narrow as it approached Tarboro Road near the Harris Chapel Baptist Church. At this location, numerous headstones in an adjacent cemetery were blown over, and, once again, dozens of trees were blown down. The tornado appeared to cross Tarboro Road just south of the Braeburn subdivision. The damage pattern among the trees just east of Tarboro Road	With a moderately unstable air mass in place, scattered to numerous showers and thunderstorms developed during the late afternoon and early evening hours as an upper-level trough and associated cold front approached the region. Several reports of wind damage were received as some of the storms became severe. In addition, an MCV tracked east across north central North Carolina and enhanced the shear enough across the area to result in rotation in some of the storms. One of the storms produced an EF0 tornado near Louisburg in Franklin County, resulting in substantial tree damage and significant damage to several manufactured homes.

County	Location	Date	Magnitude	Deaths	Injuries	Property Damage	Event Narrative	Episode Narrative
							suggested that the tornado had lifted there. The damage at this location suggested wind gusts with speeds of 75 mph. In addition, straight-line wind damage immediately preceded and followed the time that the tornado was on the ground.	
Granville	Huntsboro	2/24/2016	EF2	0	0	$500,000	The National Weather Service has confirmed that a tornado touched down in eastern Granville County and continued into western Vance County. The tornado initially touched down at a location along Salem Road, about 3.7 miles northeast of Oxford. The tornado then traveled northeast, passing by and just to the north of Henderson-Oxford Airport. The tornado then crossed into Vance County and continued for another 2.5 miles. The total path length was approximately 5 miles. The damage along this path consisted of several stands of softwood trees snapped and blown down, several outbuildings blown down and/or destroyed, several cars and storage trailers uplifted and carried up to 50 yards away, and seven homes that were damaged, including one that was destroyed (roof and two exterior walls blown away). The degree of damage along most of the path indicated wind speeds of 95 to 110 mph (EF-1), with a small segment of the path showing more intense	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.

County	Location	Date	Magnitude	Deaths	Injuries	Property Damage	Event Narrative	Episode Narrative
							damage, suggesting top wind speeds of 125 mph (EF-2).	
Vance	Dexter			0	0	$100,000	The National Weather Service has confirmed that a tornado touched down in eastern Granville County and continued into western Vance County. Once the tornado crossed into Vance County, it continued for another 2.5 miles. The total path length was approximately 5 miles. The damage along this path consisted of several stands of softwood trees snapped and blown down, several outbuildings blown down and/or destroyed, several cars and storage trailers uplifted and carried up to 50 yards away, and seven homes that were damaged, including one that was destroyed (roof and two exterior walls blown away). The degree of damage along most of the path indicated wind speeds of 95 to 110 mph (EF-1), with a small segment of the path showing more intense damage, suggesting top wind speeds of 125 mph (EF-2).	
Granville	Lewis	5/5/2017	EF1	0	0	$100,000	At approximately 5:21 AM EDT, a tornado developed in a heavily wooded area just north of Winding Oak Road, where it produced extensive tree damage consisting of uprooted hardwood trees and snapped softwood trees. The tornado moved northeast, crossing some open fields, and then caused concentrated damage to two nearby homes near 6639	A strong cold front moved across the region during the early morning hours of May 5th. Widespread wind damage occurred in associated with the storms, along with one tornado in Granville County.

County	Location	Date	Magnitude	Deaths	Injuries	Property Damage	Event Narrative	Episode Narrative
							Horner Siding Road. The majority of the structural damage at this location was caused by fallen trees on homes and outbuildings. Additionally, there was some minor siding damage to one of the homes, and the roof of an outbuilding was blown off. The tornado crossed Horner Siding Road, where it quickly dissipated in an open field at approximately 5:22 AM EDT. There were no fatalities or injuries. Monetary damages were estimated.	
Warren	Paschall	5/27/2020	EF0	0	0	$50,000	A tornado associated with the outer rain bands of Tropical Storm Bertha briefly touched down in northwest Warren County. The damage consisted of a destroyed outbuilding and numerous uprooted and snapped trees. In addition to a Tornado Debris Signature on the Doppler radar, a convergent inflow pattern was noted in the tall grass that lay downed in the tornado path.	The remnants of Tropical Storm Bertha crossed western North Carolina during the afternoon and evening. Related bands of shallow convection produced numerous, mostly weak, low-level mesocyclones, one of which strengthened and tightened sufficiently to produce a tornado over northern Warren County. A TDS and reports of damage resulted from the tornado.
Franklin	Stallings Xrds	8/8/2024	EF1	0	0	$25,000	A tornado touched down along NC 56 Hwy E about 6.8 E of Louisburg, continued 2.9 miles toward the NW before lifting. Along the way, numerous trees were snapped and uprooted, with the worst tree damage occurring near the intersection of Hickory Rock Rd and White Level 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

County	Location	Date	Magnitude	Deaths	Injuries	Property Damage	Event Narrative	Episode Narrative
Franklin	Rocky Ford		EF0	0	0	$15,000	A tornado briefly touched down at the Rocky Ford Community of Franklin County, NC. Several softwood trees were snapped and uprooted, and one utility pole was snapped. A well-defined tornado debris signature was noted on radar at the noted time.	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.
Franklin	Rocky Ford		EF1	0	0	$60,000	A tornado briefly touched down 1.1 SE of Epsom along NC 39 Hwy S and then continued about 2 miles toward the NNE before lifting. The damage path included numerous snapped and uprooted trees. The worst damage along this patch occurred near the intersection of NC 39 Hwy S and Henry Ayscue Rd, where a single-wide mobile home was completely destroyed, along with several soft and hardwood trees that were snapped and uprooted.	
Vance	Epsom		EF1	0	0	$60,000	A tornado briefly touched down 1.1 SE of Epsom along NC 39 Hwy S and then continued about 2 miles toward the NNE before lifting. The damage path included numerous snapped and uprooted trees. The worst damage along this patch occurred near the intersection of NC 39 Hwy S and Henry Ayscue Rd, where a single-wide mobile home was completely destroyed, along with several soft and hardwood trees that were snapped and uprooted.	

County	Location	Date	Magnitude	Deaths	Injuries	Property Damage	Event Narrative	Episode Narrative
Vance	Dabney	9/27/2024	EF1	0	0	$500,000	A tornado touched down over a large private building near Technology Lane and Poplar Creek Road east of Oxford. The tornado ripped off the building's roof and moved two Heating, Ventilation, and Air Conditioning (HVAC) units. The tornado crossed Interstate 85 and into the Vance-Granville Community College campus, breaking and snapping some soft and hardwood trees. The tornado then lifted just north of the community college; however, roof debris from the private building was found lofted into a residential tree north of US Highway 158.	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.

Table 5-47: Summary of Historical Tornado Occurrences by Participating Jurisdictions from the NCEI Storm Events Database[74]

Jurisdiction	Number of Occurrences	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Bunn	1	0	0	$0	$0
Franklinton	--	--	--	--	--
Louisburg	1	0	0	$50,000	$0
Youngsville	--	--	--	--	--
Franklin County (Unincorporated Area)	11	0	24	$26,825,000	$0
Franklin Subtotal	**13**	**0**	**24**	**$26,875,000**	**$0**
Butner	--	--	--	--	--
Creedmoor	--	--	--	--	--
Oxford	--	--	--	--	--
Stem	--	--	--	--	--
Stovall	--	--	--	--	--
Granville County (Unincorporated Area)	9	0	2	$4,052,500	$0
Granville Subtotal	**9**	**0**	**2**	**$4,052,500**	**$0**
Henderson	2	0	0	$10,500,000	$0
Kittrell	--	--	--	--	--
Middleburg	1	0	0	$0	$0
Vance County (Unincorporated Area)	5	0	0	$1,090,000	$0
Vance Subtotal	**8**	**0**	**0**	**$11,590,000**	**$0**
Macon	--	--	--	--	--
Norlina	--	--	--	--	--
Warrenton	--	--	--	--	--
Warren County (Unincorporated Area)	6	0	0	$560,000	$0
Warren Subtotal	**6**	**0**	**0**	**$560,000**	**$0**
Plan Total	**36**	**0**	**26**	**$43,077,500**	**$0**

5.9.5. Probability of Future Occurrences

The NRI uses the NWS SPC Severe Weather Database to assess tornado risk in the planning area. The dataset's record is from 1950 to 2019: EF-2, -3, -4, and -5 tornadoes are recorded before 1986, and EF tornadoes, including EF-0 and EF-1, are recorded from 1986 to 2019.

Franklin County has an annual tornado frequency of 0.25, a total EAL of $2,262,388, an EAL Score of 73.36, and a Hazard Risk Score of 74.9. The unincorporated areas of Franklin County have an average annualized frequency of 0.02, a total EAL of $903,906, an average EAL Score

[74] National Center for Environmental Information (NCEI). (2025). *Storm Events Database* [Tabular]. National Oceanic and Atmospheric Administration. https://www.ncei.noaa.gov/stormevents/

of 63.31, and an average Hazard Risk Score of 64.95. The jurisdiction with the highest total EAL is Youngsville ($613,272), followed by Franklinton ($555,348) and Louisburg ($360,115).

Granville County has an annualized frequency of 0.23 events per year, the total EAL is $1,979,636, the EAL Score is 70.07, and the Hazard Risk Index Score is 71.01. The unincorporated areas of Granville County have an annualized frequency of 0.016 events per year, a total EAL of $31,153, an average EAL Score of 60,61, and an average Hazard Risk Index Score of 62.68. The jurisdiction with the highest total EAL is Butner ($645,284), followed by Creedmoor ($571,632) and Oxford ($570,540).

Vance County has an annual frequency of 0.1 events, a total EAL of $1,246,245, an EAL Score of 57.85, and a Hazard Risk Index Score of 63.82. The unincorporated areas of Vance County have an average annualized frequency of 0.011, a total EAL of $227,785, an average EAL Score of 55.77, and an average Hazard Risk Score of 56.89. The jurisdiction with the highest total EAL is Henderson ($913,515), followed by Kittrell ($175,696) and Middleburg ($104,944).

Warren County has a tornado frequency of 0.21 per year, a total EAL of $887,768, a 47.89 EAL Score, and a 55.65 Hazard Risk Index Score. The unincorporated areas of Warren County have an average annualized frequency of 0.035, a total EAL of $189,510, an average EAL Score of 60,31, and an average Hazard Risk Index Score of 69.14. The jurisdiction with the highest total EAL is Macon ($233,930), followed by Warrenton ($209,022) and Norlina ($170,179).

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 Index Rating
Franklin County (Unincorporated Area)	**0.020**	**$903,906**	**63.31**	**Relatively High**	**64.95**	**Relatively High**
Bunn	0.014	$139,183	69.33	Relatively High	76.26	Relatively High
Franklinton	0.010	$555,348	66.18	Relatively High	68.96	Relatively High
Louisburg	0.018	$360,115	74.94	Relatively High	84.87	Very High
Youngsville	0.011	$613,272	89.61	Very High	87.28	Very High
Franklin County Total	**0.25**	**$2,262,389**	**73.36**	**Relatively High**	**74.90**	**Relatively High**
Granville County (Unincorporated Area)	**0.016**	**$311,153**	**60.61**	**Relatively High**	**62.68**	**Relatively High**
Butner	0.010	$645,284	67.04	Relatively High	69.47	Relatively High
Creedmoor	0.011	$571,633	69.34	Relatively High	67.74	Relatively High
Oxford	0.011	$570,541	69.90	Relatively High	77.09	Relatively High
Stem	0.032	$179,999	75.77	Relatively High	74.17	Relatively High
Stoval	0.050	$133,300	68.35	Relatively High	69.64	Relatively High
Granville County Total	**0.23**	**$1,979,636**	**70.07**	**Relatively High**	**71.01**	**Relatively High**
Vance County (Unincorporated Area)	**0.011**	**$227,785**	**55.77**	**Relatively Moderate**	**56.89**	**Relatively Moderate**
Henderson	0.006	$913,516	64.02	Relatively High	72.67	Relatively High
Kittrell	0.023	$175,697	75.15	Relatively High	84.00	Very High

Jurisdiction	Annualized Frequency	EAL Total	Average EAL Score	Average EAL Rating	Average Hazard Risk Index Score	Average Hazard Risk Index Rating
Middleburg	0.017	$104,945	63.20	Relatively High	65.75	Relatively High
Vance County Total	**0.10**	**$1,246,245**	**57.85**	**Relatively Moderate**	**63.82**	**Relatively High**
Warren County (Unincorporated Area)	**0.035**	**$189,510**	**60.31**	**Relatively High**	**69.14**	**Relatively High**
Macon	0.036	$233,930	65.39	Relatively High	70.00	Relatively High
Norlina	0.033	$170,179	74.30	Relatively High	83.64	Very High
Warrenton	0.020	$209,022	79.72	Relatively High	91.78	Very High
Warren County Total	**0.21**	**$887,769**	**47.89**	**Relatively Moderate**	**55.65**	**Relatively Moderate**

5.9.6. Consequence and Impact Analysis

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.[75] 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. 23.2% of housing units in Franklin County, 17.9% in Granville County, 25.0% in Vance County, and 39.7% in Warren County are mobile homes, and these units are disproportionately at 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.[76]

The NWS reported an average lead time of 10.52 minutes from 2006 to 2024,[77] underscoring the need for residents in the planning area to receive emergency alerts in a timely manner so they can reach a storm shelter. Residents who do not have access to a vehicle in their planning unit[76] (3.6% of housing units in Franklin County, 3.5% in Granville County, 8.2% in Vance

[75] National Oceanic and Atmospheric Administration. (n.d.). *Severe Weather Awareness Week—Mobile Home Safety*. National Weather Service. https://www.weather.gov/shv/awarenessweek_severe_mobilehomes
[76] U.S. Census Bureau. (2023). *Selected Housing Characteristics* (No. ACSDP5Y2023.DP04; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSDP5Y2023.DP04
[77] National Oceanic and Atmospheric Administration. (2024). *NOAA - Severe weather warnings for tornadoes: Storm based lead time (minutes)*. U.S. Department of Commerce. https://performance.commerce.gov/KPI-NOAA/NOAA-Severe-weather-warnings-for-tornadoes-Storm-b/ysdv-8h2r

County, and 8.3% in Warren County), residents who have independent living difficulties[78] (7.8% in Franklin County, 6.3% in Granville County, 9.0% in Vance County, and 9.6% in Warren County), and residents with disabilities[78] (16.5% in Franklin County, 16.2% in Granville County, 18.9% in Vance County, and 21.2% in Warren County) may require assistance to reach a safe space to shelter in the event of a tornado. The ability to seek shelter promptly in the event of a tornado is critical, so it is important that residents in the planning area receive emergency alerts via reverse 911 or the internet. In the planning area, it is estimated that 8.0% of housing units in Franklin County, 5.7% in Granville County, 10.8% in Vance County, and 14.7% in Warren County do not have access to a computing device, and 11.6% of households in Franklin County, 11.0% in Granville County, 17.4% in Vance County, and 23.0% in Warren County do not have a household internet subscription.[76]

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, such as tornadoes, including developing plans to shelter in place or to reach an adequate storm shelter.

Changes in Development

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 to protect against tornadoes. 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.

Economy

One of the most significant impacts 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 significant damage includes the complete destruction of homes and buildings, 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 work and commercial entities most affected by repair damage.

[78] U.S. Census Bureau. (2023). *Disability Characteristics* (No. ACSST5Y2023.S1810; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S1810

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.

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 safely enter affected areas. 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.

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 and increases in the fall, especially in the Southeast.[79] 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.[80]

[79] 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
[80] Center for Climate and Energy Solutions. (2022). *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 regions, evacuations may 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 wildfires. However, several factors, such as drought or high fuel loads on the forest floor, may increase the likelihood of wildfire. Conversely, areas of high development limit wildfire risk. It is also important to note that 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 Portal (SWRAP), 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 SWRAP.[81] The Fire Intensity Scale (FIS) layer was used to develop risk maps. The FIS 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[81]

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 (FWUI) is also used to illustrate the appropriate mitigation actions for each zone. The categories identify which zones buildings are in and the types of mitigation actions that may reduce wildfire exposure risk. See Table 5-50 for FWUI categories, descriptions, and recommended mitigation activities for buildings located in each zone.

[81] Pyrologix. (2023). *Characteristic Fire Intensity Scale* [Dataset]. Southern Wildfire Risk Assessment Portal. https://wrap.southernwildfirerisk.com/Map/Public/#whats-your-risk

Table 5-50: FWUI 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.	

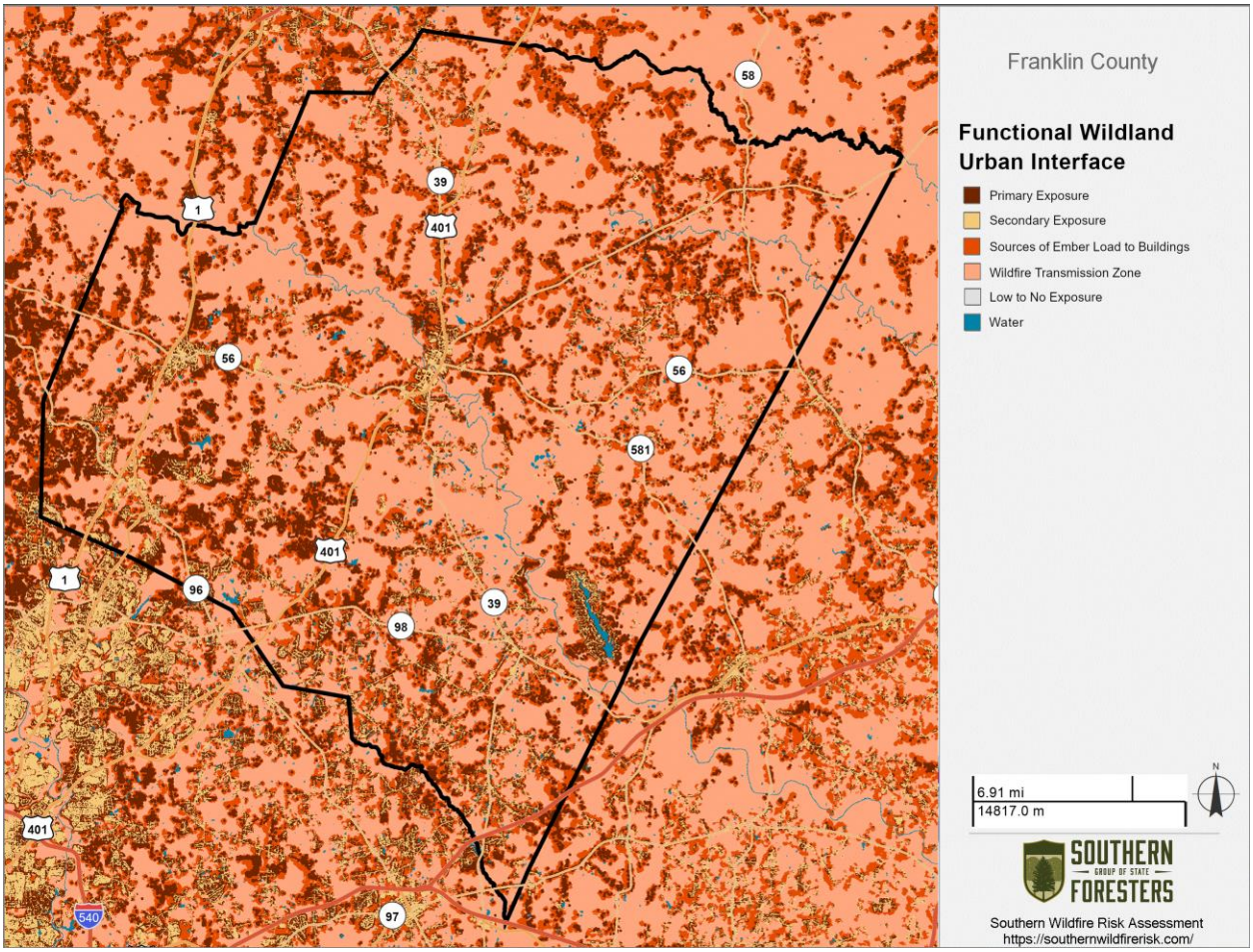


Figure 5-161: Franklin County WUI Map from the SWRAP[82]

[82] Southern Group of State Foresters. (2022). *Southern Wildfire Risk Explorer: North Carolina Advanced Viewer* [Dataset]. Southern Wildfire Risk Assessment Portal. https://wrap.southernwildfirerisk.com/Map/Public/#whats-your-risk

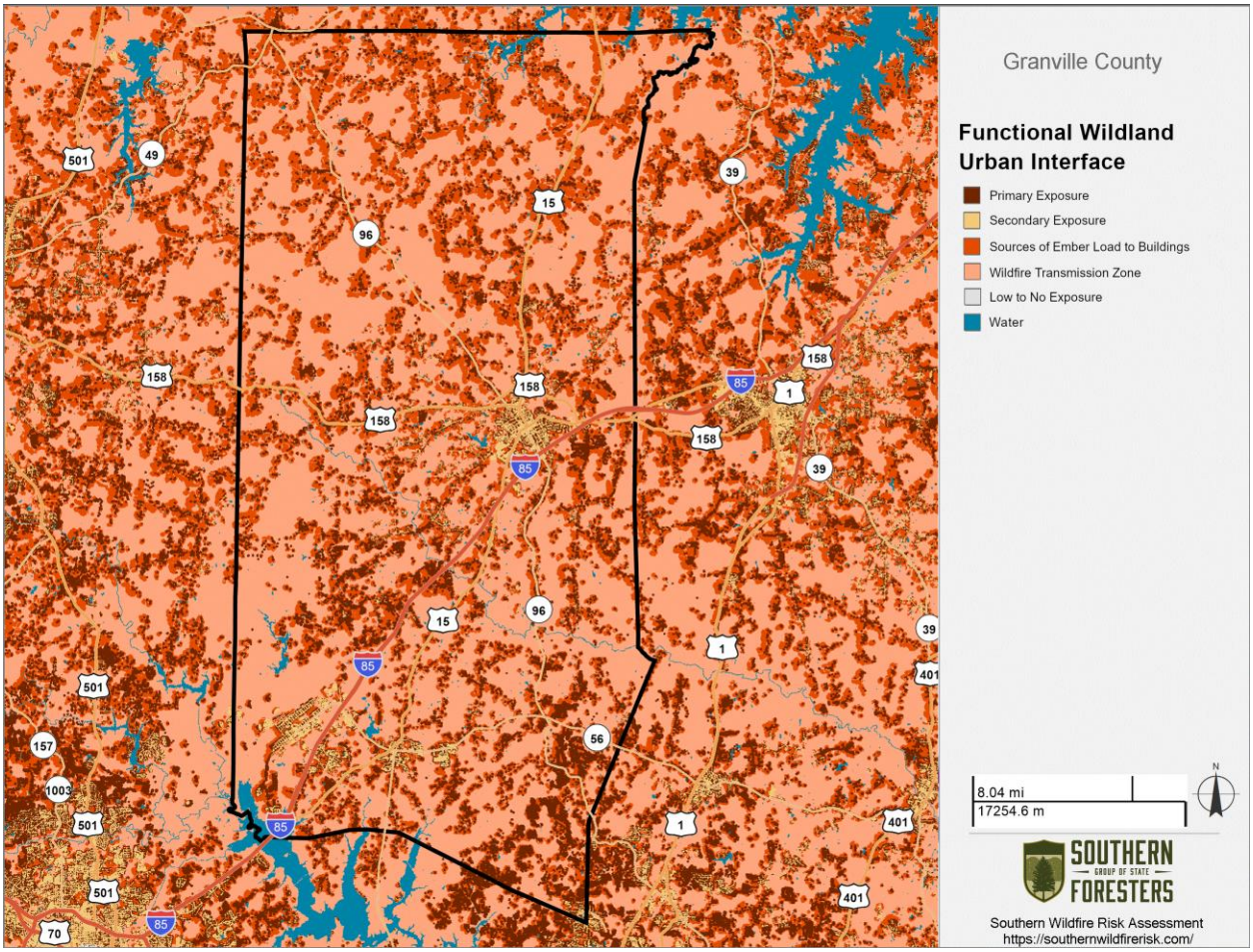


Figure 5-162: Granville County WUI Map from the SWRAP[82]

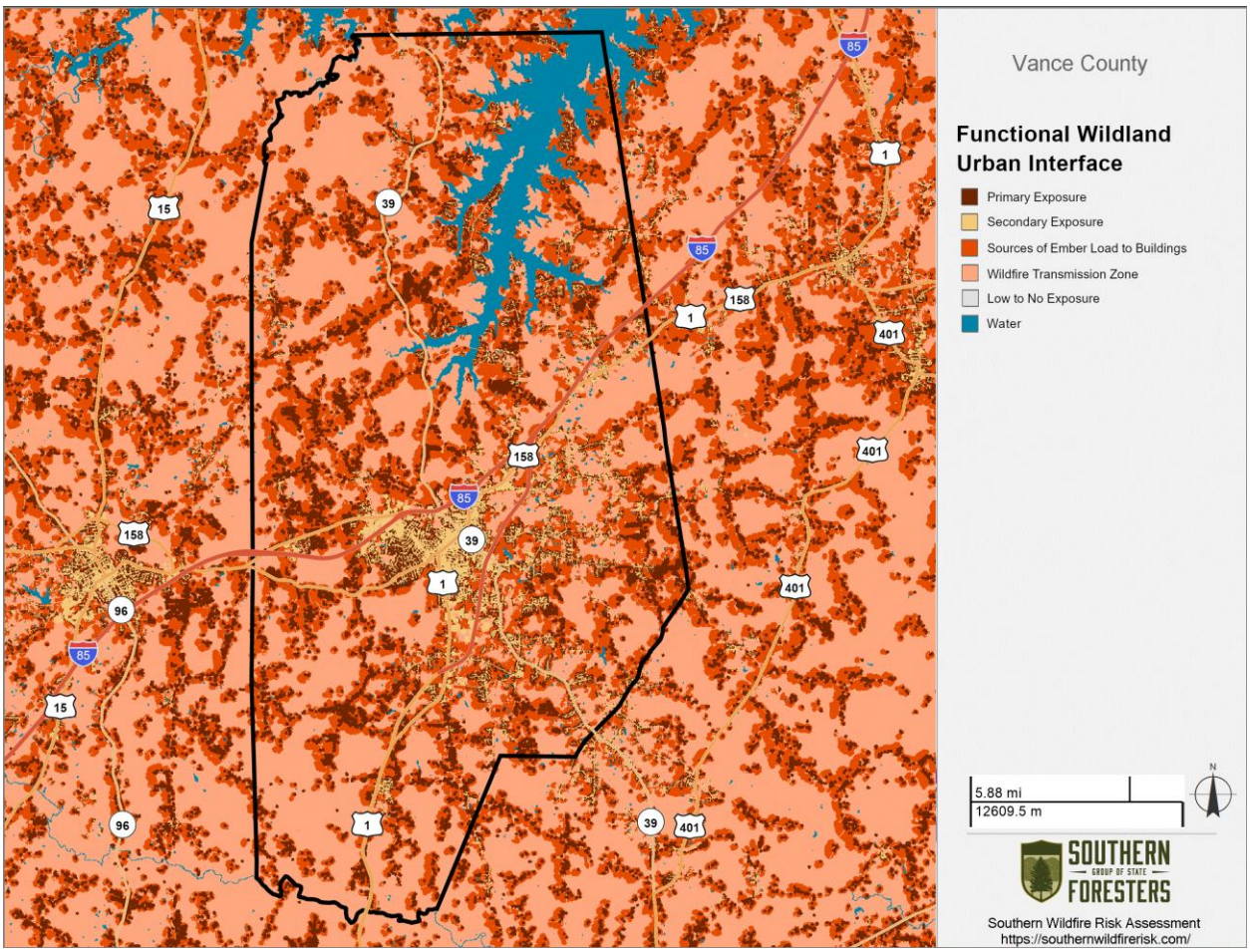


Figure 5-163: Vance County WUI Map from the SWRAP[82]

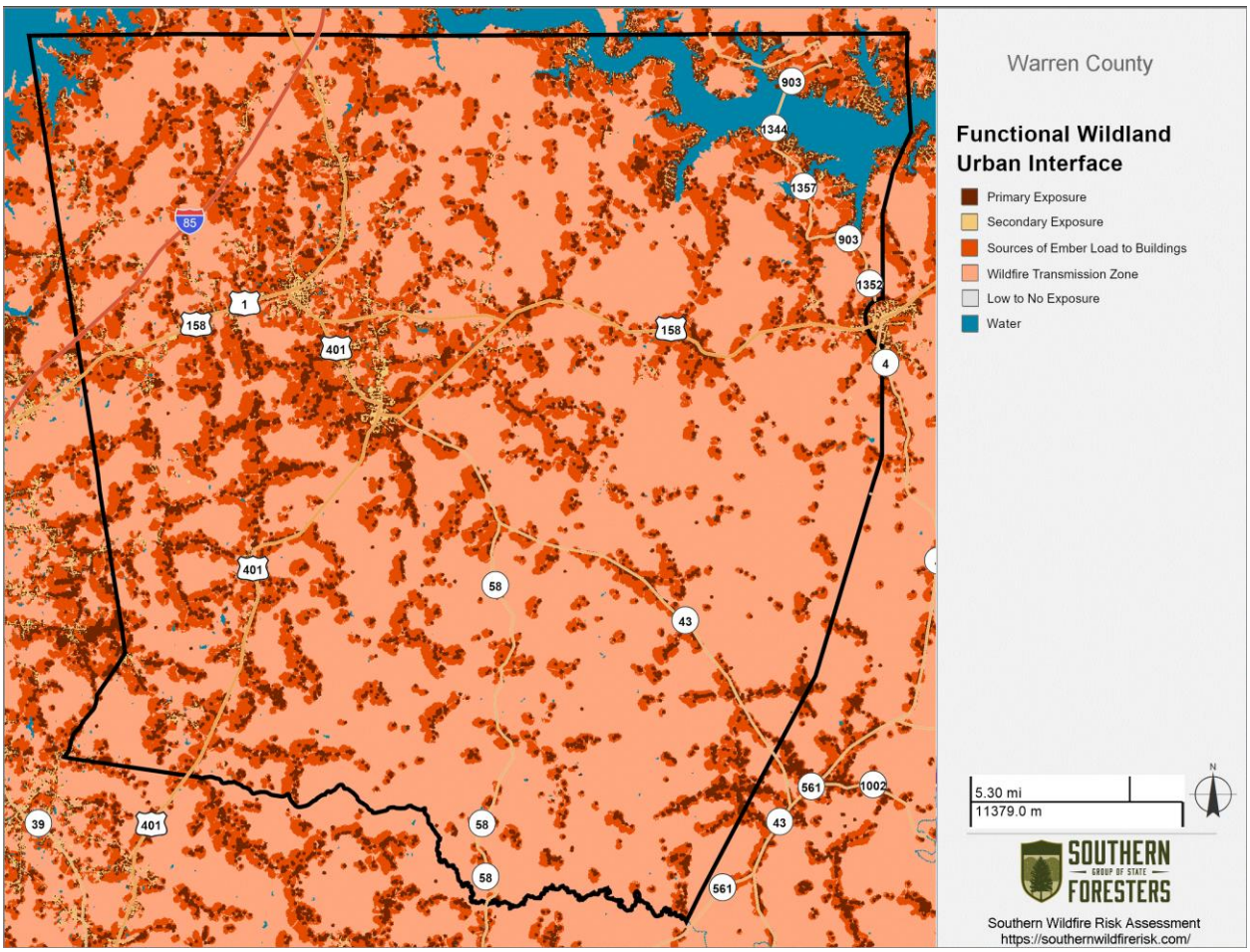


Figure 5-164: Warren County WUI Map from the SWRAP[82]

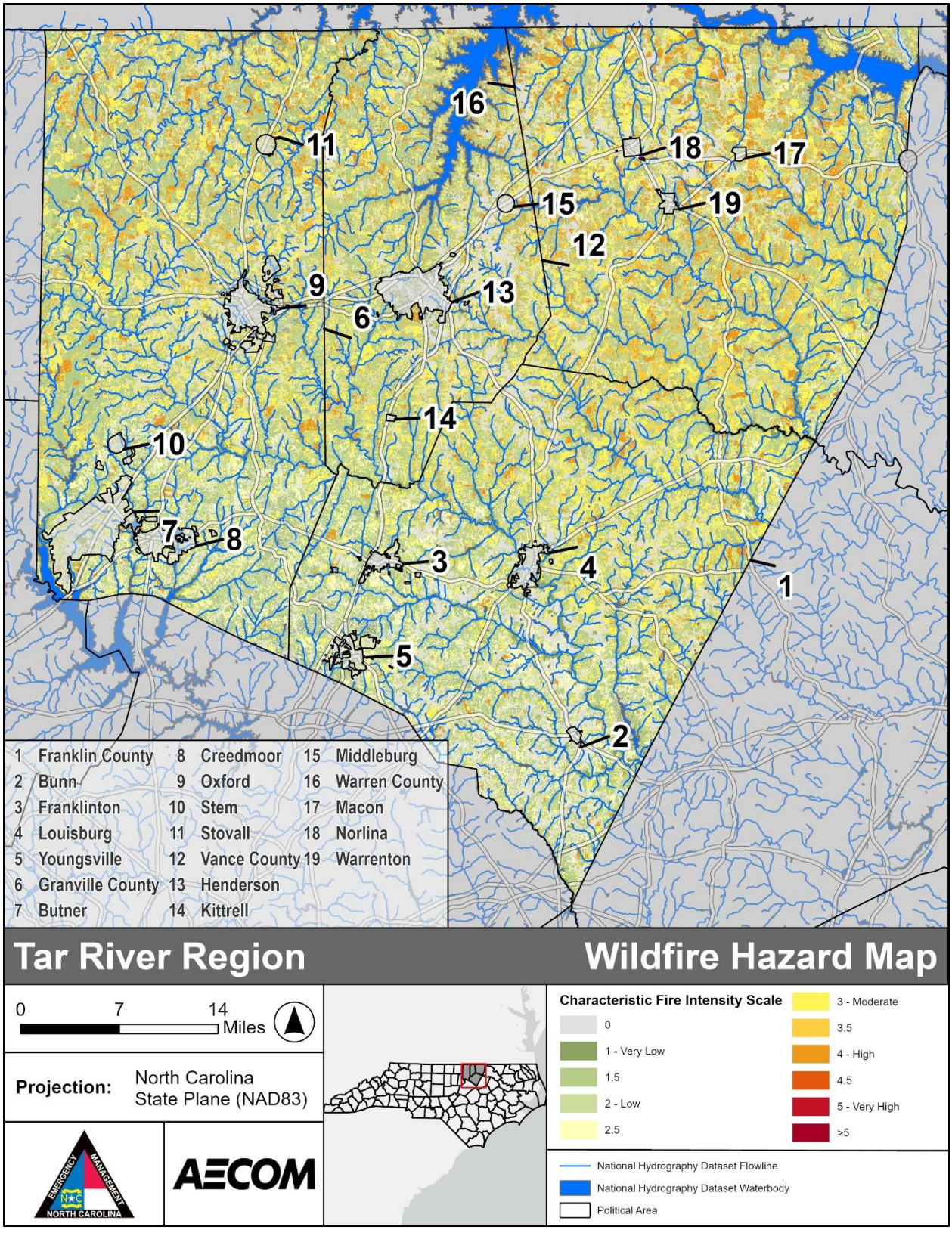


Figure 5-165: Wildfire Hazard Map - Tar River Region

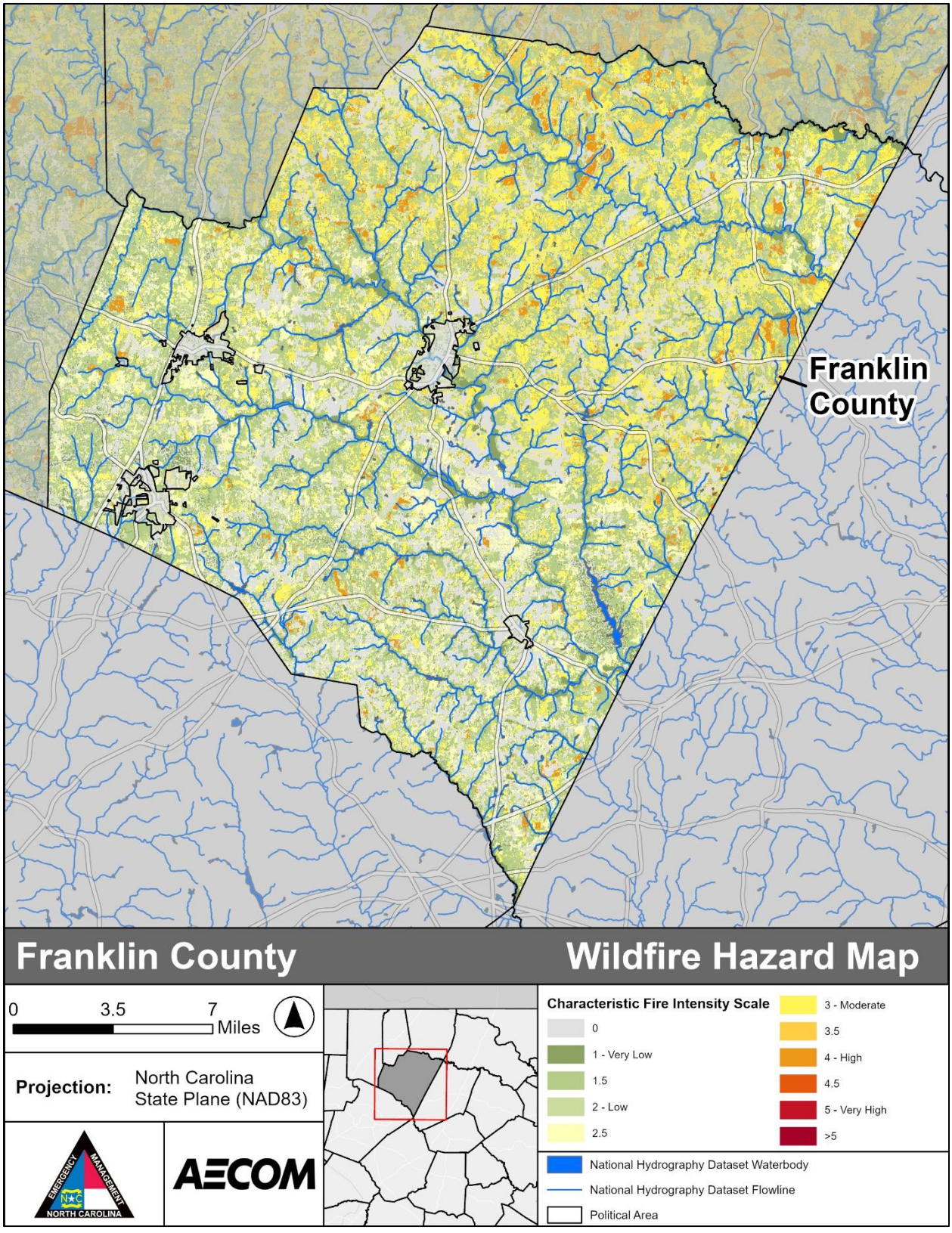


Figure 5-166: Wildfire Hazard Map - Franklin County

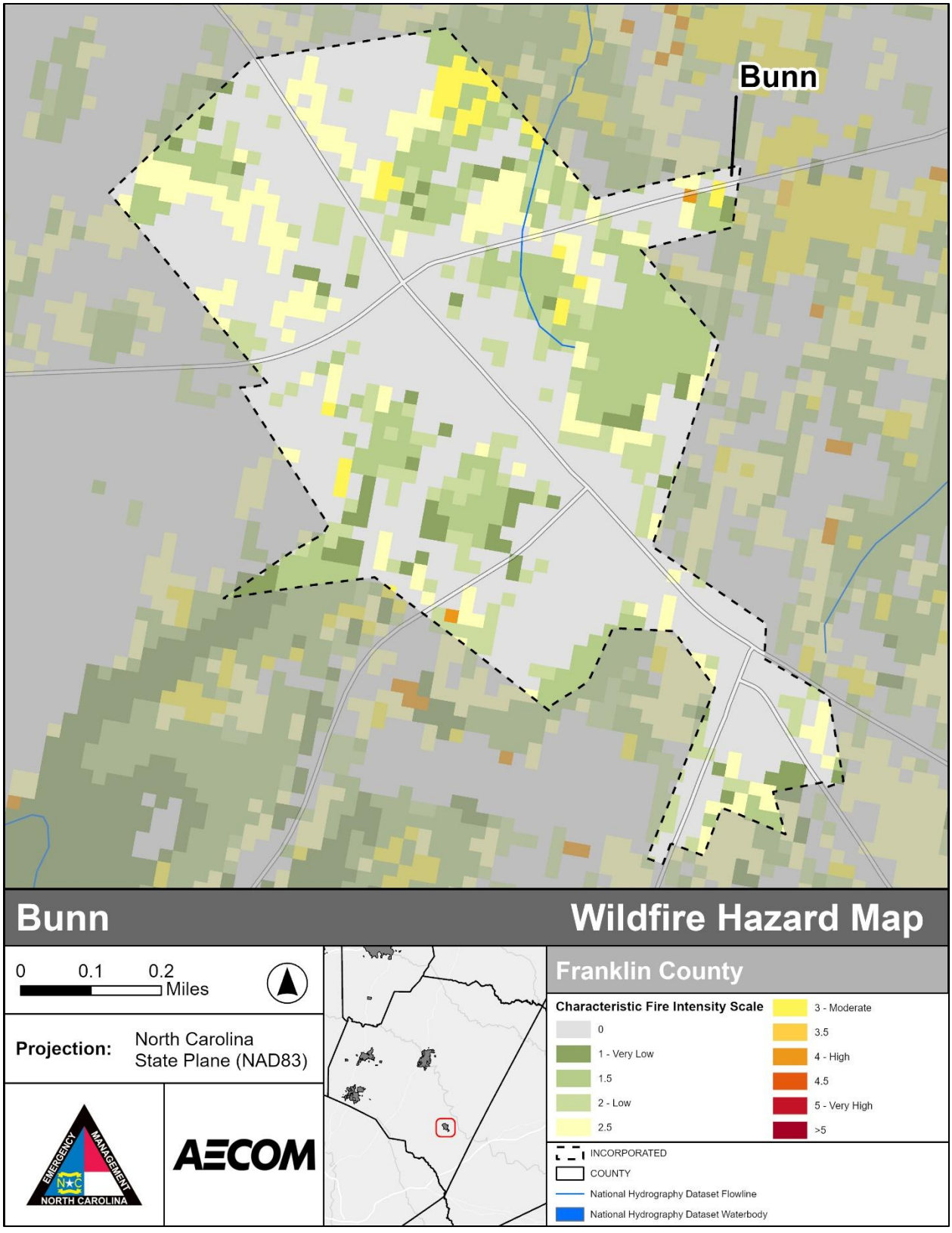


Figure 5-167: Wildfire Hazard Map - Bunn

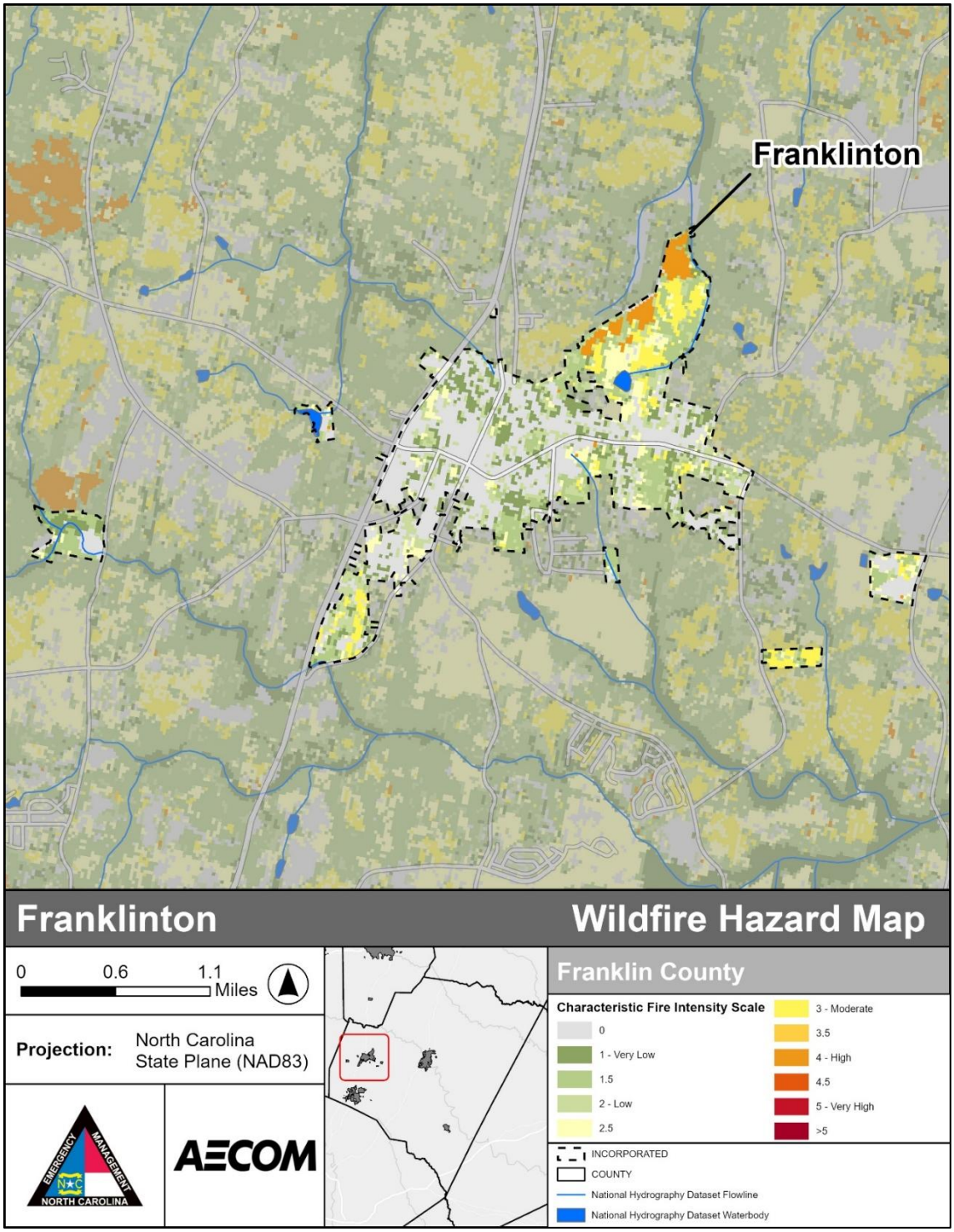


Figure 5-168: Wildfire Hazard Map - Franklinton[83]

[83] The Municipal Boundaries (2025) GIS layer obtained from NCDOT and used for the maps in this plan contained slightly outdated jurisdictional boundaries for the Town of Franklinton due to recent annexations between 2023 and 2025. However, given the map scale, hazard data can still be viewed for the missing incorporated areas of Franklinton. Please see Section 3 – Figure 3-29 for the Town of Franklinton's up-to-date boundary map, based on the incorporated boundary corrections from the U.S. Census Boundary and Annexations Survey.

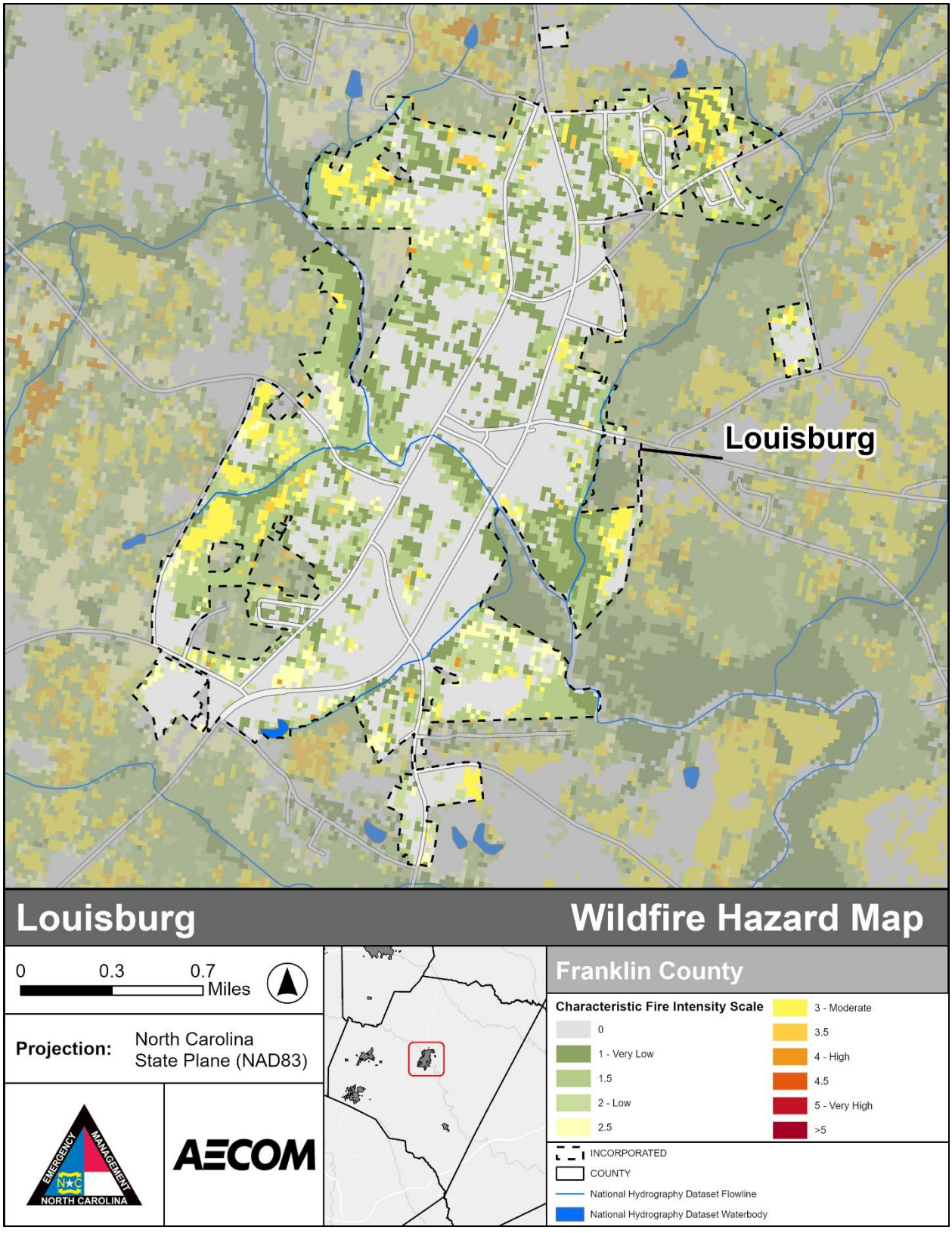


Figure 5-169: Wildfire Hazard Map - Louisburg

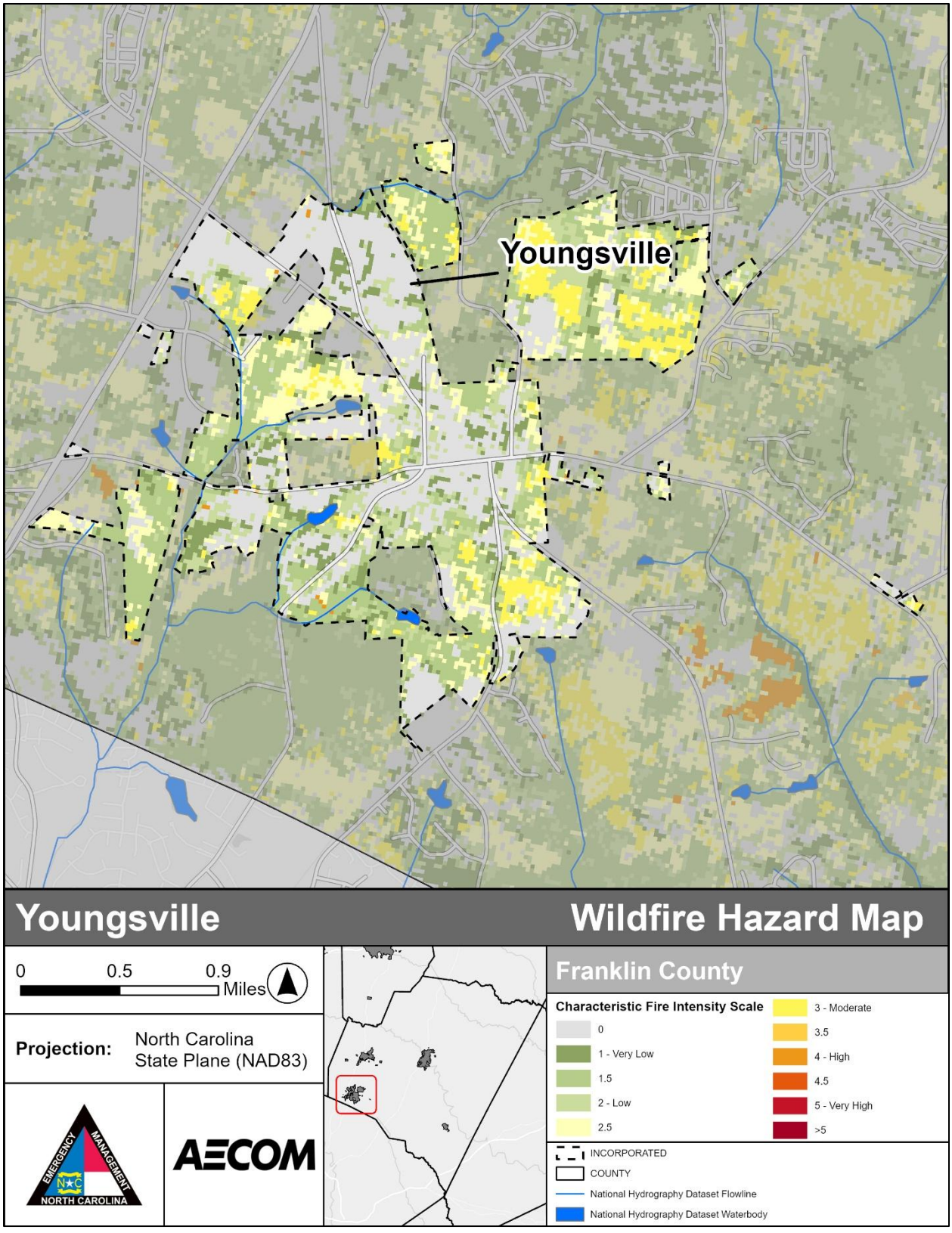


Figure 5-170: Wildfire Hazard Map – Youngsville

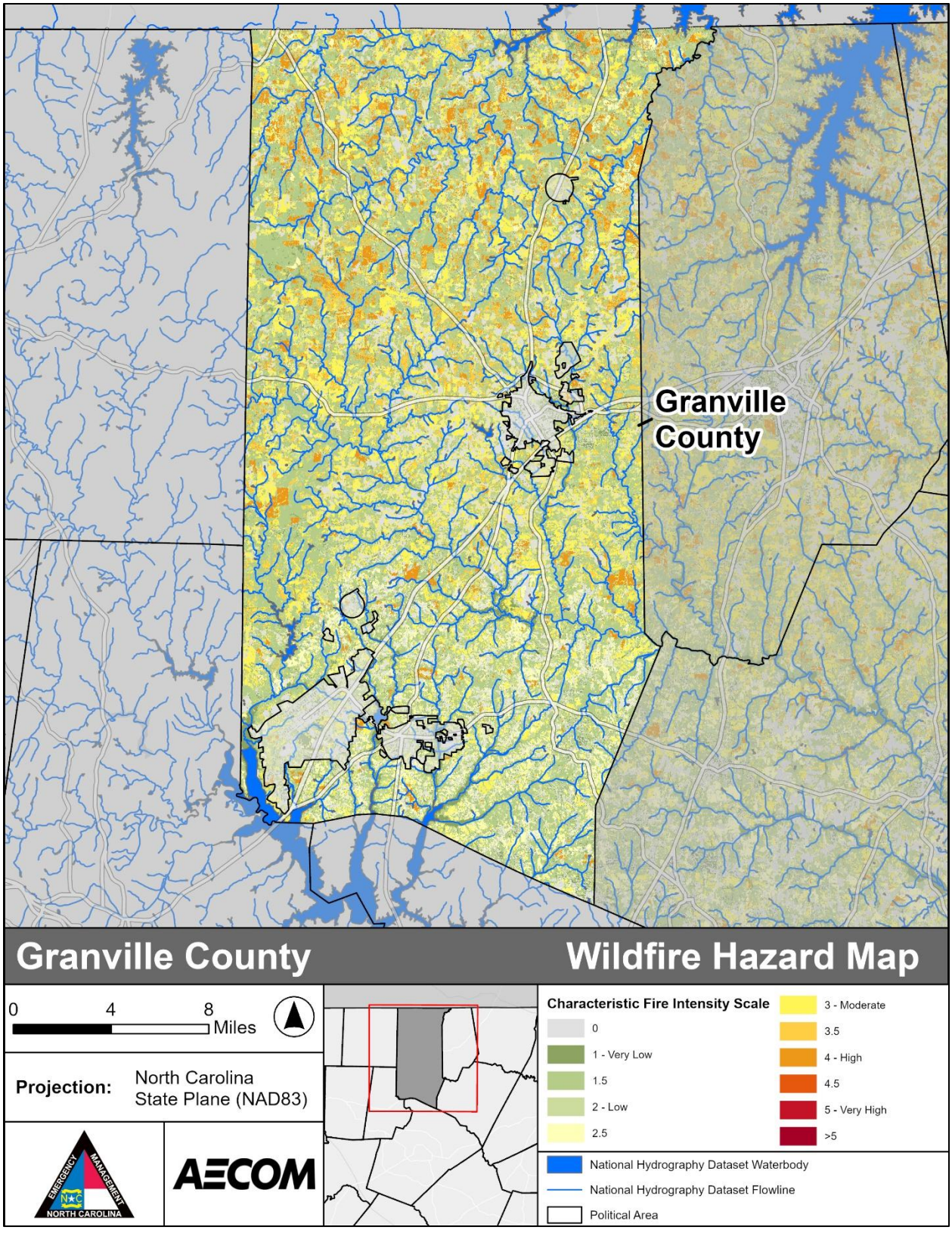


Figure 5-171: Wildfire Hazard Map - Granville County

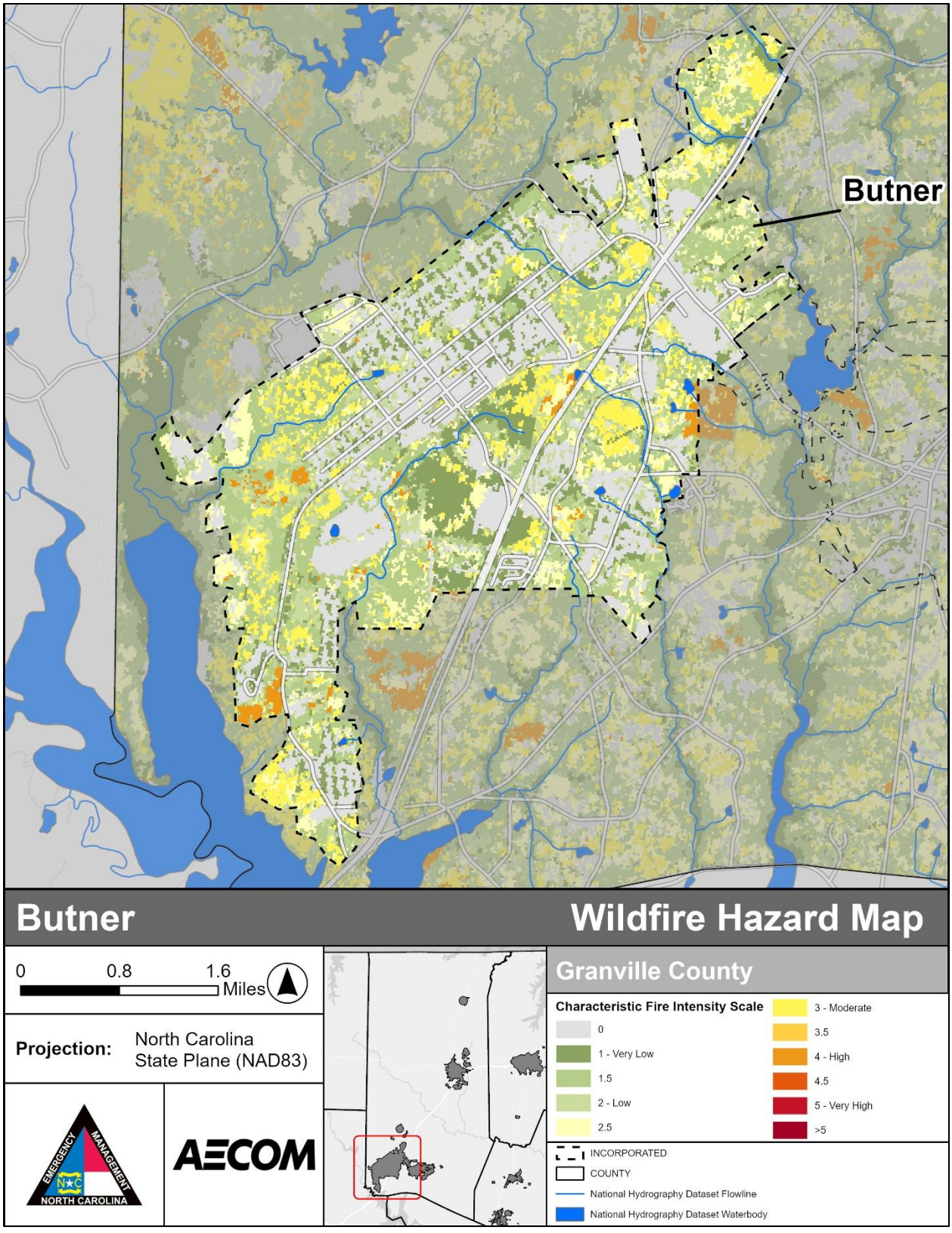


Figure 5-172: Wildfire Hazard Map - Butner

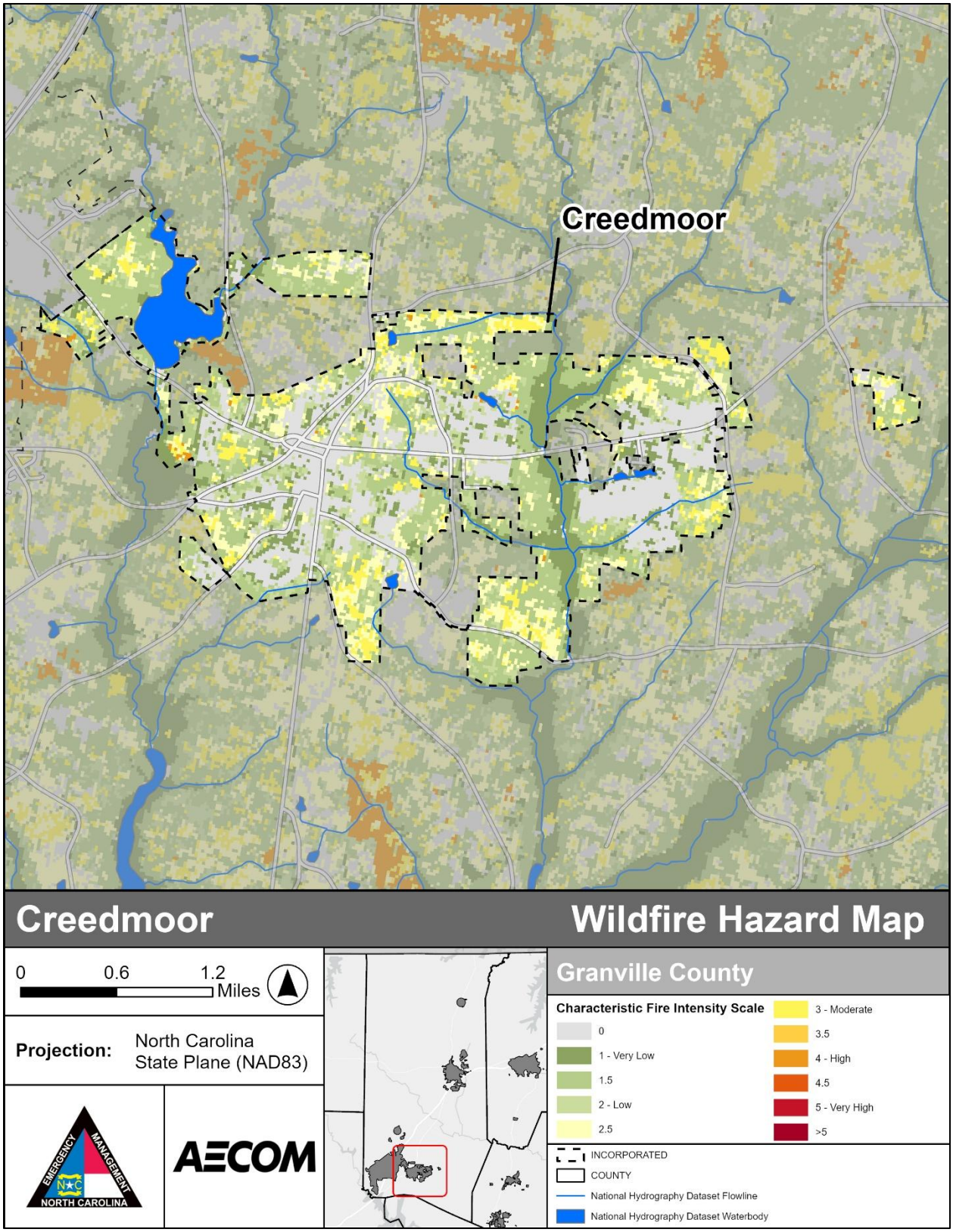


Figure 5-173: Wildfire Hazard Map - Creedmoor

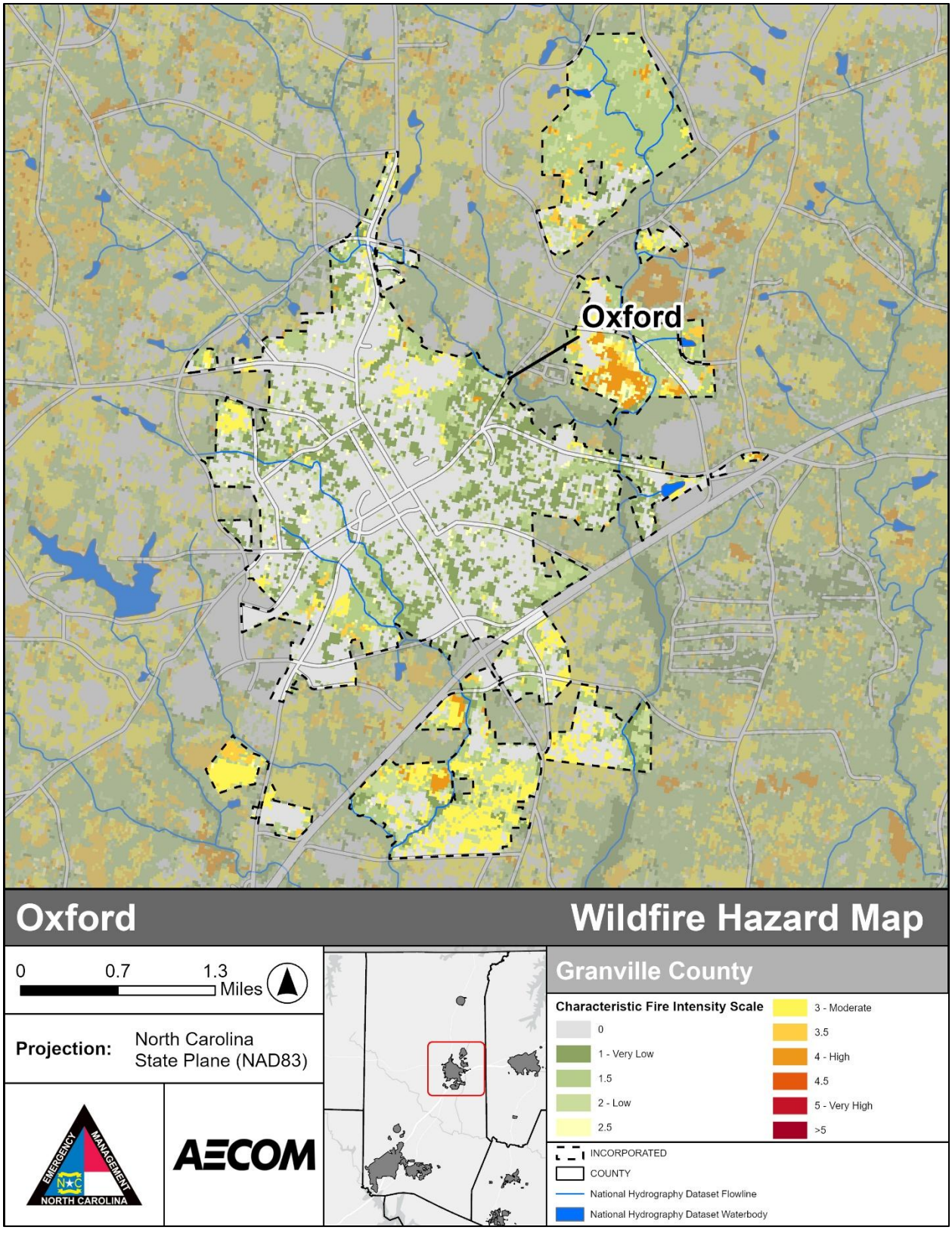


Figure 5-174: Wildfire Hazard Map - Oxford

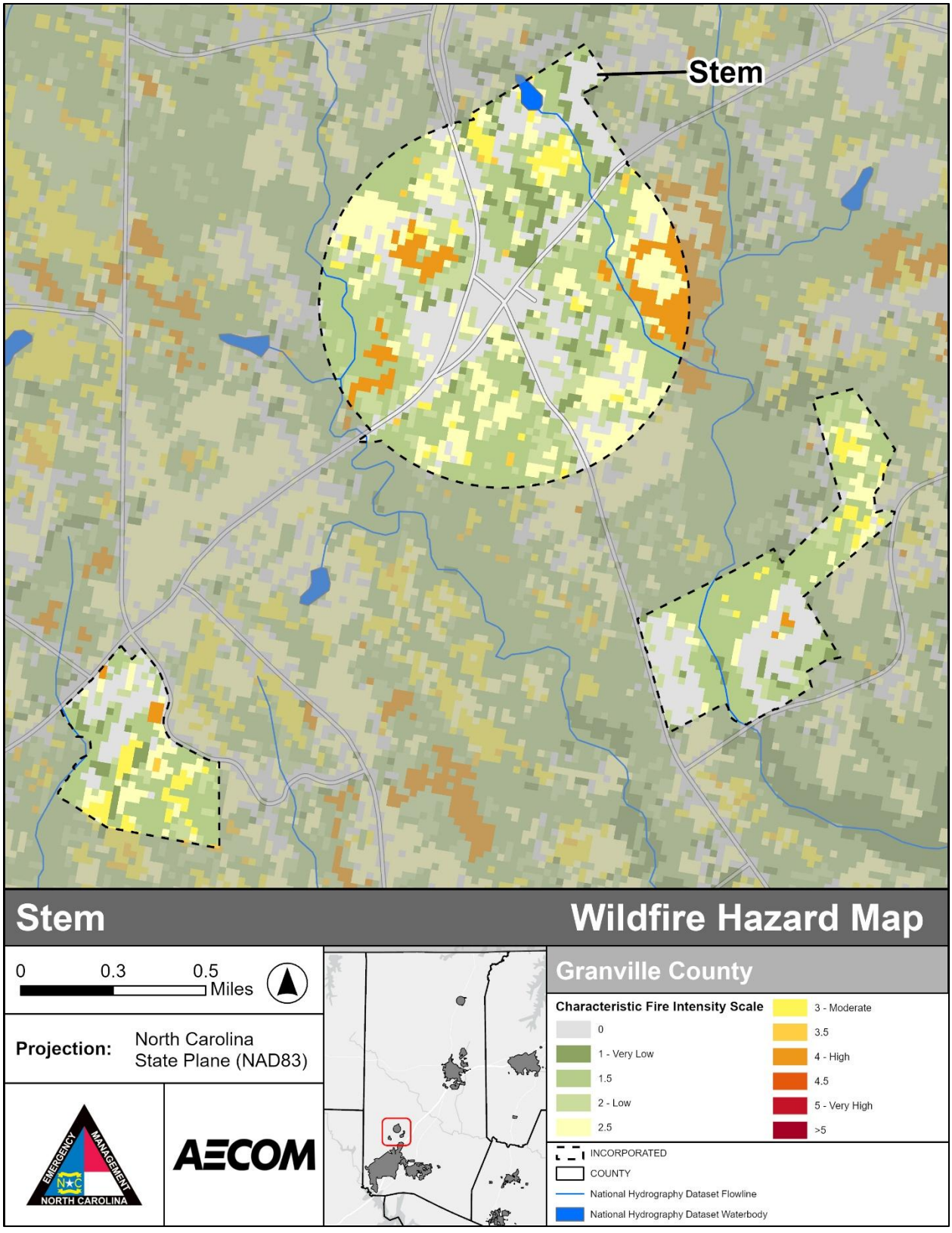


Figure 5-175: Wildfire Hazard Map - Stem

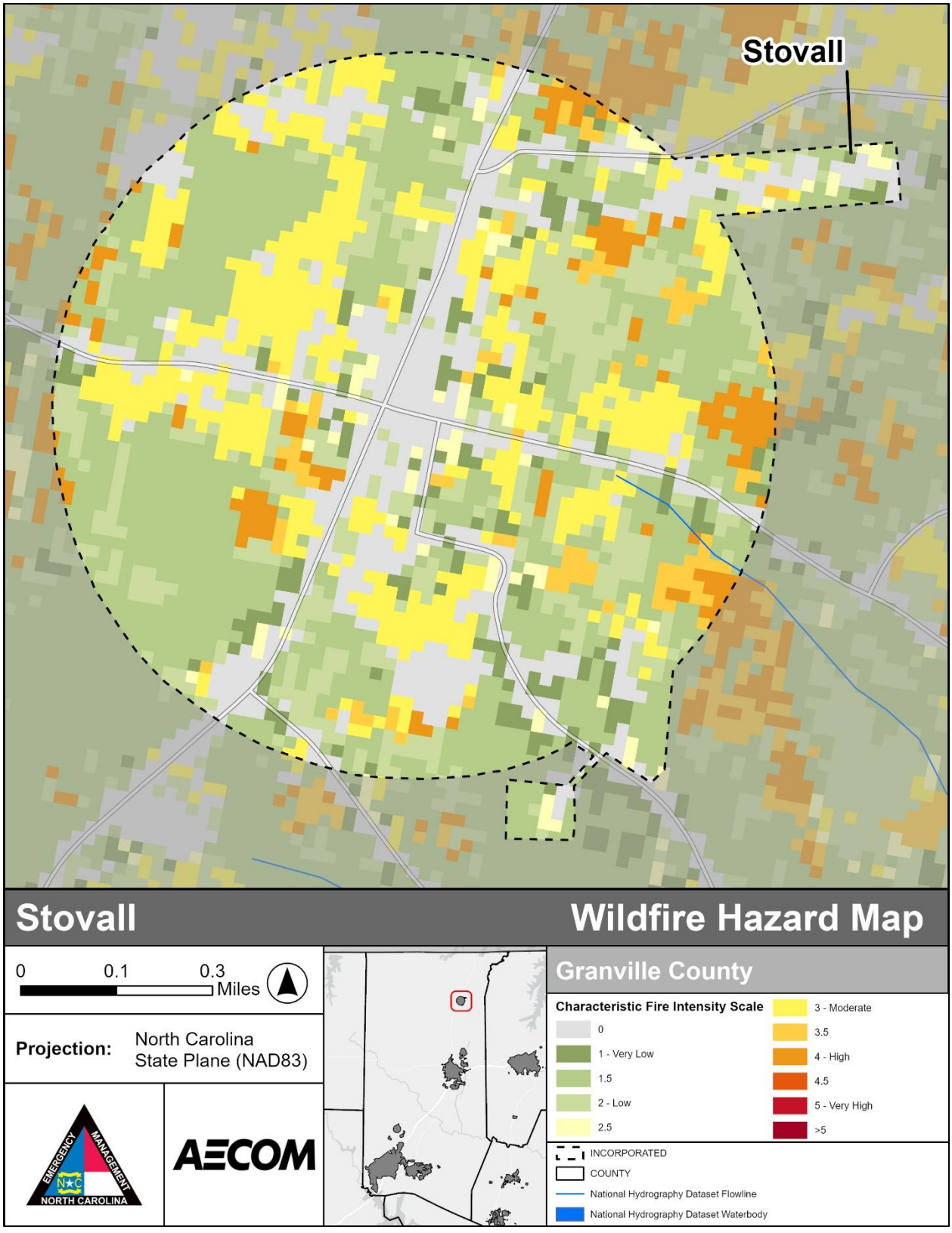


Figure 5-176: Wildfire Hazard Map – Stovall

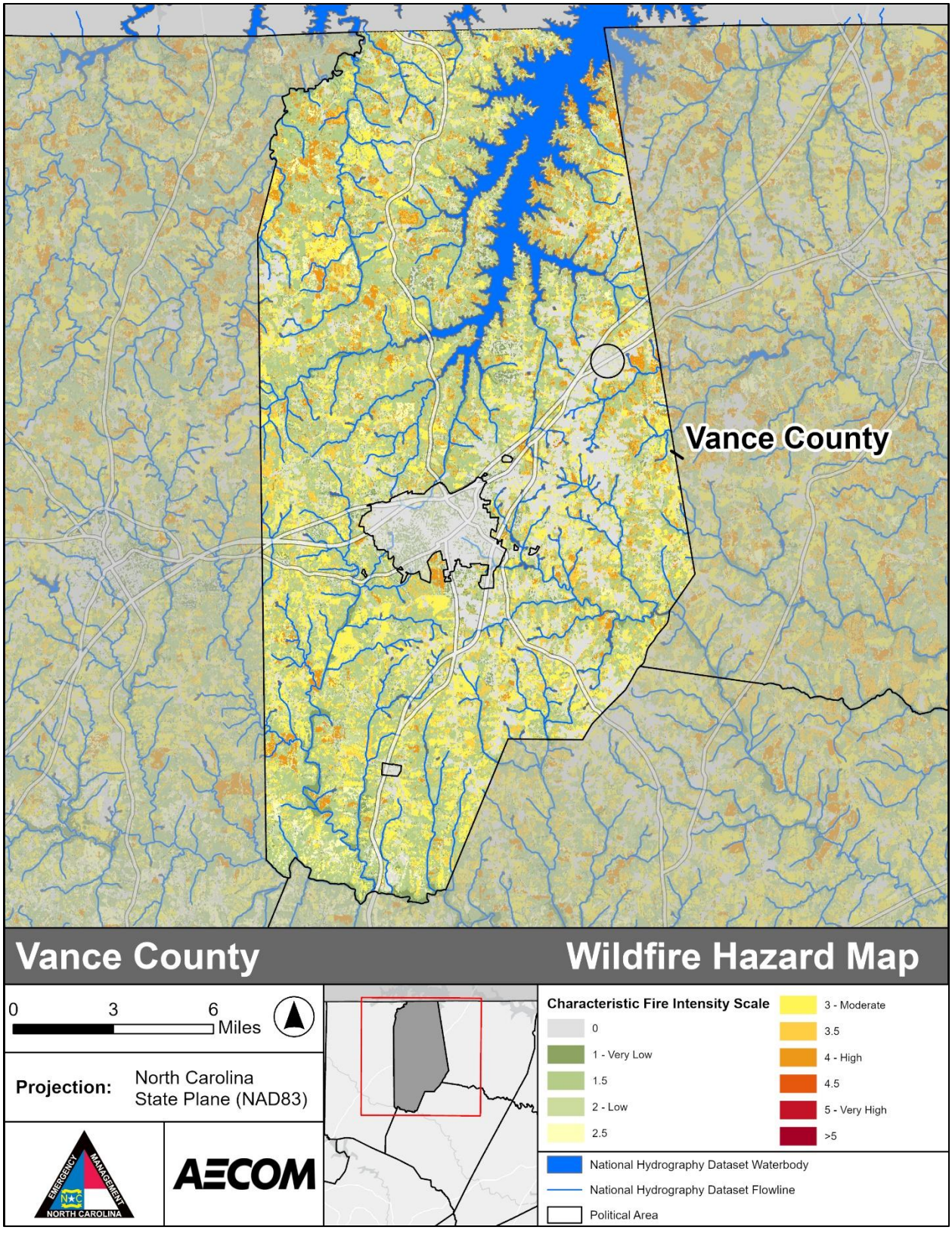


Figure 5-177: Wildfire Hazard Map - Vance County

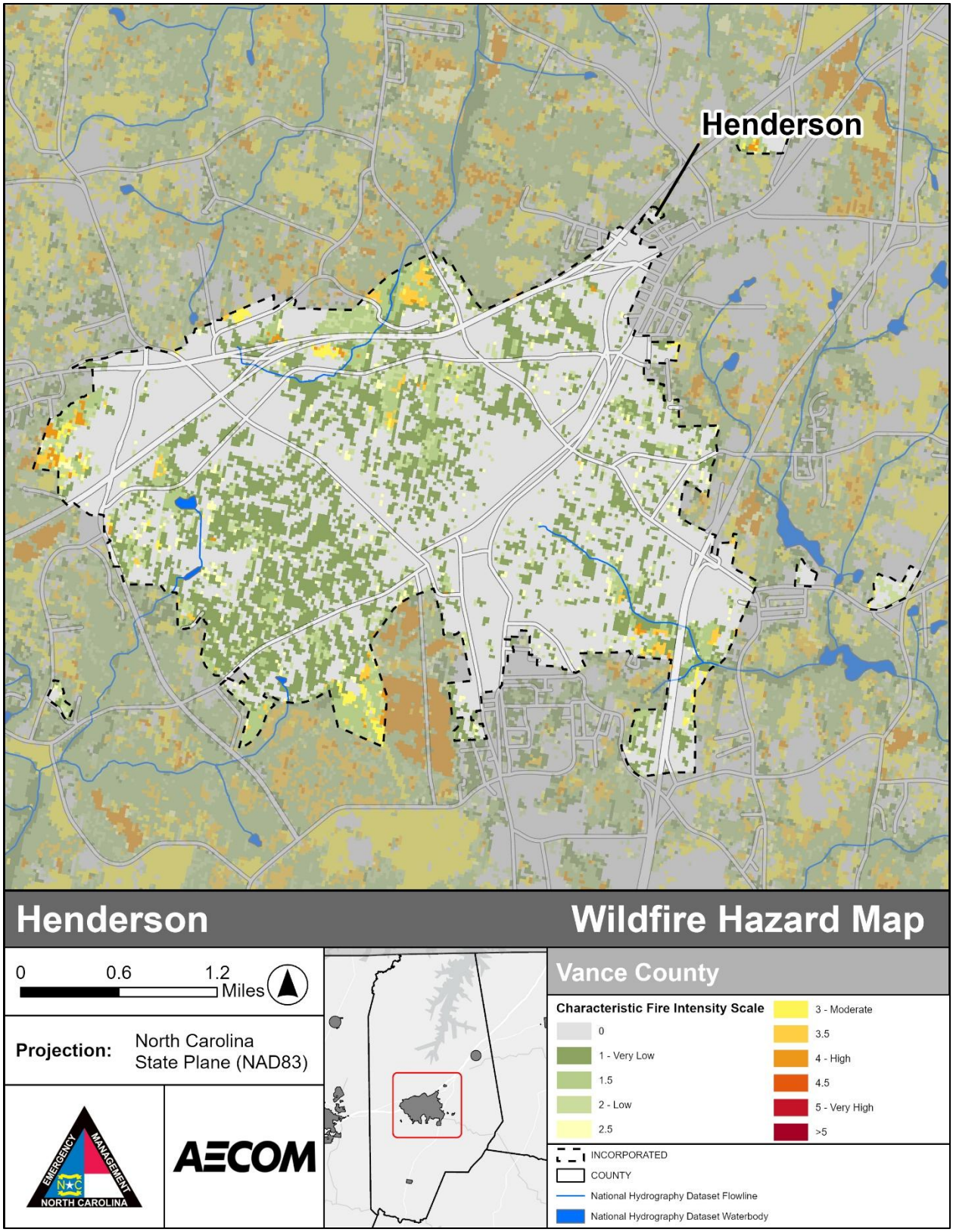


Figure 5-178: Wildfire Hazard Map - Henderson

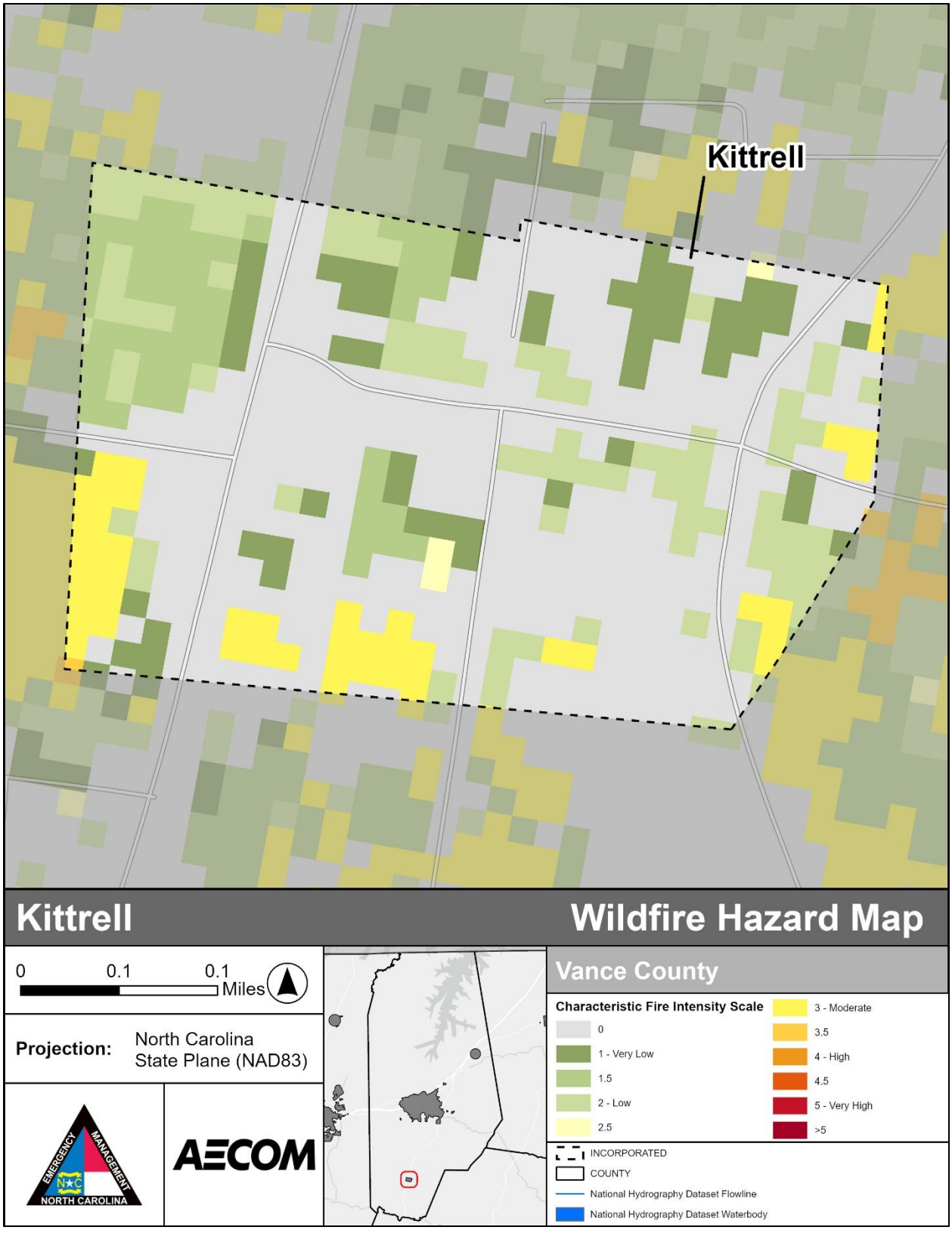


Figure 5-179: Wildfire Hazard Map - Kittrell

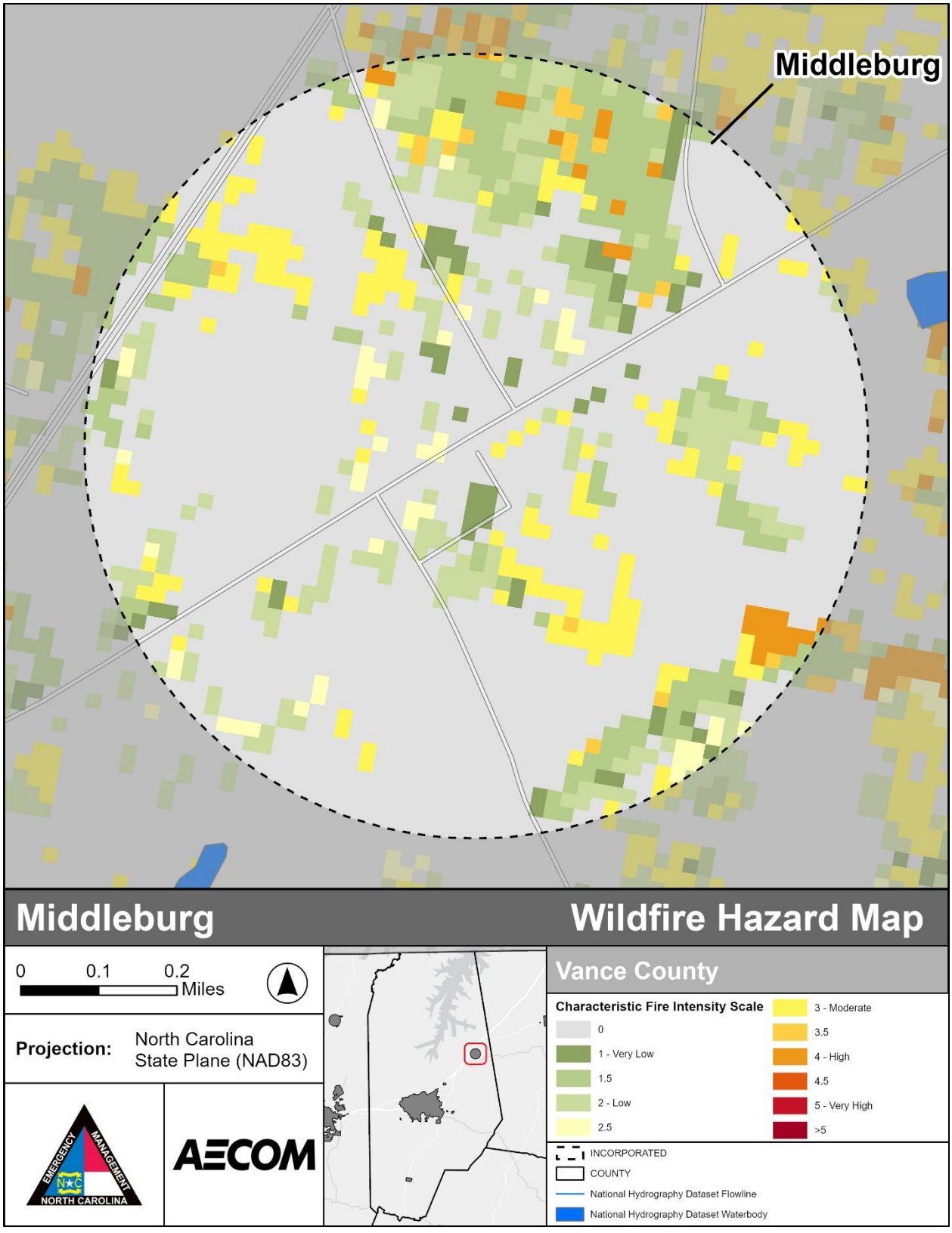


Figure 5-180: Wildfire Hazard Map - Middleburg

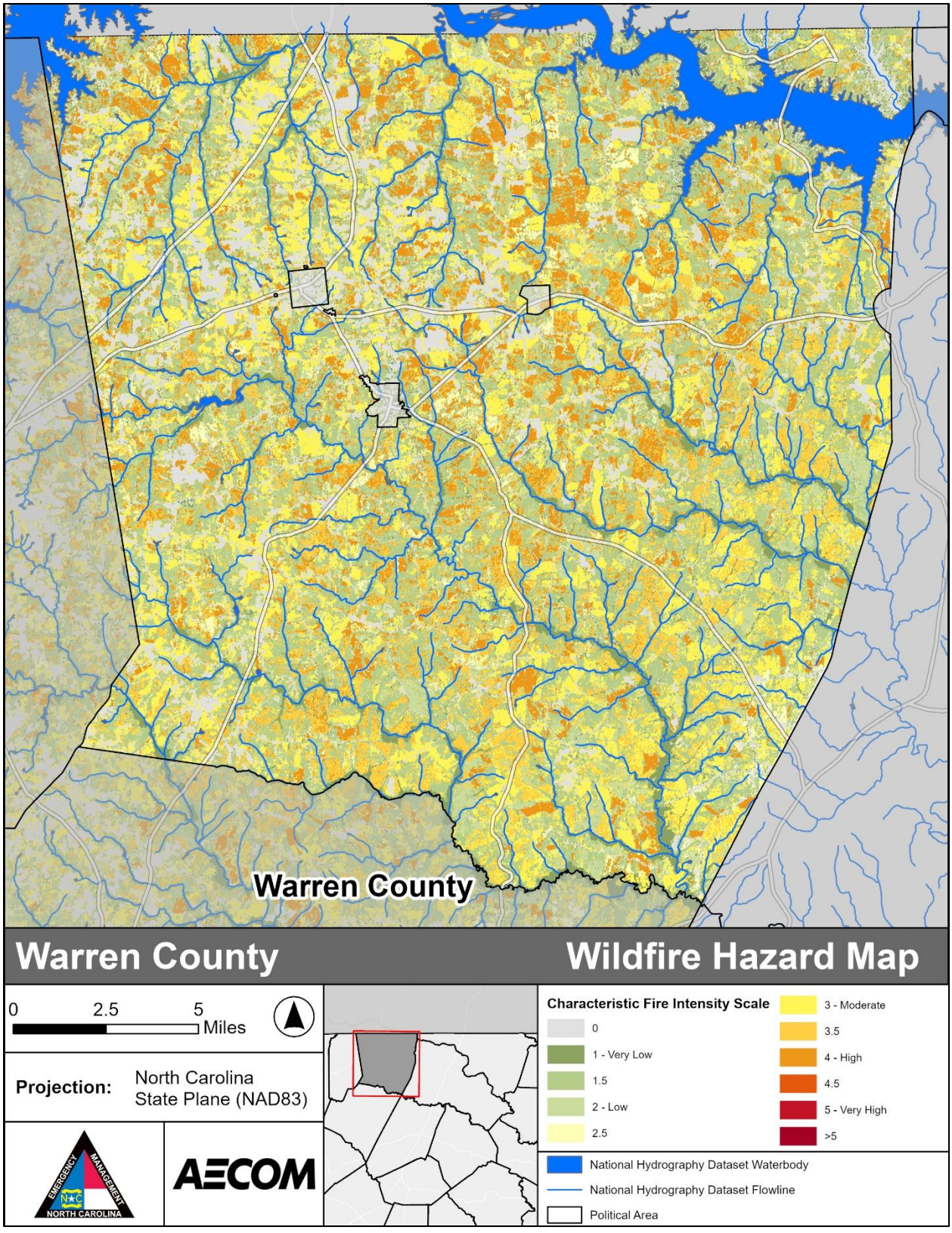


Figure 5-181: Wildfire Hazard Map - Warren County

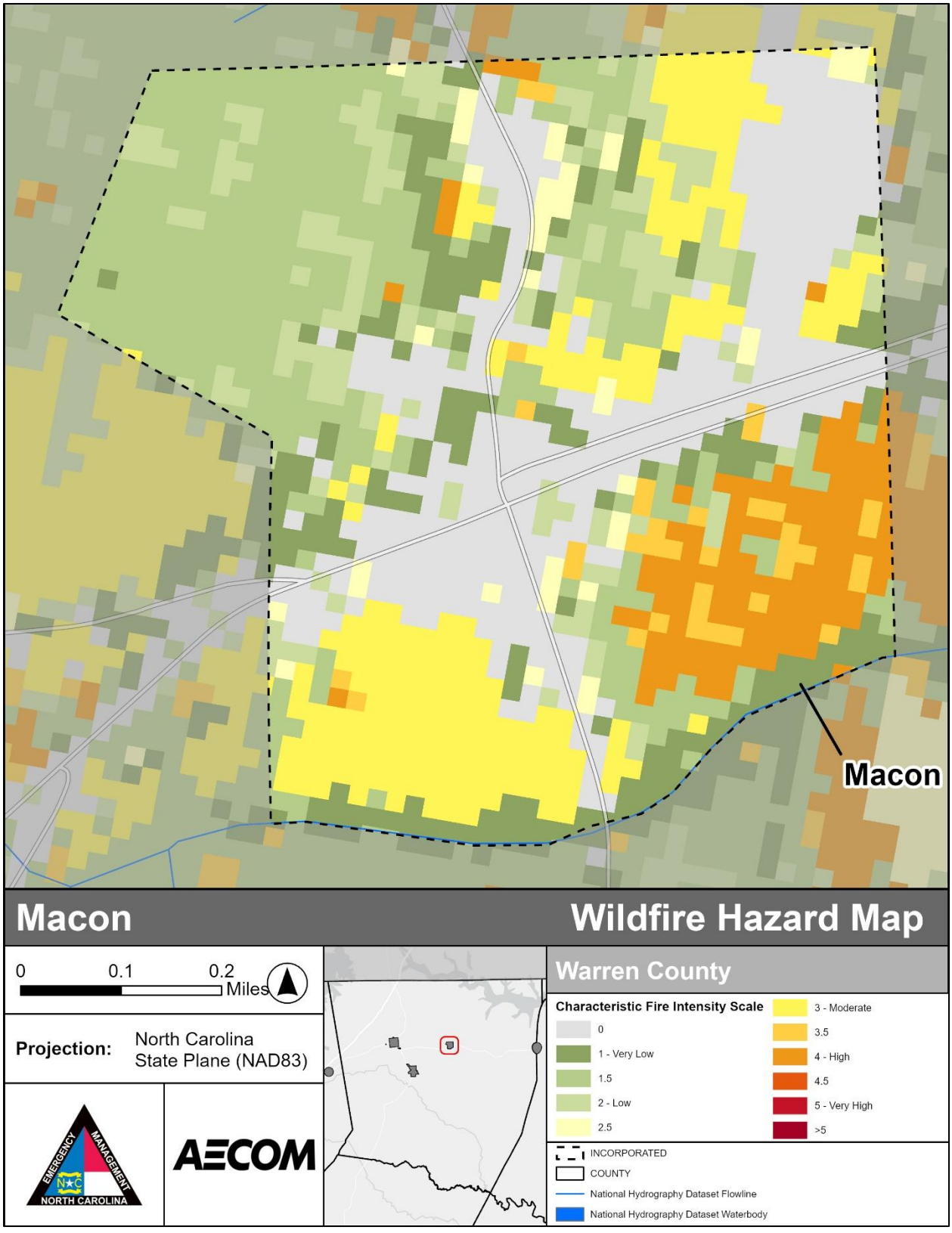


Figure 5-182: Wildfire Hazard Map - Macon

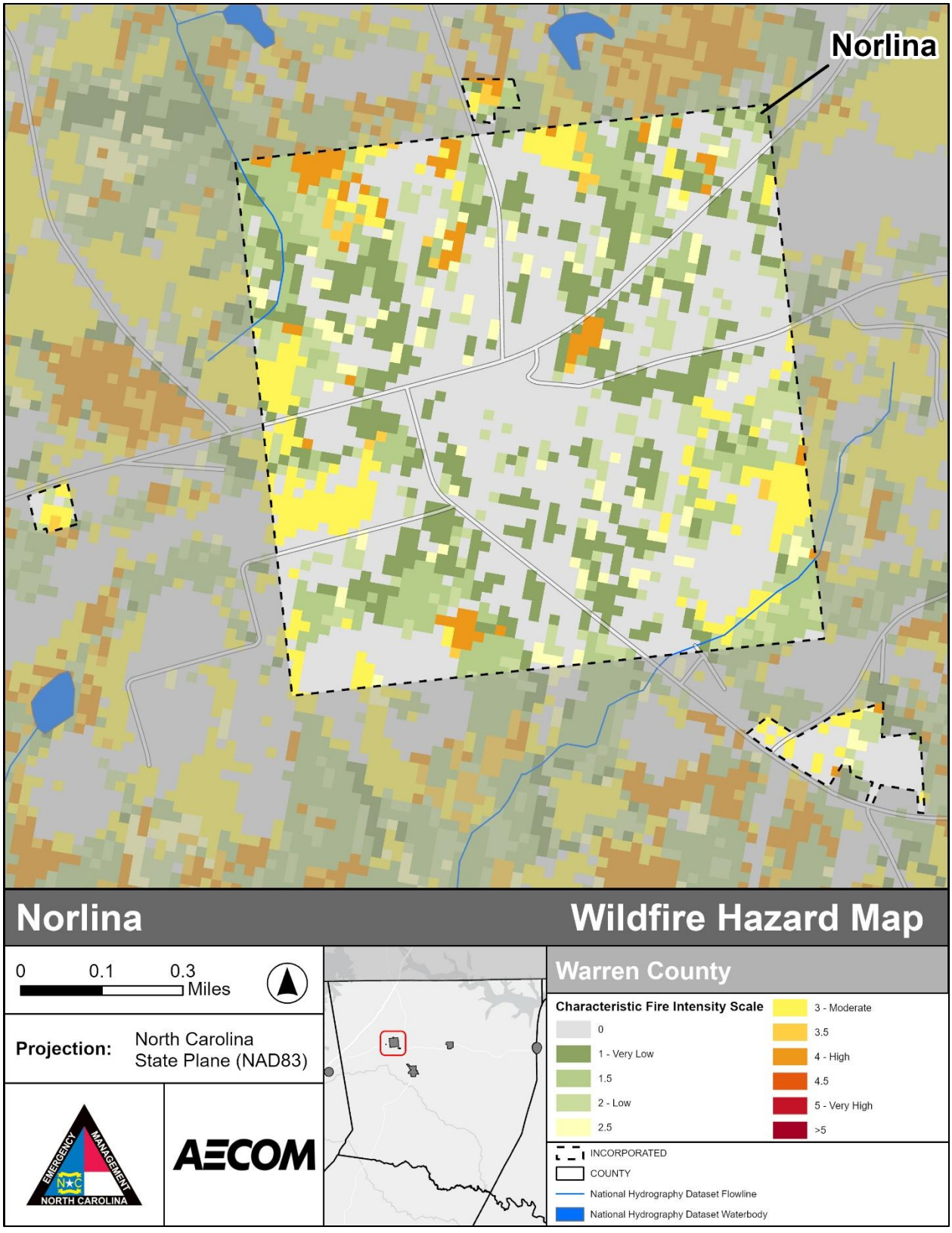


Figure 5-183: Wildfire Hazard Map - Norlina

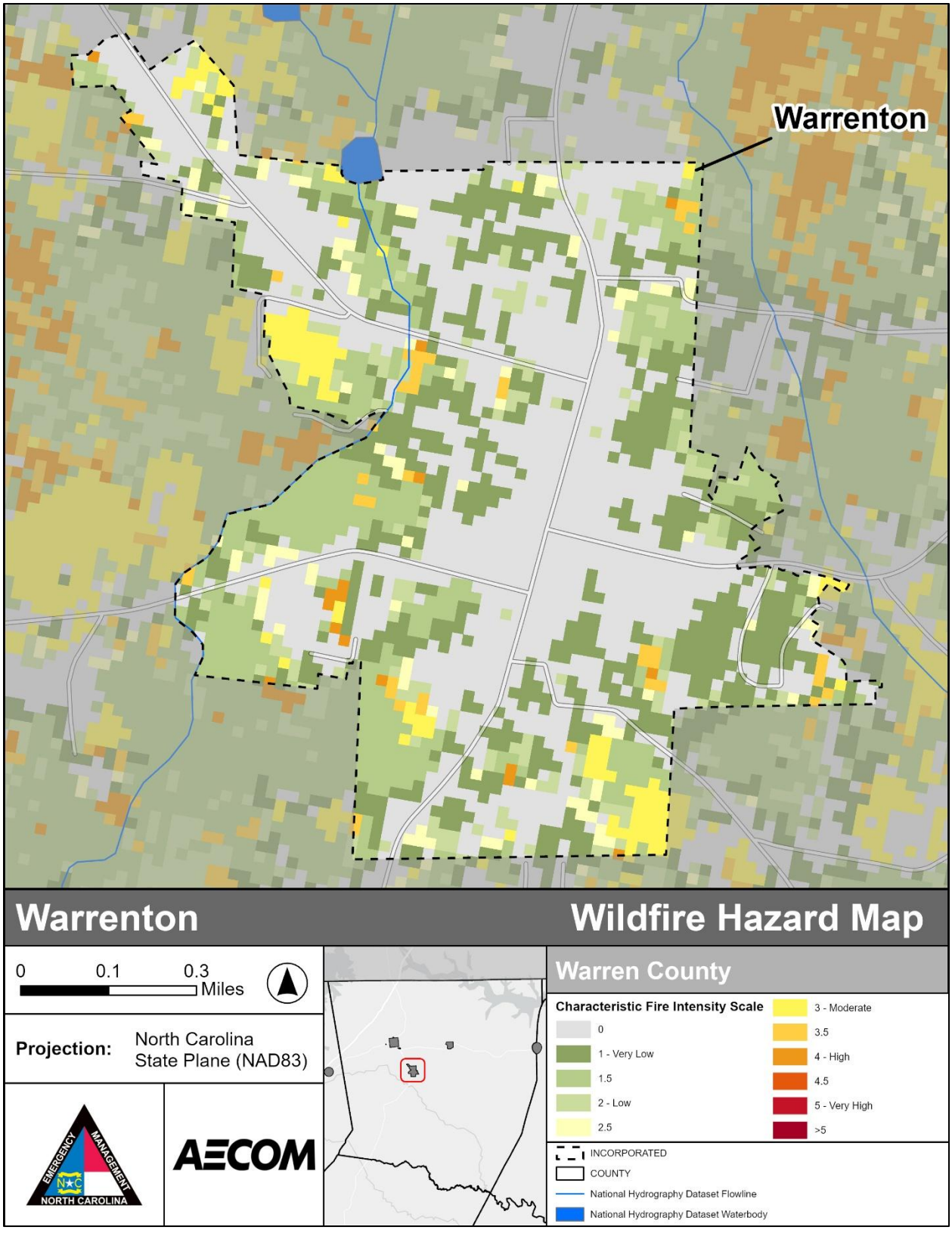


Figure 5-184: Wildfire Hazard Map - Warrenton

5.10.3. Extent

The FWUI 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, 18% of the area in Franklin County, 15% in Granville County, 17% in Vance County, and 10% in Warren County is categorized as a Primary 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. 4% of the areas in Franklin County, 2% in Granville County, 5% in Vance County, and 1% in Warren County are within Secondary Exposure areas, where non-burnable land cover is within 1500m of burnable land cover and 75m from a structure. Wildfire Transmission Zones cover 20% of the land in Franklin County, 24% in Granville County, 28% in Vance County, and 24% in Warren County. Fuel treatments to slow fire spread and reduce risk to structures are recommended. Sources of Ember Load to Buildings account for 57% of the land in Franklin County, 57% in Granville County, 43% in Vance County, and 61% in Warren County, where these areas should be prioritized for fuel treatment. No area in Franklin, Granville, Vance, or Warren 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[84]

Functional Wildland Urban Interface Category	Franklin County		Granville County		Vance County		Warren County	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Primary Exposure	56,629	18%	52,343	15%	29,355	17%	28,556	10%
Secondary Exposure	12,579	4%	6,823	2%	9,158	5%	3,985	1%
Sources of Ember Load to Buildings	180,608	57%	195,636	57%	75,025	43%	173,402	61%
Wildfire Transmission Zone	63,188	20%	83,972	24%	47,779	28%	68,520	24%
Low to No Exposure	0	0%	0	0%	0	0%	0	0%
Water	3,534	1%	4,627	1%	11,369	7%	9,567	3%
Total	**316,538**	**100%**	**343,402**	**100%**	**172,687**	**100 %**	**284,031**	**100%**

The FIS Class 1 area, which represents 8% of Franklin County, 6% of Granville County, 6% of Vance County, and 8% of Warren 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, 27% of Franklin County, 22% of Granville County, 29% of Vance County, and 22% of Warren County, should expect fire behavior that has a low enough intensity not to require specialized equipment or training to suppress. However, the remaining 75% of the planning area is classified as having fire behavior that may require specialized tools and equipment for suppression.

[84] Pyrologix. (2023). *Functional Wildland Urban Interface* [Dataset]. Southern Wildfire Risk Assessment Portal. https://wrap.southernwildfirerisk.com/Map/Public/#whats-your-risk

Any area with a Class 2 or higher FIS scale, flames less than 2ft long, and short-range spotting possible is susceptible to fires that require protective equipment and specialized tools, with approximately 22% of Franklin County, 19% of Granville County, 14% of Vance County, and 14% of Warren County in a Class 2 to 2.5 FIS category. Class 2 to 2.5 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 to 3.5 FIS areas comprise 19% of Franklin County, 20% of Granville County, 20% of Vance County, and 27% of Warren County, meaning that if wildfire were to occur in these areas, flames 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. Class 4 FIS land area represents 2% of Franklin County, 5% of Granville County, 5% of Vance County, and 10% of Warren County. If these areas experience wildfire, significant property damage, and the potential for loss of life and severe injury is likely.

Table 5-52: SWRAP Characteristic Fire Intensity Scale (FIS) Ratings for the Planning Area, Including Acres and Percent of Total Planning Area[85]

Characteristic FIS Category	Franklin County		Granville County		Vance County		Warren County	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
0	61,675	19%	48,112	14%	40,470	23%	39,293	14%
1 - Very Low	25,715	8%	20,441	6%	10,709	6%	21,444	8%
1.5	94,674	30%	124,483	36%	52,685	31%	79,808	28%
2 - Low	33,507	11%	42,602	12%	20,935	12%	30,667	11%
2.5	35,397	11%	22,381	7%	4,174	2%	8,880	3%
3 - Moderate	49,540	16%	51,507	15%	25,262	15%	47,493	17%
3.5	9,057	3%	15,603	5%	9,439	5%	27,742	10%
4 - High	6,973	2%	18,188	5%	8,909	5%	28,672	10%
4.5	0	0%	85	0%	100	0%	33	0%
5 - Very High	0	0%	0	0%	2	0%	0	0%
> 5	0	0%	0	0%	0	0%	0	0%
Total	**316,538**	**100%**	**343,402**	**100%**	**172,687**	**100%**	**284,031**	**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

[85] Pyrologix. (2023). *Characteristic Fire Intensity Scale* [Dataset]. Southern Wildfire Risk Assessment Portal. https://wrap.southernwildfirerisk.com/Map/Public/#whats-your-risk

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 move into 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 SWRAP[85] The FIS layer was used to develop the following risk maps. The FIS is based on wildfire severity but does not provide a measure of susceptibility.

5.10.4. Past Occurrences

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,[86] or the National Association of State Foresters State (NASF) Data [87].

5.10.5. Probability of Future Occurrences

The NRI uses the US Department of Agriculture (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 maintains a raster dataset representing 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 susceptible, so any area with a BP higher than zero would be considered exposed.

Based on the NRI Wildfire Risk data, Franklin County has a total exposure area of 15.93 mi^2, an annualized frequency of 0.00003, an EAL Total of $12,971, an EAL Score of 32.42, and a Hazard Risk Index Score of 35.48. The unincorporated areas of Franklin County have a total exposure area of 9.27 mi^2, an average annualized frequency of 0.00003, a total EAL of $6,090, an average EAL Score of 60.28, and an average Hazard Risk Index Score of 61.7. The jurisdiction with the highest total EAL is Franklinton ($3,119), followed by Youngsville ($2,598), Louisburg ($1,600), and Bunn ($1,040).

Granville County has a total wildfire exposure area of 14.78 mi^2, an annualized frequency of 0.00003, a total EAL of $15,257, an EAL Score of 35.06, and a Hazard Risk Index Score of 37.48. The unincorporated areas of Granville County have a total EAL of $2,469, an average EAL Score of 54.16, and an average Hazard Risk Index Score of 55.15. The jurisdiction with the highest total EAL is Oxford ($4,940), followed by Butner ($3,863) and Creedmoor ($3,289).

Vance County has a total wildfire exposure area of 6.84 mi^2, an annualized frequency of 0.00002, a total EAL of $8,303, an EAL Score of 24.5, and a Hazard Risk Index Score of 29.65. The unincorporated areas of Vance County have an exposure area of 1.81 mi^2, a total EAL of $1,465, an average EAL Score of 54.15, and an average Hazard Risk Index Score of 55.52. The

[86] National Interagency Fire Center. (2025). *Interagency Wildland Fire Perimeter History (IFPH)* [Geodatabase]. National Interagency Fire Center Open Data Site. https://data-nifc.opendata.arcgis.com/datasets/nifc::interagencyfireperimeterhistory-all-years-view/about

[87] National Association of State Foresters. (2025). *National Association of State Foresters Fire Data Extract* [Tabular]. Fire and Aviation Management Web Applications (FAMWeb). https://famprod.nwcg.gov/cognos11/bi/?pathRef=.public_folders%2FFAMWEB%2BData%2BWarehouse%2FPublic%2BAccess%2BReports%2FFire%2BData%2BExtract%2FNASF%2BState%2BData%2BExtract

jurisdiction with the highest total EAL is Henderson ($6,285), followed by Kittrell ($965) and Middleburg ($552).

Warren County has a total wildfire exposure area of 5.81 mi^2, a total EAL of $5,118, an EAL Score of 16.61, and a Hazard Risk Index Score of 21.67. The unincorporated areas of Warren County have a total exposure area of 1.81 mi^2, a total EAL of $1,295, an average EAL of 59.14, and an average Hazard Risk Index Score. The jurisdiction with the highest total EAL is Macon ($1,400), followed by Warrenton ($1,041) and Norlina ($882).

Table 5-53: 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
Franklin County (Unincorporated Area)	**9.27**	**0.00003**	**$6,090**	**60.28**	**Relatively High**	**61.70**	**Relatively High**
Bunn	1.45	0.00003	$1,040	66.19	Relatively High	70.99	Relatively High
Franklinton	2.66	0.00002	$3,119	60.57	Relatively High	63.68	Relatively High
Louisburg	1.95	0.00003	$1,601	60.21	Relatively High	66.53	Relatively High
Youngsville	1.71	0.00001	$2,598	69.13	Relatively High	69.23	Relatively High
Franklin County Total	**15.93**	**0.00003**	**$12,971**	**32.42**	**Relatively Low**	**35.48**	**Relatively Low**
Granville County (Unincorporated Area)	**3.01**	**0.00002**	**$2,469**	**54.16**	**Relatively Moderate**	**55.15**	**Relatively Moderate**
Butner	3.17	0.00002	$3,864	59.38	Relatively Moderate	61.67	Relatively High
Creedmoor	2.95	0.00002	$3,289	61.11	Relatively High	60.75	Relatively High
Oxford	3.56	0.00003	$4,941	68.29	Relatively High	72.77	Relatively High
Stem	2.09	0.00003	$1,739	73.00	Relatively High	73.13	Relatively High
Stoval	2.82	0.00003	$1,802	73.43	Relatively High	74.75	Relatively High
Granville County Total	**14.78**	**0.00003**	**$15,257**	**35.06**	**Relatively Low**	**37.48**	**Relatively Low**
Vance County (Unincorporated Area)	**1.81**	**0.00003**	**$1,466**	**54.15**	**Relatively Moderate**	**55.52**	**Relatively Moderate**
Henderson	3.74	0.00002	$6,286	59.59	Relatively Moderate	65.38	Relatively High
Kittrell	1.21	0.00002	$966	65.12	Relatively High	71.00	Relatively High
Middleburg	1.29	0.00002	$552	57.29	Relatively Moderate	59.80	Relatively Moderate
Vance County Total	**6.84**	**0.00002**	**$8,303**	**24.50**	**Relatively Low**	**29.65**	**Relatively Low**
Warren County (Unincorporated Area)	**1.81**	**0.00003**	**$1,296**	**59.41**	**Relatively Moderate**	**65.90**	**Relatively High**
Macon	1.92	0.00001	$1,401	59.86	Relatively Moderate	63.43	Relatively High
Norlina	1.17	0.00005	$882	63.99	Relatively High	69.98	Relatively High
Warrenton	0.43	0.00003	$1,042	66.20	Relatively High	74.10	Relatively High
Warren County Total	**5.81**	**0.00003**	**$5,118**	**16.61**	**Very Low**	**21.67**	**Relatively Low**

5.10.6. Consequence and Impact Analysis

People

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

Changes in Development

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

Economy

Wildfires can have significant short-term and long-term effects on the local economy. Wildfires and extreme fire danger may reduce recreation and tourism in and near the fires. If aesthetics are impaired, local property values can decline. Extensive fire damage to trees can significantly alter the timber supply, both through a short-term surplus from timber salvage and a longer-term decline while the trees regrow. Water supplies can be degraded by post-fire erosion and stream sedimentation. Wildfires can also have positive effects on local economies. Positive effects come from economic activity generated in the community during fire suppression and post-fire rebuilding. These may include forestry support work, such as building fire lines and performing other defensive measures, or providing firefighting teams with food, ice, and amenities, such as temporary shelters and washing machines.

Natural Environment

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

First Responders

Public and firefighter safety is the priority in all wildland fire management activities. Wildfire poses 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 the health and safety of first responders who assist with wildfire suppression and response.

Future Conditions

According to the NCCSR, higher annual and seasonal temperatures will increase drying vegetation and conditions that favor wildfires.[88] The increases in wildfires will pose a greater threat to human health, emergency services, the economy, first responders, and the planning area.

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

5.11. Winter Storm (Winter Weather & Ice 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, halting 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 from the excessive weight of snow accumulations may occur within a few days after 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 entire population, all critical facilities, buildings (commercial and residential), and infrastructure. To capture the distribution of winter weather-related hazards, the NRI's Ice Storm and Winter Weather risk data 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, resulting in 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 following maps represent the NRI Ice Storm Risk Data.

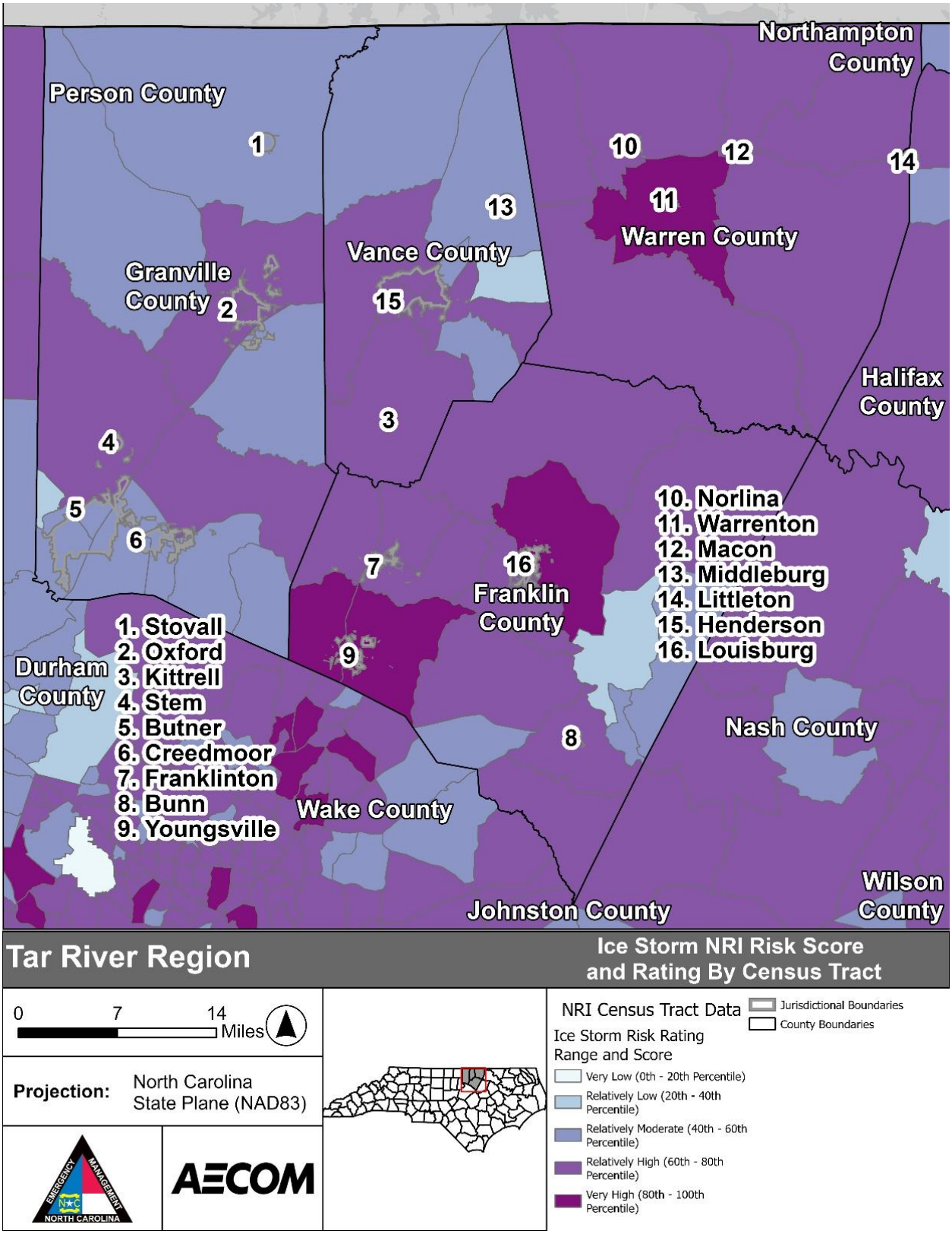


Figure 5-185: Ice Storm Weather Map - Tar River Region

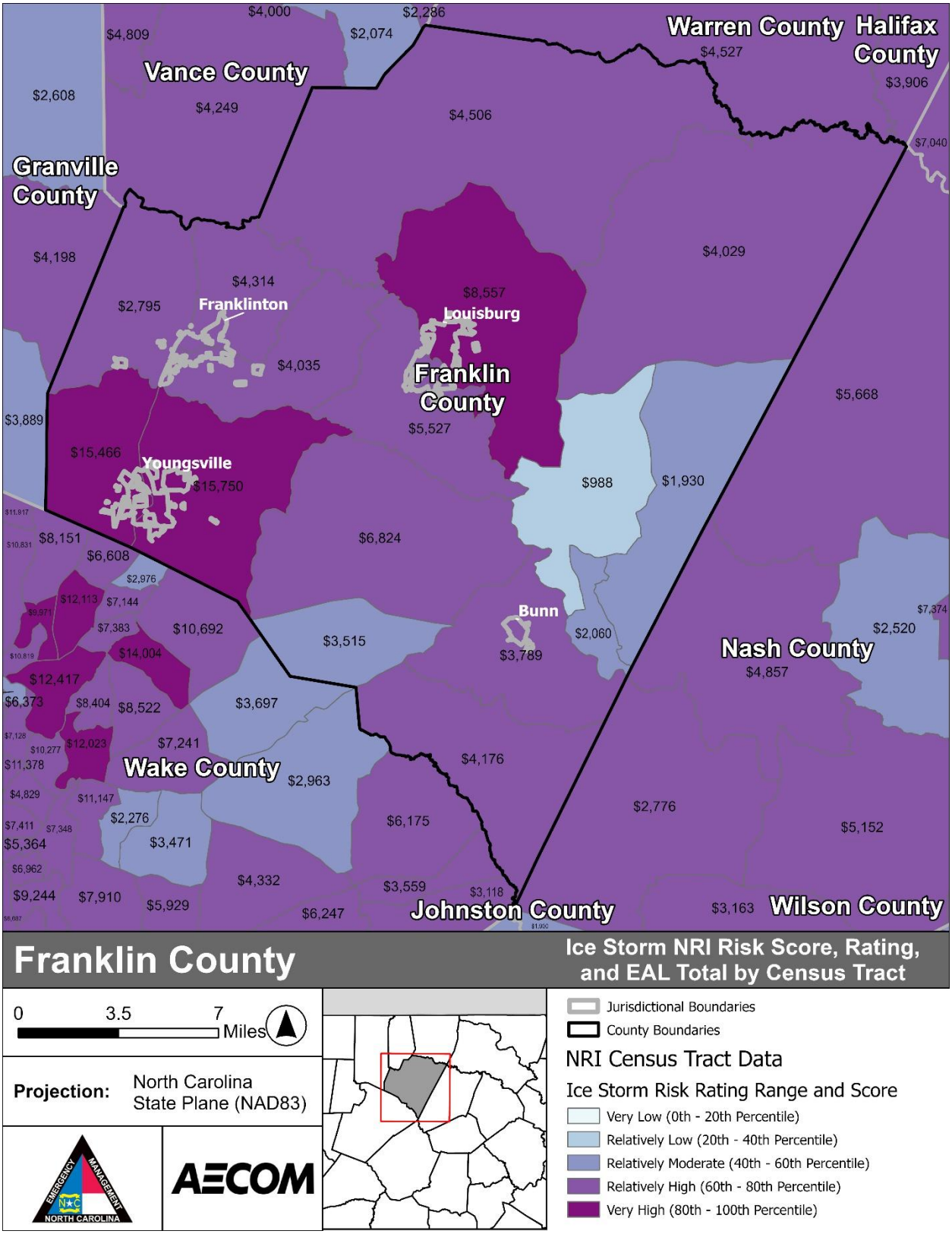


Figure 5-186: Ice Storm Risk Map - Franklin County

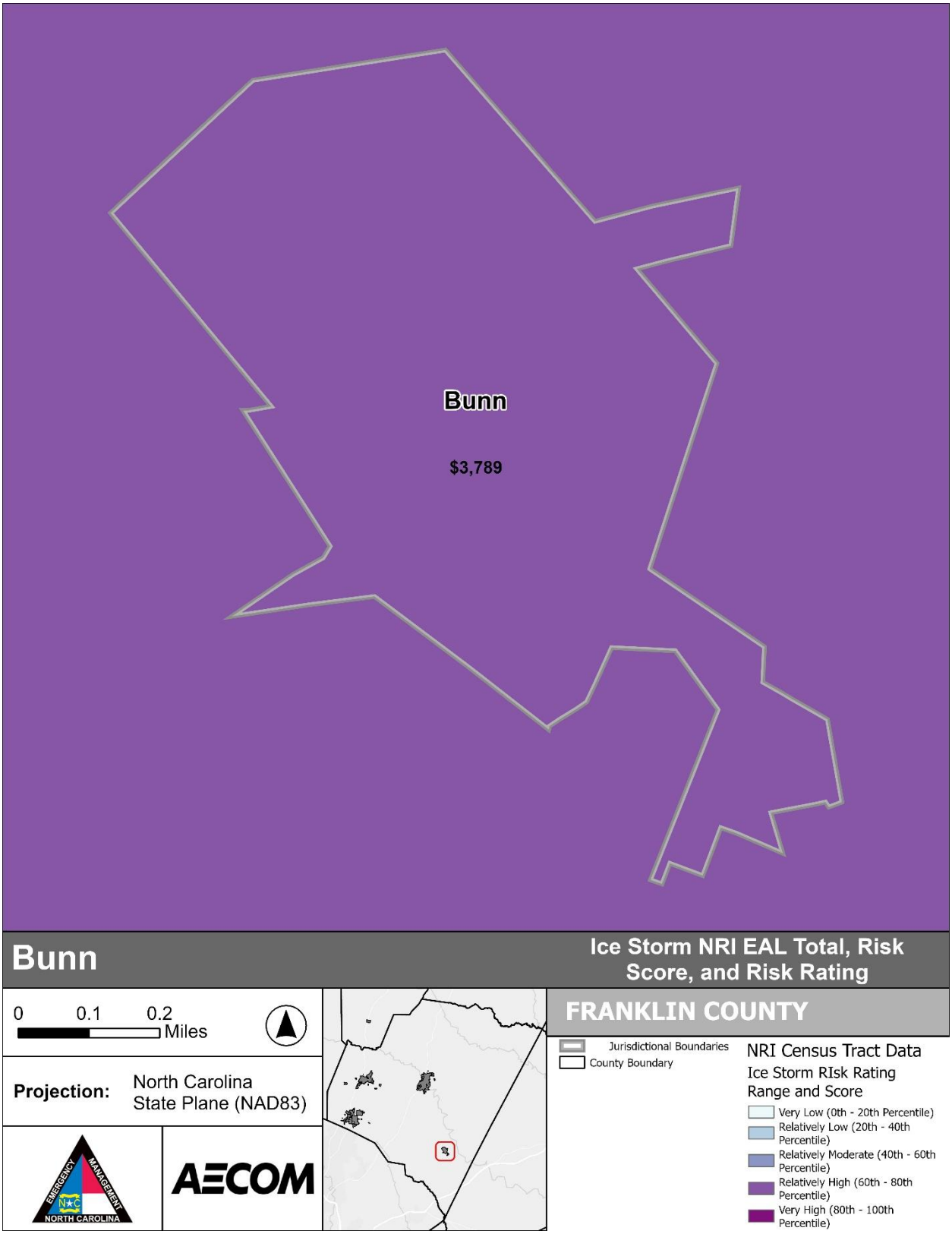


Figure 5-187: Ice Storm Risk Map - Bunn

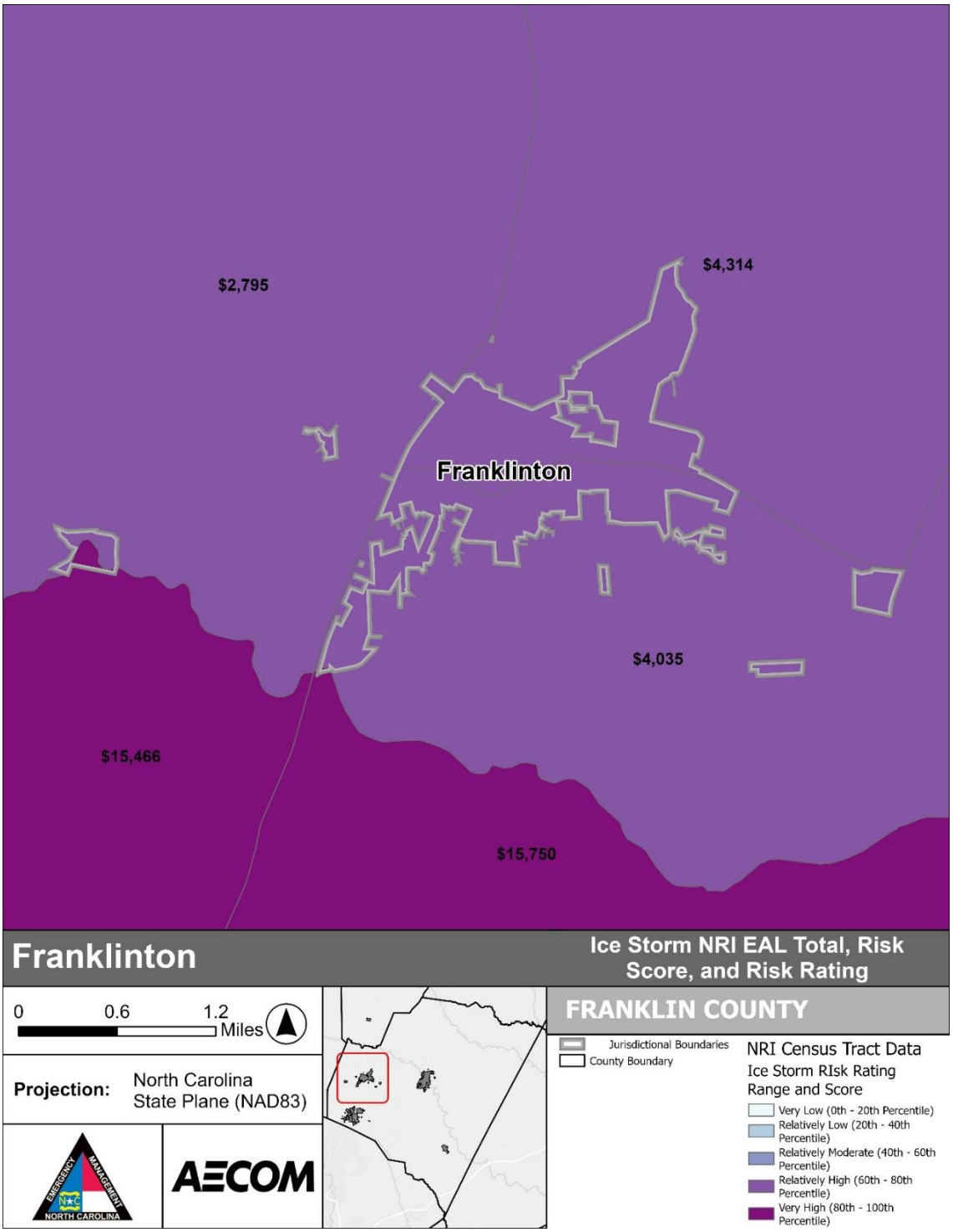


Figure 5-188: Ice Storm Risk Map - Franklinton[89]

[89] The Municipal Boundaries (2025) GIS layer obtained from NCDOT and used for the maps in this plan contained slightly outdated jurisdictional boundaries for the Town of Franklinton due to recent annexations between 2023 and 2025. However, given the map scale, hazard data can still be viewed for the missing incorporated areas of Franklinton. Please see Section 3 – Figure 3-29 for the Town of Franklinton's up-to-date boundary map, based on the incorporated boundary corrections from the U.S. Census Boundary and Annexations Survey.

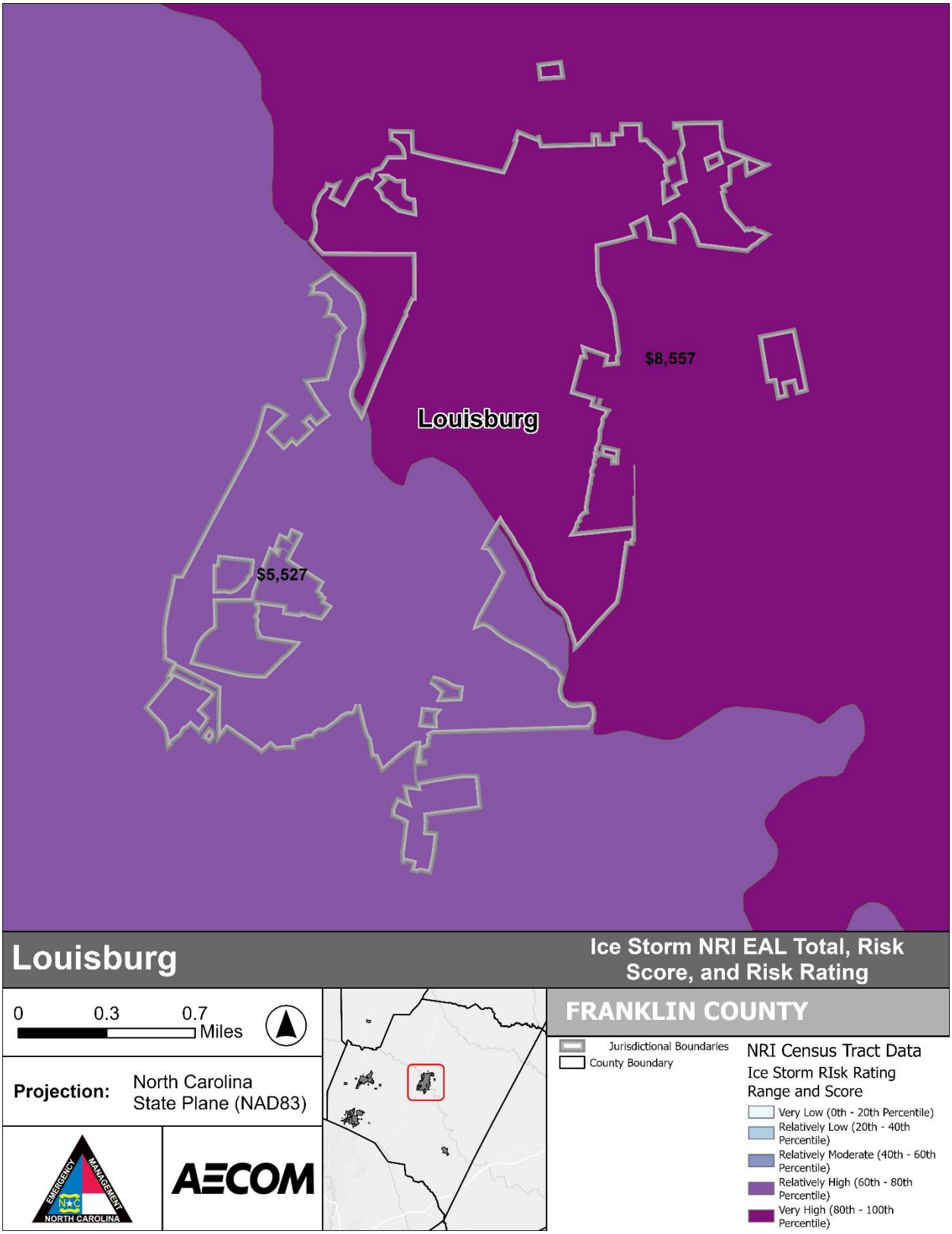


Figure 5-189: Ice Storm Risk Map - Louisburg

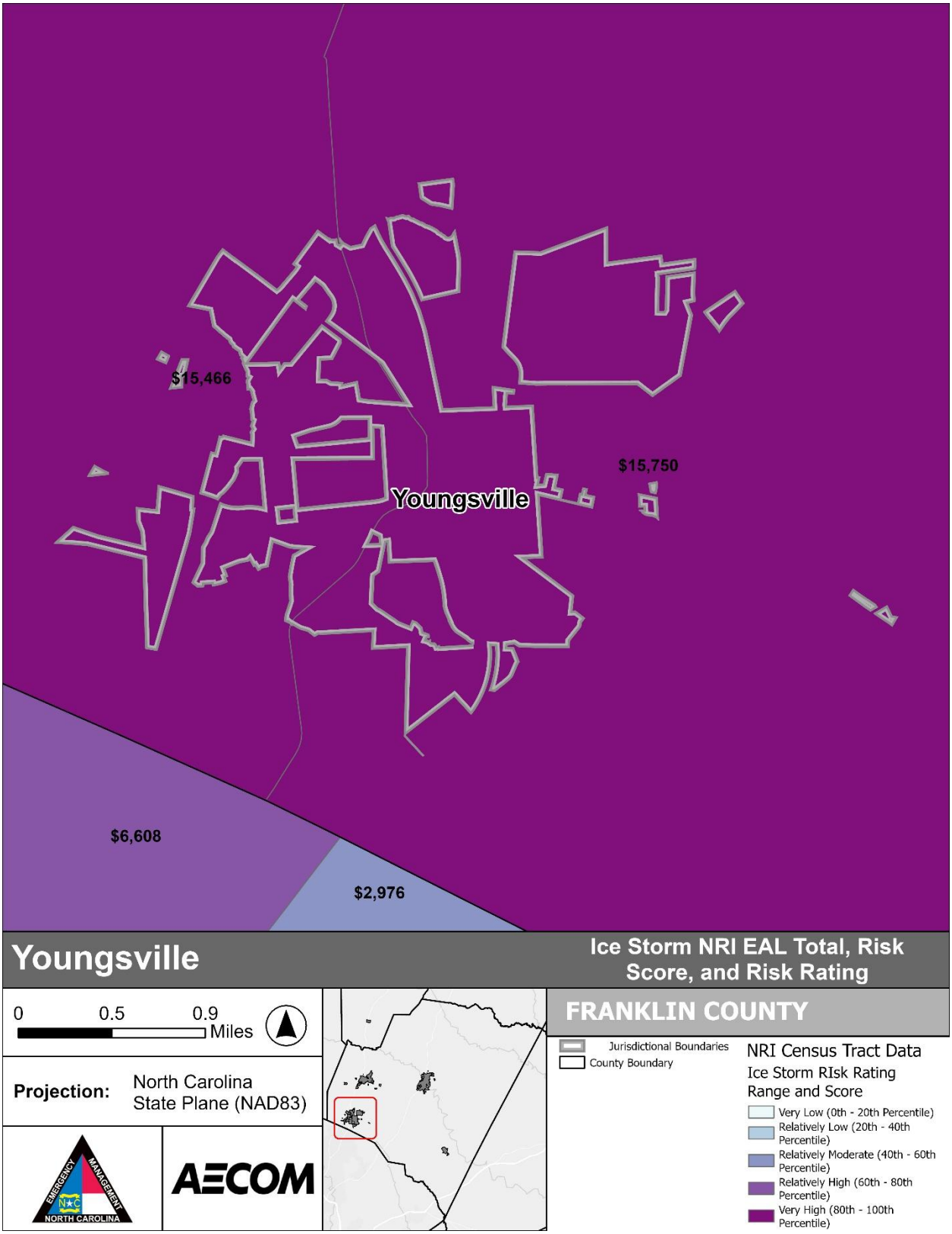


Figure 5-190: Ice Storm Risk Map - Youngsville

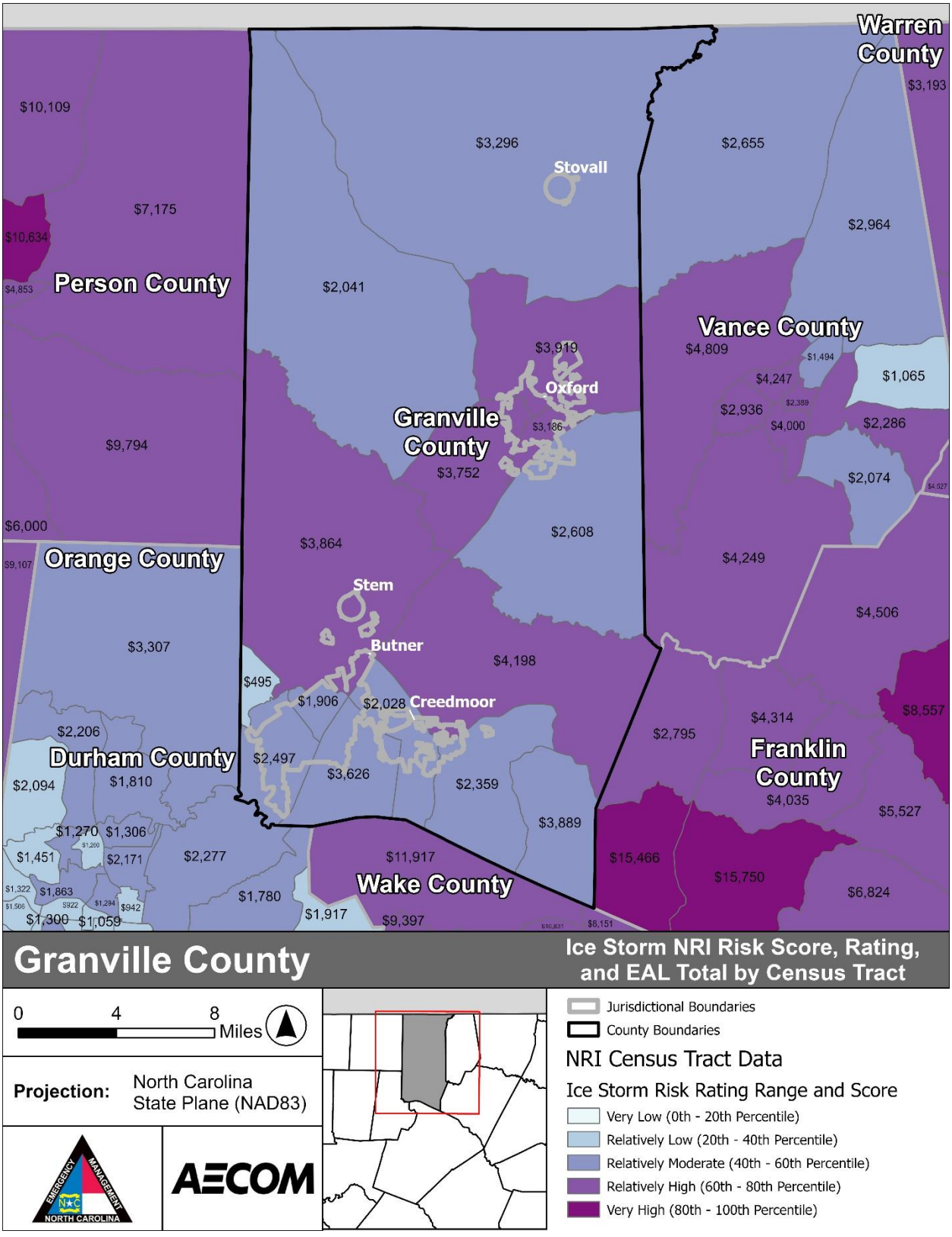


Figure 5-191: Ice Storm Risk Map - Granville County

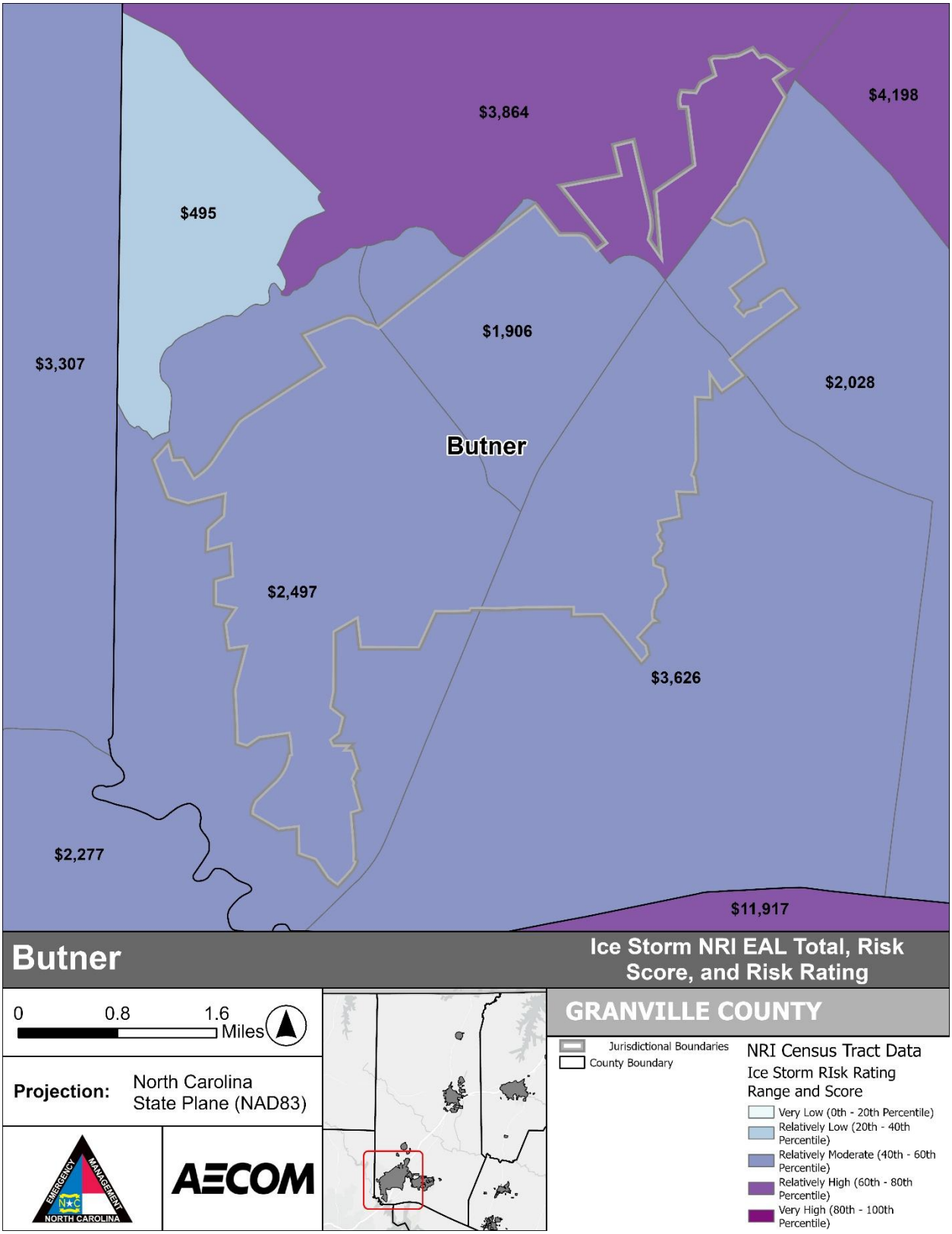


Figure 5-192: Ice Storm Risk Map - Butner

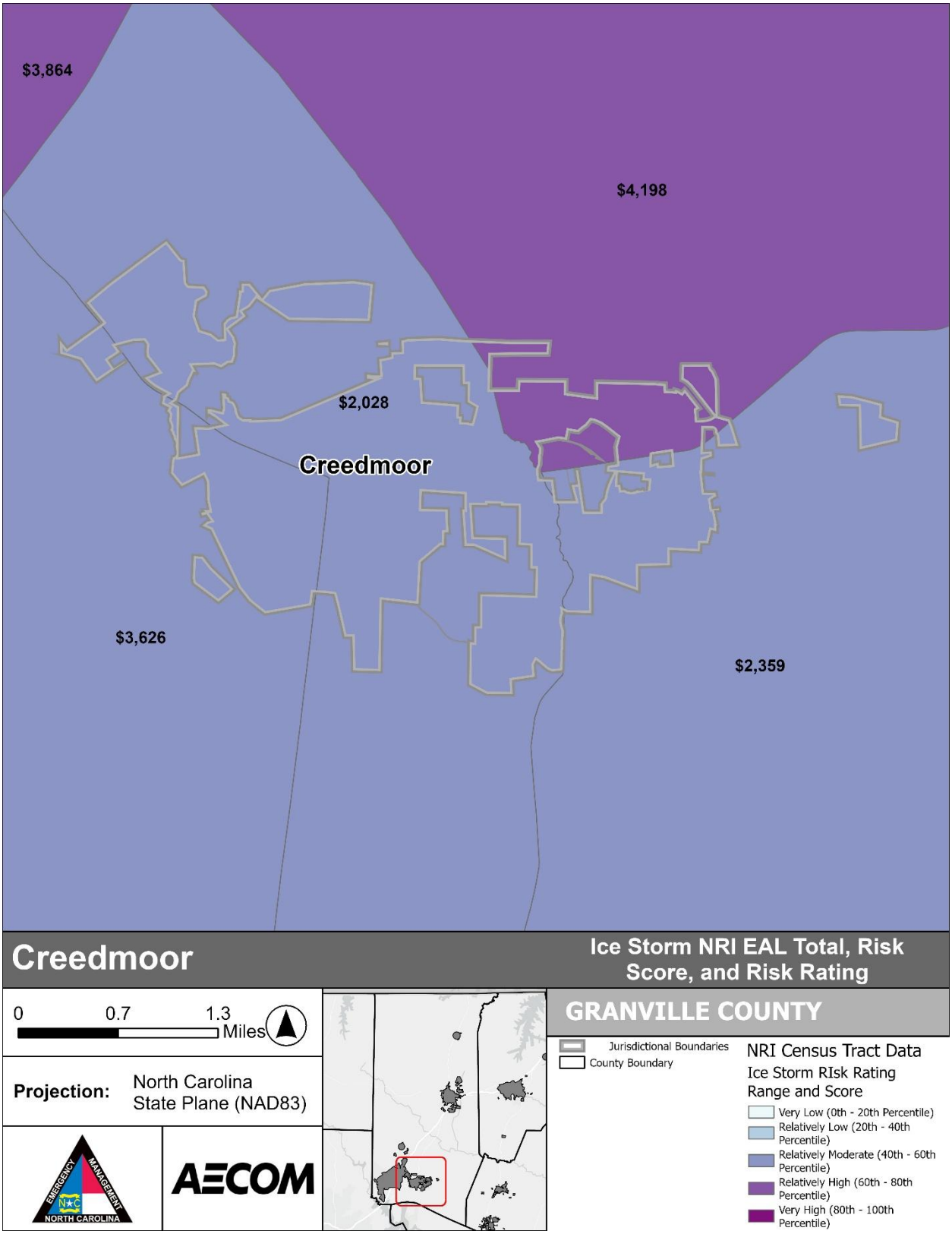


Figure 5-193: Ice Storm Risk Map - Creedmoor

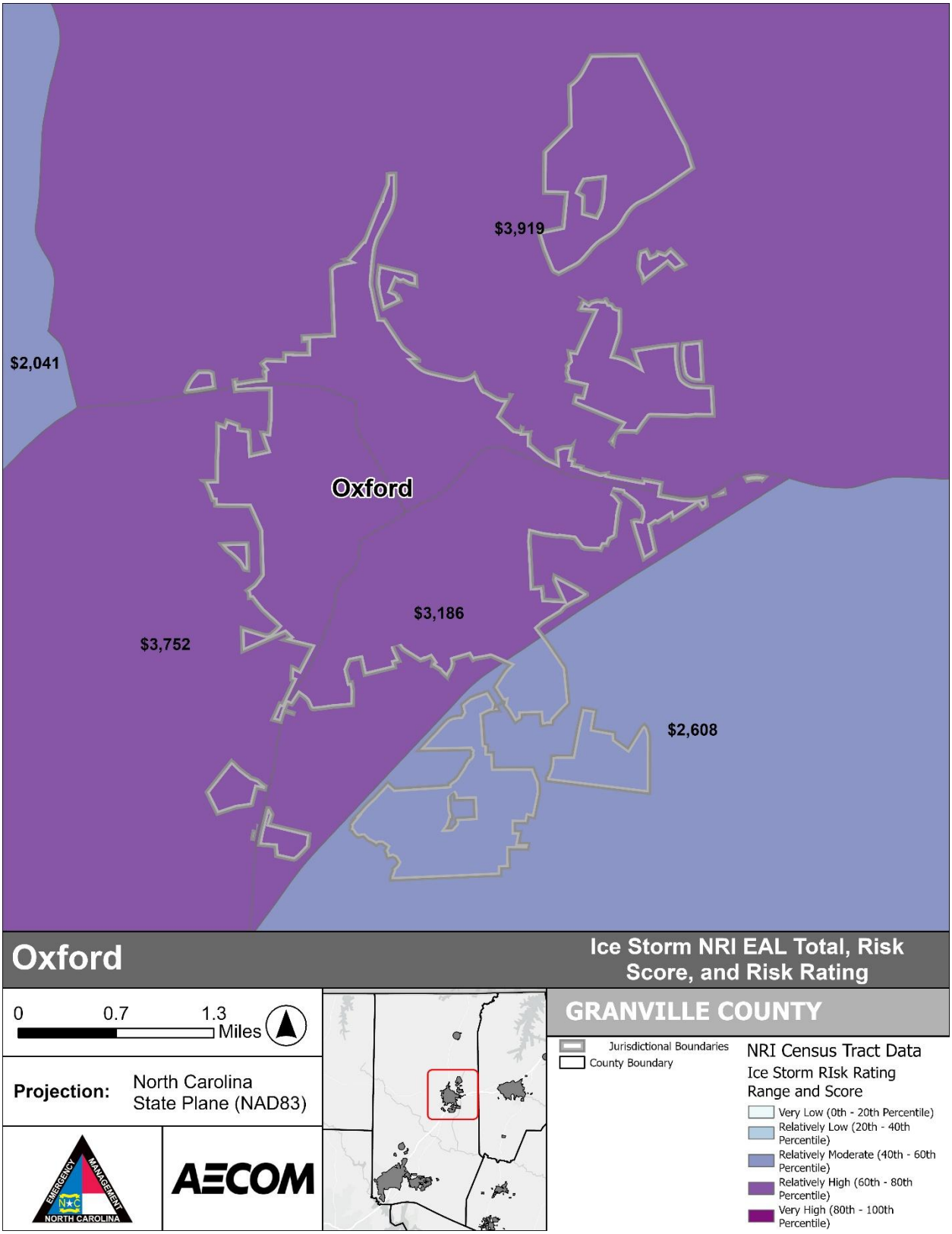


Figure 5-194: Ice Storm Risk Map - Oxford

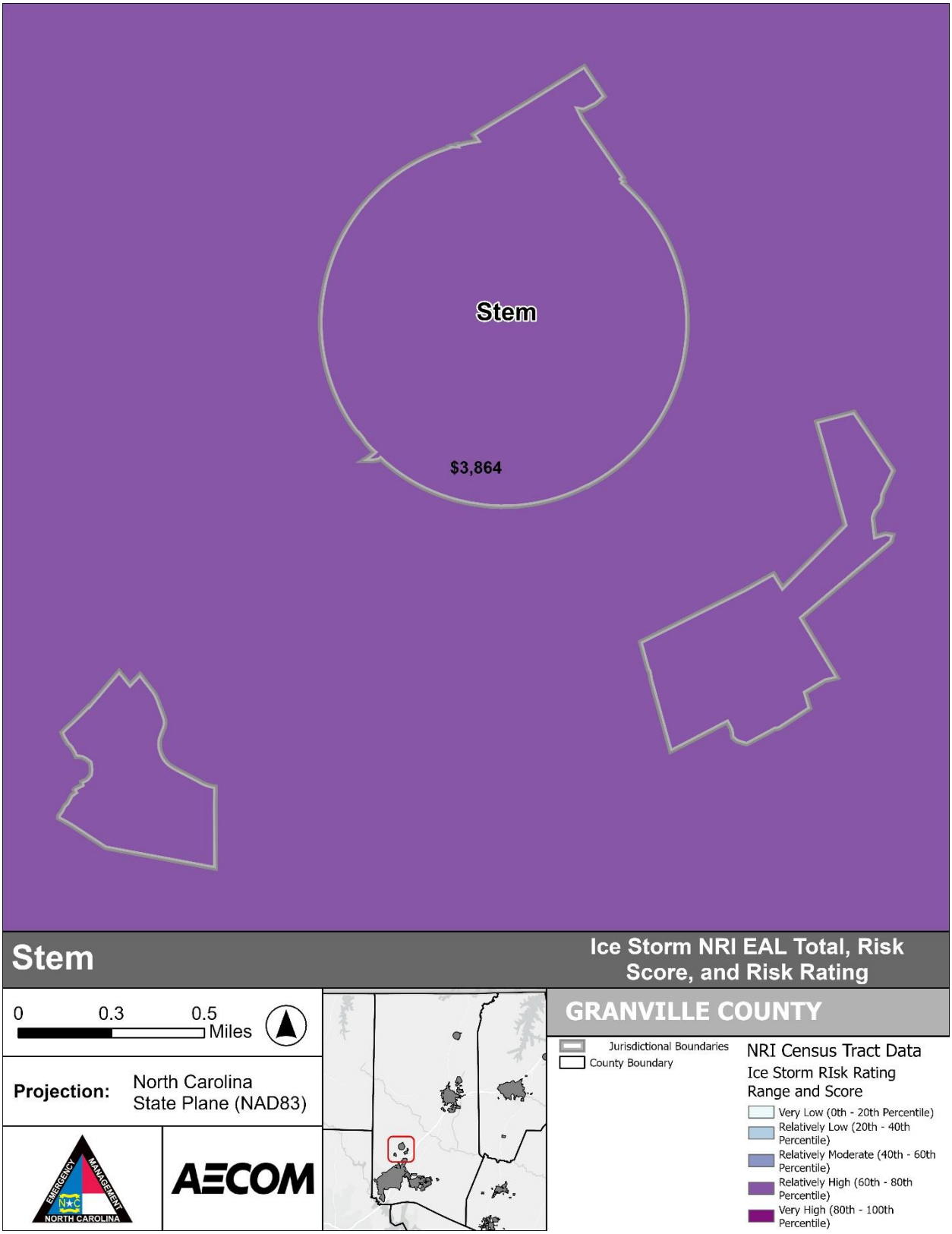


Figure 5-195: Ice Storm Risk Map - Stem

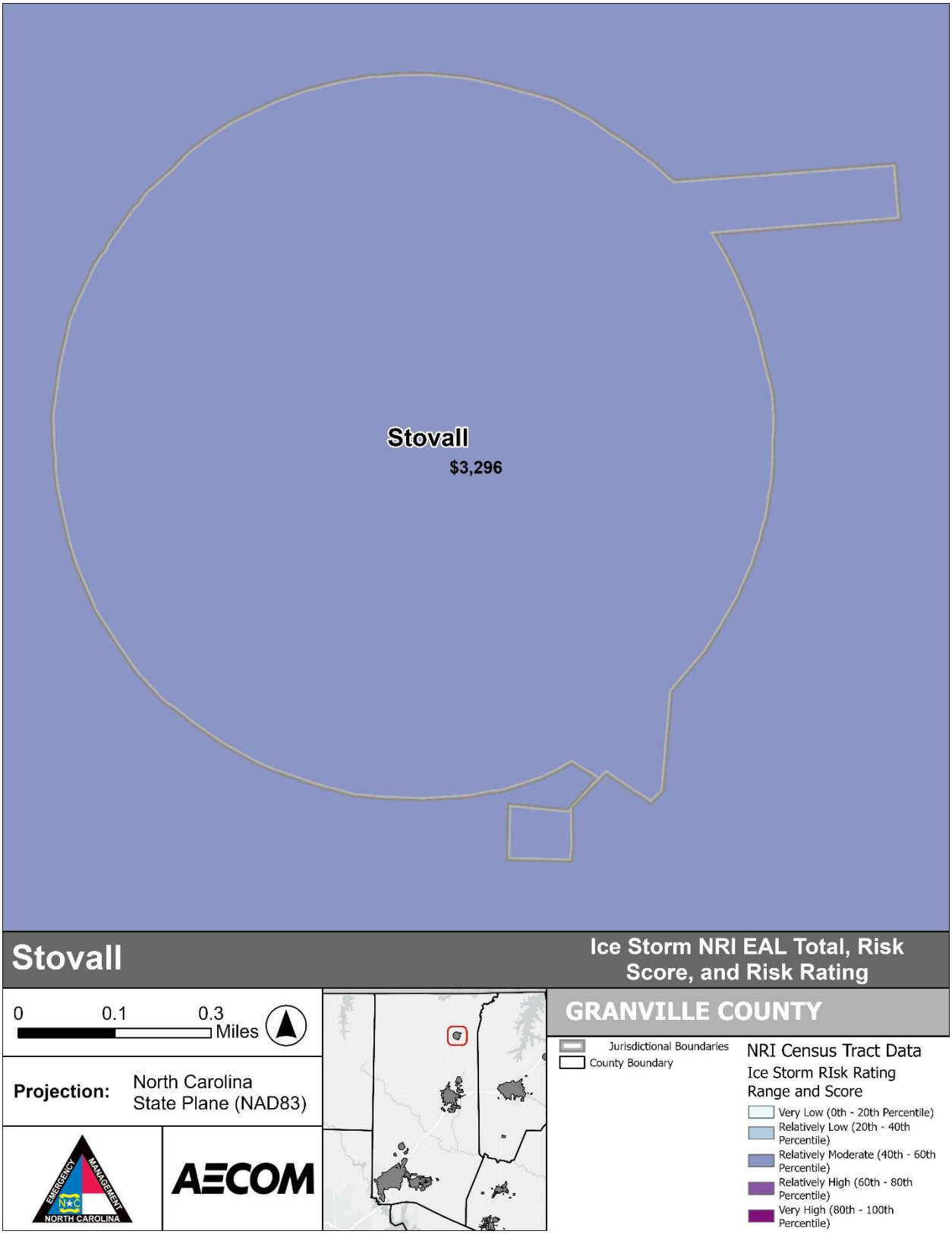


Figure 5-196: Ice Storm Risk Map – Stovall

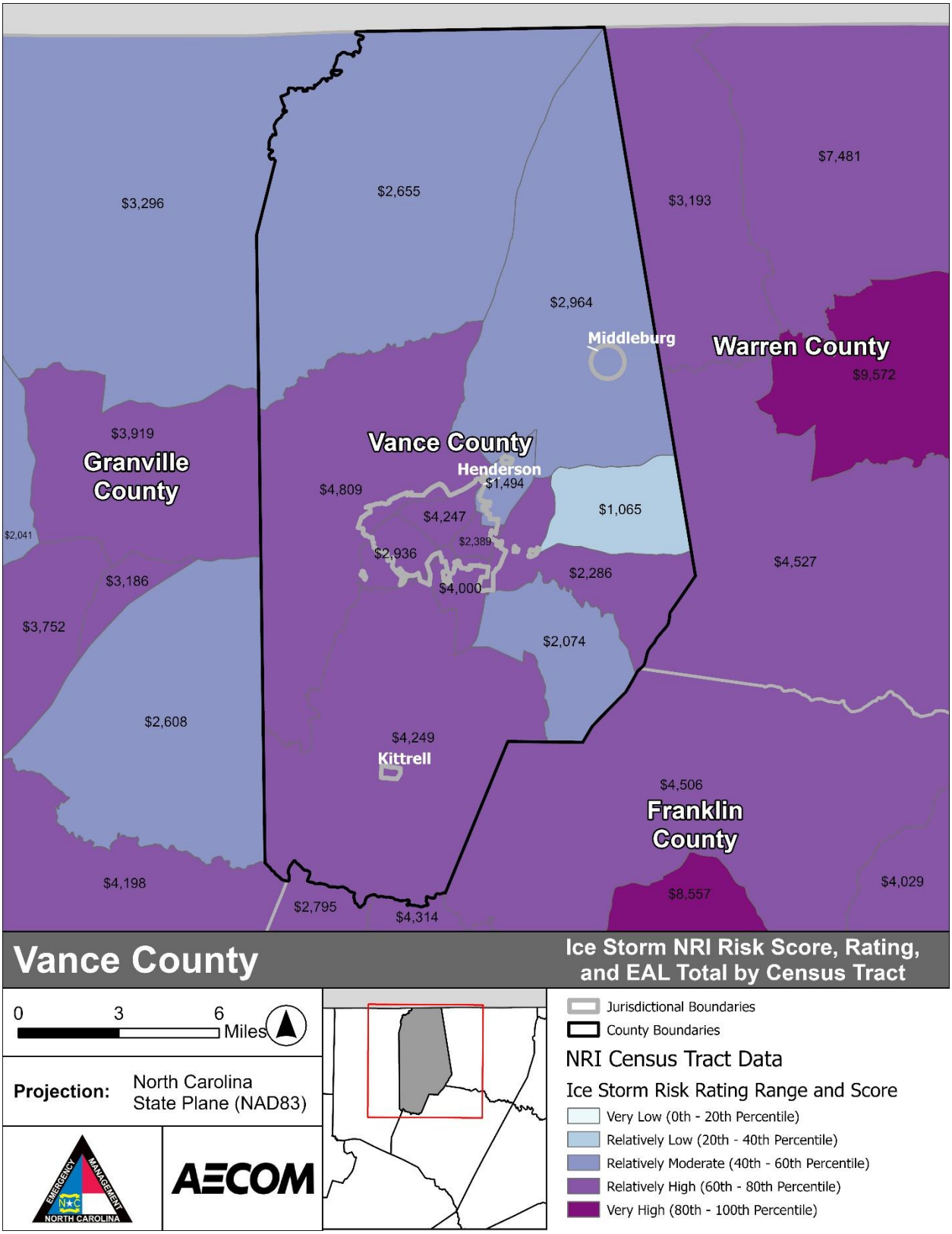


Figure 5-197: Ice Storm Risk Map - Vance County

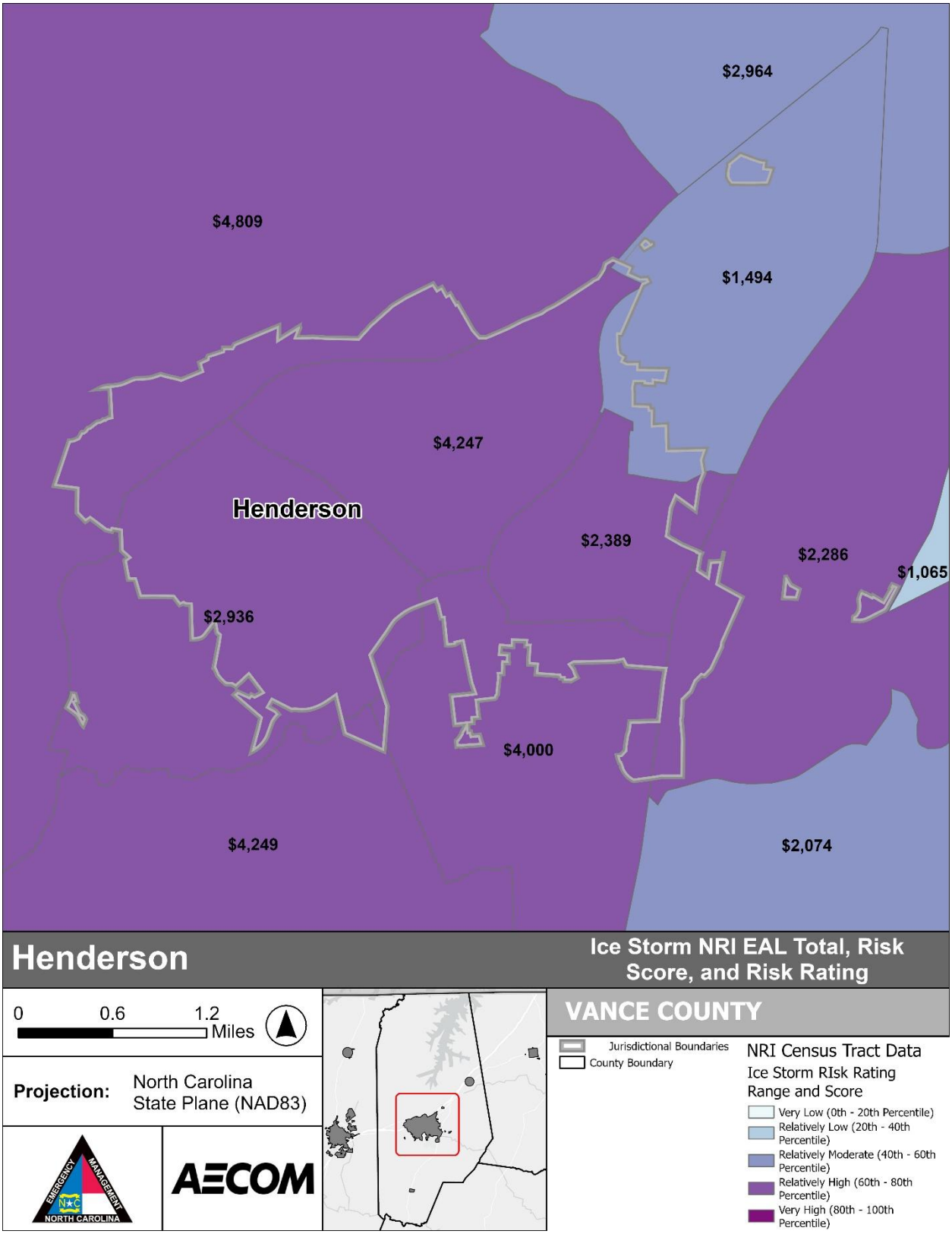


Figure 5-198: Ice Storm Risk Map - Henderson

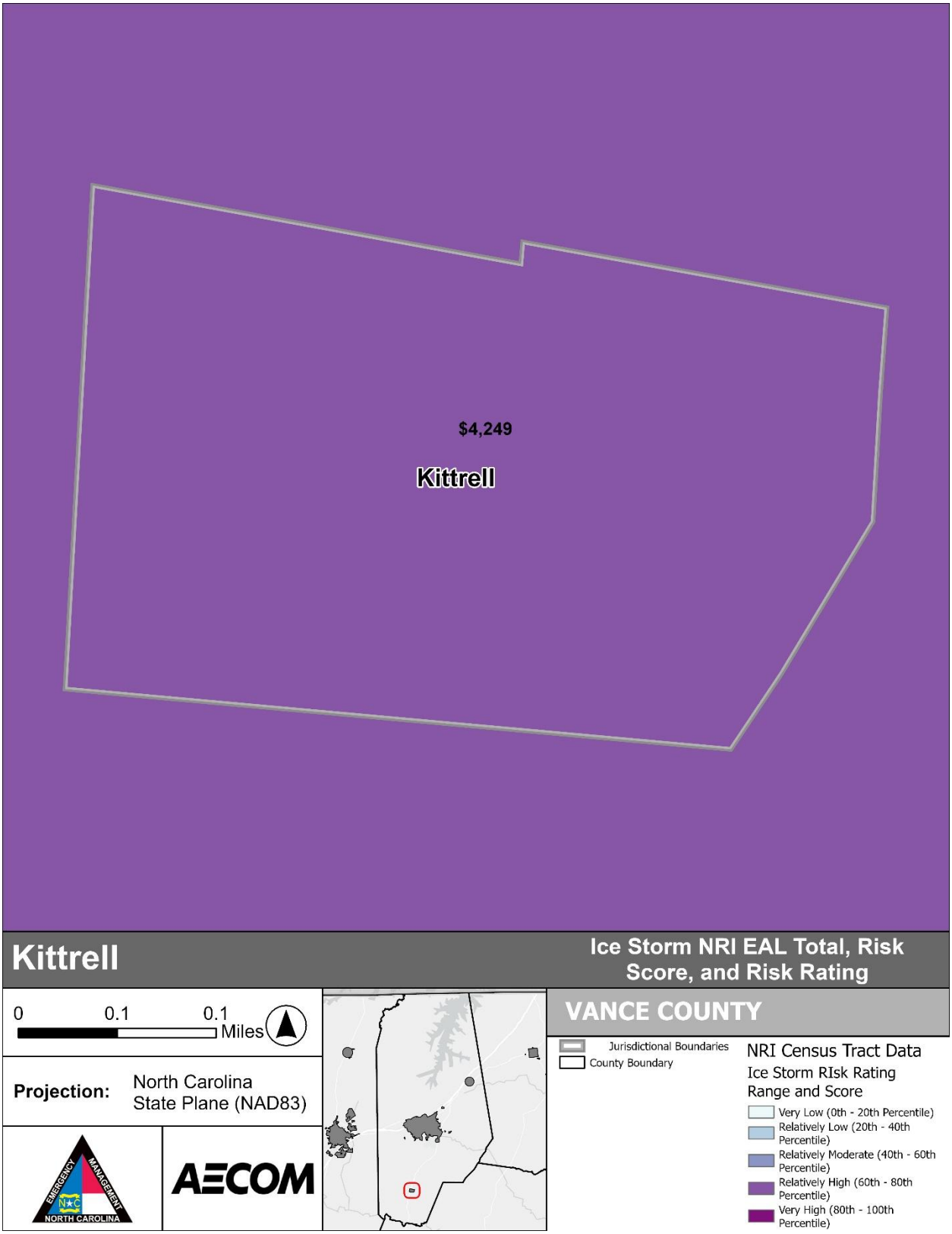


Figure 5-199: Ice Storm Risk Map - Kittrell

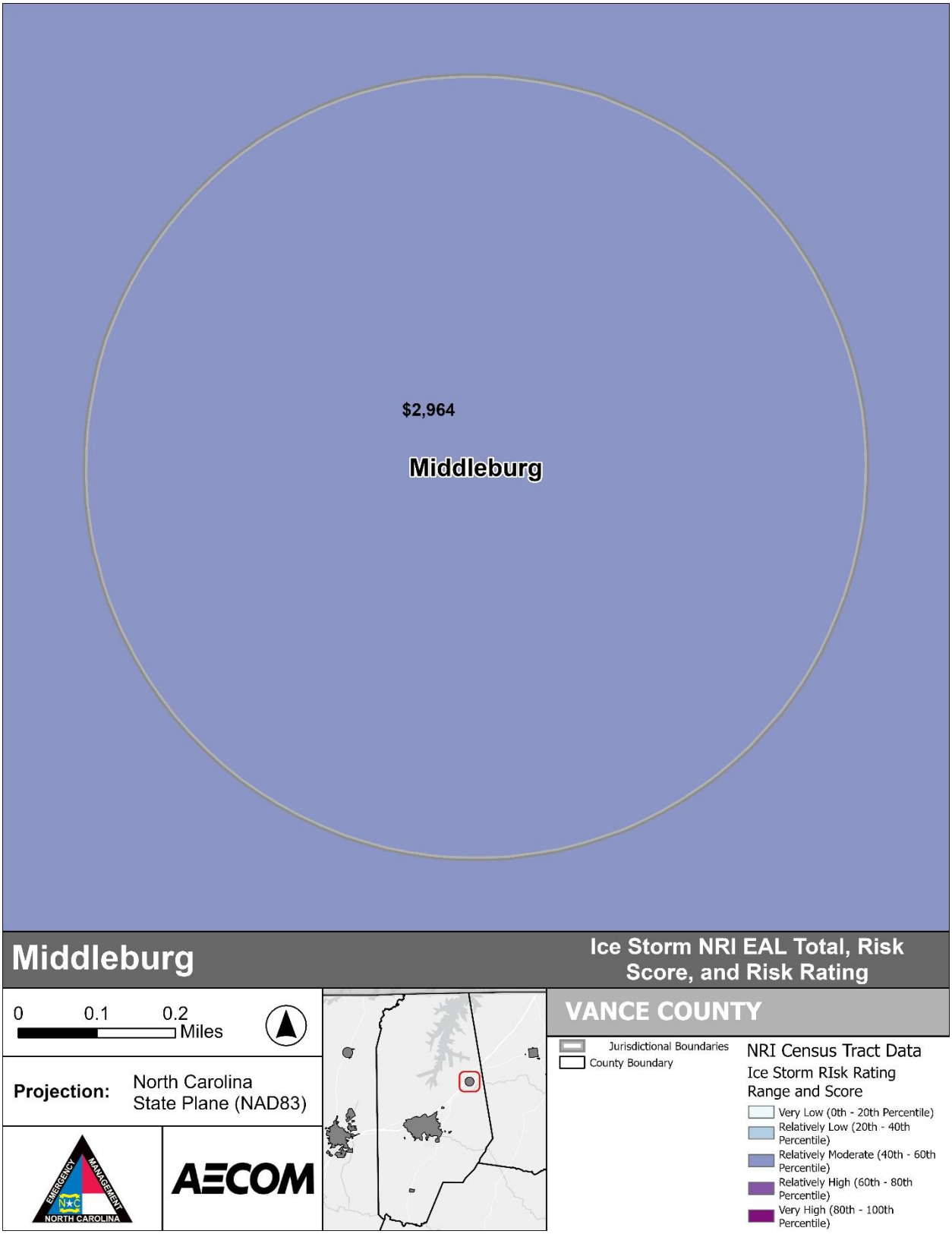


Figure 5-200: Ice Storm Risk Map - Middleburg

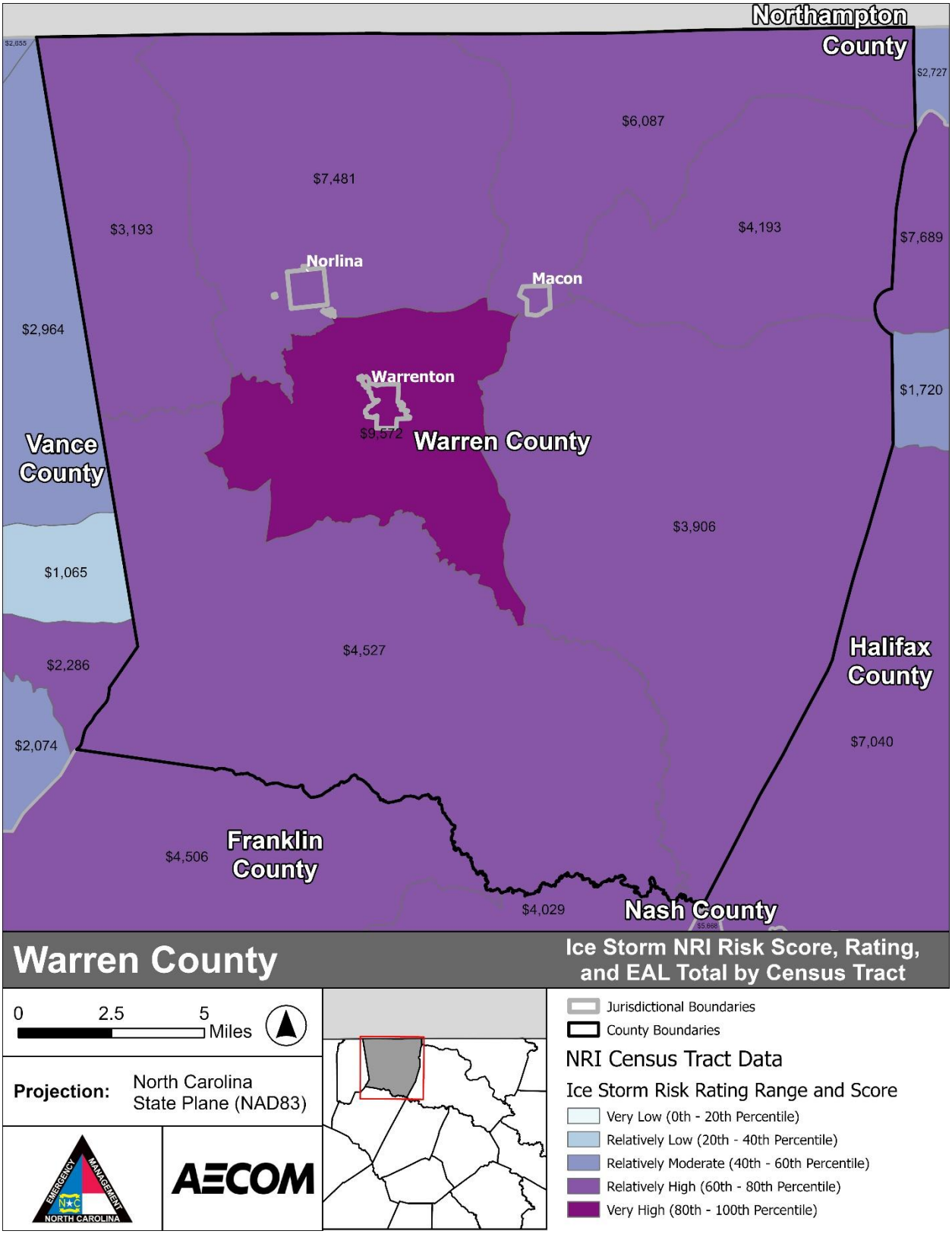


Figure 5-201: Ice Storm Risk Map - Warren County

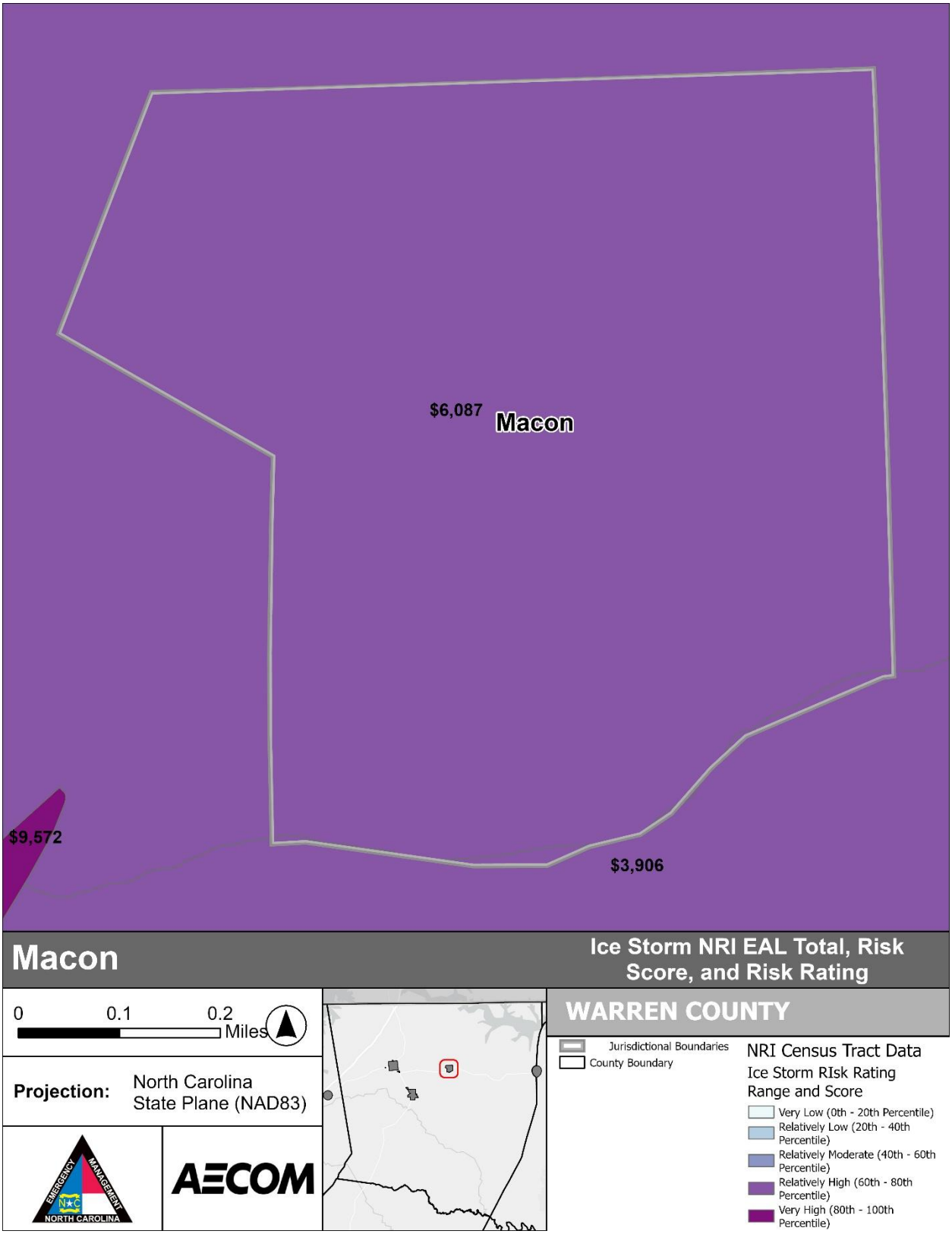


Figure 5-202: Ice Storm Risk Map - Macon

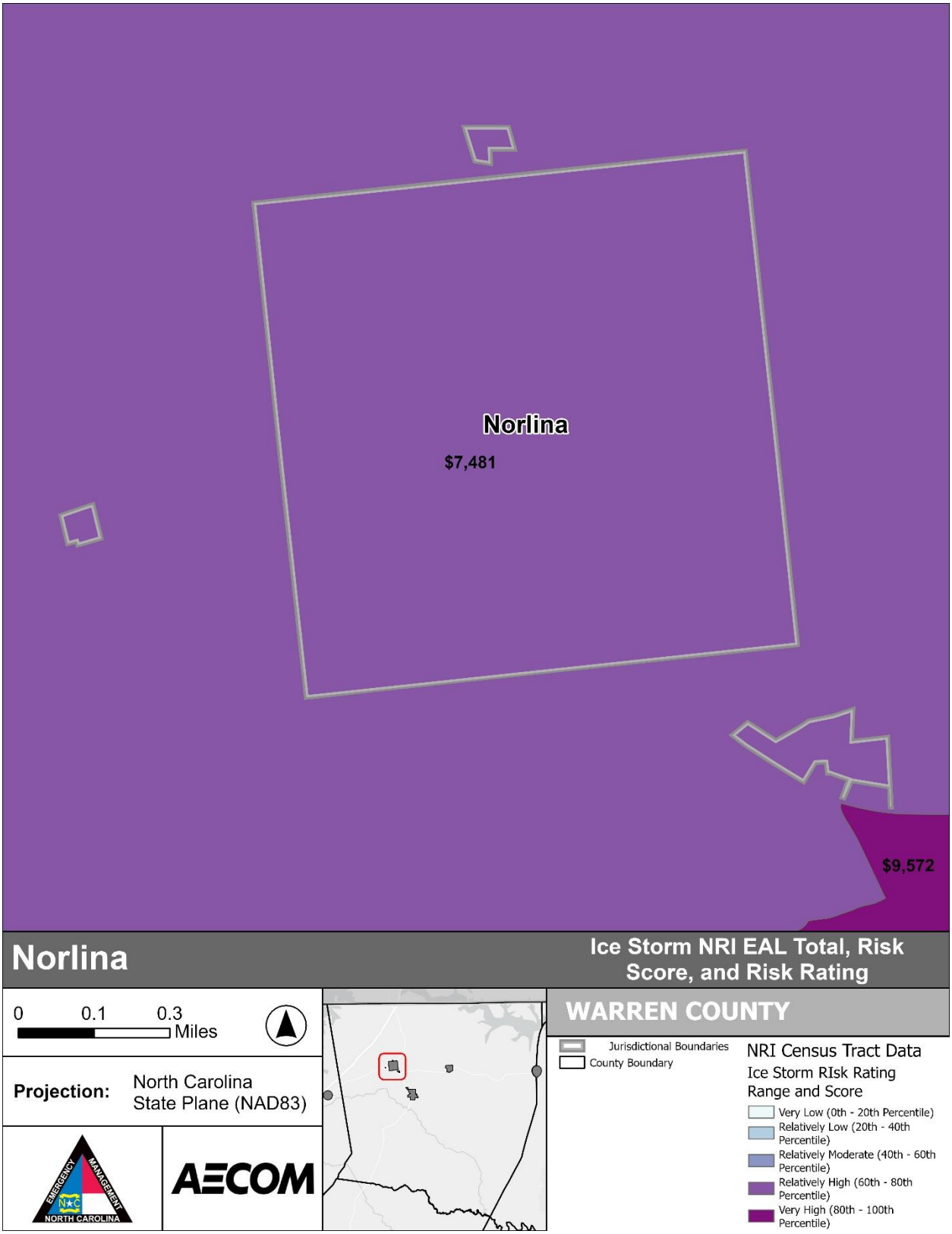


Figure 5-203: Ice Storm Risk Map - Norlina

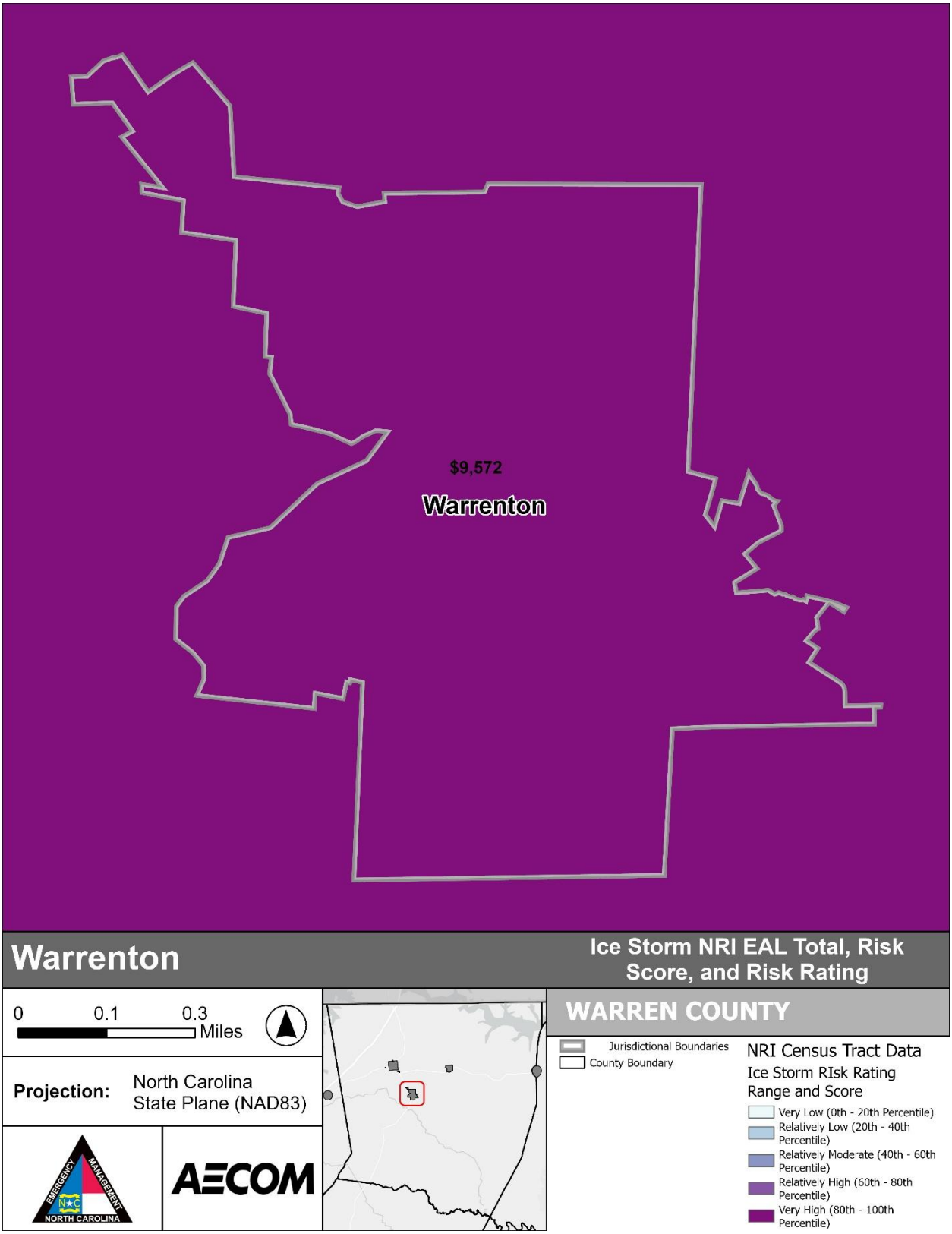


Figure 5-204: Ice Storm Risk Map - Warrenton

The NRI defines winter weather events as those in which 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, spanning from November 12, 2005, to October 6, 2022. To best represent the hazards associated with winter storms in the planning area, the following maps illustrate Ice Storm and Winter Storm events, as defined by the NRI and the EAL, at the census tract level.

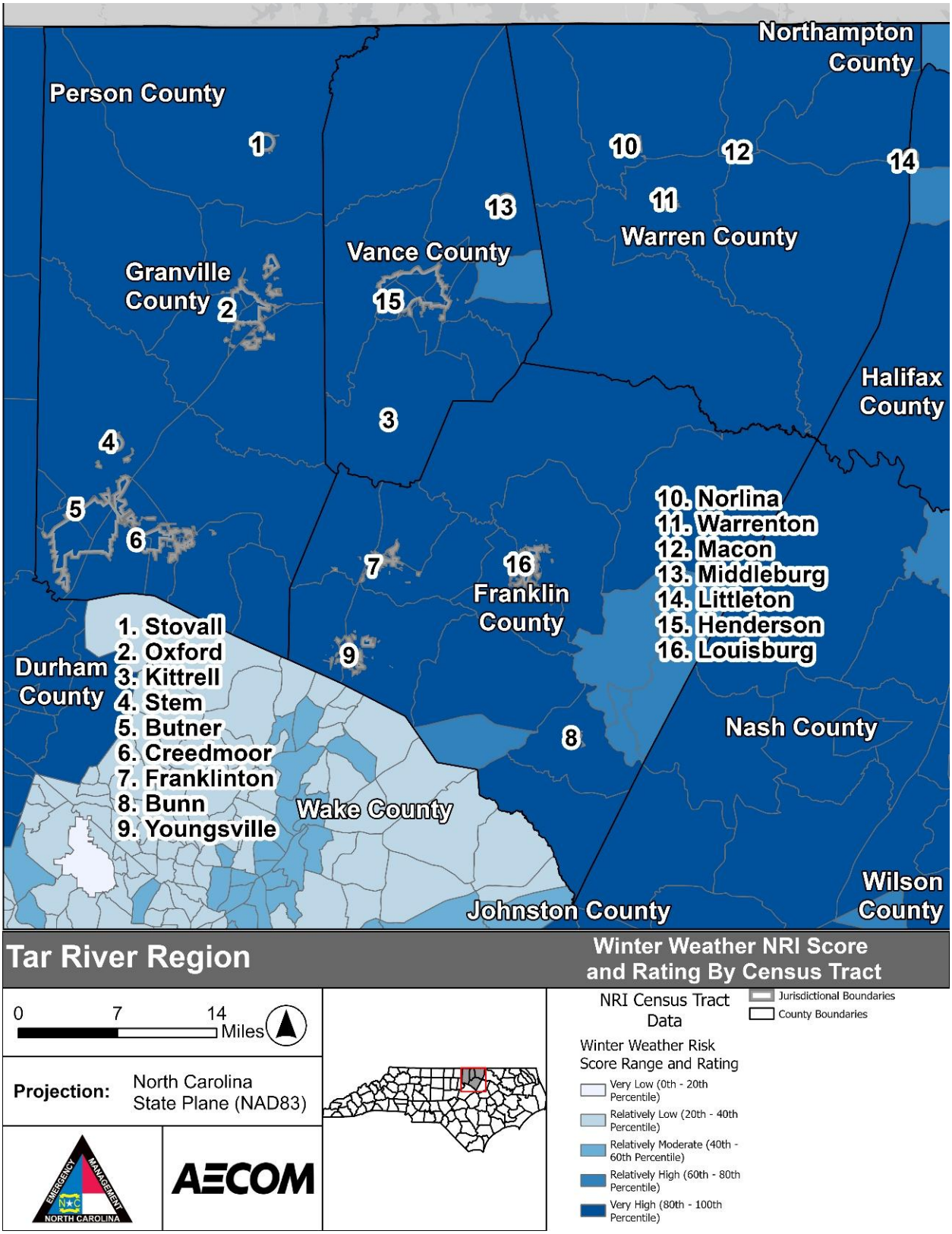


Figure 5-205: Winter Weather Hazard Map - Tar River Region

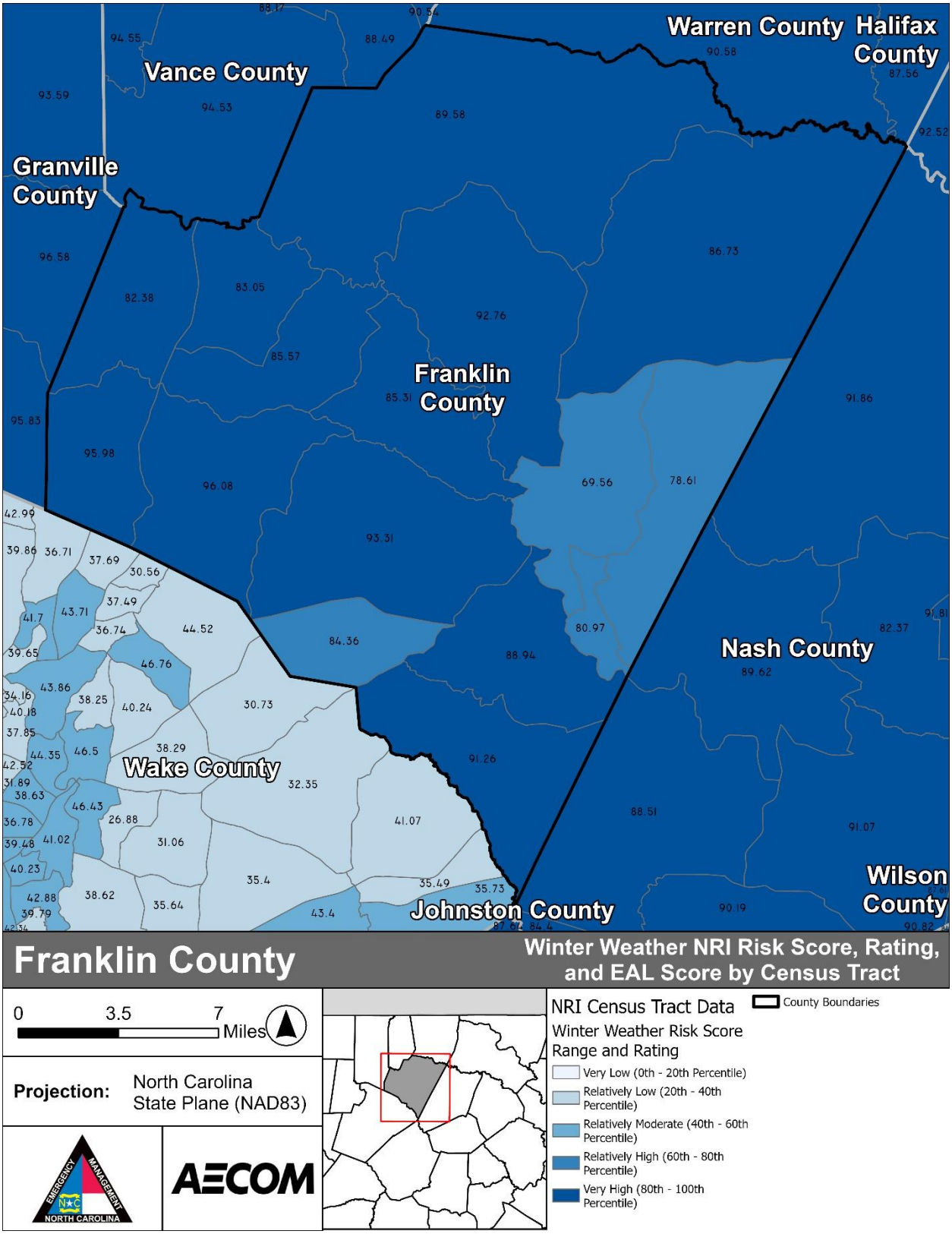


Figure 5-206: Winter Weather Risk Map - Franklin County

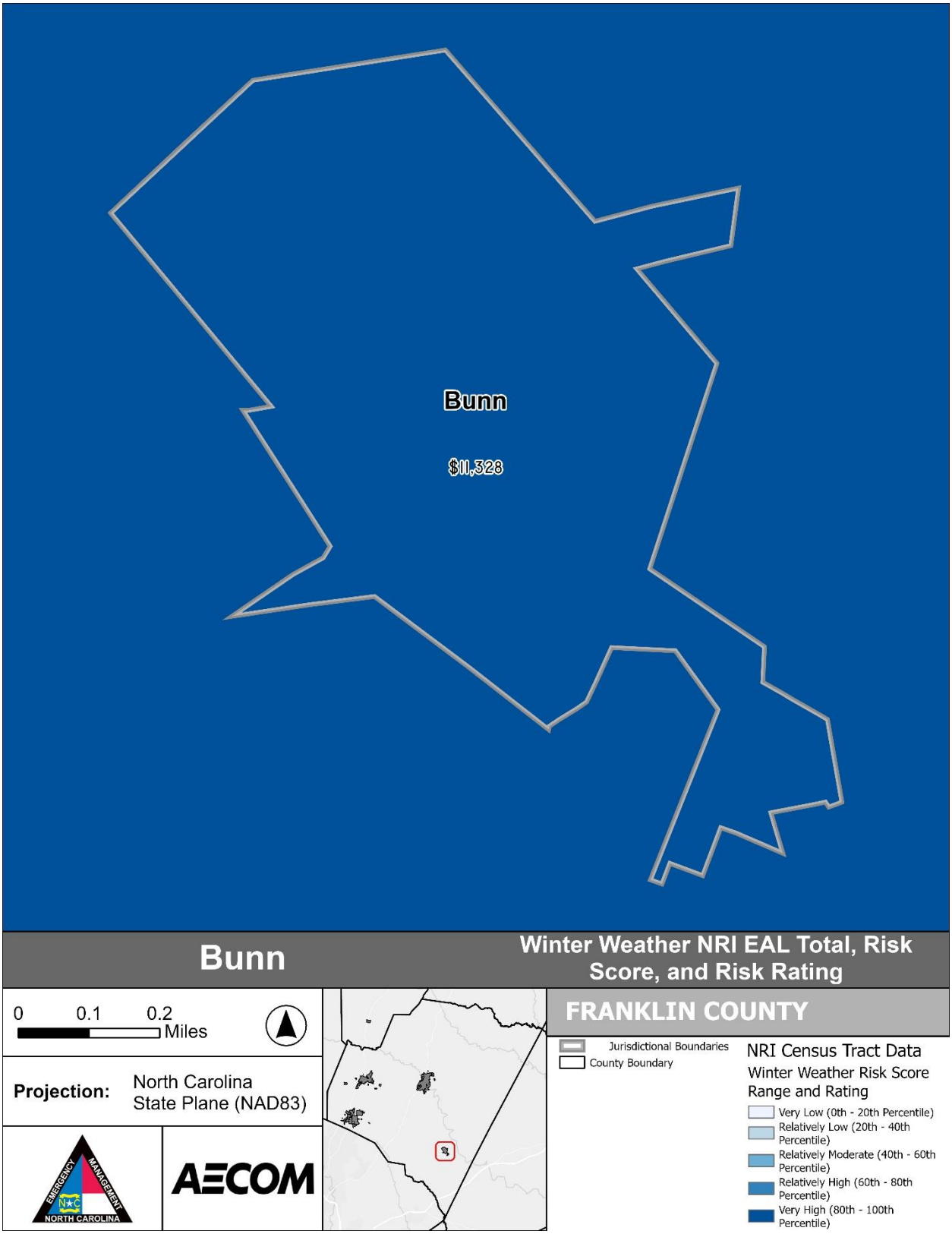


Figure 5-207: Winter Weather Risk Map - Bunn

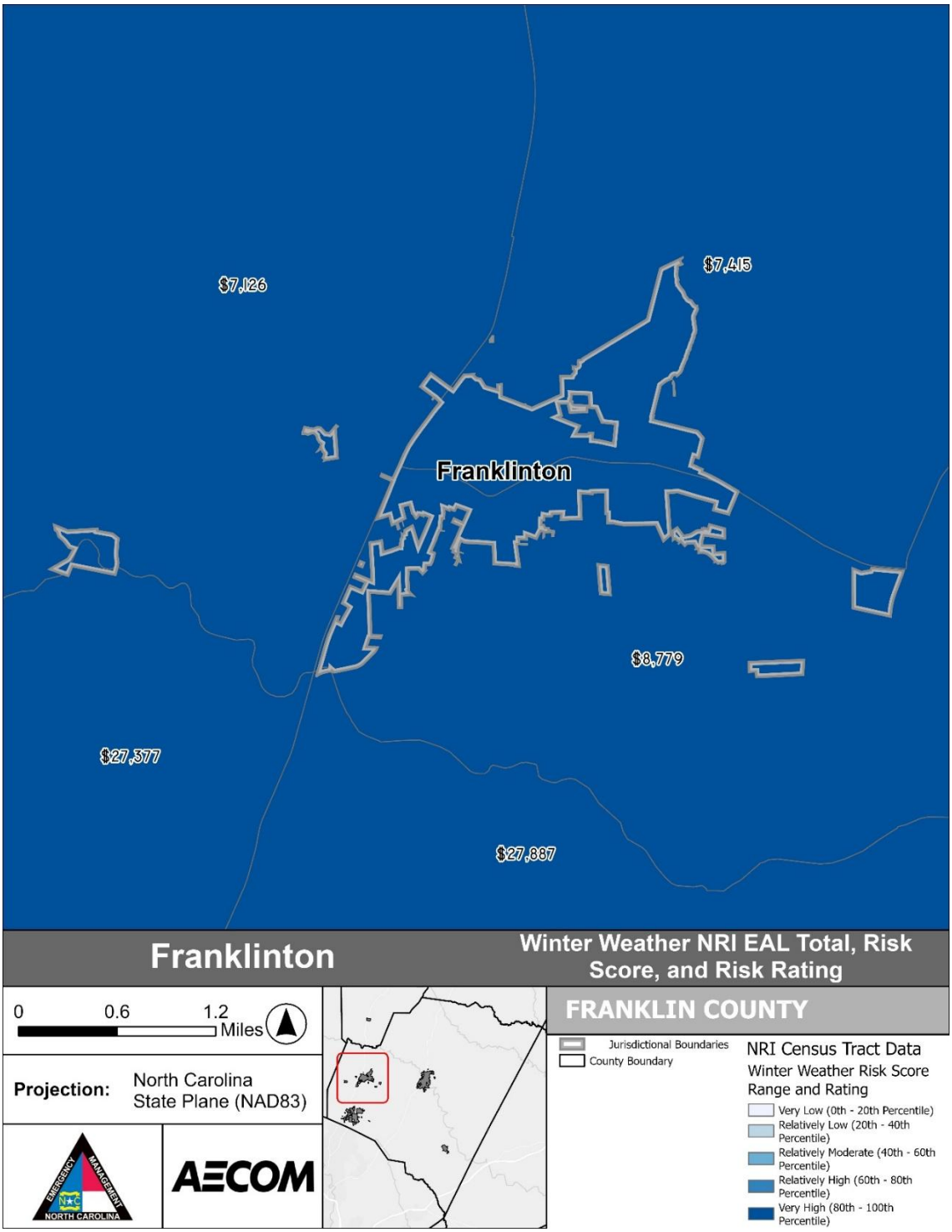


Figure 5-208: Winter Weather Risk Map - Franklinton[90]

[90] The Municipal Boundaries (2025) GIS layer obtained from NCDOT and used for the maps in this plan contained slightly outdated jurisdictional boundaries for the Town of Franklinton due to recent annexations between 2023 and 2025. However, given the map scale, hazard data can still be viewed for the missing incorporated areas of Franklinton. Please see Section 3 – Figure 3-29 for the Town of Franklinton's up-to-date boundary map, based on the incorporated boundary corrections from the U.S. Census Boundary and Annexations Survey.

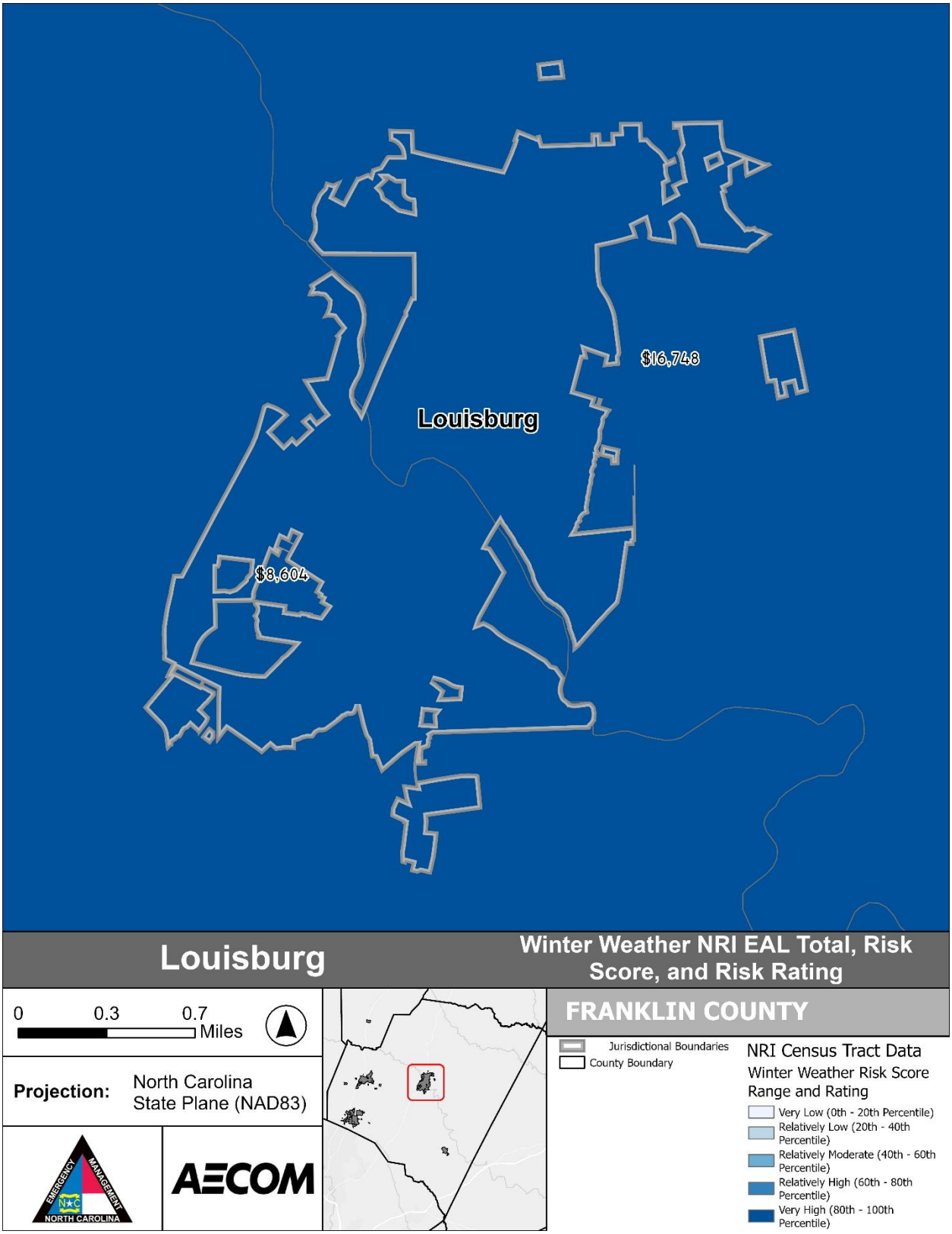


Figure 5-209: Winter Weather Risk Map - Louisburg

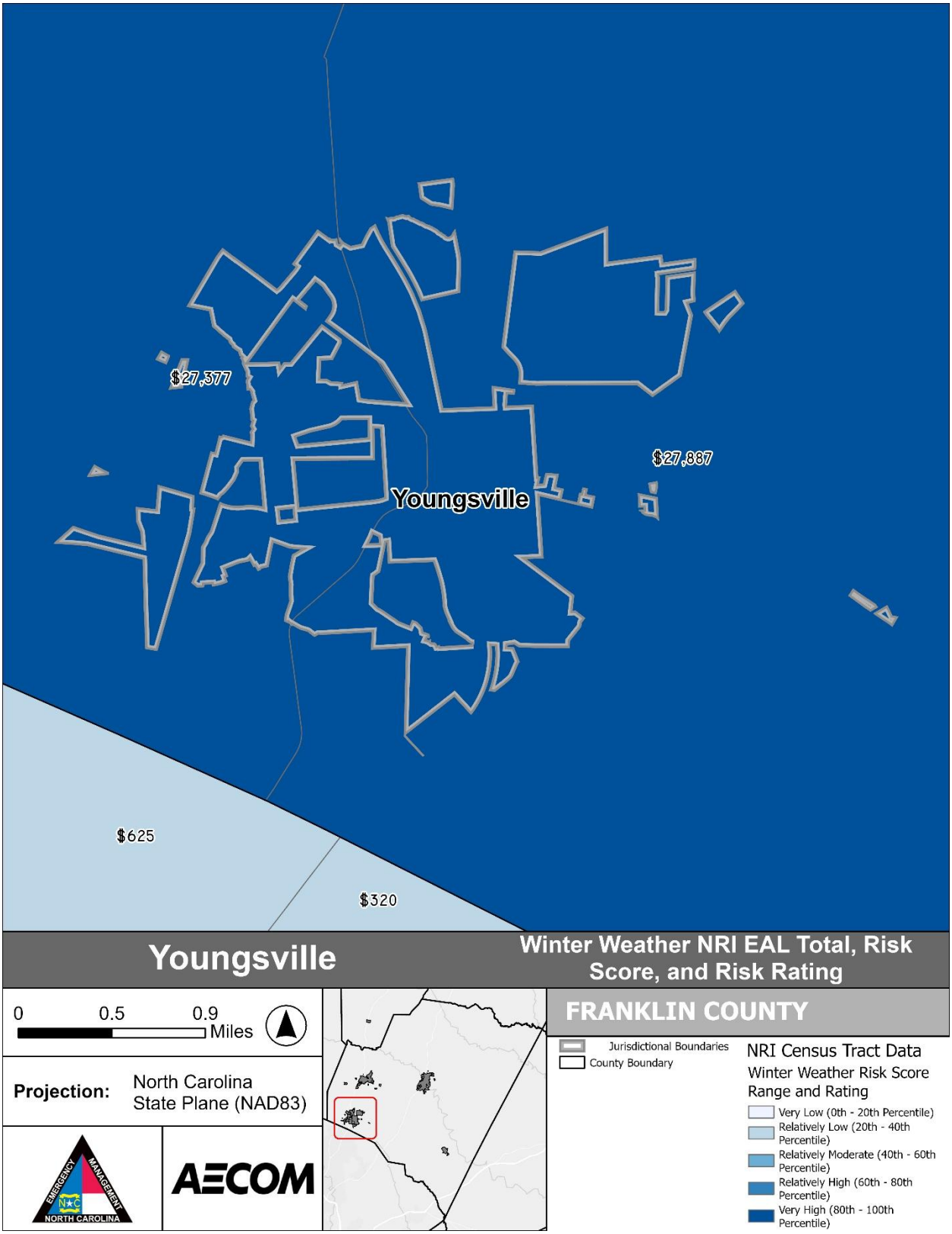


Figure 5-210: Winter Weather Risk Map - Youngsville

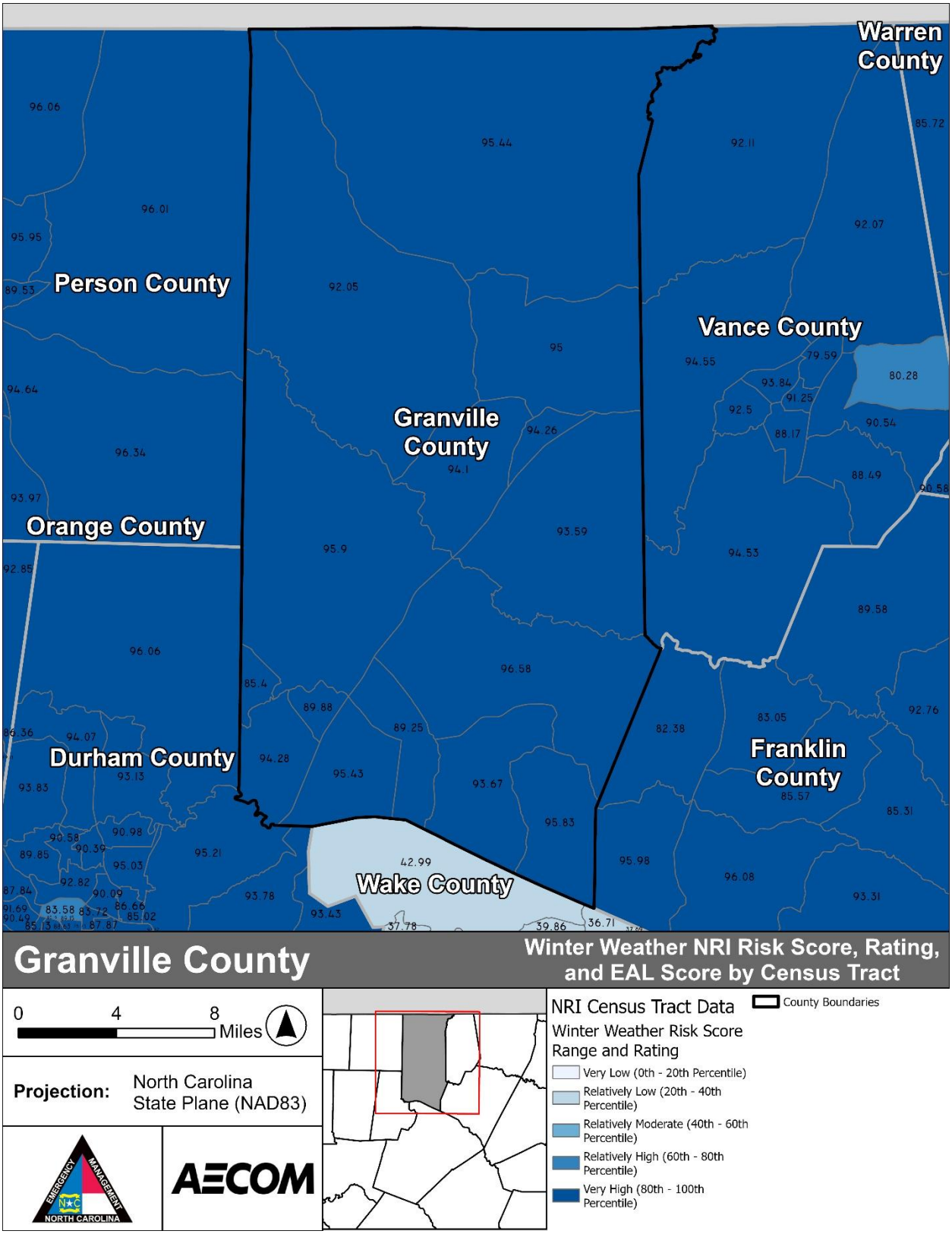


Figure 5-211: Winter Weather Risk Map - Granville County

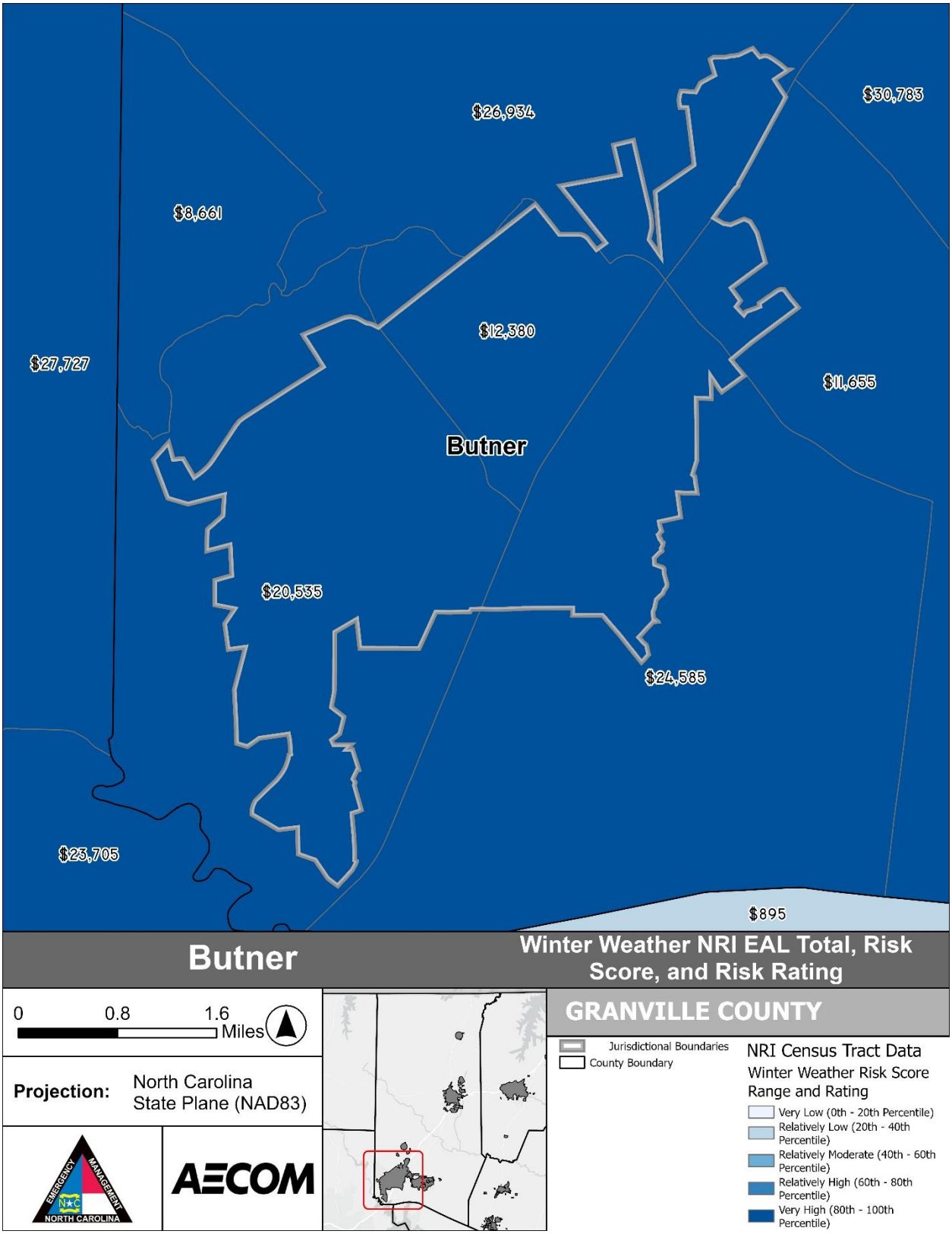


Figure 5-212: Winter Weather Hazard Map - Butner

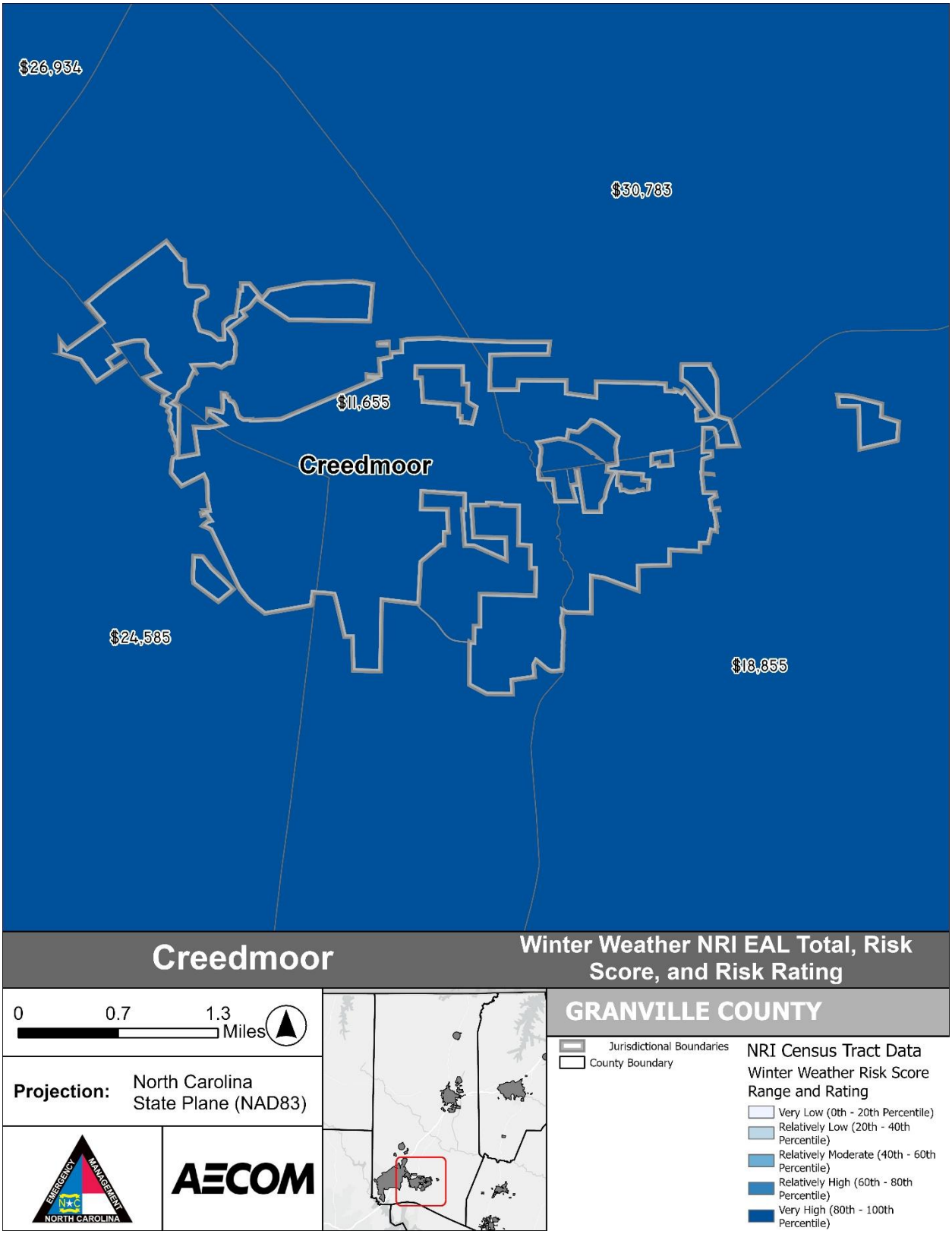


Figure 5-213: Winter Weather Hazard Map - Creedmoor

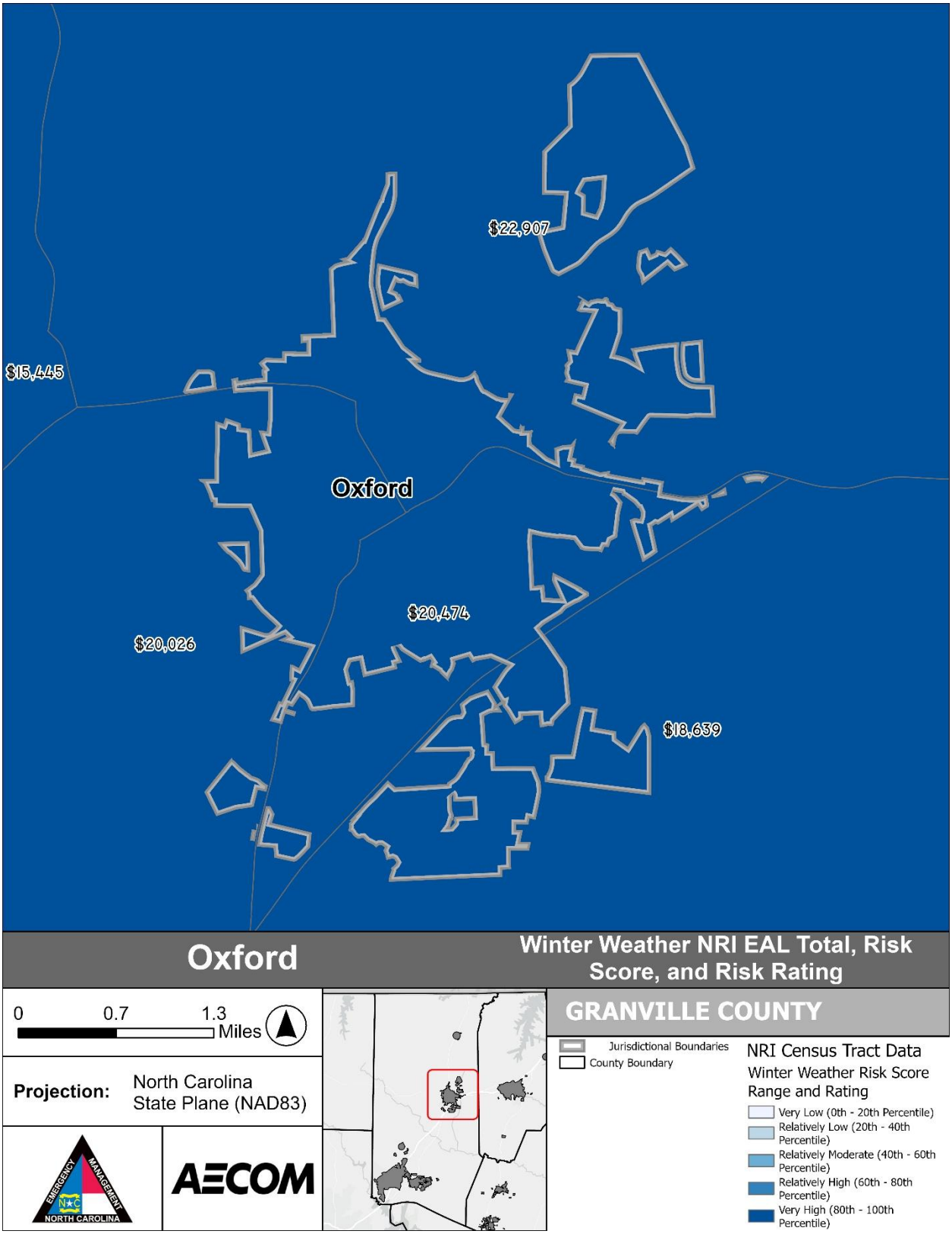


Figure 5-214: Winter Weather Hazard Map - Oxford

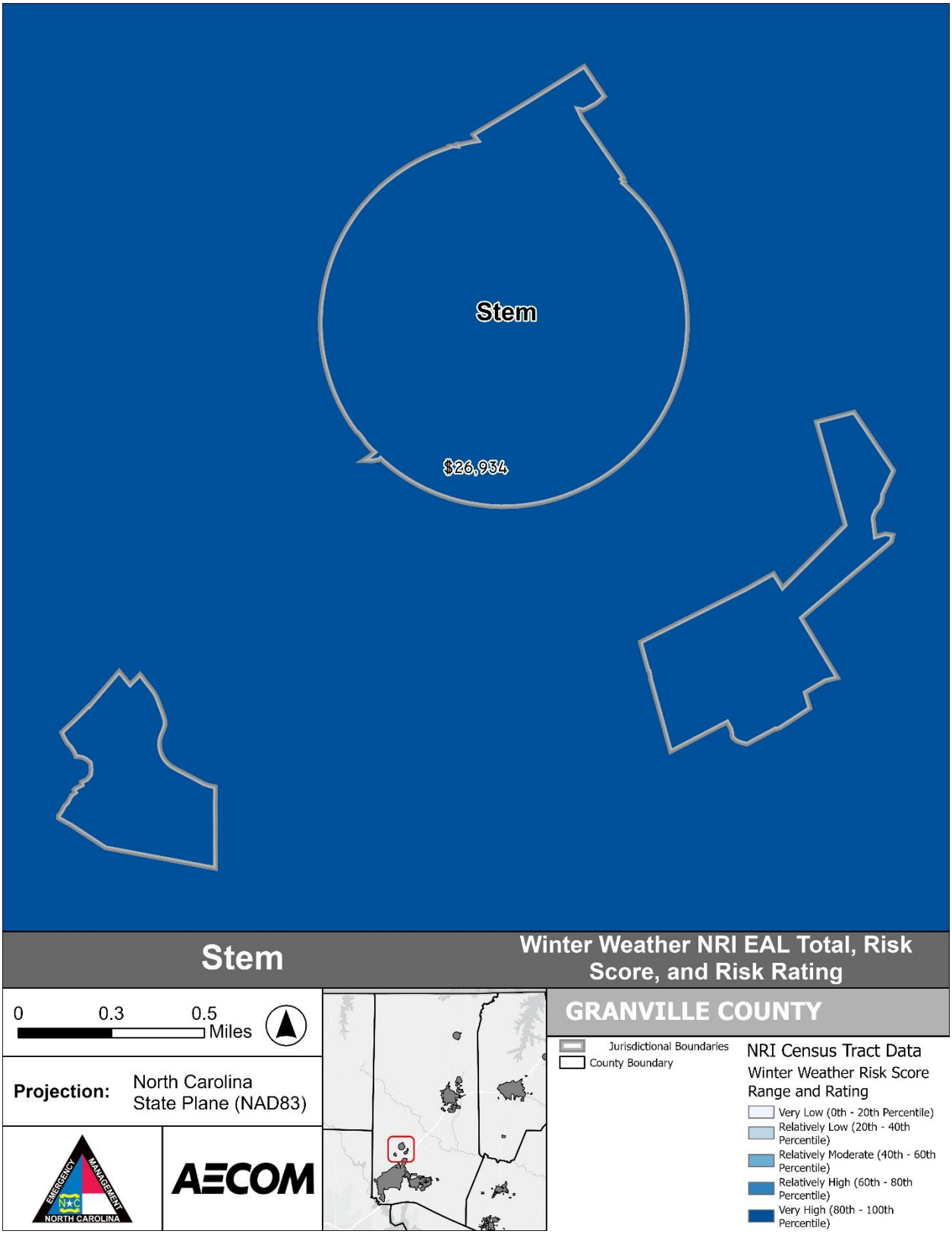


Figure 5-215: Winter Weather Hazard Map - Stem

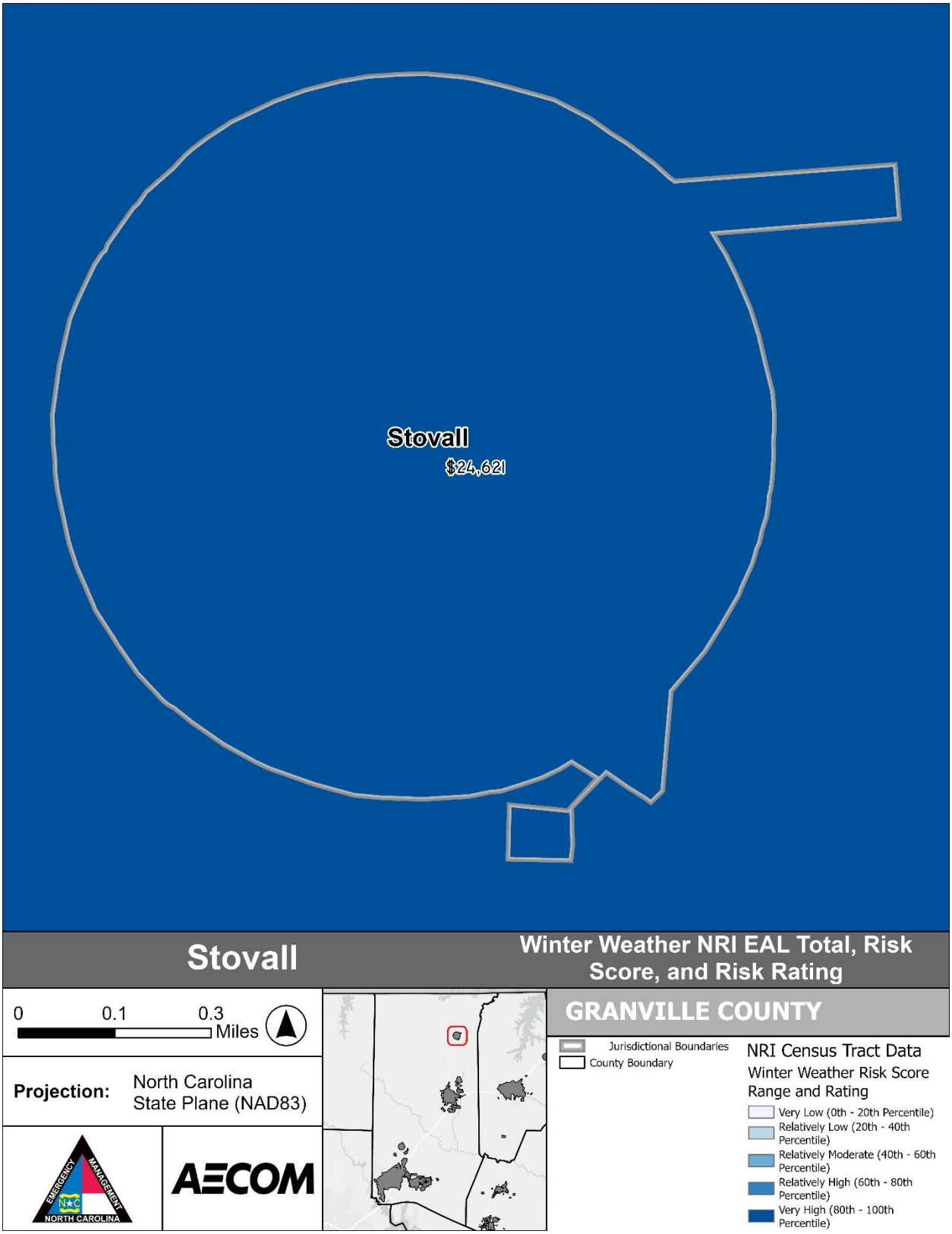


Figure 5-216: Winter Weather Hazard Map - Stovall

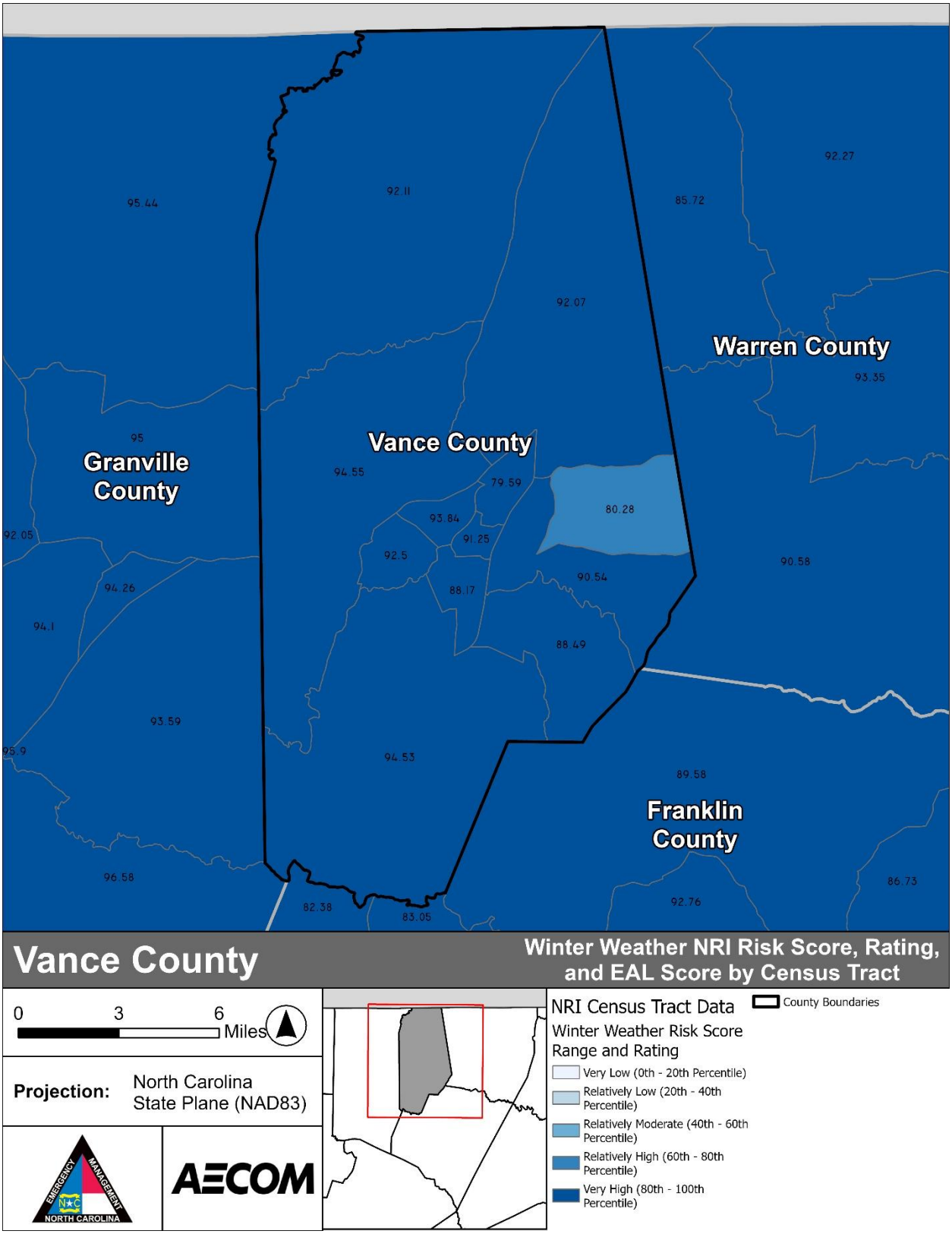


Figure 5-217: Winter Weather Hazard Map - Vance County

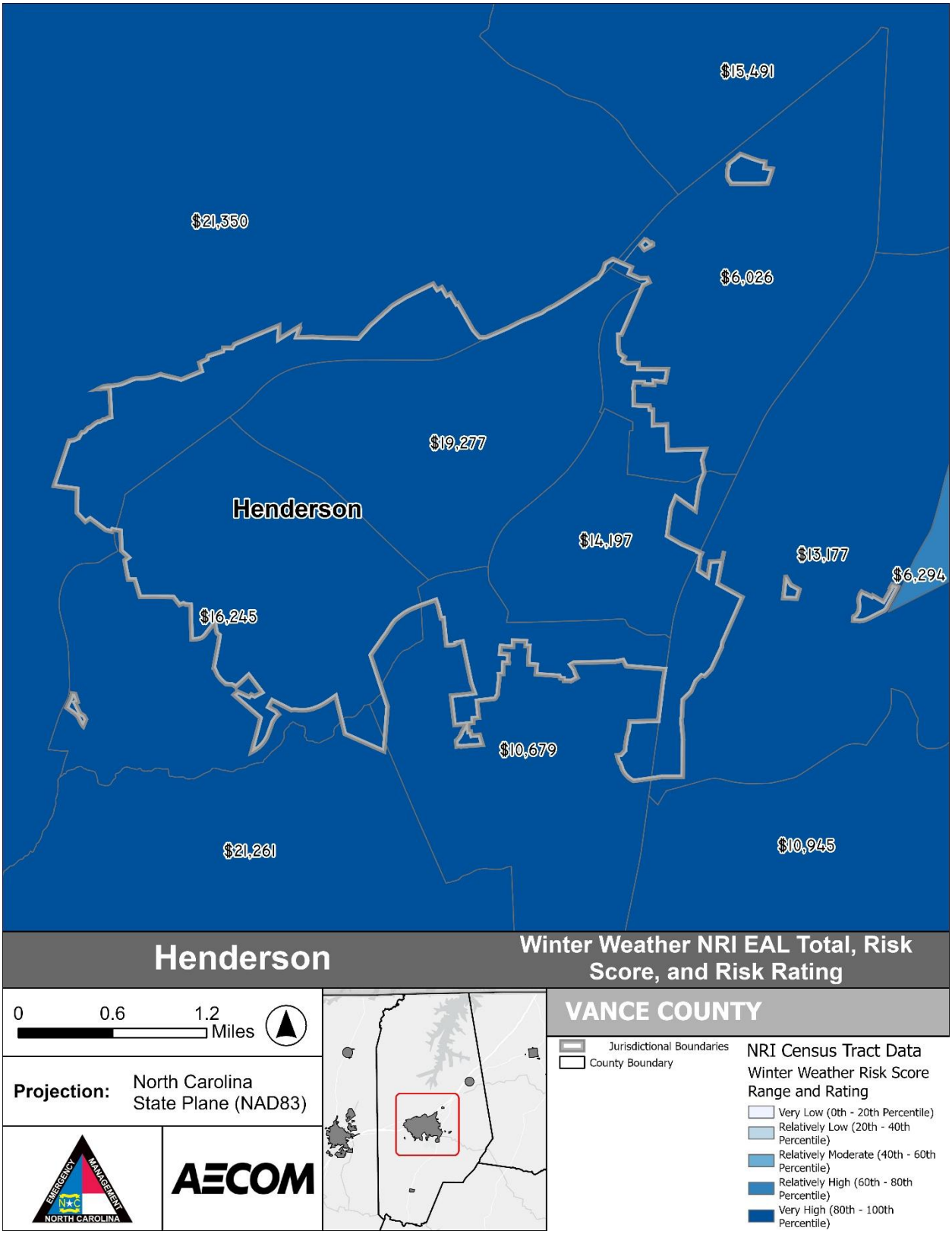


Figure 5-218: Winter Weather Hazard Map - Henderson

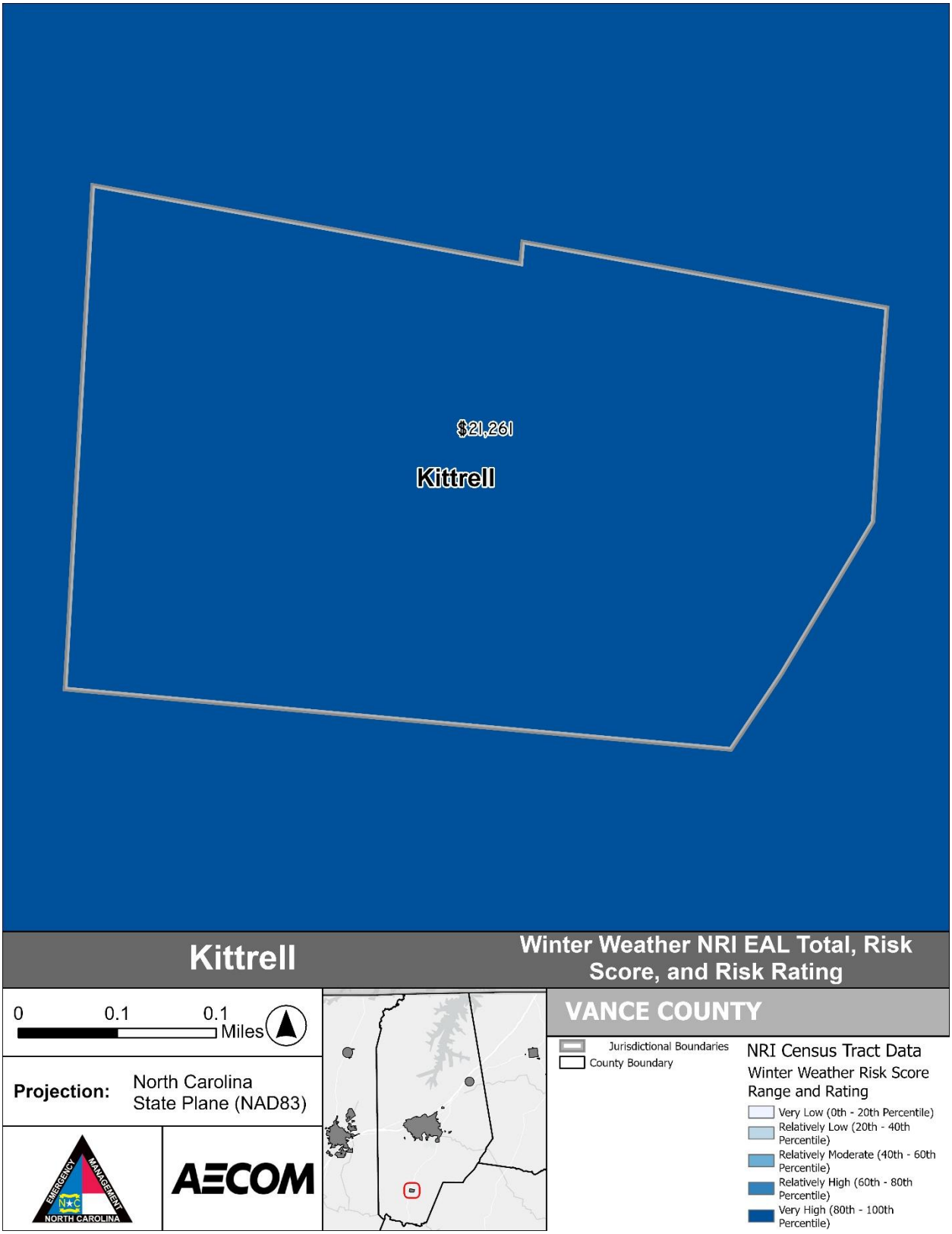


Figure 5-219: Winter Weather Hazard Map - Kittrell

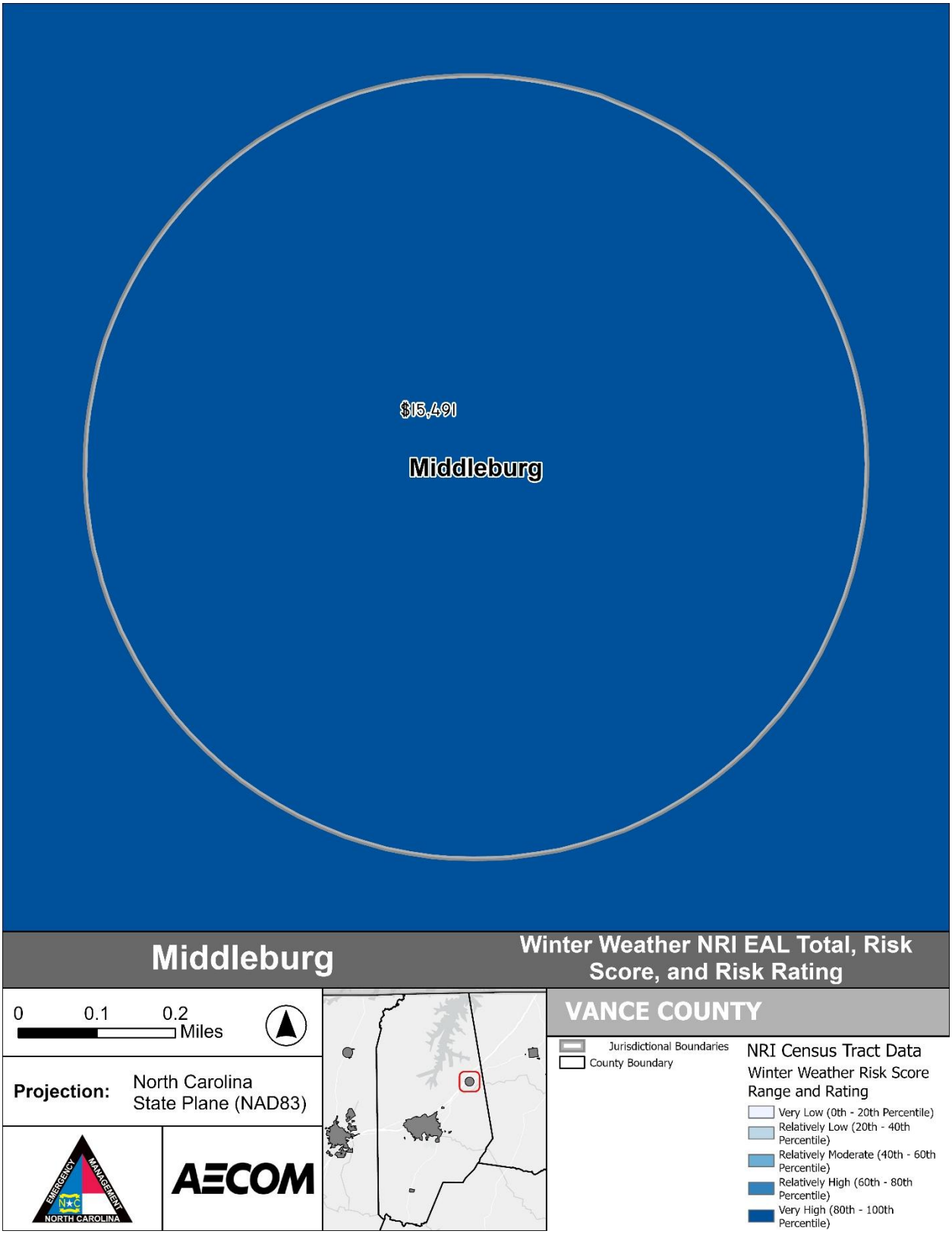


Figure 5-220: Winter Weather Hazard Map - Middleburg

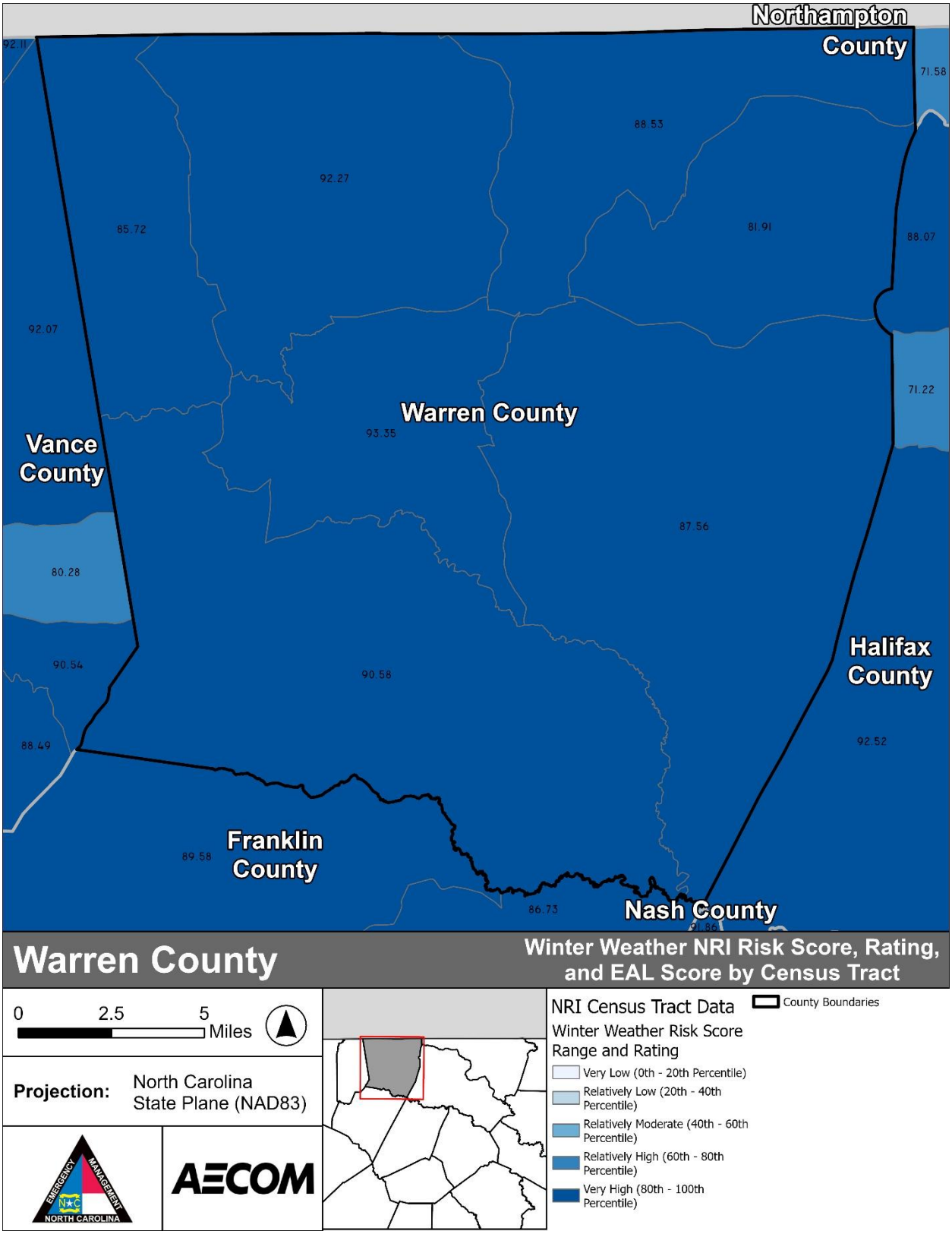


Figure 5-221: Winter Weather Hazard Map - Warren County

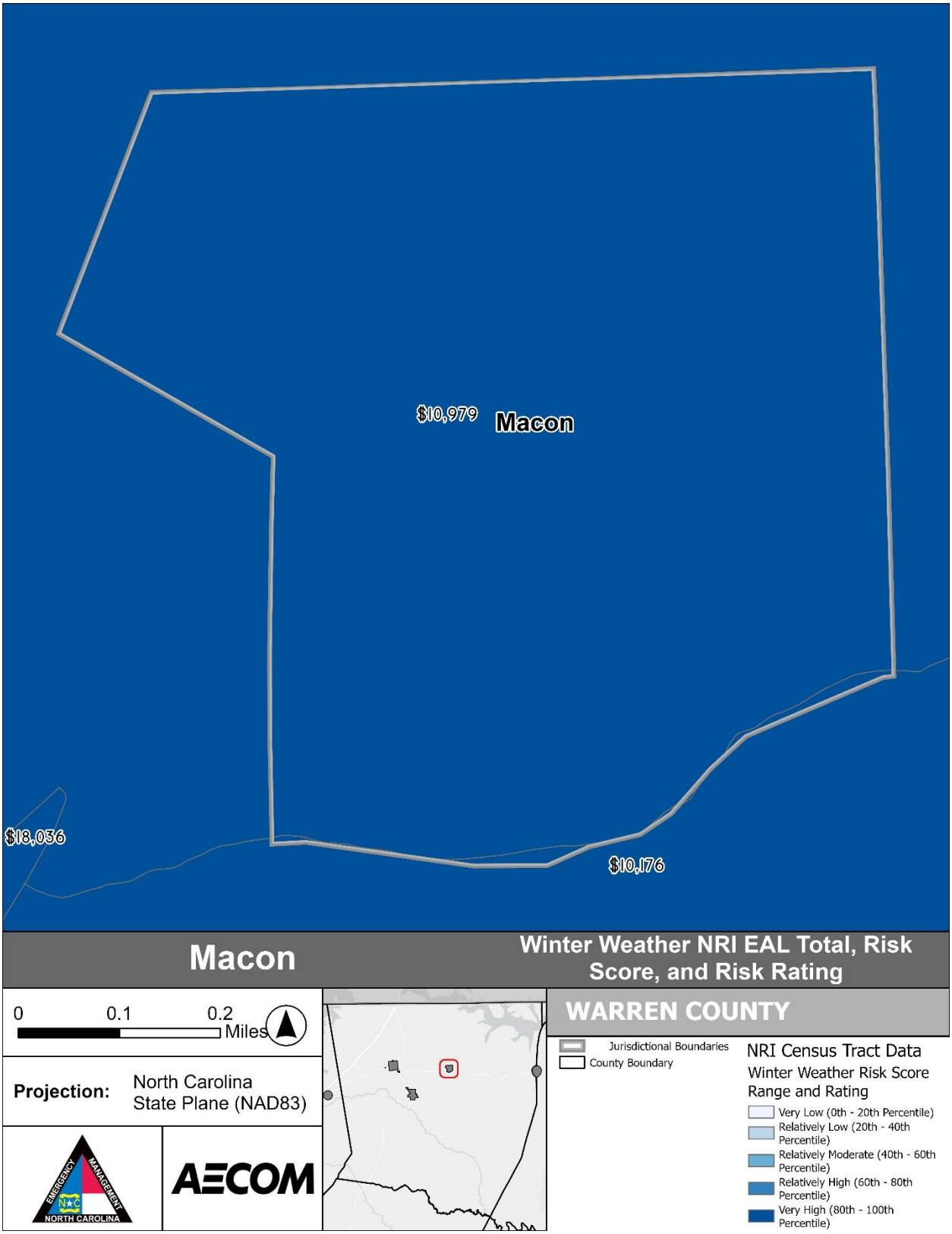


Figure 5-222: Winter Weather Hazard Map - Macon

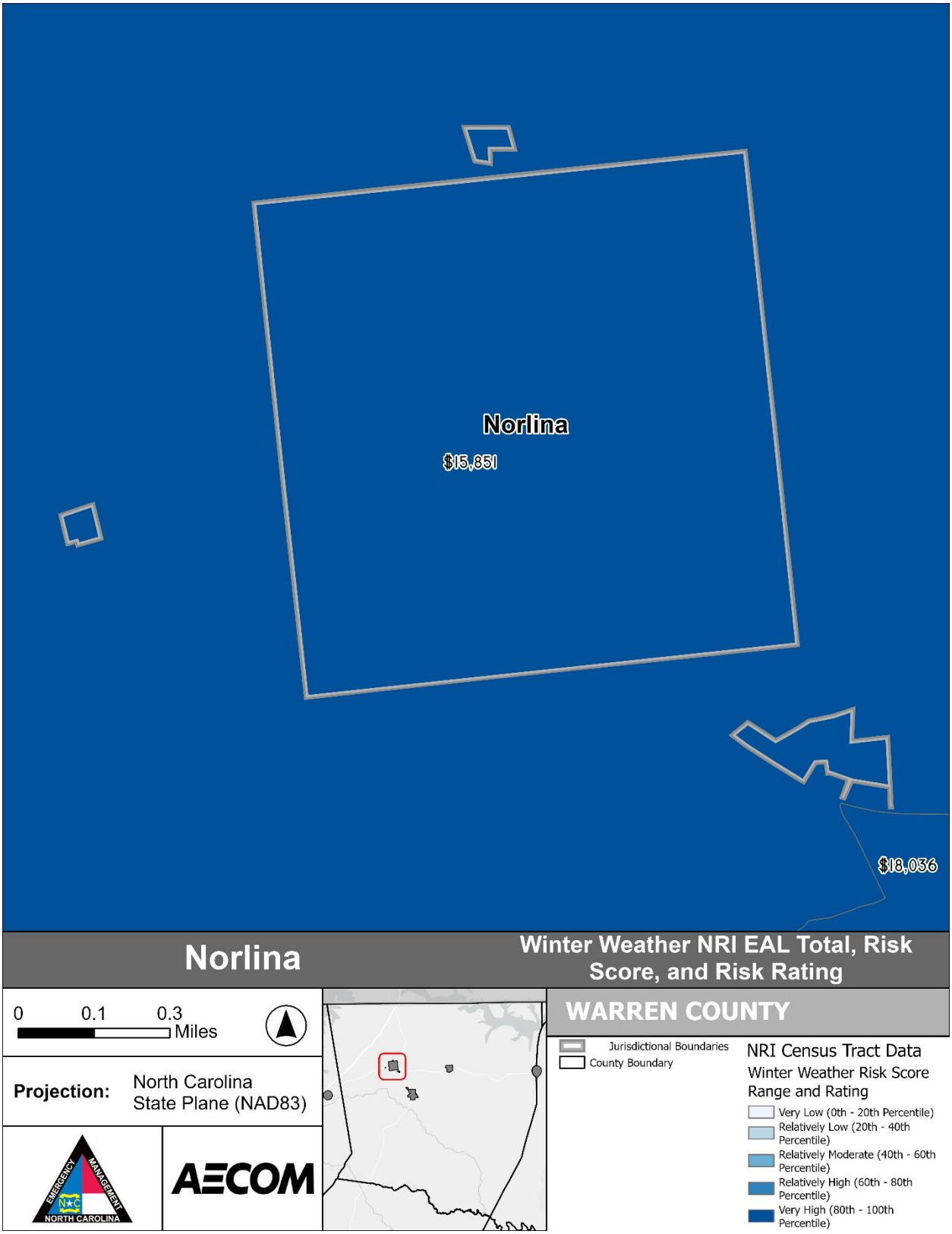


Figure 5-223: Winter Weather Hazard Map - Norlina

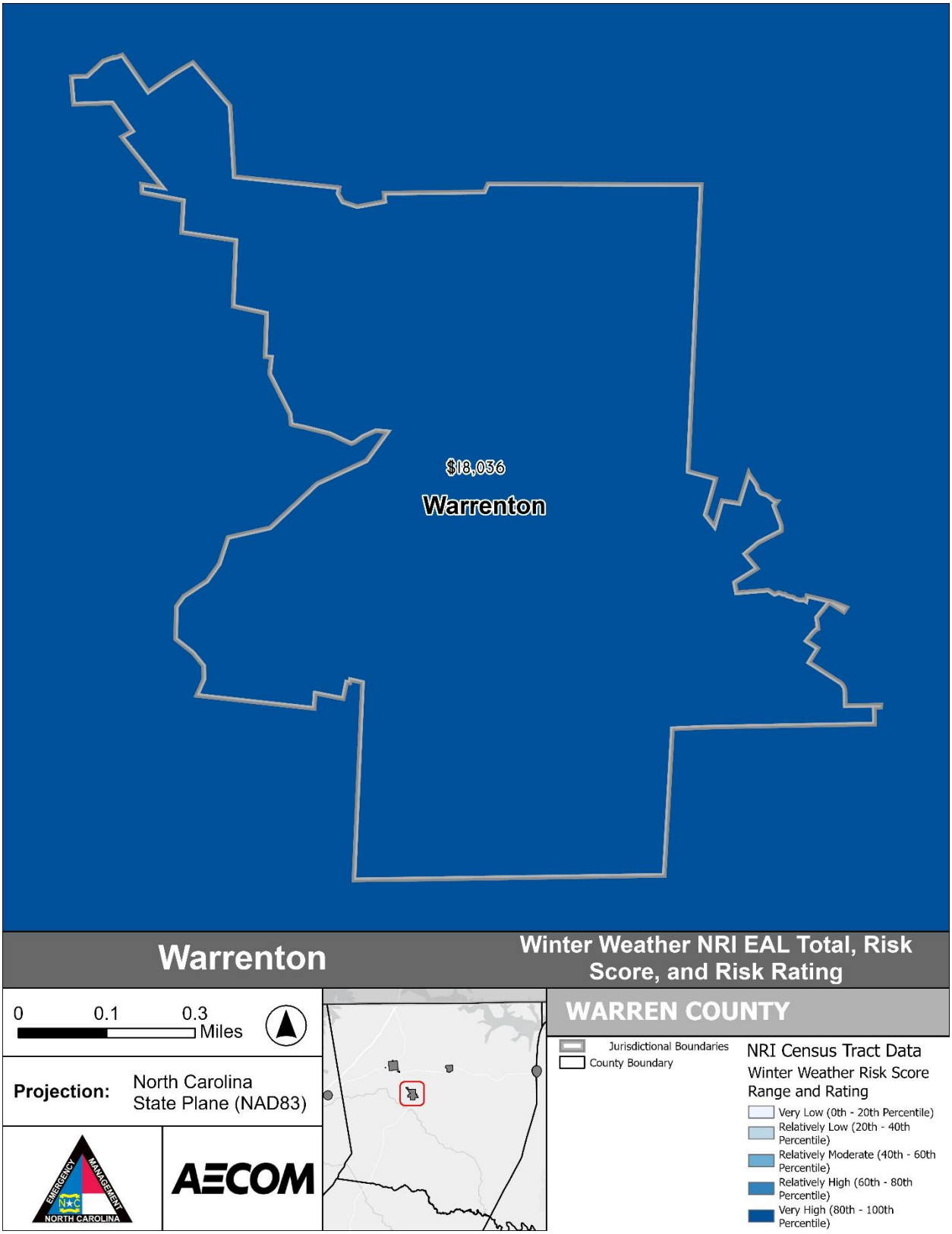


Figure 5-224: Winter Weather Hazard Map - Warrenton

5.11.3. Extent

Table 5-54 shows the worst recorded winter storm events in the region.

Table 5-54: Tar River Maximum Snowfall from the NCEI Snowfall Extremes[91]

County	Jurisdiction	Maximum One-Day Snowfall (Inches)	Date
Franklin County	Louisburg	13	1933-01-14
Granville County	Oxford	17	1927-03-02
Vance County	Henderson	22.5	1922-01-28
Warren County	Arcola	15	1948-02-01

5.11.4. Past Occurrences

According to NCDC, the Region has experienced 255 winter storms, winter weather, and ice storm events since 1996, as reported in Table 5-55. These events are reported to have resulted in three deaths, five injuries, $3,227,000 in property damage, and $0 in crop damage.

Table 5-55: Winter Storm, Winter Weather, and Ice Storm Events in the Region (1996-2025)[92]

County	Date	Event Type	Deaths	Injuries	Property Damage
Franklin	1/6/1996	Winter Storm	0	0	$0
Warren			0	0	$0
Franklin	1/11/1996	Ice Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	2/2/1996	Ice Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	12/23/1998	Ice Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0

[91] National Center for Environmental Information (NCEI). (2025). *North Carolina Snowfall Extremes* [Tabular]. National Oceanic and Atmospheric Administration. https://www.ncei.noaa.gov/access/monitoring/snowfall-extremes/NC/1

[92] National Center for Environmental Information (NCEI). (2025). *Storm Events Database* [Tabular]. National Oceanic and Atmospheric Administration. https://www.ncei.noaa.gov/stormevents/

County	Date	Event Type	Deaths	Injuries	Property Damage
Warren			0	0	$0
Franklin	1/18/2000	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	1/20/2000	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	1/22/2000	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	1/24/2000	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	1/28/2000	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	12/3/2000	Winter Storm	0	0	$0
Warren			0	0	$0
Franklin	1/3/2002	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	12/4/2002	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	1/23/2003	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Franklin	2/16/2003	Winter Storm	0	0	$0

County	Date	Event Type	Deaths	Injuries	Property Damage
Granville		Winter Storm	0	0	$0
Vance		Winter Storm	0	0	$0
Warren		Winter Storm	0	0	$0
Granville	2/27/2003	Winter Storm	0	0	$0
Vance			0	0	$0
Franklin	1/26/2004	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	2/15/2004	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	2/27/2004	Winter Storm	0	0	$0
Franklin	12/26/2004	Winter Storm	0	0	$0
Granville	1/30/2005	Winter Storm	0	0	$0
Granville	12/15/2005	Winter Weather	1	3	$0
Vance			0	0	$0
Franklin	1/18/2007	Winter Weather	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Granville	1/21/2007	Winter Weather	0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	2/1/2007	Winter Weather	0	0	$0
Franklin	12/7/2007	Winter Weather	0	0	$15,000
Granville			0	0	$15,000
Vance			0	0	$30,000
Warren			0	0	$10,000
Franklin	1/19/2008	Winter Weather	0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Granville	2/13/2008	Winter Storm	0	0	$0

County	Date	Event Type	Deaths	Injuries	Property Damage
Vance		Winter Weather	0	0	$0
Franklin	1/20/2009	Winter Storm	0	0	$0
Granville			1	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	3/2/2009	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	12/18/2009	Winter Weather	0	0	$0
Granville		Winter Storm	0	0	$0
Vance		Winter Storm	0	0	$0
Warren		Winter Weather	0	0	$0
Granville	12/30/2009	Winter Weather	0	0	$0
Vance			0	0	$0
Vance	1/29/2010	Winter Storm	0	0	$0
Warren			0	0	$0
Franklin	1/30/2010	Winter Storm	0	0	$0
Granville			0	0	$0
Granville	2/5/2010	Winter Weather	0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	2/12/2010	Winter Storm	0	0	$0
Granville		Winter Weather	0	0	$0
Vance		Winter Weather	0	0	$0
Warren		Winter Weather	0	0	$0
Franklin	3/2/2010	Winter Weather	0	0	$0
Granville			0	0	$0
Franklin	12/4/2010	Winter Weather	1	2	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0

County	Date	Event Type	Deaths	Injuries	Property Damage
Franklin	12/16/2010	Winter Weather	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Vance	12/18/2010	Winter Weather	0	0	$0
Franklin	12/25/2010	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Granville	1/7/2011	Winter Weather	0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	1/10/2011	Winter Weather	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Granville	1/17/2013	Winter Storm	0	0	$0
Granville	12/26/2013	Winter Weather	0	0	$0
Franklin	1/21/2014	Winter Weather	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	1/28/2014	Winter Storm	0	0	$0
Granville		Winter Weather	0	0	$0
Vance		Winter Storm	0	0	$0
Warren		Winter Storm	0	0	$0
Franklin	2/12/2014	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	3/3/2014	Winter Weather	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0

County	Date	Event Type	Deaths	Injuries	Property Damage
Granville	3/6/2014	Ice Storm	0	0	$277,000
Vance			0	0	$250,000
Warren			0	0	$250,000
Franklin	3/17/2014	Winter Weather	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren	3/17/2014	Winter Weather	0	0	$0
Franklin	1/13/2015	Winter Weather	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	1/27/2015	Winter Weather	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	2/16/2015	Winter Storm	0	0	$0
Granville		Winter Storm	0	0	$0
Vance		Winter Storm	0	0	$0
Warren		Winter Storm	0	0	$0
Franklin	2/24/2015	Winter Weather	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	2/25/2015	Winter Storm	0	0	$500,000
Granville			0	0	$500,000
Vance			0	0	$500,000
Warren			0	0	$500,000
Franklin	3/1/2015	Winter Weather	0	0	$0
Franklin	1/17/2016	Winter Weather	0	0	$0
Franklin	1/22/2016	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	2/15/2016	Winter Weather	0	0	$0

County	Date	Event Type	Deaths	Injuries	Property Damage
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	1/7/2017	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Vance	12/8/2017	Winter Storm	0	0	$0
Franklin	1/3/2018	Winter Weather	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	1/17/2018	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	3/12/2018	Winter Weather	0	0	$0
Granville		Winter Weather	0	0	$0
Warren		Winter Weather	0	0	$0
Granville	3/21/2018	Winter Weather	0	0	$0
Franklin	3/24/2018	Winter Weather	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	12/9/2018	Winter Storm	0	0	$0
Granville		Winter Storm	0	0	$0
Vance		Winter Storm	0	0	$0
Warren		Winter Storm	0	0	$0
Granville	1/12/2019	Winter Weather	0	0	$0
Vance			0	0	$0
Franklin	2/20/2020	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0

County	Date	Event Type	Deaths	Injuries	Property Damage
Warren	1/8/2021	Winter Weather	0	0	$0
Franklin	1/28/2021	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	1/31/2021	Winter Weather	0	0	$20,000
Granville			0	0	$20,000
Vance			0	0	$20,000
Warren			0	0	$20,000
Franklin	2/12/2021	Winter Weather	0	0	$0
Granville		Winter Storm	0	0	$100,000
Vance		Winter Storm	0	0	$100,000
Warren		Winter Storm	0	0	$100,000
Franklin	2/18/2021	Winter Weather	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	1/3/2022	Winter Weather	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0
Franklin	1/16/2022	Winter Weather	0	0	$0
Franklin		Winter Storm	0	0	$0
Granville		Winter Weather	0	0	$0
Granville		Winter Storm	0	0	$0
Vance		Winter Weather	0	0	$0
Vance		Winter Storm	0	0	$0
Warren		Winter Weather	0	0	$0
Warren		Winter Storm	0	0	$0
Franklin	1/21/2022	Winter Storm	0	0	$0
Granville		Winter Weather	0	0	$0
Vance		Winter Weather	0	0	$0
Warren		Winter Weather	0	0	$0
Warren		Winter Storm	0	0	$0

County	Date	Event Type	Deaths	Injuries	Property Damage
Granville	1/10/2025	Winter Storm	0	0	$0
Franklin	2/19/2025	Winter Storm	0	0	$0
Granville			0	0	$0
Vance			0	0	$0
Warren			0	0	$0

The following events are summarized from the NCEI Storm Events Database from the past five years of winter weather occurrence:

Winter Storm - 02/20/2020

Snowfall amounts ranged from three inches across southern portions of Franklin County to four inches across northern portions of the county. Snowfall amounts ranged from three to four inches across Granville and Vance Counties. Snowfall amounts ranged from two to four inches across Warren County. A cold, high-pressure system arriving from the north, coinciding with the approach of a mid- and upper-level trough from the west, allowed winter weather to develop over central North Carolina. As precipitation developed during the day on February 20th, colder air continued to be advected into North Carolina by strong high pressure over the Great Lakes. A brief mix of rain and snow changed to snow as precipitation spread east across central NC during the late afternoon and early evening. Temperatures were near or slightly above freezing during the late afternoon, limiting accumulations. Temperatures fell below freezing during the evening, and the snow accumulated rapidly. By late evening, light snow was falling over much of central North Carolina. The snow ended shortly after midnight at most locations. Storm total snowfall amounts ranged between one and four inches, with most Triad and Triangle locations receiving between two and three inches.

Winter Weather – 01/08/2021

Snowfall amounts ranged from a trace across southern portions of Warren County to around two inches across northern portions of the county. A potent quick quick-moving mid-level disturbance moved across central North Carolina on January 8th. The combination of marginal cold air in place and precipitation rates was enough to allow a changeover to light snow in the northwest Piedmont of central North Carolina during the evening hours. However, temperatures remained near to just above freezing, resulting in generally less than an inch of snowfall on grassy areas. This resulted in no impact across the affected area.

Winter Weather – 01/28/2021

Snowfall amounts ranged from 3 to 4 inches across Franklin County. Snowfall amounts ranged from three to six inches across Granville, Vance, and Warren Counties. A strong upper-level disturbance and a developing storm system spread rain across central NC during the early evening of January 27th. Initially, the precipitation fell as rain with surface temperatures in the

mid-40s to the lower 50s. As precipitation persisted and intensified, colder air aloft reached the surface, leading to a changeover to snow after midnight, with precipitation ending by daybreak. A total of two to five inches of snow was observed near the Virginia border, with two to three inches in the Triangle and Triad areas, and only a trace or no snow across the south.

Winter Weather – 01/31/2021

A couple of hundredths to two-tenths of an inch of ice from freezing rain was reported across Franklin, Granville, Vance, and Warren Counties, mainly in trees, elevated surfaces, and in grassy areas. However, a few care accidents were reported. Warm, moist air surges into the area atop a shallow cold-air damming airmass. This result in some light freezing rain falling across northern Piedmont of central North Carolina during the morning of the 31st. This resulted in a few slick spots, though ice accumulation was generally less than 0.15 inches, mainly on elevated surfaces and trees, with little to no impact. However, a few car accidents were reported near the Virginia-North Carolina border.

Winter Weather & Winter Storm – 02/12/2021

A trace to one-tenth of an inch of ice from freezing rain was reported across Franklin County, with the most ice accumulation reported across northern portions of the county. One-quarter to one-half of an inch of ice from freezing rain brought down numerous trees across Granville, Vance, and Warren Counties, causing widespread power outages. An area of low pressure tracked along a stalled frontal zone to the south of central NC and eventually northeastward along the North Carolina coast. Meanwhile, a strong surface high-pressure system extended south southwestward into central North Carolina from the northeastern United States. This setup resulted in widespread precipitation developing on the morning of the 12th and continuing into the 13th, with a cold air damming airmass developing. This allowed for evaporative cooling, with temperatures falling below freezing across the northern Piedmont and the northern Coastal Plain. This allowed for freezing rain to occur in this area. Ice accumulation ranges from trace amounts to a couple of hundredths of an inch around the Triangle area, to a quarter to a half inch of ice accumulation in the Triad region and along/near the North Carolina-Virginia border. Impacts were limited to the Triad and North Carolina-Virginia border counties, where numerous accidents, power outages, and trees down were reported.

Winter Weather – 02/18/2021

Around one-tenth of the ice from freezing rain was reported across Franklin County. One-tenth of an inch to two-tenths of an inch of ice from freezing rain was reported across Granville, Vance, and Warren Counties. An area of low pressure tracked across the Deep South and eventually along the coast of the Carolinas. Meanwhile, cold surface high pressure to the north continued to extend into the area. This resulted in a cold air damming airmass developing across central North Carolina, with freezing rain developing across the northern Piedmont. Ice accruals ranged from trace amounts across southern portions of the Piedmont to a couple of tenths of an inch near the North Carolina-Virginia border and in the northwest Piedmont. Impacts ranged from a glaze of ice on the trees to multiple slick spots, several accidents, and scattered power outages.

Winter Weather – 01/3/2022

Snowfall amounts ranged from a trace to 1 inch across Franklin County. Snowfall amounts ranged from half an inch to two inches across Granville County. Snowfall amounts ranged from one to two inches across Vance and Warren Counties. A strong upper-level low moved from the Midwest into the Mid-Atlantic from January 2nd into the 3rd. Strong storms and isolated severe storms preceded the arrival of the low, with a broad area of two to four inches of rain along the United States Highway 1 corridor, producing flooding across the Triangle region of central North Carolina. Strong, sustained gradient winds were felt over much of 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.

Winter Weather and Winter Storm – 01/16/2022

Up to one inch of snow, a half inch of sleet, along with up to one-tenth of an inch of freezing rain, was reported across Franklin County. Snowfall ranged from one to two inches across Granville County, with half an inch of sleet and up to a tenth of an inch of freezing rain. Up to one inch of snow, a half an inch of sleet, along with up to one-tenth of an inch of freezing rain, were reported across Vance County. Up to one inch of snow and a half inch of sleet were reported across Warren County, along with up to one-tenth of an inch of freezing rain. A storm system moved from the central Plains into the Southeast, bringing widespread wintry precipitation to the central Piedmont of central North Carolina. A mix of snow, sleet, freezing rain, and rain was observed across the region, with three to five inches of snow and sleet accumulation across the Triad, and around 0.10 to 0.20 inches of ice accumulation from freezing rain across the Triangle, and a light glaze of ice across the Coastal Plain. This resulted in difficult travel across the Piedmont, with numerous accidents across the northwest Piedmont, where the heavies snow fell.

Winter Weather & Winter Storm – 01/21/2022

Snowfall amounts ranged from two to four inches across Franklin County. Snowfall amounts ranged from one to three inches across Granville and Vance Counties. Snowfall amounts ranged from one to four inches across Warren County. Light snow developed over central North Carolina during the afternoon of January 21, peaked in the late evening and early overnight hours, and ended the morning of January 22. The highest totals occurred over the Coastal Plain and Sandhills, where up to 5 inches fell, while locations across the Piedmont received around one to four inches of snow. The snow caused numerous accidents and scattered power outages, especially across the eastern and southern half of the area, where snowfall totals were the greatest.

Winter Storm – 01/10/2025

Snow accumulation of two to three inches in Granville County, with the highest amounts across the northern sections of the county. An area of low pressure along the northern Gulf coast tracked northeast along the southern Coastal Plain of North Carolina. The system brought

moisture from the Gulf and cold air from the north, resulting in a mix of snow, sleet, and freezing rain across much of central North Carolina.

Winter Storm – 2/19/2025

A snowfall of two to four inches fell across Franklin County, three to four inches fell across Granville County, four to five inches fell across Vance County, and three to six inches fell across Warren County. An area of low pressure over the northeast Gulf and off the southeast coast of the United States tracked off the coast of the Carolinas. This system, combined with Arctic air, brought snowfall across the Piedmont and northern Coastal Plain, and freezing rain over the Sandhills and southern Coastal Plain.

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, based on historical data 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, Franklin County has a 1.49 annualized frequency of winter storm events, a total EAL of $192,846, an EAL Score of 81.86, and a Hazard Risk Index Score of 83.33. The unincorporated areas of Franklin County have a total EAL of $77,581, an average EAL Score of 84.3, and a Hazard Risk Index Score of 84.09. The jurisdiction with the highest total EAL is Youngsville ($55,264), followed by Franklinton ($51,207), Louisburg ($25,351), and Bunn ($11,328).

Granville County has an annualized frequency of 1.86 events, a total EAL of $303,050, an EAL Score of 88.39, and a Hazard Risk Index Score of 89.12. The unincorporated areas of Granville County have a total EAL of $50,656, an average EAL Score of 91.09, and an average Hazard Risk Score of 92.56. The jurisdiction with the highest total EAL is Butner ($96,089), followed by Creedmoor ($85,877) and Oxford ($82,045).

Vance County has an annualized frequency of 1.98, a total EAL of $170,512, a 79.29 EAL Score, and a Hazard Risk Index Score of 83.9. The unincorporated areas of Vance County have a total EAL of $32,809, an average EAL Score of 86.96, and an average Hazard Risk Index Score of 87.18. The jurisdiction with the highest total EAL is Henderson ($122,212), followed by Kittrell ($21,261) and Middleburg ($15,490).

Warren County has an annualized frequency of 1.98, a total EAL of $84,061, an EAL Score of 64.19, and a Hazard Risk Score of 71.01. The unincorporated areas of Warren County have a total EAL of $22,105, an average EAL Score of 88.15, and an average Hazard Risk Index Score of 91.93. The jurisdiction with the highest total EAL is Macon ($21,154), followed by Warrenton ($18,035) and Norlina ($15,850).

Table 5-56: NRI Winter Storm 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 Index Rating
Franklin County (Unincorporated Area)	**1.49**	**$77,582**	**84.30**	**Very High**	**84.09**	**Very High**
Bunn	1.49	$11,328	88.94	Very High	91.44	Very High
Franklinton	1.49	$51,208	86.77	Very High	89.01	Very High
Louisburg	1.49	$25,352	89.04	Very High	92.97	Very High
Youngsville	1.49	$55,265	96.03	Very High	95.52	Very High
Franklin County Total	**1.49**	**$192,846**	**81.86**	**Very High**	**83.33**	**Very High**
Granville County (Unincorporated Area)	**1.86**	**$50,657**	**91.09**	**Very High**	**92.56**	**Very High**
Butner	1.86	$96,089	92.95	Very High	93.57	Very High
Creedmoor	1.86	$85,877	93.73	Very High	92.81	Very High
Oxford	1.86	$82,046	94.24	Very High	95.78	Very High
Stem	1.86	$26,934	95.90	Very High	95.43	Very High
Stoval	1.86	$24,621	95.44	Very High	95.58	Very High
Granville County Total	**1.86**	**$303,051**	**88.39**	**Very High**	**89.12**	**Very High**
Vance County (Unincorporated Area)	**1.98**	**$32,809**	**86.96**	**Very High**	**87.18**	**Very High**
Henderson	1.98	$122,212	90.62	Very High	93.71	Very High
Kittrell	1.98	$21,261	94.53	Very High	96.33	Very High
Middleburg	1.98	$15,491	92.07	Very High	92.90	Very High
Vance County Total	**1.98**	**$170,512**	**79.29**	**Relatively High**	**83.90**	**Very High**
Warren County (Unincorporated Area)	**1.98**	**$22,105**	**88.15**	**Very High**	**91.93**	**Very High**
Macon	1.98	$21,155	88.05	Very High	89.69	Very High
Norlina	1.98	$15,851	92.27	Very High	94.86	Very High
Warrenton	1.98	$18,036	93.35	Very High	96.42	Very High
Warren County Total	**1.98**	**$84,061**	**64.19**	**Relatively Moderate**	**71.01**	**Relatively High**

The annualized frequency of Ice Storms in Franklin County is 1.37 events per year, a total EAL of $88,261, an EAL Score of 58.59, and a Hazard Risk Index Score of 60.89. Unincorporated areas of Franklin County have an annualized frequency of 1.28 events per, a total EAL of $28,029, an average EAL Score of 55.14, and an average Hazard Risk Score of 55.97. The jurisdiction with the highest total EAL is Youngsville ($31,216), followed by Franklinton ($26,894), Louisburg ($14,083), and Bunn ($3,788).

Granville County has an annual frequency of 1.59 ice storms, a total EAL of $43,663, a 45.44 EAL Score, and a Hazard Risk Index Score of 60.89. The unincorporated areas of Granville County have a total EAL of $6,424, an average EAL Score of 41.57, and an average Hazard Risk Index Score of 44.2. The jurisdiction with the highest total EAL is Butner ($13,921), followed by Oxford ($13,464) and Creedmoor ($12,210).

Vance County has a 1.55 annualized frequency of ice storms, a total EAL of $35,168, an EAL Score of 40.84, and a Hazard Risk Index Score of 46.7. The unincorporated areas of Vance County have a 1.55 annualized frequency of occurrence, a total EAL of $5,794, an average EAL Score of 43.24, and an average Hazard Risk Index Score of 44.99. The jurisdiction with the highest total EAL is Henderson ($26,410), followed by Kittrell ($4,249) and Middleburg ($2,963).

Warren County has an annual frequency of 1.39 ice storms, a total EAL of $38,959, an EAL Score of 43.34, and a Hazard Risk Index Score of 49.27. The unincorporated areas of Warren County have a total EAL of $7,720, an average EAL Score of 43.34, and an average Hazard Risk Index Score of 49.27. The jurisdiction with the highest total EAL is Macon ($9,993), followed by Warrenton ($9,571) and Norlina ($7,480).

Table 5-57: 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 Index Rating
Franklin County (Unincorporated Area)	**1.28**	**$28,029**	**55.14**	**Relatively Moderate**	**55.97**	**Relatively Moderate**
Bunn	1.21	$3,789	60.74	Relatively High	66.84	Relatively High
Franklinton	1.65	$26,894	65.85	Relatively High	69.96	Relatively High
Louisburg	1.30	$14,083	72.22	Relatively High	79.12	Relatively High
Youngsville	1.65	$31,216	84.02	Very High	83.56	Very High
Franklin County Total	**1.37**	**$88,262**	**58.59**	**Relatively Moderate**	**60.89**	**Relatively High**
Granville County (Unincorporated Area)	**1.62**	**$6,425**	**41.57**	**Relatively Moderate**	**44.20**	**Relatively Moderate**
Butner	1.65	$13,922	52.60	Relatively Moderate	55.71	Relatively Moderate
Creedmoor	1.65	$12,211	54.70	Relatively Moderate	53.17	Relatively Moderate
Oxford	1.62	$13,465	57.68	Relatively Moderate	64.32	Relatively High
Stem	1.65	$3,864	61.14	Relatively High	60.38	Relatively High
Stoval	1.50	$3,296	57.54	Relatively Moderate	59.48	Relatively Moderate
Granville County Total	**1.59**	**$43,663**	**45.44**	**Relatively Moderate**	**47.07**	**Relatively Moderate**
Vance County (Unincorporated Area)	**1.55**	**$5,794**	**43.24**	**Relatively Moderate**	**44.99**	**Relatively Moderate**
Henderson	1.54	$26,410	55.85	Relatively Moderate	64.46	Relatively High
Kittrell	1.65	$4,249	63.20	Relatively High	70.36	Relatively High
Middleburg	1.50	$2,964	55.08	Relatively Moderate	58.66	Relatively Moderate
Vance County Total	**1.55**	**$35,168**	**40.84**	**Relatively Moderate**	**46.70**	**Relatively Moderate**
Warren County (Unincorporated Area)	**1.43**	**$7,720**	**60.65**	**Relatively High**	**69.04**	**Relatively High**
Macon	1.38	$9,993	65.86	Relatively High	70.11	Relatively High
Norlina	1.40	$7,481	73.76	Relatively High	79.54	Relatively High
Warrenton	1.38	$9,572	77.58	Relatively High	84.95	Very High
Warren County Total	**1.39**	**$38,959**	**43.34**	**Relatively Moderate**	**49.27**	**Relatively Moderate**

5.11.6. Consequence and Impact Analysis

People

Winter storms are deceptive killers because most deaths are indirectly linked to the storm. 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 (16.5% in Franklin County, 16.2% in Granville County, 18.9% in Vance County, and 21.2% in Warren County) or an independent living difficulty (7.8% in Franklin County, 6.3% in Granville County, 9.0% in Vance County, and 9.6% in Warren County) may be at an increased risk of negative impacts because of winter weather events.[93] It is important that residents are informed about the risks and how to safely heat their homes and stay safe during winter weather events.

Changes in Development

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 greater capacity to prepare for and clear roads during winter weather events.

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.

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.

[93] U.S. Census Bureau. (2023). *Disability Characteristics* (No. ACSST5Y2023.S1810; Version 2023 ACS 5-Year Estimates) [Dataset]. data.census.gov. https://data.census.gov/table/ACSST5Y2023.S1810

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.

Future Conditions

According to the NCCSR, snowfall, and the number of heavy snowstorms in NC are likely to decrease as winter temperatures rise.[94]

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

5.12. Hazard Profile Summary

The conclusions drawn from the Region's hazard profiling process, including the Priority Risk Index results and input from the Regional Hazard Mitigation Planning Team, resulted in the classification of each identified hazard into three categories: High Risk, Moderate Risk, and Low Risk (Table 5-58). 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 5-58: NRI Summary of Hazard Risk Ratings for the Hazards in the Planning Area

Jurisdiction	Drought	Earthquake	Extreme Heat	Hurricane / Tropical Storm	Flooding	Hail	Strong Winds	Lightning	Tornado	Wildfire	Winter Weather	Ice Storm
Franklin County (Unincorporated Area)	Very High	Relatively Low	Relatively High	Relatively High	Relatively Moderate	Relatively High	Relatively Moderate	Relatively High	Relatively High	Relatively High	Very High	Relatively Moderate
Bunn	Very High	Relatively Low	Relatively High	Relatively High	Relatively High	Relatively High	Relatively Moderate	Very High	Relatively High	Relatively High	Very High	Relatively High
Franklinton	Very High	Relatively Low	Relatively High	Relatively High	Relatively Moderate	Relatively High	Relatively High	Relatively High	Relatively High	Relatively High	Very High	Relatively High
Louisburg	Very High	Relatively Moderate	Relatively High	Very High	Relatively High	Very High	Relatively High	Relatively High	Relatively High	Relatively High	Very High	Relatively High
Youngsville	Very High	Relatively Moderate	Very High	Relatively High	Relatively Moderate	Very High	Very High	Very High	Very High	Relatively High	Very High	Very High
Franklin County Total	**Very High**	**Relatively Moderate**	**Relatively High**	**Relatively High**	**Relatively Low**	**Relatively High**	**Relatively Moderate**	**Relatively High**	**Relatively High**	**Relatively Low**	**Very High**	**Relatively High**
Granville County (Unincorporated Area)	Very High	Relatively Low	Relatively Moderate	Relatively High	Relatively Low	Relatively High	Relatively Moderate	Relatively Moderate	Relatively High	Relatively Moderate	Very High	Relatively Moderate
Butner	Relatively High	Relatively Moderate	Relatively High	Relatively High	Relatively Low	Relatively High	Relatively Moderate	Relatively Moderate	Relatively High	Relatively High	Very High	Relatively Moderate

Jurisdiction	Drought	Earthquake	Extreme Heat	Hurricane / Tropical Storm	Flooding	Hail	Strong Winds	Lightning	Tornado	Wildfire	Winter Weather	Ice Storm
Creedmoor	Very High	Relatively Low	Relatively Moderate	Relatively High	Relatively Low	Relatively High	Relatively Moderate	Relatively Moderate	Relatively High	Relatively High	Very High	Relatively Moderate
Oxford	Relatively High	Relatively Moderate	Relatively High	Very High	Relatively Low	Relatively High	Relatively High	Relatively High	Relatively High	Relatively High	Very High	Relatively High
Stem	Very High	Relatively Moderate	Relatively High	Very High	Relatively Low	Relatively High	Relatively Moderate	Relatively High	Relatively High	Relatively High	Very High	Relatively High
Stoval	Very High	Relatively Moderate	Relatively High	Very High	Relatively Moderate	Relatively High	Relatively High	Relatively High	Relatively High	Relatively High	Very High	Relatively Moderate
Granville County Total	**Relatively High**	**Relatively Moderate**	**Relatively High**	**Very High**	**Very Low**	**Relatively Moderate**	**Relatively Low**	**Relatively Moderate**	**Relatively High**	**Relatively Low**	**Very High**	**Relatively Moderate**
Vance County (Unincorporated Area)	Very High	Relatively Low	Relatively Moderate	Relatively High	Relatively Low	Relatively High	Relatively Moderate	Relatively Moderate	Relatively Moderate	Relatively Moderate	Very High	Relatively High
Henderson	Very High	Relatively Low	Relatively High	Relatively High	Relatively Low	Relatively High	Relatively High	Relatively High	Relatively High	Relatively High	Very High	Relatively High
Kittrell	Very High	Relatively Low	Relatively High	Very High	Relatively Low	Relatively High	Relatively High	Relatively High	Relatively High	Relatively Moderate	Very High	Relatively High
Middleburg	Very High	Relatively Low	Relatively High	Relatively High	Relatively Moderate	Relatively High	Relatively Moderate	Relatively High	Relatively High	Relatively High	Very High	Relatively Moderate
Vance County Total	**Relatively High**	**Relatively Low**	**Relatively High**	**Relatively High**	**Very Low**	**Relatively Moderate**	**Relatively Low**	**Relatively Moderate**	**Relatively High**	**Relatively Low**	**Very High**	**Relatively Moderate**
Warren County (Unincorporated Area)	Very High	Relatively Low	Relatively High	Very High	Relatively Moderate	Relatively High	Relatively High	Relatively High	Relatively High	Relatively High	Very High	Relatively High
Macon	Very High	Relatively Low	Relatively Moderate	Very High	Relatively Moderate	Relatively High	Relatively Moderate	Relatively Moderate	Relatively High	Relatively High	Very High	Relatively High
Norlina	Very High	Relatively Moderate	Relatively High	Very High	Relatively Low	Very High	Relatively High	Relatively High	Relatively High	Relatively High	Very High	Relatively High
Warrenton	Very High	Relatively Moderate	Relatively High	Very High	Relatively Moderate	Relatively High	Relatively High	Relatively High	Relatively High	Relatively High	Very High	Very High
Warren County Total	**Relatively High**	**Relatively Low**	**Relatively Moderate**	**Very High**	**Relatively Low**	**Relatively Moderate**	**Relatively Low**	**Relatively Low**	**Relatively Moderate**	**Relatively Low**	**Relatively High**	**Relatively Moderate**

SECTION 6: CAPABILITY ASSESSMENT

Section 6 discusses the mitigation capabilities, including planning, programs, policies, and land management tools, typically used by local jurisdictions to implement hazard mitigation activities. It consists of the following subsections:

- 6.1 What is a Capability Assessment?
- 6.2 Conducting the Capability Assessment
- 6.3 Capability Assessment Findings
- 6.4 Conclusions on Local Capability

6.1. What is a Capability Assessment?

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.[1] As in any planning process, it is essential to determine which goals, objectives, and/or 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.

A capability assessment has two primary components: 1) an inventory of a local jurisdiction's relevant plans, ordinances, or programs already in place, and 2) an analysis of its capacity to carry them out. A careful examination of local capabilities will identify any existing gaps, shortfalls, or weaknesses in ongoing government activities that could hinder proposed mitigation activities and potentially exacerbate community hazard vulnerability. A 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 Assessments completed for the Tar River Region serve as a critical planning step and an integral part of the foundation for designing an effective hazard mitigation strategy. Coupled with the Risk Assessment, the Capability Assessment helps identify and target meaningful mitigation actions for incorporation in the Mitigation Strategy portion of the Plan. The assessment not only helps establish the goals and objectives the Region will pursue but also ensures they are realistically achievable under existing local conditions.

[1] While the Final Rule for implementing the Disaster Mitigation Act of 2000 does not require a local capability assessment to be completed for local hazard mitigation plans, it is a critical step in developing a mitigation strategy that meets the needs of the region while considering its own unique abilities. The Rule does state that a community's mitigation strategy should be "based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools" (44 CFR, Part 201.6(c)(3)).

6.2. Conducting the Capability Assessment

To facilitate the inventory and analysis of local government capabilities within the Tar River Region, a detailed Capability Assessment Survey was completed by each participating jurisdiction, based on information found in existing hazard mitigation plans and local government websites. The survey questionnaire collected information on a variety of "capability indicators," such as existing local plans, policies, programs, or ordinances that contribute to or hinder the region's ability to implement hazard mitigation actions. Other indicators included in the survey were information on a community's fiscal, administrative, and educational and outreach capabilities, such as access to local budgetary and personnel resources for mitigation. The current political climate, a crucial consideration for any local planning or decision-making process, was also assessed in relation to hazard mitigation.

Participating jurisdictions complete the survey by filling out a local self-assessment, in which communities rate their overall capability for each overarching indicator (Planning & Regulatory, Administrative & Technical, Fiscal, Political, and Education & Outreach) as well as their overall ability to implement mitigation activities, categorized as either Limited, Moderate, or High. Lastly, communities rate 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. Survey results provide an extensive inventory of existing local plans, ordinances, programs, and resources, and identify 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 Tar River Region'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 meetings of the Tar River Regional HMPC. 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 Tar River 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 Tar River 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

Planning Mechanism	What It Supports	What to Look For
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 implementing plans, ordinances, and programs that demonstrate a local jurisdiction’s commitment to guiding and managing growth, development, and redevelopment responsibly while maintaining the community's general welfare. It includes emergency response and mitigation planning; comprehensive land-use and transportation planning; the enforcement of zoning or subdivision ordinances and building codes that regulate how land is developed and structures are built; 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 provides a general overview of the key planning and regulatory tools and programs in place or under development for the jurisdictions in the Tar River 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.

Local jurisdictions can expand their planning and regulatory capabilities by ensuring that hazard mitigation principles are systematically integrated across local and regional plans, ordinances, and policies. This may include strengthening coordination between land use, transportation, stormwater, and environmental planning processes; maintaining consistency between comprehensive plans and hazard mitigation goals; and regularly updating development standards to reflect the latest hazard data and best practices. Jurisdictions could also adopt new ordinances or overlay zones that limit development in high-risk areas and promote resilient building and infrastructure design.

Table 6-2 provides a summary of the relevant local plans, ordinances, and programs already in place or under development for the jurisdictions in the Tar River Region. A checkmark (✓) indicates that the given item is currently in place and being implemented. A dash (–) indicates that the given item is not included or in place. Each of these local plans, ordinances, and programs should be considered available mechanisms for reviewing and incorporating existing plans, studies, reports, and technical information into the Tar River Regional Hazard Mitigation Plan. This will help identify existing data and capabilities that can support the implementation of mitigation strategies.

Table 6-2: Relevant Plans, Ordinances, and Programs

Planning & Regulatory Resources	**Franklin County**	Bunn	Franklinton	Louisburg*	Youngsville	**Granville County**	Butner	Creedmoor	Oxford	Stem	Stovall	**Vance County**	Henderson	Kittrell*	Middleburg*	**Warren County**	Macon	Norlina*	Warrenton
Comprehensive Land Use Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	✓	✓
Hazard Mitigation Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Floodplain Management Plan	–	–	–	–	–	✓	–	✓	✓	–	✓	✓	✓	✓	✓	–	–	✓	✓
Open Space Management Plan (Parks & Rec/Greenway Plan)	–	–	–	–	–	✓	–	✓	✓	–	✓	–	–	–	–	–	–	–	–
Stormwater Management Plan/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	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	✓	✓

Planning & Regulatory Resources	**Franklin County**	Bunn	Franklinton	Louisburg*	Youngsville	**Granville County**	Butner	Creedmoor	Oxford	Stem	Stovall	**Vance County**	Henderson	Kittrell*	Middleburg*	**Warren County**	Macon	Norlina*	Warrenton
Unified Development Ordinance	✓	✓	✓	–	✓	✓	–	✓	✓	✓	✓	✓	✓	–	–	✓	–	–	–
Post-Disaster Redevelopment	–	–	–	–	–	–	–	–	–	–	✓	–	✓	–	–	–	–	–	–
Building Code	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	✓	✓	–	✓	✓
Fire Code	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	✓	✓	✓	✓	✓	✓	–	✓	✓
National Flood Insurance Program (NFIP)	✓	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	–	✓	–	–	✓
NFIP Community Rating System	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Other	–	–	✓	–	✓	✓	–	–	–	–	–	–	✓	–	–	–	–	✓	✓

**Indicates the planning team used the results of the Capability Assessment Survey from the previous planning cycle for these jurisdictions to populate this table, along with a review of the jurisdictions' websites and other relevant materials, which were completed to supplement/update information not collected from the surveys.*

A more detailed discussion on the region's planning and regulatory capability is provided in the following sections

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.

- For Franklin County, formal plans are developed at the department level; anything that impacts countywide policies or results in budget obligations must also be approved by the board of commissioners. Any changes to codes must go through a specific approval process that includes public hearings and engagement of the board of commissioners.
- The Town of Bunn partners with Kerr Tar Council of Government (COG) for planning and regulatory needs.
- For the Other category, Franklinton has a Comprehensive Transportation Plan (2025), a Bicycle & Pedestrian Plan (2024), and an S-Line (rail) Playbook and Route Map developed by the North Carolina Department of Transportation in 2023.
- The Youngsville Comprehensive Land Use and Transportation Plan is available at youngsvillenc.gov/CLUTP. The Youngsville Development Ordinance (YDO) (unified development ordinance) can be found at youngsvillenc.gov/YDO. Youngsville's Flood Damage Prevention Ordinance is Article 17 of its YDO. Youngsville does not enforce the building or fire code; Franklin County does.
- For the Other category, Granville County has a Community Wildfire Protection Plan, a Greenways Plan, a School Risk Management Plan (SRMP), and a Radiological Emergency Plan with a 50-mile Ingestion Pathway Zone (IPZ). The Granville County Comprehensive Plan lays out an Economic Development Plan for the County, but it could use enhancement/expansion.
- Butner has a two-person planning department that also does code enforcement. We have a future land use plan and map, as well as a land development ordinance. We utilize Granville County for building and fire codes and inspections.
- Creedmoor has five staff, including a Director, a Planner, a Planning Tech, an Engineer, and an Enforcement Officer.
- The City of Oxford has been proactive in preparing for any type of disasters and we participate in mutual aid to surrounding communities.
- Stem has no full-time employees.
- For planning and regulatory activities in Henderson, as the Fire Chief, my responsibilities are to enforce the NC Fire Code. Our personnel (fire department) also assist with the NC Building Code, Hazard Mitigation Plan, Emergency Action Plans, and evacuations in conjunction with Vance County Emergency Management.
- Warren County currently has some planning and zoning laws in place. Currently, Warren County has little regulatory control. The County is developing a new Unified Development Ordinance with updates to its land-use regulations as of this plan update (2025-2026).

- The Town of Macon falls under the plans and ordinances of Warren County. For the Other category, the Town has an S-Line (rail) Playbook and Route Map developed by the North Carolina Department of Transportation in 2023.
- The Town of Warrenton, for the Other category, has a Water Shortage Response Plan (2011), a Bicycle & Pedestrian Plan (2020), and a Strategic Plan for Creating Outdoor Recreation Economies 2024-2029 (2024).

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 include 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 disasters occur, such as elevating flood-prone structures or continuously enforcing policies that prevent and regulate development vulnerable to hazards because of its location, design, or other characteristics. Mitigation opportunities will also be presented during immediate preparation or response activities, such as installing storm shutters in advance of a hurricane, and certainly during the long-term recovery and redevelopment process following a hazard 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 the successful implementation of hazard mitigation actions. As a result, the Capability Assessment Survey posed several questions across a range of emergency management plans to assess the Tar River Region's willingness to perform planning activities and its level of technical planning proficiency.

Hazard Mitigation Plan: A community's hazard mitigation plan serves as its blueprint for reducing the impact of natural and 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.

- All 19 participating jurisdictions in this plan update effort have previously participated in and adopted the Tar River Regional Hazard Mitigation Plan

Disaster Recovery Plan: A disaster recovery plan guides the physical, social, environmental, and economic recovery and reconstruction 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.

- Granville County, Stovall, and Warrenton were the only jurisdictions to indicate they have a Disaster Recovery Plan in place.

Emergency Operations Plan: An emergency operations plan (EOP) outlines the responsibilities of staff and departments, as well as the deployment of resources during and after an emergency or disaster.

- 15 of the 19 participating jurisdictions indicated they have an EOP in place, with the exceptions of Louisburg, Youngsville, Stem, and Macon.

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.

- Granville County, Butner, Creedmoor, and Stovall were the only jurisdictions to indicate that they 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 other relevant parties. In many instances, concurrent local planning efforts can help achieve or complement hazard mitigation goals, even though they are not explicitly designed to do so. Therefore, the Capability Assessment Survey also asked about general planning capabilities and the extent to which hazard mitigation is integrated into other ongoing planning efforts in the Tar River Region.

Comprehensive Land Use Plan: Establishes the community's overall vision and guides future government decision-making. Typically, a comprehensive plan includes sections on demographics, land use, transportation, and community facilities. Given the plan's broad scope and its regulatory standing in many communities, integrating hazard mitigation measures into the comprehensive plan can increase the likelihood of achieving risk-reduction goals.

- 18 of the 19 participating jurisdictions indicated they have a Comprehensive Land Use Plan in place, with the exception of Macon.

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.

- Franklin County, Bunn, Franklinton, Granville County, Butner, Creedmoor, Oxford, Henderson, Warren County, and Warrenton were the only jurisdictions to indicate they have a Capital Improvements Plan in place.

Historic Preservation Plan: A plan 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 prone to natural hazards, as well as the identification of measures to mitigate 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 located within a historic district that cannot be easily relocated out of harm's way.

- Franklin County, Louisburg, Oxford, Vance County, Kittrell, Middleburg, Norlina, and Warrenton were the only jurisdictions to indicate they have a Historic Preservation Plan in place.

Zoning Ordinance: Zoning represents 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 19 participating jurisdictions indicated they have adopted a Zoning Ordinance, with the exception of Macon.

Subdivision Ordinance: A subdivision ordinance regulates the development of residential, commercial, industrial, or other uses, including associated public infrastructure, as land is subdivided into buildable lots for sale or future growth. Subdivision design that accounts for natural hazards can dramatically reduce future development's exposure to them.

- Like Zoning Ordinances, 18 of the 19 participating jurisdictions indicated they have adopted a Subdivision Ordinance, with the exception of Macon.

Unified Development Ordinance: A Unified Development Ordinance (UDO) is a single, comprehensive document that consolidates a community's zoning, subdivision, and other land development regulations into a unified set of rules. It is authorized under Chapter 160D of the North Carolina General Statutes, which requires consistency in how local governments regulate land use. The UDO provides clear standards for property development, striking a balance between growth and community priorities, including public safety, infrastructure, and environmental protection. Consolidating regulations into a single ordinance helps streamline permitting, improve transparency, and ensure consistent decisions across various types of development.

- 12 of the 19 participating jurisdictions indicated they have adopted a UDO, with the exceptions of Louisburg, Butner, Kittrell, Middleburg, Macon, Norlina, and Warrenton.

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 needed before and after a disaster, and the enforcement of inspection protocols all affect the level of hazard risk a community faces.

- 17 of the 19 participating jurisdictions indicated they have adopted and enforce a Building Code, with the exceptions of Stem and Macon.
- 17 of the 19 participating jurisdictions indicated they have adopted and enforce a Fire Code, with the exceptions of Stem and Macon.

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).[2] In North Carolina, the North Carolina Department of Insurance assesses the building codes in effect in a particular community and the community's enforcement of those codes, *with a special emphasis on mitigating losses 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, should have lower insurance rates.

During the assessment, ISO collects information on personnel qualifications and continuing education, as well as the number of daily inspections. This type of information, combined with local building codes, is used to determine a grade for that jurisdiction. The grades range from one to ten, with a BCEGS grade of one representing exemplary commitment to building code enforcement and a grade of ten indicating less than minimum recognized protection.

6.3.1.4 Floodplain Management

Flooding represents the most significant natural hazard facing the nation. 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 address hazards across various sectors, such as education, outreach, and training for local officials, the NFIP includes specific regulatory measures that enable government officials to determine where and how growth occurs in relation to flood hazards. Participation in the NFIP is voluntary for local governments; however, the Federal Emergency Management Agency (FEMA) strongly encourages them to participate as a first step toward implementing and sustaining an effective hazard mitigation program. It is therefore used in this 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 adherence to established minimum building standards within the floodplain. These standards require that all new buildings and substantial improvements to existing buildings be protected from damage from a 100-year flood event, and that new development in the floodplain does not exacerbate existing flood problems or increase damage to other properties.

[2] Participation in BCEGS is voluntary and may be declined by local governments if they do not wish to have their local building codes evaluated.

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 a crucial source of information for educating residents, government officials, and the private sector about the likelihood of flooding in their community.

Jurisdictions participating in the National Flood Insurance Program will continue to comply with the program's requirements and work toward full compliance in the future through 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 consistent monitoring, 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. Each county and its municipalities, while participating in the National Flood Insurance Program, comply with regulations as demonstrated in regular Community Assessment Visits.

All jurisdictions in the Tar River Region participate in the NFIP, except for the Town of Bunn (Franklin County), the Town of Middleburg (Vance County), the Town of Macon (Warren County), and the Town of Norlina (Warren County). The Town of Kittrell (Vance County) is the only jurisdiction in the Tar River Region that participates in the NFIP but has no mapped Special Flood Hazard Area within its municipal boundaries. The jurisdiction with the most NFIP policies in force, insurance in force, and written premiums in force is Franklin County (unincorporated areas), with 69, $20,860,000, and $47,602, respectively. The jurisdiction with the highest percentage of closed losses is the Town of Louisburg (Franklin County), at 13. The jurisdiction with the largest total payments is the City of Creedmoor (Granville County), with $854,591.

Table 6-3 provides NFIP policy and claim information for each participating jurisdiction.

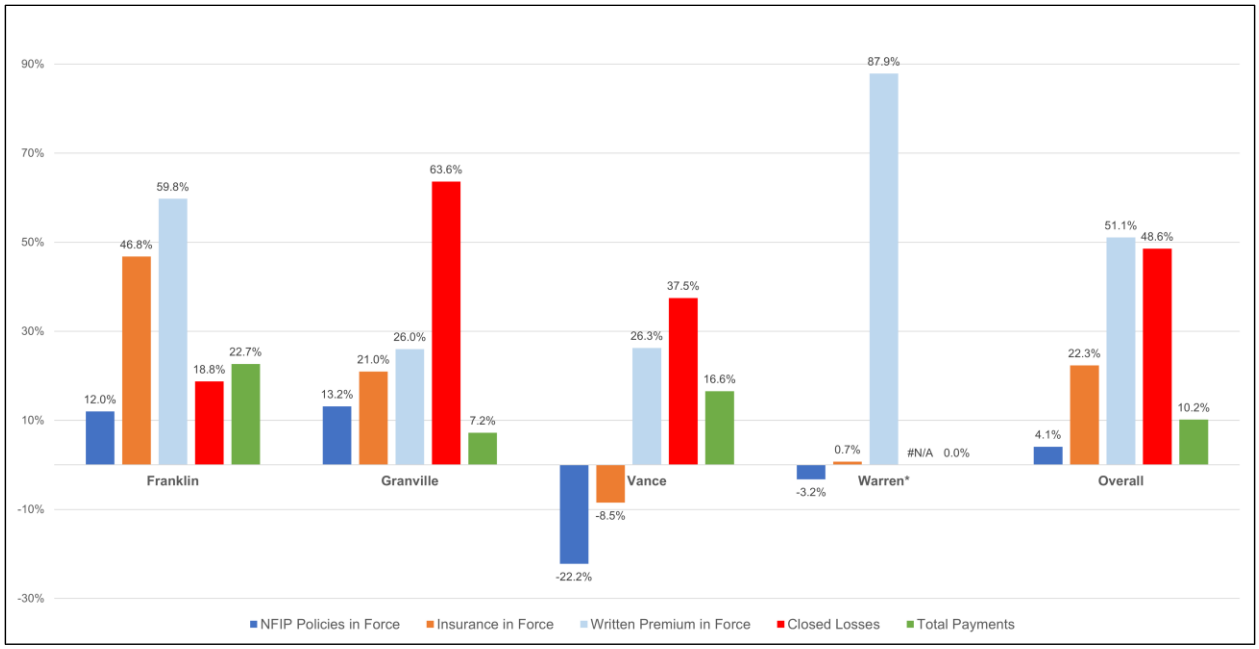
Table 6-3: NFIP Policy and Claim Information by Jurisdiction

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies in Force	Insurance In Force	Written Premium in Force	Closed Losses	Total Payments
Franklin							
Franklin County (Unincorporated Area)	09/15/78	09/19/25	69	$20,860,000	$47,602	6	$45,783
Town of Bunn*	-	04/16/13	-	-	-	-	-
Town of Franklinton	01/19/01	04/16/13	3	$948,000	$1,438	0	$0
Town of Louisburg	06/14/74	04/16/13	9	$2,797,000	$10,177	13	$118,107
Town of Youngsville	01/19/01	07/19/22	3	$1,050,000	$1,570	0	$0
Subtotal Franklin	**-**	**-**	**84**	**$25,655,000**	**$60,787**	**19**	**$163,890**

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies in Force	Insurance In Force	Written Premium in Force	Closed Losses	Total Payments
Granville							
Granville County (Unincorporated Area)	04/21/78	07/19/22	23	$7,318,000	$14,196	7	$161,880
City of Creedmoor	06/28/74	12/06/19	5	$1,288,000	$3,367	6	$854,591
City of Oxford	11/07/75	12/06/19	5	$904,000	$2,654	4	$2,433
Town of Butner	01/31/75	12/06/19	10	$2,725,000	$5,524	1	$0
Town of Stem	09/28/90	12/06/19	-	-	-	-	-
Town of Stovall	04/21/78	06/04/07	-	-	-	-	-
Subtotal Granville	**-**	**-**	**43**	**$12,235,000**	**$25,741**	**18**	**$1,018,904**
Vance							
Vance County (Unincorporated Area)	08/04/87	09/19/25	11	$3,075,000	$8,664	5	$121,147
City of Henderson	04/25/75	12/06/19	10	$3,142,000	$8,766	6	$83,090
Town of Kittrell	04/16/07	(NSFHA)	-	-	-	-	-
Town of Middleburg*	-	04/16/13	-	-	-	-	-
Subtotal Vance	**-**	**-**	**21**	**$6,217,000**	**$17,430**	**11**	**$204,237**
Warren							
Warren County (Unincorporated Area)	08/11/78	09/19/25	29	$9,148,000	$26,306	4	$0
Town of Macon*	-	04/16/07	-	-	-	-	-
Town of Norlina*	-	09/19/25	-	-	-	-	-
Town of Warrenton	04/16/07	09/19/25	1	$350,000	$376	0	$0
Subtotal Warren	**-**	**-**	**30**	**$9,498,000**	**$26,682**	**4**	**$0**
TOTAL PLAN	**-**	**-**	**178**	**$53,605,000**	**$130,640**	**52**	**$1,387,031**

**Jurisdiction does not participate in the National Flood Insurance Program*

Source: FEMA Flood Insurance Data's HUDEX Report (8/31/2025)



*Warren County had zero reported closed losses in 2021, which increased to four by 2025.

Figure 6-2: NFIP Policy & Claims Information - County and Overall Regional Percent Change Between Plan Updates (2021-2025)

NFIP Policies in Force

Definition: the total number of policies reported within the community and/or county in force as of the given date. All condo units are counted for each condo master policy.

Increasing policies generally indicate improved flood risk awareness, greater mortgage compliance, or the expansion of insurable development within mapped flood risk areas.

Decreasing policies may reflect successful buyouts, reduced exposure, or negatively declining insurance participation and rising uninsured risk.

Trends must be interpreted alongside population growth and development patterns.

Ideal Trends:

Near term: moderate increases or stable participation showing strong insurance coverage uptake.

Long term: Stable or gradual decline paired with mitigation actions (buyouts, elevation, land-use controls), not coverage drop-off.

Insurance in Force

Definition: represents the total dollar value of flood insurance coverage provided by all active policies in effect within a community at a given time.

Increasing coverage value suggests higher asset exposure, rising property values, or improved insurance penetration. Rapid increases may signal growing financial exposure within flood hazard areas.

Decreasing coverage may indicate a loss of development and mitigation activities, or underinsurance.

Ideal Trends:

Near term: increasing or stable values reflecting adequate protection of existing assets.

Long term: stabilization or slower growth as exposure is reduced through resilience planning and risk-informed development.

Written Premium in Force

Definition: written premium in force represents the total annual premium associated with all active NFIP policies in effect within a community at a given time

Increasing premiums in force may reflect higher participation, updated FEMA Risk Rating 2.0 pricing, or increased exposure. Rising premiums without mitigation can create affordability pressures and policy drop-off risk.

Decreasing premiums in force may signal declining participation rather than reduced risk.

Idea Trends:

Near term: Stable or moderate increases tied to maintained participation.

Long term: Stabilized premiums resulting from reduced risk classifications and mitigation investments.

Closed Losses

Definition: represents the number of NFIP claims that have completed the adjustment process and have been finalized, including claims with and without payment.

Increasing closed losses indicate recurring flood damages and persistent vulnerability.

Declining closed losses typically reflect effective mitigation, improved standards, or fewer damaging events.

Must be **normalized against hazard frequency**.

Idea Trends:

Near term: event-driven fluctuations are expected.

Long term: clear downward trend demonstrating reduced repetitive loss and mitigation effectiveness.

Total Claim Payments

Definition: total claim payments represent the total dollar amount paid by the NFIP for insured flood losses within a community during a specified reporting period.

Increasing total claim payments indicate growing disaster costs and unresolved structural vulnerability.

Declining claim payments suggest successful risk reduction or fewer severe flood events.

High payouts concentrated geographically often **signal repetitive loss problem areas**.

Ideal Trends:

Near term: Payments may spike following major events.

Long term: Sustained reduction in payouts demonstrating measurable loss avoidance and mitigation return on investment.

Goals for NFIP Policy and Claims

- High or stable insurance participation
- Reduced flood losses and payouts over time
- Stabilized exposure growth
- Transition from recovery spending to risk reduction activities

Table 6-4: NFIP Policy & Claims Information - Percent Change Between 2020 & 2025

Jurisdiction	NFIP Policies In Force	Insurance In Force	Written Premium In Force	Closed Losses	Total Payments
Franklin County					
Franklin County (Unincorporated Area)	11.3%	40.8%	61.5%	200.0%	233.5%
Town of Bunn*	Remained 0	Remained $0	Remained $0	Remained 0	Remained $0
Town of Franklinton	50.0%	93.5%	114.3%	Remained 0	Remained $0
Town of Louisburg	-18.2%	28.9%	28.8%	-7.1%	-1.5%
Town of Youngsville	Increased from 0 to 3	Increased from $0 to $1,050,0000	Increased from $0 to $1,570	Remained 0	Remained $0
Subtotal Franklin	**12.0%**	**46.8%**	**59.8%**	**18.8%**	**22.7%**
Granville County					
Granville County (Unincorporated Area)	-11.5%	-2.9%	-5.8%	133.3%	73.8%
City of Creedmoor	150.0%	300.0%	555.1%	0.0%	0.0%
City of Oxford	25.0%	2.7%	-10.1%	100.0%	0.0%
Town of Butner	66.7%	98.6%	192.7%	Increased from 0 to 1	Remained $0
Town of Stem	Remained 0	Remained $0	Remained $0	Remained 0	Remained $0
Town of Stovall	Remained 0	Remained $0	Remained $0	Remained 0	Remained $0
Subtotal Granville	**13.2%**	**21.0%**	**26.0%**	**63.6%**	**7.2%**

Jurisdiction	NFIP Policies In Force	Insurance In Force	Written Premium In Force	Closed Losses	Total Payments
Vance County					
Vance County (Unincorporated Area)	-31.3%	-27.5%	-2.7%	150.0%	18.5%
City of Henderson	-9.1%	23.2%	78.9%	0.0%	13.9%
Town of Kittrell	Remained 0	Remained $0	Remained $0	Remained 0	Remained $0
Town of Middleburg*	Remained 0	Remained $0	Remained $0	Remained 0	Remained $0
Subtotal Vance	**-22.2%**	**-8.5%**	**26.3%**	**37.5%**	**16.6%**
Warren County					
Warren County (Unincorporated Area)	-6.5%	-3.0%	85.2%	Increased from 0 to 4	Remained $0
Town of Macon*	Remained 0	Remained $0	Remained $0	Remained 0	Remained $0
Town of Norlina*	Remained 0	Remained $0	Remained $0	Remained 0	Remained $0
Town of Warrenton	Increased from 0 to 1	Increased from $0 to $350,000	Increased from $0 to $376	Remained 0	Remained $0
Subtotal Warren	**-3.2%**	**0.7%**	**87.9%**	**Increased from 0 to 4**	**Remained $0**
TOTAL PLAN	**4.1%**	**22.3%**	**51.1%**	**48.6%**	**10.2%**

**indicates a jurisdiction that does not participate in the NFIP*

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 minimum NFIP requirements by implementing additional local measures to reduce flood impacts. 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 rating. Class ratings, which range from ten to one, are tied to flood insurance premium reductions, as shown in Table 6-5. As class ratings improve (with lower numbers indicating better ratings), the percentage reduction in flood insurance premiums for NFIP policyholders in that community increases.

Table 6-5: 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: FEMA

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 undergone significant simplification over the past several years, based on community feedback. Changes have been made to make the CRS more user-friendly and to provide extensive technical assistance to communities that request it.

- None of the participating jurisdictions participates in the CRS as of 12/01/2025.[3]

Flood Damage Prevention Ordinance: A flood damage prevention ordinance establishes minimum building standards in the floodplain to minimize public and private losses from flooding.

- Franklin County, Franklinton, Louisburg, Youngsville, Granville County, Butner, Creedmoor, Oxford, Stem, Vance County, Henderson, Warren County, and Warrenton have adopted and enforce jurisdiction-specific Flood Damage Prevention Ordinances.
- During the Hazard Mitigation Plan Update process, Flood Damage Prevention Ordinances were not identified for the NFIP participating community of Kittrell.

Floodplain Management Plan: A floodplain management plan (also known as a flood mitigation plan) provides a framework for implementing preventive and corrective measures to reduce flood-related impacts.

- Granville County, Creedmoor, Oxford, Stovall, Vance County, Henderson, Middleburg, Norlina, and Warrenton were the only jurisdictions to indicate that they have a Floodplain Management Plan in place.
- The City of Oxford (Granville County) recently completed a Flood Vulnerability and Risk Assessment plan in September of 2025. The primary purpose of this assessment is to

[3] Federal Emergency Management Agency. (2025, December 1). *Community Status Book*. https://www.fema.gov/flood-insurance/work-with-nfip/community-status-book

identify key flood vulnerabilities and develop actionable flood-resilience strategies. The key findings from the plan are:

- Residential and commercial properties make up the largest number of highly vulnerable assets, primarily due to pluvial flooding, which is lower risk and impact than riverine flooding.
- Water and sewer infrastructure, including aerial crossings, shows high exposure rates, indicating a need for further assessment.
- Nearly 9% of road segments are at risk of disconnection during floods, potentially isolating properties and delaying emergency response.
- Western and southwestern Oxford neighborhoods with high social vulnerability also have a high concentration of highly vulnerable residential and commercial properties.
- Most critical emergency facilities are generally well-sited outside high-risk flood zones, supporting continued operation during flood events.

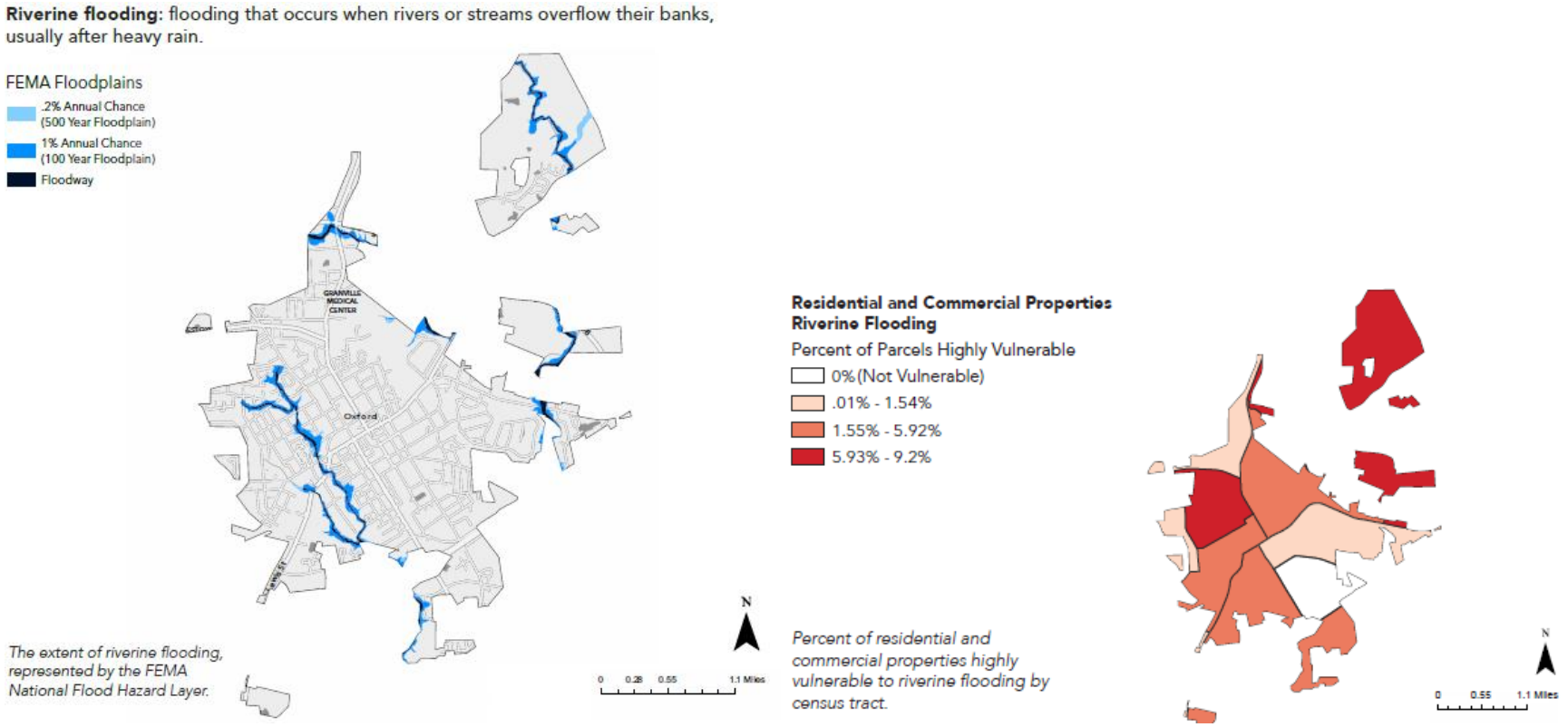


Figure 6-3: Extent of Riverine Flooding and Associated Highly Vulnerable Properties Identified in Oxford's Flood Vulnerability and Risk Assessment (2025)

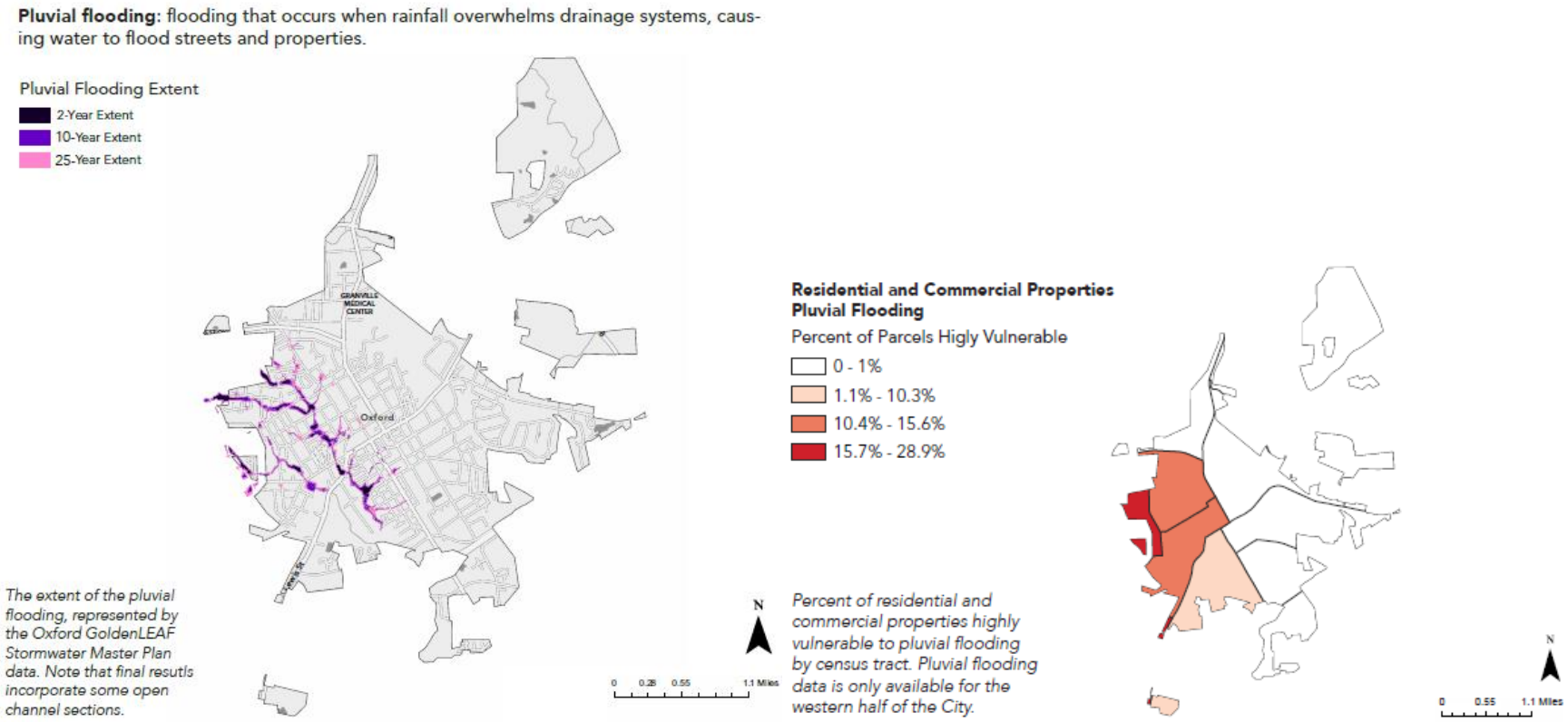


Figure 6-4: Extent of Pluvial Flooding and Associated Highly Vulnerable Properties Identified in Oxford's Flood Vulnerability and Risk Assessment (2025)

***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 or other flood-prone areas in their natural state for perpetuity.

- Granville County, Creedmoor, Oxford, and Stovall were the only jurisdictions participating jurisdictions to indicate that they have an Open Space Management Plan in place.

Stormwater Management Plan/Ordinance: A stormwater management plan is designed to address flooding associated with stormwater runoff. The stormwater management plan typically focuses on design and construction measures to mitigate the impact of minor urban flooding, which occurs more frequently. A local (county or municipal) stormwater management ordinance is a legally adopted regulation that establishes requirements for managing runoff from new development and redevelopment to reduce flooding, erosion, and water quality impacts. It typically sets design standards, review procedures, and maintenance obligations for stormwater control measures to ensure consistency with state and federal requirements.

- 14 of the 19 participating jurisdictions indicated that they have a Stormwater Management Plan and/or Ordinance in place, with the exceptions of Kittrell, Middleburg, Macon, Norlina, and Warrenton.
- The City of Oxford experiences flooding throughout the city during heavy, unnamed, non-tropical rain events. During these flooding events, public works staff cannot access critical infrastructure at the wastewater treatment plant. The city has begun prioritizing stormwater management over the past few years, including efforts to mitigate stormwater along Goshen Street. Golden LEAF flood mitigation grant funds were used to map stormwater infrastructure across the entire jurisdiction and to model sub-basins west and parallel to College Street and Martin Luther King Jr. Avenue to create a stormwater master plan. Additional data collection, modeling of existing watersheds, and the development of concept plans and alternatives were also completed. The city plans to use the data from this project to inform future stormwater improvement grant opportunities and to prioritize projects funded by its stormwater utility fund. The entire city benefited from this project.[4]

6.3.2. Administrative and Technical Capability

The ability of a local government to develop and implement mitigation projects, policies, and programs is directly tied to its capacity to allocate staff time and resources for this purpose. Administrative capability can be evaluated by assessing how mitigation-related activities are assigned to local departments and whether there are sufficient personnel to complete them. The

[4] Golden LEAF Foundation (2022, August 4). *Oxford Stormwater Master Plan*. Retrieved December 23, 2025, from https://goldenleaf.org/grants/oxford-stormwater-master-plan-2/

degree of interdepartmental coordination will also affect the administrative capacity to successfully implement proposed mitigation activities.

Technical capability can generally be evaluated by assessing the level of knowledge and technical expertise among local government employees, such as those skilled in using Geographic Information Systems (GIS) to analyze community vulnerability to hazards. The Capability Assessment Survey was used to gather information on administrative and technical capabilities by identifying available staff and personnel resources.

Counties and municipalities can improve their administrative and technical capabilities by expanding staff expertise, resources, and interdepartmental coordination to implement mitigation activities. This includes enhancing technical proficiency in areas such as mapping, data management, engineering, emergency management, and grant administration. Jurisdictions may also strengthen coordination among planning, public works, and emergency management staff, participate in regional partnerships, and seek state or federal technical assistance to improve the analysis and execution of mitigation actions.

Table 6-6 provides a summary of the capability assessment results for the Tar River Region, specifically 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 that the given item is not included or in place.

Table 6-6: Relevant Staff / Personnel Resources

Staff / Personnel Resources	**Franklin County**	Bunn	Franklinton	Louisburg*	Youngsville	**Granville County**	Butner	Creedmoor	Oxford	Stem	Stovall	**Vance County**	Henderson	Kittrell*	Middleburg*	**Warren County**	Macon	Norlina*	Warrenton
Planners with knowledge of land development/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	–	–	–	–	–	–	–	–	–	–	✓	–	–	–	–	–	–	–	–
Scientists familiar with the hazards of the community	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Staff with education or expertise to assess the community's vulnerability to hazards	✓	✓	✓	✓	–	✓	–	✓	✓	–	✓	–	–	✓	✓	✓	–	✓	–
Personnel skilled in GIS and/or HAZUS	✓	–	✓	✓	✓	✓	✓	–	✓	–	✓	✓	✓	✓	✓	✓	–	✓	–
Resource development staff or grant writers	–	–	✓	✓	–	✓	–	–	✓	–	✓	–	–	✓	✓	✓	–	✓	–

**Indicates the planning team used the results of the Capability Assessment Survey from the previous planning cycle for these jurisdictions to populate this table, along with a review of the jurisdictions' websites and other relevant materials, which were completed to supplement/update information not collected from the surveys.*

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.

- In Franklin County, staff and personnel resources are split between the County's Planning and Inspections Department, the Emergency Management Department, and the GIS Department.
- In Bunn, the Public Works Department's capabilities include heavy equipment operation and debris removal. The town's Police Department has experienced staff in incident command and critical incident/hazard response.
- Youngsville has two planning staff members, including a Planning Director (with knowledge of Land Use Plans) and a Planning Technician, Julia Straight (skilled in GIS).
- Granville Emergency Management (EM) has established strong working relationships across all county departments and with municipalities. Granville EM has an emergency notification system with the Integrated Public Alert and Warning System (IPAWS) capability. Granville EM has mutual aid agreements with neighboring counties and with NCEM (Statewide Mutual Aid Agreement).
- Butner had two full-time planners. We have consultant engineers who complete our stormwater reviews.
- The City of Oxford recently employed a grant writer. Staff are knowledgeable in GIS, floodplain management, stormwater, engineering, and emergency management.
- Stem has a part-time Zoning Administrator on staff.
- The Town of Macon has a governing board, mayor, and three part-time employees (Finance Officer, Lawn Maintenance Specialist, and Public Waste Specialist).

6.3.2.2 Floodplain Managers

While local staffing changes are common in many communities, the following table highlights the Floodplain Administrators as of November 2025, along with their contact information for participating jurisdictions that completed this question in the Capability Assessment Survey.

Table 6-7: Floodplain Administrators Reported by Participating Jurisdictions

Jurisdiction	Floodplain Admin Name	Title	Email Address/Phone #
Franklin County	**Jason Rogers**	**Interim Planning & Inspections Director**	**jrogers@franklincountync.gov**
	Tommy Harris	**Inspections Manager**	**tharris@franklincountync.us**
Bunn	*Does not participate in the NFIP*		
Franklinton	Chris George	Town Planner, Code Enforcement, Cemetery Coordinator	cgeorge@franklintonnc.gov
Louisburg	Philip Slayter	Louisburg Planning Department	(919) 497-1003 (919) 496-3406

Jurisdiction	Floodplain Admin Name	Title	Email Address/Phone #
Youngsville	David Duncan	Consulting Engineer	david.duncan@timmons.com
	Lucy Garcia	Planning Director	lgarcia@youngsvillenc.gov
Granville County	**Barry Baker**	**Planning Director**	**barry.baker@granvillecounty.org**
Butner	Jennifer Ganser	Planning Director	jganser@butnernc.org
Creedmoor	Michael Frangos	Community Development Director	(919) 764-1016
Oxford	Cheryl Hart	Planning Director	cheryl_hart@oxfordnc.org
	Tyrelle Evans	Planner	tyrelle.evans@oxfordnc.org
Stem	Roman Acosta	Zoning Administrator	roman.acosta@stemnc.org
Stovall	Drew Cummings	Granville County Manager	drew.cummings@granvillecounty.org
Vance County	**Sherry Moss**	**Planning & Development Director**	**smoss@vancecounty.org**
Henderson	Corey Williams	Planning Director (Development Services Director)	(252) 430-5725
Kittrell	*Refer to Vance County*		
Middleburg	*Does not participate in the NFIP*		
Warren County	**-**	**-**	**-**
Macon	*Does not participate in the NFIP*		
Norlina	*Does not participate in the NFIP*		
Warrenton	Robert Davie	Town Administrator	townadministrator@warrenton.nc.gov

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 external 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 primarily tied to staff time or to administrative costs associated with creating and monitoring a specific program. In other instances, direct expenses are linked to a particular project, such as the acquisition of flood-prone homes, which may require substantial commitments from local, state, and federal funding sources.

Local governments can strengthen fiscal capabilities by diversifying funding sources and integrating hazard mitigation into long-term financial planning. This may involve pursuing additional state and federal grant opportunities, establishing local funding mechanisms to support preparedness and resilience, and incorporating mitigation priorities into annual budgets or capital improvement programs. Jurisdictions can also explore cost-sharing arrangements, regional funding collaborations, and partnerships with private or nonprofit organizations to sustain mitigation projects and improve financial readiness for future resilience investments.

The Capability Assessment Survey was used to assess the region’s fiscal capabilities by identifying locally available financial resources. Table 6-8 provides a summary of the results for

the Tar River Region concerning 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) according to the previous county hazard mitigation plans. A dash (–) indicates a jurisdiction has not implemented an item. This includes:

- Capital Improvement Programming
- Community Development Block Grants (CDBG)
- Special Purpose Taxes (or taxing districts)
- Gas & Electric Utility Fees
- Water & Sewer Fees
- Stormwater Utility Fees
- Development Impact Fees
- General Obligation, Revenue, and/or Special Tax Bonds
- Partnering Arrangements or Intergovernmental Agreements
- Other: Pre-Disaster Mitigation Program (PDM), Flood Mitigation Assistance Program (FMA), Hazard Mitigation Grant Program (HMGP), Public Assistance (PA), Small Business Administration Funding (SBA), and other Federal and state funding sources, etc.

Table 6-8: Relevant Fiscal Resources

Fiscal Resources	**Franklin County**	Bunn	Franklinton	Louisburg*	Youngsville	**Granville County**	Butner	Creedmoor	Oxford	Stem	Stovall	**Vance County**	Henderson	Kittrell*	Middleburg*	**Warren County**	Macon	Norlina*	Warrenton
Capital Improvement Programming	✓	–	✓	–	✓	✓	✓	✓	✓	✓	–	✓	✓	–	–	✓	–	–	✓
Community Development Block Grants (CDBG)	–	–	✓	✓	–	✓	–	–	✓	–	–	–	✓	–	–	✓	–	–	–
Special Purpose Taxes (or taxing districts)	–	–	✓	–	–	✓	–	–	✓	–	–	–	–	–	–	✓	–	–	–
Gas / Electric Utility Fees	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	–	–
Water / Sewer Fees	✓	✓	–	–	–	–	–	–	✓	–	✓	–	✓	–	–	✓	–	–	✓
Stormwater Utility Fees	–	✓	–	–	–	✓	✓	✓	–	–	–	–	–	–	–	–	–	–	–
Development Impact Fees	–	✓	–	–	–	–	–	–	–	–	–	–	–	–	–	✓	–	–	–
General Obligation, Revenue, and/or Special Tax Bonds	–	–	✓	–	–	–	–	–	–	✓	–	–	–	–	–	✓	–	–	–
Partnering Arrangements or Intergovernmental Agreements	–	–	✓	✓	–	–	–	–	–	✓	–	–	–	✓	✓	✓	–	✓	–
Other: PDM, FMAP, HMGP, PA, SBA, and other Federal and state funding sources, etc.	✓	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

**Indicates the planning team used the results of the Capability Assessment Survey from the previous planning cycle for these jurisdictions to populate this table, along with a review of the jurisdictions' websites and other relevant materials, which were completed to supplement/update information not collected from the surveys.*

6.3.3.1 Community Notes

The bulleted list below captures additional community notes from participating jurisdictions, providing more details on their fiscal capabilities.

- For Franklin County, fiscal responsibilities reside within the County Manager's Office or the Utilities Department. Franklin County implements Recreation Fees (Other Category).
- Bunn has limited fiscal capabilities, often relying on county and/or state resources.
- Granville County has a fire tax district to support County Fire Services, provided by a network of volunteer and paid departments.
- Butner has a Capital Improvement Program for long-term capital projects. Water and sewer are handled through the South Granville Water and Sewer Authority (SGWASA). A stormwater fee is collected at the same time as property taxes are paid.
- Creedmoor has a Finance Director on staff.
- The Oxford Finance Department oversees the Capital Improvement Plan, the Engineering Department oversees the water/sewer fees, and CDBG grants are normally initiated with the Planning & Engineering department.
- Contact Tim Karan for questions on fiscal capabilities at tim.karan@stemnc.org.
- For Henderson, the City Manager, Assistant City Manager, and Finance Officer should be contacted for fiscal information.
- Warren County possesses a structured framework for managing fiscal resources to support program implementation and service delivery. This includes coordinating inter-agency funding mechanisms, managing grants, and ensuring compliance with fiscal policies and reporting requirements. Where applicable, departmental budgets are aligned with strategic priorities, and specific initiatives are funded through a combination of local revenues, state/federal grants, and special funding programs. Implementation is supported through financial planning tools, regular audits, and cross-departmental collaboration to ensure accountability and effective use of resources.
- For Macon, it would be the responsibility of the Mayor to work with Warren County officials on the implementation of any projects within the town limits of Macon, NC.
- In Warrenton, the Town Administrator/Zoning Administrator and Public Works Director are the parties responsible for fiscal matters.

6.3.4. Education & Outreach Capability

This type of local capability refers to education and outreach programs and methods already in place that can be utilized 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 Tornado Awareness Month. Jurisdictions can expand their education and outreach capabilities by developing consistent, inclusive strategies to inform and engage the public about local hazards and mitigation opportunities. This may include incorporating hazard awareness into public communications, community events, and school programs; maintaining accessible online resources; and fostering partnerships with civic groups,

businesses, and regional organizations to amplify outreach efforts. Enhancing communication channels before, during, and after disasters can also increase community understanding of risk and support long-term participation in mitigation.

This section of the Capability Assessment summarizes the Plan Area's results for relevant education and outreach resources in Table 6-9. A check mark (✓) indicates that the given resource is locally available for hazard mitigation. A dash (–) indicates a capability is not in place for the relevant jurisdiction.

Table 6-9: Education & Outreach Capability

Education & Outreach Resources	**Franklin County**	Bunn	Franklinton	Louisburg*	Youngsville	**Granville County**	Butner	Creedmoor	Oxford	Stem	Stovall	**Vance County**	Henderson	Kittrell*	Middleburg*	**Warren County**	Macon	Norlina*	Warrenton
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	–	–	–	–	–	✓	–	–	–	–	–	–	✓	–	–	–	–	–	–
StormReady certification	✓	–	–	–	–	✓	✓	–	–	–	–	–	–	–	–	✓	–	–	–
Firewise Communities certification	–	–	–	–	–	–	✓	–	–	–	–	–	–	–	–	–	–	–	–
Public-private partnership initiatives addressing disaster-related issues	–	–	–	–	–	–	–	–	–	–	✓	✓	–	–	–	✓	–	–	–

**Indicates the planning team used the results of the Capability Assessment Survey from the previous planning cycle for these jurisdictions to populate this table, along with a review of the jurisdictions' websites and other relevant materials, which were completed to supplement/update information not collected from the surveys.*

6.3.4.1 Community Notes

The bulleted list below captures additional community notes from participating jurisdictions, providing more details on their education and outreach capabilities.

- Franklin County has various Community Emergency Response Teams (CERT) and promotes preparedness for all-hazard incidents through various public outreach opportunities. The County has been certified StormReady since 2024.
- The Bunn Police Department conducts educational events for seniors and school-age children related to public safety.
- The Franklinton Tree & Bee Committee provides feedback and direction on various tree and bee-related matters within the Town of Franklinton. The Town of Franklinton is proud to be a Tree City USA and a Bee City USA.
- Granville County Local Emergency Preparedness Committee (LEPC) – EM Office conducts public outreach, social media posts, and preparedness and fire safety presentations. The EM Office also manages a SRMP in coordination with local schools.
- Butner's Public Safety Department is responsible for education and outreach activities, in coordination with the County.
- Creedmoor's Volunteer Fire Department conducts public outreach and educational activities.
- The City of Oxford constantly distributes handouts and literature via its website, social media, and handouts included with utility bills to provide information to residents. We also set up tables to provide information during special events.
- Stem works with the Tar River Land Conservancy for education and outreach activities.
- Vance County is actively distributing educational information to the public via social media. Our fire prevention and education program provides a small avenue of educational resources. Our current emergency management specialist is revitalizing the LEPC and relations with the schools and other community partners.
- The Henderson Fire Department provides outreach to schools, assists elderly living facilities and apartment buildings, and provides education on topics around fire safety and emergency preparedness.
- Warren County has a strong education and outreach program that has been implemented through multiple community events, like the Let's Talk Preparedness event in July 2025, and the Annual Firemen's Day, where we showcase the equipment we use during a disaster.

6.3.5. Local Self-Assessment

In addition to inventorying and analyzing specific local capabilities, the Local Capability Assessment Survey asked counties and local jurisdictions within the Region 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 barriers to implementing proposed mitigation strategies and mechanisms, and to identify ways to enhance them. In response to the survey questionnaire, county officials classified each capability indicator and their overall

capability as either “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 6-10: Local Capability Self-Assessment Results

Capability	**Franklin County**	Bunn	Franklinton	Louisburg*	Youngsville	**Granville County**	Butner	Creedmoor	Oxford	Stem	Stovall	**Vance County**	Henderson	Kittrell*	Middleburg*	**Warren County**	Macon	Norlina*	Warrenton
Planning and Regulatory Capabilities	**Moderate**	Limited	Moderate	Moderate	Limited	**Moderate**	Moderate	High	High	Limited	High	**Moderate**	Moderate	Moderate	Moderate	**Limited**	Limited	Moderate	Moderate
Administrative and Technical Capabilities	**Moderate**	Limited	Moderate	Moderate	Limited	**Moderate**	Moderate	High	High	Limited	Limited	**Moderate**	Limited	Moderate	Moderate	**Limited**	Limited	Moderate	Limited
Fiscal Capability	**Moderate**	Limited	Moderate	Limited	Limited	**Moderate**	Moderate	Moderate	High	Limited	Limited	**NA**	Limited	Limited	Limited	**Moderate**	Limited	Limited	Limited
Education and Outreach Capabilities	**High**	Limited	Limited	Limited	Limited	**Moderate**	Moderate	Moderate	High	Limited	Moderate	**Limited**	Limited	Moderate	Moderate	**Moderate**	Limited	Moderate	Limited
Political Capability	**Limited**	Limited	Limited	NA	Limited	**Moderate**	Moderate	Limited	High	Limited	Limited	**Limited**	NA	NA	NA	**Moderate**	Limited	NA	Limited

Capability	**Franklin County**	Bunn	Franklinton	Louisburg*	Youngsville	**Granville County**	Butner	Creedmoor	Oxford	Stem	Stovall	**Vance County**	Henderson	Kittrell*	Middleburg*	**Warren County**	Macon	Norlina*	Warrenton
Overall Capability Rating	**Moderate**	Limited	Moderate	Moderate	Limited	**Moderate**	Moderate	Moderate	High	Limited	Moderate	**Moderate**	Moderate	Moderate	Moderate	**Moderate**	Limited	Moderate	Limited
Overall Capability Score (1-10)	**7**	**2**	**6**	**4**	**7**	**9**	**8**	**7**	**10**	**5**	**4**	**7**	**7**	**4**	**4**	**6**	**1**	**4**	**4**

**Indicates the planning team used the results of the Capability Assessment Survey from the previous planning cycle for these jurisdictions to populate this table, along with a review of the jurisdictions' websites and other relevant materials, which were completed to supplement/update information not collected from the surveys.*

6.3.5.1 Community Notes

The bulleted list below captures additional community notes from participating jurisdictions, providing more details on their local self-assessments.

- Franklin County is confident that it will be able to implement mitigation efforts in the form of plans and exercises. Anything that requires county management or Board of Commissioners involvement may be more difficult.
- The Town of Bunn is capable but has limited resources for Public Works and Public Safety (Police).
- Youngsville has a small staff, with no full-time staff dedicated to hazard mitigation.
- NCEM's State Centric Plan for hazard mitigation projects removes the financial and overhead management burden from Granville County.
- As a small town, Butner would collaborate with the County or other agencies in the event of a hazard mitigation action.
- Creedmoor has a strong community development department, one finance professional on staff, and limited volunteers and political cohesion.
- The City of Oxford is committed to providing all necessary safeguards to ensure the residents are safe in the event of a disaster.
- Stem added a part-time Administrator in 2025.
- Vance County is striving to be a municipality of Vision, Vitality, and Variety. Our Fire Department has just received two boats to assist with water search-and-rescue and flood-mitigation events. We have also acquired one Utility Terrain Vehicle with a second apparatus pending. Our Planning Director has returned to the County with a wealth of knowledge and experience from her last position. Our Internet Technology Director and his staff have been phenomenal at mitigating cyber incidents on our county network. We have mutual aid agreements in place.
- The City of Henderson is fairly well equipped for hazard mitigation activities, given existing partnerships with Vance County Emergency Management, aid from surrounding agencies, and the utilization of State resources to expand capability if necessary.
- Warren County has come a long way in building up our capabilities, especially when it comes to managing finances, working across departments, and using data to guide our decisions. We have improved how we plan and manage our budget, and we have begun using more effective tools and technology to make our services more efficient and transparent. We have also invested in training our staff to better equip them to meet the needs of our community. That said, there’s still room to grow. We would like to improve our use of data to shape policies, work more closely with other organizations to tackle larger issues, and invest in projects that support long-term sustainability. We are also looking for new ways to bring in funding and strengthen our connection with the community to be more responsive and effective overall.

6.4. Conclusions on Local Capability

The overall capability to implement hazard mitigation actions varies among the participating jurisdictions. For planning and regulatory capability, a majority (11) of the jurisdictions rated themselves as moderately capable, five rated it as limited, and three rated it as high. In the administrative and technical capabilities category, eight jurisdictions rated themselves as limited, nine as moderate, and two as high. In the fiscal capability category, there were 11 limited ratings (the highest proportion among the capability categories), six moderate ratings, and only one high rating. The education and outreach capability category received nine limited and eight moderate ratings, with only two high ratings. Ten jurisdictions rated their political capacity to implement hazard mitigation actions as limited, followed by three moderate ratings and a single high rating. A majority (13) of the jurisdictions in the planning area rated their overall capability as moderate, followed by five limited ratings, and only a single high rating. Participating jurisdictions were also asked to rate their community's overall capability to implement hazard mitigation actions between zero and ten. Across the 19 jurisdictions that completed the Survey, the average overall rating is 5.6/10 (rounded to 1 decimal place). For a complete depiction of the self-assessment results, please refer to Figure 6-5.

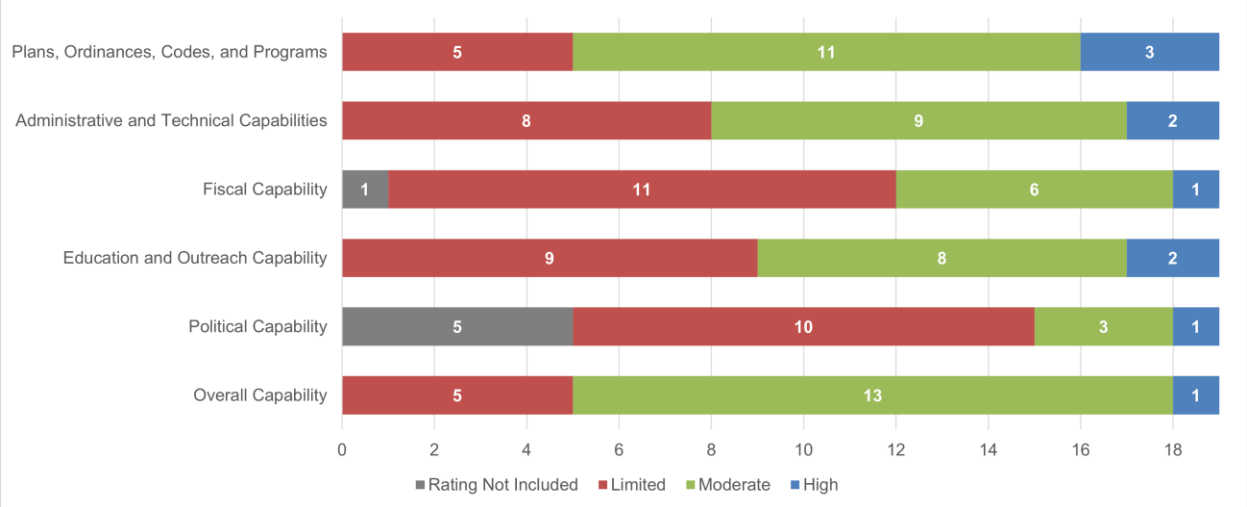


Figure 6-5: Local Capability Self-Assessment Results

6.4.1. Linking the Capability Assessment, Risk Assessment & Mitigation Plan

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 are identified for each jurisdiction in the tables throughout this section. The participating jurisdictions used the Capability Assessment as the basis for the mitigation actions identified in Section 8; therefore, each jurisdiction addresses its ability to expand and improve its existing capabilities by identifying those 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, the HMPC considered not only each jurisdiction's hazard risk level but also its existing capability to minimize or eliminate that risk.

SECTION 7: MITIGATION STRATEGY

This section of the Plan provides the blueprint for the participating jurisdictions in the Tar River Region to become less vulnerable to the identified hazards. It is based on the consensus of the Tar River Regional Hazard Mitigation Planning Committee (HMPC) and on the findings and conclusions of the Capability and Risk Assessments. It consists of the following five subsections:

- **7.1 Introduction**
- **7.2 Mitigation Goals**
- **7.3 Identification and Analysis of Mitigation Techniques**
- **7.4 Selection of Mitigation Techniques in the Tar River Region**
- **7.5 Plan Update Requirement**
- **7.6 Integrating the Mitigation Plan with Other Planning Mechanisms**

7.1. Introduction

The Mitigation Strategy aims to provide the Tar River Region's communities with goals that will serve as guiding principles for future mitigation policy and project administration, along with an analysis of available mitigation techniques to meet those goals and reduce the impact of identified hazards. It is designed to be comprehensive, strategic, and functional in nature:

- In being *comprehensive*, the development of the strategy includes a thorough review of all hazards. It identifies extensive mitigation measures intended not only to reduce the future impacts of high-risk hazards but also to help the region achieve compatible economic, environmental, and social goals.
- In being *strategic*, the development of the strategy ensures that all policies and projects proposed for implementation are consistent with pre-identified, long-term planning goals.
- In being *functional*, each proposed mitigation action is linked to established priorities and assigned to specific departments or individuals responsible for their implementation with target completion deadlines. When necessary, funding sources are identified to support project implementation.

The first step in designing the Mitigation Strategy is identifying mitigation goals. Mitigation goals represent broad statements that are achieved through the implementation of more specific mitigation actions. These actions include both hazard mitigation policies (such as regulating land in known hazard areas through a local ordinance) and hazard mitigation projects that address specifically targeted hazard risks (such as the acquisition and relocation of a repetitive-loss structure).

The second step involves identifying, considering, and analyzing available mitigation measures to achieve the identified mitigation goals. This is a long-term, continuous process sustained through the development and maintenance of this Plan. Alternative mitigation measures will

continue to be considered as future mitigation opportunities are identified, data and technology improve, mitigation funding becomes available, and this Plan is maintained over time.

The third and final step in designing the Mitigation Strategy is the selection and prioritization of specific mitigation actions for the Tar River Region (as provided separately in Section 8: Mitigation Action Plan). Each county and participating jurisdiction has its own Mitigation Action Plan (MAP) that reflects the needs and concerns of that jurisdiction. The MAP represents an unambiguous, functional plan of action and is considered the most essential outcome of the mitigation planning process.

The MAP includes a prioritized list of proposed hazard mitigation actions (policies and projects) for Franklin, Granville, Vance, and Warren Counties and their municipal jurisdictions to be completed. Each action includes information such as the departments or individuals responsible for implementation, potential funding sources, and an estimated completion date. The MAP provides the departments or individuals responsible for implementing mitigation actions with a clear roadmap that also serves as an important tool for monitoring progress over time. The cohesive collection of actions in the MAP can also serve as an easy-to-understand menu of mitigation policies and projects for local decision-makers who want to quickly review the recommendations and proposed actions in the Regional Hazard Mitigation Plan.

In preparing each Mitigation Action Plan for the Tar River Region, officials considered the overall risk and the capability to mitigate the effects of hazards, as recorded through the risk and capability assessment process, as well as the need to meet the adopted mitigation goals and the community's unique needs.

7.1.1. Mitigation Action Prioritization

The Regional Hazard Mitigation Planning Committee members were tasked with establishing priorities, implementation statuses, and completion timelines for each action. Prioritization of the proposed mitigation actions was based on the following six factors:

- Effect on overall risk to life and property
- Ease of implementation
- Political and community support
- A general economic cost/benefit review[1]
- Funding availability
- Continued compliance with the National Flood Insurance Program (NFIP)

[1] Only a general economic cost/benefit review was considered by the Regional Hazard Mitigation Planning Committee through the process of selecting and prioritizing mitigation actions. Mitigation actions with “high” priority were determined to be the most cost-effective and most compatible with the participating jurisdictions’ unique needs. Actions with a “moderate” priority were determined to be cost-effective and compatible with jurisdictional needs, but may be more challenging to complete administratively or financially than “high”- priority actions. Actions with a “low” priority were identified as important community needs, but the community likely faced several potential implementation challenges (e.g., lack of funding, technical obstacles). A more detailed cost-benefit analysis will be conducted for specific projects before applying for or obligating funding, as appropriate.

The point of contact for each county helped coordinate the prioritization process by reviewing each action and working with the lead agency/department responsible to determine a priority for each action using the six factors listed above.

Using these criteria, officials from the participating jurisdictions classified actions as high, moderate, or low priority.

7.2. Mitigation Goals

44 CFR Part 201.6(c)(3)(i):
The mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

The primary goal of all local governments is to promote the public health, safety, and welfare of its citizens. In keeping with this standard, Franklin, Granville, Vance, and Warren Counties, along with the participating municipalities, have developed nine goal statements for local hazard mitigation planning in the region. These goals are broad, long-term policy and vision statements that explain what is to be achieved by implementing the mitigation strategy. In developing these goals, the previous Plan's goals were reviewed to determine if they were still valid. The regional goals were presented, reviewed, voted on, and accepted by the HMPC at its third meeting (the Mitigation Action Strategy Meeting). Each goal is deliberately broad and establishes the parameters for developing additional mitigation actions. The Tar River Regional Mitigation Goals are presented in Table 7-1. Consistent implementation of actions over time will ensure that community goals are achieved.

Table 7-1: Tar River Regional Mitigation Goals

	Goal
Goal #1	Reduce the risk of loss of life and personal injury from natural hazards.
Goal #2	Reduce the risk and impact of future natural disasters by regulating development in known high-hazard areas and enhancing existing or creating new policies and ordinances that will help reduce the damaging effects of natural hazards and prevent vulnerability from increasing.
Goal #3	Pursue funds to reduce the risk of natural hazards to existing developments where such hazards are clearly identified, and the mitigation efforts are cost-effective.
Goal #4	Ensure that hazard mitigation is considered when redevelopment occurs after a natural disaster and expedite post-disaster reconstruction.
Goal #5	Protect the public health, safety, and welfare by increasing public awareness of hazards, providing education on protection from hazards, and encouraging collective and individual responsibility for mitigating hazard risks.
Goal #6	Protect the fragile natural and scenic areas of the region, particularly those areas that protect drinking water supplies.
Goal #7	Protect the most vulnerable populations, buildings, infrastructure, and critical facilities through the implementation of cost-effective and technically feasible mitigation actions.
Goal #8	Enhance emergency response during times of disaster.

	Goal
Goal #9	Improve technical capability to respond to hazards and to improve the effectiveness of hazard mitigation actions.

7.3. Identification and Analysis of Mitigation Techniques

44 CFR Part 201.6(c)(3)(ii):
The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effect of each hazard, with particular emphasis on new and existing buildings and infrastructure.

In formulating the Mitigation Strategy for the Tar River Region, a wide range of activities was considered to help achieve the established mitigation goals and address specific hazard concerns. These activities were discussed during the HMPC meetings. In general, all activities considered by the HMPC can be classified under one of the following six broad categories of mitigation techniques: Prevention, Property Protection, Natural Resource Protection, Structural Projects, Emergency Services, and Public Awareness and Education. These are discussed in detail below.

7.3.1. Prevention

Preventive activities aim to prevent hazards from worsening and are typically implemented through government programs or regulatory actions that influence how land is developed and buildings are constructed. They are particularly effective at reducing a community's future vulnerability, especially in areas where development has not occurred or capital improvements have been limited. Examples of preventative activities include:

- Planning and zoning
- Building codes
- Open space preservation
- Floodplain regulations
- Stormwater management regulations
- Drainage system maintenance
- Capital improvements programming
- Riverine / fault zone setbacks

7.3.2. Property Protection

Property protection measures involve modifying existing buildings and structures to better withstand the forces of a hazard or removing structures from hazardous locations. Examples include:

- Acquisition
- Relocation

- Building elevation
- Critical facilities protection/generators
- Retrofitting (e.g., wind proofing, floodproofing, seismic design techniques, etc.)
- Safe rooms, shutters, shatter-resistant glass
- Insurance

7.3.3. 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 dunes. Parks, recreation, or conservation agencies and organizations often implement these protective measures. Examples include:

- Floodplain protection
- Watershed management
- Riparian buffers
- Forest and vegetation management (e.g., fire-resistant landscaping, fuel breaks, etc.)
- Erosion and sediment control
- Wetland preservation and restoration
- Habitat preservation
- Slope stabilization

7.3.4. Structural Projects

Structural mitigation projects are intended to lessen the impact of a hazard by modifying the natural progression of the hazard event through construction. They are usually designed by engineers and managed or maintained by public works staff. Examples include:

- Reservoirs
- Dams / levees / dikes / floodwalls
- Diversions / detention / retention
- Channel modification
- Storm sewers

7.3.5. Emergency Services

Although not typically considered a “mitigation” technique, emergency service measures do minimize the impact of a hazard event on people and property. These are common actions taken immediately before, during, or in response to a hazard event. Examples include:

- Warning systems
- Generators
- Evacuation planning and management
- Emergency response training and exercises

- Sandbagging for flood protection
- Installing temporary shutters for wind protection

7.3.6. Public Education and Awareness

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

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

7.4. Selection of Mitigation Techniques in the Tar River Region

To determine the most appropriate mitigation techniques for communities in the Tar River Region, HMPC members thoroughly reviewed and considered the findings of the Capability and Risk Assessments to identify the best activities for their respective communities. Other considerations included the effect of each mitigation action on overall risk to life and property, its ease of implementation, its degree of political and community support, its general cost-effectiveness, and funding availability (if necessary).

7.5. Plan Update Requirement

In keeping with the FEMA requirements for plan updates, the Mitigation Actions identified in the previous plan were evaluated to determine their current implementation status. Updates on the implementation status of each action are provided. The mitigation actions in Section 8: Mitigation Action Plan include those from the previous plan, as well as any new actions proposed through the current planning process.

7.6. Integrating the Mitigation Plan with Other Planning Mechanisms

An overarching method by which the HMPC integrated the previous version of the Tar River 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, stakeholder-driven initiative 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 input into the Blueprint Tool as pre-identified actions. By entering these actions into the Blueprint Tool platform, the HMPC 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.

SECTION 8: MITIGATION ACTION PLAN

CFR §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 Federal Emergency Management Agency (FEMA) after October 1, 2008, must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.

This section lists the mitigation actions proposed by participating jurisdictions in the Tar River Region. It consists of the following two subsections:

- **8.1 Overview**
- **8.2 Mitigation Action Plans**

8.1. Overview

As described in the previous section, the Mitigation Action Plan, or MAP, provides a functional plan of action for each jurisdiction. It is designed to achieve the mitigation goals established in Section 7: Mitigation Strategy and will be maintained regularly in accordance with the plan maintenance procedures established in Section 9: Plan Maintenance.

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 MAP, along with background information such as the hazard(s) addressed and the 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 and in Section 7.1.1. 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.

Hazard(s) Addressed — Hazard that the action addresses.

Relative Priority — High, moderate, or low priority as assigned by the jurisdiction. Mitigation actions with "high" priority were determined to be the most cost-effective and most compatible with the participating jurisdictions' unique needs. Actions with a "moderate" priority were determined to be cost-effective and compatible with jurisdictional needs but may be more

challenging to complete administratively or fiscally than “high” priority actions. Actions with a “low” priority were deemed important to community needs, but the community likely identified several potential implementation challenges (e.g., lack of funding, technical obstacles).

Lead Agency/Department — Department responsible for undertaking the action.

Potential Funding Sources — Local, State, or Federal sources of funds are noted here, where applicable.

Estimated Cost — Anticipated cost of the action. (Low- less than $25k, Medium- $25k-$75k, High- more than $75k)

Timeframe — Date by which the action should be completed. More information is provided when possible.

Status — Indication of completion, progress, deferment, or no change since the previous plan. If the action is new, that will be noted here.

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) 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.
	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.

Category	Definition	
	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 an 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.
	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 Hazard Mitigation Plan (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

8.2. Mitigation Action Plans

The mitigation actions proposed by each participating jurisdiction are listed on the following pages.

8.2.1. Franklin County

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Each local government participating in this HMP will: 1) continue to monitor the types and numbers of structures (including infrastructure and critical facilities) that might be located in known hazard areas based on their best available current projections, and 2) calculate aggregate projected dollar losses for each type of development and for each hazard risk.	All Hazards	High	Franklin County Planning Director	Local	Moderate	To Be Continued	Long-Term	Local governments have worked to monitor their structures that might be located in known hazard areas and continue to do so through this planning effort. However, all jurisdictions need to make a stronger effort to assess potential solutions going forward, so this action will remain in place. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	The party responsible will coordinate with each department head in the local government and produce a report on ways in which hazard mitigation goals, objectives, and tasks can be incorporated into existing policies and implemented through existing programs and personnel.	All Hazards	High	Franklin County Planning Director	Local	Moderate	To Be Continued	Long-Term	The county planning department has worked on including mitigation goals/tasks into existing policies/programs, but there is still a good deal of effort that needs to be made to fully incorporate hazard mitigation into other areas of local governance.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Consideration of adoption and/or refinement of a Capital Improvements Program (CIP).	All Hazards	Medium	Franklin County Manager	NC Rural Economic Development Center	Moderate	To Be Continued	Long-Term	The county has a Capital Improvements Program in place and will revise it, as necessary. This action will be updated as needed or during the next HMP update process.
Prevention	Review "Firewise" zoning and subdivision standards and report on their appropriateness for incorporation into existing (or new) zoning and subdivision ordinances.	Wildfire	Low	Franklin County Planning Director, Local Fire Chief Officials, Franklin County Fire Marshall	Local	Moderate	Complete	--	The County has adopted the minimum turnaround standards established in the North Carolina State Fire Prevention Code into its Unified Development Ordinance.
Prevention	Work with the North Carolina Department of Transportation (NCDOT) Division Five Highway Operations unit and convene a working group (county-wide or local) to develop solutions to localized drainage issues caused (in part or entirely) by NCDOT-maintained drainage facilities.	Flood	Low	Franklin County Planning Director	NCDOT Division Maintenance Division	Moderate	To Be Continued	Medium-Term	Local drainage issues have been addressed in some of the recent NCDOT projects, but there are many drainage issues throughout the county that will need to be resolved before this action can be considered complete. These issues will be addressed as funding allows and project opportunities are identified. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Work with the NC State Office of Dam Safety (ODS) to: 1) ensure that all dams in Franklin County for which the ODS has jurisdiction are inspected on a regular basis; 2) ensure that ODS notifies the Franklin County Emergency Management (EM) office of all ODF jurisdictional dams classified as “high hazard” or “distressed” dams; c) attempt to ensure that all high hazard or distressed dams in the county have an updated and implemented operations and maintenance plan and emergency action plans; and d) provide the County EM office with an inventory of all ODS jurisdictional dams in the county.	Dam Failure, Flood	Low	Franklin County Emergency Management Director	NC Dam Safety Program, NC Rural Center	Moderate	To Be Continued	Long-Term	Although there have been some efforts to coordinate this inspection process, there is still a great deal of coordination that needs to be worked out to ensure inspections of all high-hazard dams are taking place and that the county is involved in the process. This action will be updated as needed or during the next HMP update process.
Prevention	Convene a working group with electric service providers in the county and produce a report, with specific recommendations and detailed implementation timelines, which address the issues of 1) disaster preparedness techniques (e.g., tree trimming, pole replacement) and 2) communication with county officials during and immediately after a natural hazard event that results in loss of electrical power.	Severe Weather, Winter Storms	Medium	Franklin County Emergency Management Director	Local	Moderate	To Be Continued	Long-Term	Although some coordination with service providers has taken place on an ad hoc basis, the county/town has not established a continual working group due to a lack of staff time. The town will continue to work with the county to pursue this action going forward. This action will be updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Seek grant funding for mitigation opportunities. Projects may include acquisition, elevation, mitigation reconstruction, and wet/dry flood proofing to commercial and/or residential structures as applicable; redundant power to critical facilities, storm shelters, and other activities that reduce the loss of life and property as a result of impacts from natural hazards.	All Hazards	Medium	Franklin County Emergency Management	Local, state, or federal grant funding	Moderate	New	Long-Term	--
Property Protection	Apply for funding through the FEMA High Hazard Dam Repair Program for mitigation measures associated with high hazard dams, to include: 1. Geotechnical investigation to establish data for risk analysis and development of engineering designs/solutions 2. Build an upstream dam to reduce the load on the existing dam 3. Property Acquisition in inundation areas below the dam 4. Raise the crest of the dam to increase storage capacity 5. Add additional spillways, widen or lower existing spillways to increase discharge capacity 6. Warning systems to alert downstream areas of potential dam failure 7. Improve the flow path below the dam to increase the conveyance capacity	Dam Failure, Flood, Hurricane	High	Franklin County Emergency Management Director	Federal, State	High	To Be Continued	Long-Term	Will apply for funding as eligible High Hazard Potential Dam (HHPD) projects are identified and implemented as eligible HHPD projects are identified. This action will be updated and reviewed as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
	8. Encourage conservation or reforestation of upstream land to reduce runoff 9. Development of community Stormwater Management Plans for upstream communities 10. Complete an Emergency Action Plan in conjunction with NC Department of Environmental Quality (NCDEQ) for all High Hazard Dams in the county								
Property Protection	NCDEQ Dam Safety developed a risk-based selection and prioritization process for addressing high-hazard dams as funding becomes available. This process will be employed by NCEM and by communities that wish to participate in the HHDR program. The analysis complies with the latest practices in dam safety risk management and is compliant with FEMA's Federal Guidelines for Dam Safety Risk Management, FEMA publication P-1025. Initial screening steps include securing buy-in and support from the local government/dam owner(s) and assurance that cost-matching requirements can be met by the local government. The second level of screening involves confirming that a particular dam is identified as a High Hazard Dam and has an updated Emergency Action Plan.	Dam Failure, Flood, Hurricane	High	Franklin County Emergency Management Director	Federal, State	High	To Be Continued	Medium-Term	This action is continually implemented under the established NCDEQ/NCEM risk-based prioritization process for high-hazard dams. Screening and coordination align with guidance as part of the routine dam safety activities. This action will be reviewed and updated as needed or during the next HMP update process. This action will be updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Property Protection	Apply for funding from the Hazard Mitigation Grant Program (HMGP) and other Hazard Mitigation Assistance (HMA) Programs for hazard mitigation projects.	All Hazards	High	Franklin County Planning Director	Federal, State	Moderate	To Be Continued	Long-Term	There has generally not been successful funding of brick-and-mortar type projects. Therefore, the jurisdiction will continue to pursue this action as projects are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Franklin County	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.
Public Education and Awareness	Encourage builders, developers, and architects to become familiar with the NFIP land use and building standards by attending annual workshops presented by the NC Division of Emergency Management (NCEM). This can be accomplished by creating a mailing list and providing it to Departments of Emergency Management (DEM) to use for its announcements. This task can be further supported by distributing copies of DEM's announcement from the city and county inspections departments when builders and developers apply for permits.	Flood	Medium	Franklin County Planning Director	FEMA, American Red Cross (ARC)	Moderate	To Be Continued	Long-Term	Builders, developers, etc., are always able to attend these workshops, but there has not been much effort made to encourage these groups to attend these kinds of sessions. The county will need to re-evaluate its process for implementing this action. This action will be reevaluated as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Ensure that the local library maintains documents about flood insurance, flood protection, floodplain management, and natural and beneficial functions of floodplains. Many documents are available free of charge from the Federal Emergency Management Agency (FEMA).	Flood	Medium	Franklin County Planning Director; Franklin County Emergency Services Emergency Management	FEMA, ARC	Moderate	To Be Continued	Long-Term	Local libraries have maintained information about flood insurance and protection, but the materials have not been evaluated recently and may need to be replaced to ensure they reflect the most up-to-date information. This information will be updated as needed or as new materials are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Implement public education efforts designed to help inform the public of their exposure to all natural hazards and to inform them of actions they can take to mitigate the damage to their health and property from natural hazards.	All Hazards	Medium	Franklin County Planning Director; Franklin County Emergency Services Emergency Management	FEMA, ARC	Moderate	To Be Continued	Short-Term	The county has worked with the Red Cross to try to improve efforts by the public to mitigate damage, but there is still significant work that needs to be done to educate the public on these matters. This action will remain in the plan and will be implemented as opportunities are identified. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Provide local real estate agents with handouts that will advise potential buyers to investigate the flood hazard for the property they are considering purchasing.	Flood	Medium	Franklin County Planning Director	FEMA, ARC	Moderate	To Be Continued	Medium-Term	Some handouts have been developed by the county and passed along to real estate agents, but not every agent has been reached, and it is likely that the information needs to be updated, so the county will keep this action in place. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Send a flood protection flyer to all properties in the county through a community newsletter, utility bill, telephone book, or other document that is distributed to all residences. The flyer should include the following information: the name and location of the closest, county-approved shelter, a general identification of the local flood hazard, flood safety, flood insurance, property protection, floodplain development permit requirements, and drainage system maintenance.	Flood	Medium	Franklin County Planning Director	FEMA, ARC	Moderate	To Be Continued	Long-Term	The county and city have pushed out information to some residents via flyers, but they have not been able to reach all residents, so there will need to be additional efforts to evaluate the best techniques for getting this information out to the public. The county and city will evaluate this action and try to improve it going forward. This action will be reviewed and updated as needed or during the next HMP update process.

Bunn

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Each local government participating in this HMP will: 1) continue to monitor the types and numbers of structures (including infrastructure and critical facilities) that might be located in known hazard areas based on their best available current projections, and 2) calculate aggregate projected dollar losses for each type of development and for each hazard risk.	All Hazards	High	Bunn Town Administrator/ Manager	Local	Moderate	To Be Continued	Long-Term	Local governments have worked to monitor their structures that might be located in known hazard areas and continue to do so through this planning effort. However, all jurisdictions need to make a stronger effort to assess potential solutions going forward, so this action will remain in place. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	The party responsible will coordinate with each department head in the local government and produce a report on ways in which hazard mitigation goals, objectives, and tasks can be incorporated into existing policies and implemented through existing programs and personnel.	All Hazards	High	Bunn Town Administrator/ Manager	Local	Moderate	To Be Continued	Long-Term	The town manager has worked on including mitigation goals/tasks into existing policies/programs, but there is still a good deal of effort that needs to be made to fully incorporate hazard mitigation into other areas of local governance. This action will be implemented as staff availability and funding allow. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Adoption of Subdivision Regulations.	All Hazards	Medium	Bunn Town Administrator, Kerr-Tar Council of Governments (COG)	State Department of Commerce	High	In Progress	Long-Term	The town has not adopted subdivision regulations due to a lack of staff time, but it will continue to work towards adopting these in the future. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Consideration of adoption or refinement of a CIP.	All Hazards	Medium	Bunn Town Manager/ Administrator	NC Rural Economic Development Center	Moderate	To Be Continued	Long-Term	The county has a Capital Improvements Program in place and will revise it, as necessary. This action will be updated as needed or during the next HMP update process.
Prevention	Development (or update) of a Parks and Recreation Master Plan, incorporating purchase and development of flood-prone or other natural hazard-prone lands for recreational activities as a priority.	Flood	Low	Bunn Town Administrator	NC Parks and Recreation Trust Fund	Moderate	To Be Continued	Long-Term	The town has not developed a parks and recreation master plan due to a lack of staff time and funding, but it would like to continue to pursue this action. This action will be implemented in the future as funding is identified and staff availability allows. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Convene a working group with electric service providers in the county and produce a report, with specific recommendations and detailed implementation timelines, which address the issues of 1) disaster preparedness techniques (e.g., tree trimming, pole replacement) and 2) communication with county officials during and immediately after a natural hazard event that results in loss of electrical power.	Severe Weather, Winter Storms, Tornadoes, Hurricanes	Medium	Bunn Town Administrator/ Manager (Franklin County is the lead)	Local	Moderate	To Be Continued	Long-Term	Although some coordination with service providers has taken place on an ad hoc basis, the county/town has not established a continual working group due to a lack of staff time. The town will continue to work with the county to pursue this action going forward. This action will be updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Property Protection	Work with the NCDOT Division Five Highway Operations unit and convene a working group (county-wide or local) to develop solutions to localized drainage issues caused (in part or entirely) by NCDOT-maintained drainage facilities.	Flood	Low	Bunn Public Works Director/Water System Operator	NCDOT Division Maintenance Division	Moderate	To Be Continued	Medium-Term	Local drainage issues have been addressed in some of the recent NCDOT projects, but there are many drainage issues throughout the county that will need to be resolved before this action can be considered complete. These issues will be addressed as funding allows and project opportunities are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Property Protection	Apply for funding from the HMGP for mitigation-related projects.	All Hazards	High	Bunn Town Administrator/ Manager	Federal, State	Moderate	To Be Continued	Long-Term	There has generally not been successful funding of brick-and-mortar type projects. Therefore, the jurisdiction will continue to pursue this action. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Franklin County, Town of Bunn	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Warren County	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Encourage builders, developers, and architects to become failure with the NFIP land use and building standards by attending annual workshops presented by the NCEM. This can be accomplished by creating a mailing list and providing it to DEM to use for its announcements. This task can be further supported by distributing copies of DEM's announcement from the city and county inspections departments when builders and developers apply for permits.	Flood	Medium	Bunn Town Clerk	FEMA, ARC	Moderate	To Be Continued	Long-Term	Builders, developers, etc., are always able to attend these workshops, but there has not been much effort made to encourage these groups to attend these kinds of sessions. The county will need to re- evaluate its process for implementing this action. This action will be reevaluated as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Ensure that the local library maintains documents about flood insurance, flood protection, floodplain management, and natural and beneficial functions of floodplains. Many documents are available free of charge from the FEMA .	Flood	Medium	Bunn Town Clerk	FEMA, ARC	Moderate	To Be Continued	Long-Term	Local libraries have maintained information about flood insurance and protection, but the materials have not been evaluated recently and may need to be replaced to ensure they reflect the most up-to-date information. This information will be updated as needed or as new materials are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Implement public education efforts designed to help inform the public of their exposure to all natural hazards and to inform them of actions they can take to mitigate the damage to	All Hazards	Medium	Bunn Town Clerk	FEMA, ARC	Moderate	To Be Continued	Short-Term	The county has worked with the Red Cross to try to improve efforts by the public to mitigate damage, but there is still significant work that needs to be done to educate the public on these matters. This action will remain in the

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
	their health and property from natural hazards.								plan and will be implemented as opportunities are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Provide local real estate agents with handouts that will advise potential buyers to investigate the flood hazard for the property they are considering purchasing.	Flood	Medium	Bunn Town Clerk	FEMA, ARC	Moderate	To Be Continued	Medium-Term	Some handouts have been developed by the county and passed along to real estate agents, but not every agent has been reached, and it is likely that the information needs to be updated, so the county will keep this action in place. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Send a flood protection flyer to all properties in the county through a community newsletter, utility bill, telephone book, or other document that is distributed to all residences. The flyer should include the following information: the name and location of the closest, county-approved shelter, a general identification of the local flood hazard, flood safety, flood insurance, property protection, floodplain development permit requirements, and drainage system maintenance.	Flood	Medium	Bunn Town Clerk	FEMA, ARC	Moderate	To Be Continued	Long-Term	The county and city have pushed out information to some residents via flyers, but they have not been able to reach all residents, so there will need to be additional efforts to evaluate the best techniques for getting this information out to the public. The county and city will evaluate this action and try to improve it going forward. This action will be reviewed and updated as needed or during the next HMP update process.

Franklinton

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Each local government participating in this HMP will: 1) continue to monitor the types and numbers of structures (including infrastructure and critical facilities) that might be located in known hazard areas based on their best available current projections, and 2) calculate aggregate projected dollar losses for each type of development and for each hazard risk.	All Hazards	High	Franklinton Town Administrator / Manager	Local	Moderate	To Be Continued	Long-Term	Local governments have worked to monitor their structures that might be located in known hazard areas and continue to do so through this planning effort. However, all jurisdictions need to make a stronger effort to assess potential solutions going forward, so this action will remain in place. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	The party responsible will coordinate with each department head in the local government and produce a report on ways in which hazard mitigation goals, objectives, and tasks can be incorporated into existing policies and implemented through existing programs and personnel.	All Hazards	High	Franklinton Town Administrator / Manager	Local	Moderate	To Be Continued	Long-Term	The town manager has worked on including mitigation goals/tasks into existing policies/programs, but there is still a good deal of effort that needs to be made to fully incorporate hazard mitigation into other areas of local governance. This action will be implemented as staff availability and funding allow. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Consideration of adoption or refinement of a CIP.	All Hazards	Medium	Franklinton Town Manager/ Administrator	NC Rural Economic Development Center	Moderate	To Be Continued	Long-Term	The county and town have a Capital Improvements Program in place and will revise it, as necessary. This action will be updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Development (or update) of a Parks and Recreation Master Plan, incorporating purchase and development of flood-prone or other natural hazard-prone lands for recreational activities as a priority.	Flood	Low	Franklinton Town Administrator	NC Parks and Recreation Trust Fund	Moderate	To Be Continued	Long-Term	The town has not developed a parks and recreation master plan due to a lack of staff time and funding, but it would like to continue to pursue this action. This action will be implemented in the future as funding is identified and staff availability allows. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Convene a working group with electric service providers in the county and produce a report, with specific recommendations and detailed implementation timelines, which address the issues of 1) disaster preparedness techniques (e.g., tree trimming, pole replacement) and 2) communication with county officials during and immediately after a natural hazard event that results in loss of electrical power.	Tornado, Hurricane, Severe Weather, Winter Storm	Medium	Franklinton Town Administrator / Manager (Franklin County is the lead)	Local	Moderate	To Be Continued	Long-Term	Although some coordination with service providers has taken place on an ad hoc basis, the county/town has not established a continual working group due to a lack of staff time. The town will continue to work with the county to pursue this action going forward. This action will be updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Property Protection	Working on completion of an Emergency Action Plan for the Franklinton Reservoir Dam. Completion of the plan will coincide with the development of an application for assistance with repairs on the Franklinton Reservoir Dam. Following initial screening, a relative risk evaluation will be conducted to compare dam-specific conditions and risks. Where failure modes are driven by hydrologic concerns (under-sized spillways, poor design, or other features/factors that might suggest a higher risk of catastrophic failure) are ranked ahead of dams that exhibit more static problems, such as seepage or scouring. Although such conditions are cause for concern, they do not necessarily suggest that a catastrophic failure could be imminent. To complete the assessment, subject dams are plotted on a matrix comparing the approximate/relative likelihood of failure to the approximate/relative consequence of failure.	Dam Failure	High	Franklin County, the Town of Franklinton, Franklin EM, and the NCDEQ	Federal, State, Local	Moderate	To Be Continued	Long-Term	Although there have been some efforts to coordinate this inspection process, there is still a great deal of coordination that needs to be worked out to ensure inspections of all high-hazard dams are taking place and that the county is involved in the process. This action will be updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Property Protection	Work with the NCDOT Division Five Highway Operations unit and convene a working group (county-wide or local) to develop solutions to localized drainage issues caused (in part or entirely) by NCDOT-maintained drainage facilities.	Flood	Low	Franklinton Public Works Director/Water System Operator	NCDOT Division Maintenance Division	Moderate	To Be Continued	Medium-Term	Local drainage issues have been addressed in some of the recent NCDOT projects, but there are many drainage issues throughout the county that will need to be resolved before this action can be considered complete. These issues will be addressed as funding allows and project opportunities are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Property Protection	Apply for funding from the HMGP for mitigation-related projects.	All Hazards	High	Franklinton Town Administrator / Manager	Federal, State	Moderate	To Be Continued	Long-Term	There has generally not been successful funding of brick-and-mortar type projects. Therefore, the jurisdiction will continue to pursue this action. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Franklin County, Town of Franklinton	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Encourage builders, developers, and architects to become failure with the NFIP land use and building standards by attending annual workshops presented by the NCEM. This can be accomplished by creating a mailing list and providing it to DEM to use for its announcements. This task can be further supported by distributing copies of DEM's announcement from the city and county inspections departments when builders and developers apply for permits.	Flood	Medium	Franklinton Town Clerk	FEMA, ARC	Moderate	To Be Continued	Long-Term	Builders, developers, etc., are always able to attend these workshops, but there has not been much effort made to encourage these groups to attend these kinds of sessions. The county will need to re-evaluate its process for implementing this action. This action will be reevaluated as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Ensure that the local library maintains documents about flood insurance, flood protection, floodplain management, and natural and beneficial functions of floodplains. Many documents are available free of charge from the FEMA .	Flood	Medium	Franklinton Town Clerk	FEMA, ARC	Moderate	To Be Continued	Long-Term	Local libraries have maintained information about flood insurance and protection, but the materials have not been evaluated recently and may need to be replaced to ensure they reflect the most up-to-date information. This information will be updated as needed or as new materials are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Provide local real estate agents with handouts that will advise potential buyers to investigate the flood hazard for the property they are considering purchasing.	Flood	Medium	Franklinton Town Clerk	FEMA, ARC	Moderate	To Be Continued	Medium-Term	Some handouts have been developed by the county and passed along to real estate agents, but not every agent has been reached, and it is likely that the information needs to be updated, so the county will keep this action in place. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Implement public education efforts designed to help inform the public of their exposure to natural hazards and to inform them of actions they can take to mitigate the damage to their health and property from natural hazards.	All Hazards	Medium	Franklinton Town Clerk	FEMA, ARC	Moderate	To Be Continued	Medium-Term	The county has worked with the Red Cross to try to improve efforts by the public to mitigate damage, but there is still significant work that needs to be done to educate the public on these matters. This action will remain in the plan and will be implemented as opportunities are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Send a flood protection flyer to all properties in the county through a community newsletter, utility bill, telephone book, or other document that is distributed to all residences. The flyer should include the following information: the name and location of the closest, county-approved shelter, a general identification of the local flood hazard, flood safety, flood insurance, property protection, floodplain development permit requirements, and drainage system maintenance.	Flood	Medium	Franklinton Town Clerk	FEMA, ARC	Moderate	To Be Continued	Long-Term	The county and city have pushed out information to some residents via flyers, but they have not been able to reach all residents, so there will need to be additional efforts to evaluate the best techniques for getting this information out to the public. The county and city will evaluate this action and try to improve it going forward. This action will be reviewed and updated as needed or during the next HMP update process.

Louisburg

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Each local government participating in this HMP will: 1) continue to monitor the types and numbers of structures (including infrastructure and critical facilities) that might be located in known hazard areas based on their best available current projections, and 2) calculate aggregate projected dollar losses for each type of development and for each hazard risk.	All Hazards	High	Louisburg Town Administrator/ Manager	Local	Moderate	To Be Continued	Long-Term	Local governments have worked to monitor their structures that might be located in known hazard areas and continue to do so through this planning effort. However, all jurisdictions need to make a stronger effort to assess potential solutions going forward, so this action will remain in place. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	The party responsible will coordinate with each department head in the local government and produce a report on ways in which hazard mitigation goals, objectives, and tasks can be incorporated into existing policies and implemented through existing programs and personnel.	All Hazards	High	Louisburg Town Administrator/ Manager	Local	Moderate	To Be Continued	Long-Term	The town manager has worked on including mitigation goals/tasks into existing policies/programs, but there is still a good deal of effort that needs to be made to fully incorporate hazard mitigation into other areas of local governance. This action will be implemented as staff availability and funding allow. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Consideration of adoption or refinement of a CIP.	All Hazards	Medium	Louisburg Town Manager/ Administrator	NC Rural Economic Development Center	Moderate	To Be Continued	Long-Term	The county has a Capital Improvements Program in place and will revise it, as necessary. This action will be updated as needed or during the next HMP update process.
Prevention	Convene a working group with electric service providers in the county and produce a report, with specific recommendations and detailed implementation timelines, which address the issues of 1) disaster preparedness techniques (e.g., tree trimming, pole replacement) and 2) communication with county officials during and immediately after a natural hazard event that results in loss of electrical power.	Tornado, Hurricane, Severe Weather, Winter Storm	Medium	Louisburg Town Administrator/ Manager (Franklin County is the lead)	Local	Moderate	To Be Continued	Long-Term	Although some coordination with service providers has taken place on an ad hoc basis, the county/town has not established a continual working group due to a lack of staff time. The town will continue to work with the county to pursue this action going forward. This action will be updated as needed or during the next HMP update process.
Property Protection	Work with the NCDOT Division Five Highway Operations unit and convene a working group (county-wide or local) to develop solutions to localized drainage issues caused (in part or entirely) by NCDOT-maintained drainage facilities.	Flood	Low	Louisburg Public Works Director/Water System Operator	NCDOT Division Maintenance Division	Moderate	To Be Continued	Medium-Term	Local drainage issues have been addressed in some of the recent NCDOT projects, but there are many drainage issues throughout the county that will need to be resolved before this action can be considered complete. These issues will be addressed as funding allows and project opportunities are identified. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Property Protection	Apply for funding from the HMGP for mitigation-related projects.	All Hazards	High	Louisburg Town Administrator/ Manager	Federal, State	Moderate	To Be Continued	Long-Term	There has generally not been successful funding of brick-and-mortar type projects. Therefore, the jurisdiction will continue to pursue this action. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Franklin County, Town of Louisburg	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.
Public Education and Awareness	Encourage builders, developers, and architects to become failure with the NFIP land use and building standards by attending annual workshops presented by the NCEM. This can be accomplished by creating a mailing list and providing it to DEM to use for its announcements. This task can be further supported by distributing copies of DEM's announcement from the city and county inspections departments when builders and developers apply for permits.	Flood	Medium	Louisburg Town Clerk	FEMA, ARC	Moderate	To Be Continued	Long-Term	Builders, developers, etc., are always able to attend these workshops, but there has not been much effort made to encourage these groups to attend these kinds of sessions. The county will need to re-evaluate its process for implementing this action. This action will be reevaluated as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Ensure that the local library maintains documents about flood insurance, flood protection, floodplain management, and natural and beneficial functions of floodplains. Many documents are available free of charge from the FEMA .	Flood	Medium	Louisburg Town Clerk	FEMA, ARC	Moderate	To Be Continued	Long-Term	Local libraries have maintained information about flood insurance and protection, but the materials have not been evaluated recently and may need to be replaced to ensure they reflect the most up-to-date information. This information will be updated as needed or as new materials are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Provide local real estate agents with handouts that will advise potential buyers to investigate the flood hazard for the property they are considering purchasing.	Flood	Medium	Louisburg Town Clerk	FEMA, ARC	Moderate	To Be Continued	Medium-Term	Some handouts have been developed by the county and passed along to real estate agents, but not every agent has been reached, and it is likely that the information needs to be updated, so the county will keep this action in place. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Implement public education efforts designed to help inform the public of their exposure to natural hazards and to inform them of actions they can take to mitigate the damage to their health and property from natural hazards.	All Hazards	Medium	Louisburg Town Clerk	FEMA, ARC	Moderate	To Be Continued	Medium-Term	The county has worked with the Red Cross to try to improve efforts by the public to mitigate damage, but there is still significant work that needs to be done to educate the public on these matters. This action will remain in the plan and will be implemented as opportunities are identified. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Send a flood protection flyer to all properties in the county through a community newsletter, utility bill, telephone book, or other document that is distributed to all residences. The flyer should include the following information: the name and location of the closest, county-approved shelter, a general identification of the local flood hazard, flood safety, flood insurance, property protection, floodplain development permit requirements, and drainage system maintenance.	Flood	Medium	Louisburg Town Clerk	FEMA, ARC	Moderate	To Be Continued	Long-Term	The county and city have pushed out information to some residents via flyers, but they have not been able to reach all residents, so there will need to be additional efforts to evaluate the best techniques for getting this information out to the public. The county and city will evaluate this action and try to improve it going forward. This action will be reviewed and updated as needed or during the next HMP update process.

Youngsville

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Each local government participating in this HMP will: 1) continue to monitor the types and numbers of structures (including infrastructure and critical facilities) that might be located in known hazard areas based on their best available current projections, and 2) calculate aggregate projected dollar losses for each type of development and for each hazard risk.	All Hazards	High	Youngsville Town Administrator/ Manager	Local	Moderate	To Be Continued	Long-Term	Local governments have worked to monitor their structures that might be located in known hazard areas and continue to do so through this planning effort. However, all jurisdictions need to make a stronger effort to assess potential solutions going forward, so this action will remain in place. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	The party responsible will coordinate with each department head in the local government and produce a report on ways in which hazard mitigation goals, objectives, and tasks can be incorporated into existing policies and implemented through existing programs and personnel.	All Hazards	High	Youngsville Town Administrator/ Manager	Local	Moderate	To Be Continued	Long-Term	The town manager has worked on including mitigation goals/tasks into existing policies/programs, but there is still a good deal of effort that needs to be made to fully incorporate hazard mitigation into other areas of local governance. This action will be implemented as staff availability and funding allow. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Consideration of adoption or refinement of a CIP.	All Hazards	Medium	Youngsville Town Manager/ Administrator	NC Rural Economic Development Center	Moderate	To Be Continued	Long-Term	The county has a Capital Improvements Program in place and will revise it, as necessary. This action will be updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Convene a working group with electric service providers in the county and produce a report, with specific recommendations and detailed implementation timelines, which address the issues of 1) disaster preparedness techniques (e.g., tree trimming, pole replacement) and 2) communication with county officials during and immediately after a natural hazard event that results in loss of electrical power.	Tornado, Hurricane, Severe Weather, Winter Storm	Medium	Youngsville Town Administrator/ Manager (Franklin County is the lead)	Local	Moderate	To Be Continued	Long-Term	Although some coordination with service providers has taken place on an ad hoc basis, the county/town has not established a continual working group due to a lack of staff time. The town will continue to work with the county to pursue this action going forward. This action will be updated as needed or during the next HMP update process.
Property Protection	Apply for funding from the HMGP for mitigation-related projects.	Flood	High	Youngsville Town Administrator/ Manager	Federal, State	Moderate	To Be Continued	Long-Term	There has generally not been successful funding of brick-and-mortar type projects. Therefore, the jurisdiction will continue to pursue this action. This action will be reviewed and updated as needed or during the next HMP update process.
Property Protection	Work with the NCDOT Division Five Highway Operations unit and convene a working group (county-wide or local) to develop solutions to localized drainage issues caused (in part or entirely) by NCDOT-maintained drainage facilities.	Flood	Low	Youngsville Public Works Director/Water System Operator	NCDOT Division Maintenance Division	Moderate	To Be Continued	Medium-Term	Local drainage issues have been addressed in some of the recent NCDOT projects, but there are many drainage issues throughout the county that will need to be resolved before this action can be considered complete. These issues will be addressed as funding allows and project opportunities are identified. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Franklin County, Town of Youngsville	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.
Public Education and Awareness	Encourage builders, developers, and architects to become failure with the NFIP land use and building standards by attending annual workshops presented by the NCEM. This can be accomplished by creating a mailing list and providing it to DEM to use for its announcements. This task can be further supported by distributing copies of DEM's announcement from the city and county inspections departments when builders and developers apply for permits.	Flood	Medium	Youngsville Town Clerk	FEMA, ARC	Moderate	To Be Continued	Long-Term	Builders, developers, etc., are always able to attend these workshops, but there has not been much effort made to encourage these groups to attend these kinds of sessions. The county will need to re-evaluate its process for implementing this action. This action will be reevaluated as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Ensure that the local library maintains documents about flood insurance, flood protection, floodplain management, and natural and beneficial functions of floodplains. Many documents are available free of charge from the FEMA .	Flood	Medium	Youngsville Town Clerk	FEMA, ARC	Moderate	To Be Continued	Long-Term	Local libraries have maintained information about flood insurance and protection, but the materials have not been evaluated recently and may need to be replaced to ensure they reflect the most up-to-date information. This information will be updated as needed or as new materials are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Implement public education efforts designed to help inform the public of their exposure to all natural hazards and to inform them of actions they can take to mitigate the damage to their health and property from natural hazards.	All Hazards	Medium	Youngsville Town Clerk	FEMA, ARC	Moderate	To Be Continued	Short-Term	The county has worked with the Red Cross to try to improve efforts by the public to mitigate damage, but there is still significant work that needs to be done to educate the public on these matters. This action will remain in the plan and will be implemented as opportunities are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Provide local real estate agents with handouts that will advise potential buyers to investigate the flood hazard for the property they are considering purchasing.	Flood	Medium	Youngsville Town Clerk	FEMA, ARC	Moderate	To Be Continued	Medium-Term	Some handouts have been developed by the county and passed along to real estate agents, but not every agent has been reached, and it is likely that the information needs to be updated, so the county will keep this action in place. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Send a flood protection flyer to all properties in the county through a community newsletter, utility bill, telephone book, or other document that is distributed to all residences. The flyer should include the following information: the name and location of the closest, county-approved shelter, a general identification of the local flood hazard, flood safety, flood insurance, property protection, floodplain development permit requirements, and drainage system maintenance.	Flood	Medium	Youngsville Town Clerk	FEMA, ARC	Moderate	To Be Continued	Long-Term	The county and city have pushed out information to some residents via flyers, but they have not been able to reach all residents, so there will need to be additional efforts to evaluate the best techniques for getting this information out to the public. The county and city will evaluate this action and try to improve it going forward. This action will be reviewed and updated as needed or during the next HMP update process.

8.2.2. Granville County

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Emergency Services	Work with local ARC (ARC) officials to develop a plan and implementation goals for ensuring that all county-sponsored shelters meet ARC shelter operations standards for mitigation from all hazards, most especially wind and flood hazards.	All Hazards	Medium	Granville County Emergency Management Director	ARC Central NC Chapter	Moderate	To Be Continued	Medium-Term	The county continues to work with ARC officials to conduct regular shelter assessments to ensure that identified shelters are protected as effectively as possible. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Seek grant funding for mitigation opportunities. Projects may include acquisition, elevation, mitigation reconstruction, and wet/dry flood proofing to commercial and/or residential structures as applicable; redundant power to critical facilities, storm shelters, and other activities that reduce the loss of life and property as a result of impacts from natural hazards.	All Hazards	Medium	Granville County Emergency Management	Local, state, or federal grant funding	Moderate	New	Long-Term	--
Prevention	Adopt flood maps as they are updated by FEMA and/or the state.	Flood	High	Granville County Planning	Local	Low	To Be Continued	Short-Term	Granville County will continue to adopt flood maps as they are updated. This action will be reviewed and updated.
Prevention	Refinement of a CIP.	All Hazards	Medium	Granville County Planning Director	NC Rural Economic Developme nt Center	Moderate	To Be Continued	Long-Term	Although the county currently has a Capital Improvements Program, it would like to keep this action in place as the program is continually refined. This action will be reviewed and updated as needed.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Review “Firewise” zoning and subdivision standards and report on their appropriateness for incorporation into existing (or new) zoning and subdivision ordinances.	Wildfire	Low	Granville County Senior Planner	Local	Moderate	Deferred	Long-Term	There is nothing in the zoning code or subdivision regulations regarding wildfire preparedness, and there are currently no plans to implement this in either plan at this time. However, this action will be reevaluated as needed or during the next HMP update process.
Prevention	Work with the NC ODS to: a) ensure that all dams in Granville County for which the ODS has jurisdiction are inspected on a regular basis; b) ensure that ODS notifies the Granville County Emergency Management (EM) office of all ODS jurisdictional dams classified as “high hazard” or “distressed” dams; c) attempt to ensure that all high hazard or distressed dams in the county have an updated and implemented operations and maintenance plan and emergency action plans; and d) provide the county EM office with an inventory of all ODS jurisdictional dams in the county.	Dam Failure, Flood	Low	Granville County Emergency Management Director	NC Dam Safety Program	Moderate	To Be Continued	Short-Term	NCDEQ maintains a Dam Safety database. The county will continue to monitor the database and work with ODS to ensure that high-hazard dams have sufficient plans in place.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Convene a working group with electric service providers in the county and produce a report, with specific recommendations and detailed implementation timelines that address the issues of 1) disaster preparedness and 2) communication with county officials during and immediately after a natural hazard event that results in loss of electrical power.	Severe Weather, Tornado, Hurricane, Winter Storm	Medium	Granville County Emergency Management Director	Local	Moderate	To Be Continued	Medium-Term	The county hosted a key leader update and a power line safety demo, provided by an electric service provider. The county will continually maintain strong working relationships that have been developed. This action will be updated as needed or during the next HMP update process.
Property Protection	Work with the NCDOT Division Five Highway Operations unit and convene a working group to develop solutions to localized drainage issues caused (in part or entire) by NCDOT-maintained drainage facilities.	Flood	Low	Granville County Planning Director	NCDOT Division Maintenance	Low	Deleted	--	--
Property Protection	Work with the NC State Highway Patrol (NCSHP) to replace existing metal communications equipment sheds with an NCSHP concrete structure.	Flood, Tornado, Hurricane, Severe Weather	Medium	Granville County Emergency Services	NC Highway Patrol	Moderate	Complete	--	The last remaining NCSHP metal communications equipment shed was replaced with a concrete structure in 2021.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Property Protection	Provide backup power for critical facilities.	All Hazards	High	Granville County Emergency Services	Federal, State	Moderate	In Progress	Short-Term	The county has placed a backup generator with an automatic transfer switch (ATS) on one facility through a state grant and has received a backup generator with ATS for two additional facilities through HMGP, installation pending permit approvals. The county will continue to assess this need and apply for grants to fund projects as they are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Property Protection	Apply for funding from the HMGP and other HMA grants.	All Hazards	High	Granville County Emergency Management Director	Federal, State	Moderate	To Be Continued	Medium-Term	The county was awarded HMGP funds for generator projects for the Emergency Operations Center (EOC) and Animal Management under Hurricane Eta, 4588. We would like to keep this in place and will continue to identify eligible projects and pursue hazard mitigation funding. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Encourage buildings, developers, and architects to become familiar with the NFIP land use and building standards by attending annual workshops presented by the NCEM. This can be accomplished by creating a mailing list and providing it to DEM to use for its announcements. This task can be further supported by distributing copies of DEM's announcement from the county's inspections department when builders and developers apply for permits.	Flood	Medium	Granville County Emergency Management Director	FEMA, Red Cross	Moderate	To Be Continued	Short-Term	When someone is building in a floodplain, they have to meet certain regulations detailed in the County's code for flood prevention; having flood insurance is one of those requirements. The county will consider more methods of distributing DEM announcements and land use or building standards as funding and staff availability allow. This action will be updated as needed or during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information for all hazards developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Granville County	Local	Moderate	Deferred	Long-Term	We would like the Tar River Region to have a website available again with risk information for all hazards developed during the Hazard Mitigation Plan process, to include a link to the current plan, that the counties can all utilize. However, this action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Ensure that the local library maintains documents about flood insurance, flood protection, floodplain management, and natural and beneficial functions of floodplains. Many documents are available free of charge from the FEMA .	Flood	Medium	Granville County Emergency Management Director	FEMA, Red Cross	Moderate	To Be Continued	Short-Term	Much of this information is available online. County libraires will continue to maintain up-to-date information on flood hazards as needed or as new information is identified. This action will be reviewed and updated during the next HMP update process or as needed.
Public Education and Awareness	Provide information to residents via various communication methods: the name and location of the closest, county-approved shelter, a general identification of the local flood hazard, flood safety, flood insurance, property protection, floodplain development permit requirements, and drainage system maintenance.	Flood	Medium	Granville County Emergency Management Director	FEMA, Red Cross	Moderate	To Be Continued	Short-Term	The county continues to push out information to residents via social media and the county website. The county participates in community outreach events and corresponds with various email contact groups as an additional means of getting this information out to the public. The county will evaluate this action and try to improve it going forward, considering additional means to reach residents.
Public Education and Awareness	Provide the local real estate agency with handouts that will advise potential buyers to investigate the flood hazard for the property they are considering purchasing.	Flood	Medium	Granville County Emergency Management Director	FEMA, Red Cross	Moderate	Deleted	--	--

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Implement public education efforts designed to help inform the public of their exposure to natural hazards and to inform them of actions they can take to mitigate the damage to their health and property from all natural hazards.	All Hazards	Medium	Granville County Emergency Management Director	FEMA, Red Cross	Moderate	To Be Continued	Short-Term	The county continues public education efforts via social media and the county website. The county participates in community outreach events and corresponds with various email contact groups as an additional means of public education. The county will continue to evaluate its outreach program to ensure effective communication.

Butner

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Adoption of Subdivision Regulations.	All Hazards	Medium	Butner Town Planner	State Department of Commerce	High	Deferred	Long-Term	Our Code has always had a subdivision chapter. Small updates are done as needed.
Prevention	Adoption or Refinement of a CIP.	All Hazards	Medium	Butner Town Manager and Planner	NC Rural Economic Developmen t Center	High	To Be Continued	Short-Term	The Capital Improvements Program is updated annually with the budget. This action will be implemented as needed or during the next HMP update process.
Prevention	Development and adoption of a Comprehensive Land Use Plan (CLUP).	All Hazards	Medium	Butner Town Planner	State Department of Commerce	High	Complete	Short-Term	Plan updated in 2021 and is ok for the time being.
Prevention	Development and updated of a Parks and Recreation Master Plan, focusing priority on the purchase and development of flood-prone lands for recreational activities.	Flood	Low	Butner Town Planner	NC Parks and Recreation Trust Fund	High	Deferred	Long-Term	This action is deferred because Butner does not have a Parks Department; it is difficult to predict a timeline.
Prevention	Review “Firewise” zoning and subdivision standards and report on their appropriateness for incorporation into existing (or new) zoning and subdivision ordinances.	Wildfire	Low	Butner Town Planner	Local	Low	Deferred	Long-Term	Deferred due to a lack of funding and staff availability. This action will be updated as needed or during the next HMP update process.
Property Protection	Apply for funding from the HMGP and other HMA grant programs for mitigation-related project grants.	All Hazards	High	Butner Town Planner	Federal, State	High	Deleted	Short-Term	Have not applied for this grant due to a lack of projects

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Encourage buildings, developers, and architects to become familiar with the NFIP land use and building standards by attending annual workshops presented by the NCEM. This can be accomplished by creating a mailing list and providing it to DEM to use for its announcements. This task can be further supported by distributing copies of DEM's announcement from the county's inspections department when builders and developers apply for permits.	Flood	Medium	Butner Town Planner	FEMA, Red Cross	Moderate	Deferred	Long-Term	Deferred due to a lack of funding and staff availability. This action will be updated as needed or during the next HMP update process.
Public Education and Awareness	Ensure that the local library maintains documents about flood insurance, flood protection, floodplain management, and natural and beneficial functions of floodplains. Many documents are available free of charge from the FEMA .	Flood	Medium	Butner Town Planner	FEMA, Red Cross	Moderate	To Be Continued	Medium-Term	Much of this information is available online. County libraires will continue to maintain up-to-date information on flood hazards as needed or as new information is identified. This action will be reviewed and updated during the next HMP update process or as needed.
Public Education and Awareness	Create an outreach website for the public designed to display risk information regarding all hazards developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Granville County, Town of Butner	Local	Moderate	Deferred	Long-Term	No funding, I imagine websites like this exist, and the Town is not the best agency to compile this information. However, this action is deferred due to a lack of funding and staff availability

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
									but will be reconsidered during the next HMP update process.
Public Education and Awareness	Implement public education efforts designed to help inform the public of their exposure to all natural hazards and to inform them of actions they can take to mitigate the damage to their health and property from all-natural hazards.	All Hazards	Medium	Butner Town Planner	FEMA, Red Cross	Moderate	To Be Continued	Short-Term	To my knowledge, small staff makes this difficult. However, the town will continue to assist the county with outreach and public education efforts as opportunities are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Provide the local real estate agency with handouts that will advise potential buyers to investigate the flood hazard for the property they are considering purchasing.	Flood	Medium	Butner Town Planner	FEMA, Red Cross	Moderate	Deferred	Short-Term	The action has not been done due to a lack of funding. However, this action will be reviewed and reconsidered as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Send a flood protection flyer to all properties in the county through a community newsletter, utility bill, telephone book, or other document that is distributed to all residences. The flyer should include the following information: the name and location of the closest, county-approved shelter, a general identification of the local flood hazard, flood safety, flood insurance, property protection, floodplain development permit requirements, and drainage system maintenance.	Flood	Medium	Butner Town Planner	FEMA, Red Cross	Moderate	Deferred	Medium-Term	Staff can review for feasibility during the next HMP update process, but this action is deferred due to a lack of staff availability and funding.

Creedmoor

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Emergency Services	Review and update emergency management plans/operations on a yearly basis or as circumstances dictate with regards to natural and man-made hazards.	All Hazards	High	City of Creedmoor Administration	Local	Moderate	To Be Continued	Medium-Term	2025 City updated its emergency operations plan and will continue annual updates in the future. This action will be reviewed and updated as needed or during the next HMP update process.
Emergency Services	For snow/ice removal, the city should coordinate with NCDOT to ensure adequate capacity for snow/ice removal in the event of major storms (adequate defined as all major thoroughfares are cleared/remain clear within 12 hours of the last event).	Winter Storm	High	City of Creedmoor Administration , NCDOT	Local, NCDOT	Moderate	To Be Continued	Medium-Term	City has and will continue to work with NCDOT to clear roads during winter storms as needed. This action will be reviewed and updated as needed or during the next HMP update process.
Emergency Services	To provide local services for snow and/or ice removal in the event of a storm event and as a method to assist NCDOT, the city should consider: establishing a local program with local/private contractors for snow and ice removal; and purchasing a motor grader for use by the City of Creedmoor Public Works Department.	Severe Winter Storm	Medium	City of Creedmoor	Local	Moderate	To Be Continued	Medium-Term	The city has contracts in place for snow and ice removal and is adept at using work to ensure quick and efficient removal of ice and snow when these events occur. This action will be reviewed and updated as needed or during the next HMP update process.
Natural Resource Protection	Consider developing ordinances to protect natural resources and use them as natural greenways, limiting the opportunity for damage from hazards (floodplains, large open areas prone to wind damage). Use of floodplains as green	Flood, Hurricane, Severe Weather, Winter Storm, and Dam Failure	Medium	City of Creedmoor Administration	Local	Moderate	To Be Continued	Medium-Term	The ordinance has been updated and will continue to be updated as needed. This action will be updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
	space and greenways preserved for these uses and not developed through the development of a Natural Resources Protection Ordinance. Used to protect the natural resources of Creedmoor and incorporate practices that will still allow for managed development. Include sections in this ordinance for best management practices (control runoff), erosion/sediment controls ordinance, and floodplain regulations. Included in this process would be the incorporation of a greenway system.								
Prevention	Adoption or Refinement of a CIP.	All Hazards	Medium	Creedmoor Manager	NC Rural Economic Development Center	Moderate	To Be Continued	Short-Term	CIP updates are completed annually to address city priorities. This action will be updated as needed or during the next HMP update process.
Prevention	Continue pursuing grants and alternative funding sources in order to increase staff and resources to address current and future hazard mitigation needs.	All Hazards	Medium	City of Creedmoor Administration	Local, NCEM, FEMA	Moderate	To Be Continued	Long-Term	Continue to pursue funding sources. Work with Grantmatch on a continual basis to identify and pursue opportunities as they arise.
Prevention	Continued enforcement of state minimum requirements for building codes.	All Hazards	Medium	City of Creedmoor Administration, State of North Carolina	Local	Moderate	Complete	--	Building code is enforced by Granville County inspections.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Ensure manufactured housing (single- wide, double-wide, modular) units meet the minimum state requirements for proper installation.	All Hazards	Medium	City of Creedmoor Administration	Local	Moderate	Deferred	Long-Term	Deferred because standards and regulations are enforced by Granville County building inspections.
Prevention	Expand the Capital Improvement Plan to include all city facilities/services (current plan includes water treatment facility and water/sewer infrastructure).	All Hazards	Medium	City of Creedmoor Administration	Local	Moderate	To Be Continued	Medium-Term	CIP will continue to be updated on a regular basis. Please note that the City no longer owns or operates a water treatment plant and/or wastewater treatment facility. Now handled by Southern Granville Water and Sewer Authority (SGWASA).
Prevention	Maintain/provide current information, services, procedures, and code revisions in relation to all current/future natural and man-made hazards within Granville County, the City of Creedmoor area, and the State of North Carolina for public consumption.	All Hazards	Medium	NCEM, Granville County, City of Creedmoor Administration	Local	Moderate	To Be Continued	Long-Term	Creedmoor continually participates in the Tar River Hazard Mitigation Plan process. Will continue to provide current information about natural and man-made hazards and maintain information. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Review and update the City's Comprehensive Development Plan to ensure that development is occurring in a pattern that best suits the needs of the changing population for the city, with consideration to areas prone to hazards (such as floodplains).	All Hazards	Medium	City of Creedmoor Administration	Local	Moderate	To Be Continued	Medium-Term	The City will continue to update the Comprehensive Plan as needed. This action will be reviewed and updated as needed.
Prevention	Review and update the city's Comprehensive Development Plan to ensure that development is occurring in a	All Hazards	Medium	City of Creedmoor Administration	Local		Deleted	--	--

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
	pattern that best suits the needs of the changing population for the City, with consideration to areas prone to hazard (such as floodplains).								
Prevention	Review “Firewise” zoning and subdivision standards and report on their appropriateness for incorporation into existing (or new) zoning and subdivision ordinances.	Wildfire	Low	Creedmoor Manager	Local	Low	To Be Continued	Long-Term	Recommended that the County building code be adjusted to reflect Fire Wise guidance. The city will review Firewise standards and consider implementing guidance in local building codes. This action will be updated and reviewed as needed.
Prevention	As part of the continuing process to review and revise city Zoning and Subdivision Ordinances, primary hazard areas for the city to consider are the floodplain that borders the east and west areas of the city’s Extraterritorial Jurisdiction (ETJ). The city should ultimately direct development away from floodplains, but should development be allowed to occur, the following recommendations should be considered: limit development within these areas, enforce more strict guidelines when development does occur; prohibit future development of city critical facilities and structures within identified 100 year/500 year floodplains (per current/updated FEMA flood maps); increase the minimum vegetative buffer requirements	Flood, Hurricane, Severe Weather, Winter Storm, and Dam Failure	Medium	City of Creedmoor Administration	Local		Deleted	--	--

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
	associated with development near perennial and intermittent water sources (streams, creeks, surface water-as identified on US Geological Survey (USGS) maps; and under consideration of the January 28, 2003 Board of Commissioners meeting is incorporation of a 10/70-development rule for Class IV Watershed in Creedmoor and ETJ (Special Intensity Bonus Development Allocation-SIBDA).								
Prevention	Consider revising local ordinances to require new manufactured housing units (after adoption of this ordinance) to have permanent foundations.	Flood, Tornado, Hurricane, Dam Failure, Severe Weather	Medium	City of Creedmoor Administration	Local	Moderate	Deleted	--	Deleted because manufactured home foundations are regulated by the State Building Code.
Prevention	Consider revisions to the city's Flood Ordinance for the following (more stringent than the state minimum requirements): raise finished flood elevation requirements for new structures where the Base Flood Elevation (BFE) has been determined per updated Floodplain Zones (FEMA 2003-established by the National Flood Insurance Rate Maps); structures located within zones where BFE are identified, are required to elevate two (2) feet above base flood elevation	Flood, Hurricane, Severe Weather, Winter Storm, and Dam Failure	Medium	City of Creedmoor Administration	Local	Moderate	Deleted	Long-Term	This action will be deleted because all standards are already in place AT state required level. The City is preempted from adopting stricter standards than the state requirements.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
	(state minimum-allows for ductwork and wiring to be below this elevation); and to increase the opportunity for ductwork and wiring to be out of range for damage in the event of potential future flood event, the following medication is recommended: increase BFE by one(1) foot, total of three (3) feet.								
Prevention	Continued coordination with property owners/business owners to obtain flood insurance (under the Community Rating System-CRS of NFIP).	Flood	Medium	City of Creedmoor Administration	Local	Low	Complete	--	City is and continues to be part of NFIP.
Prevention	Obtain a computer and paper copy of the current FEMA flood maps for the Neuse River Basin.	Flood, Hurricane, Severe Weather, Winter Storm, and Dam Failure	Medium	NCEM	Local		To Be Continued	Long-Term	The city has and continues to have available maps through NC One Map.
Property Protection	Apply for funding from the HMGP and HMA for mitigation projects.	All Hazards	High	Creedmoor Manager	Federal, State	Moderate	To Be Continued	Medium-Term	Applied for Building Resilient In Communities (BRIC) funding from NCEM . Mitigation action projects will be implemented as funding becomes available. This action will be reviewed and updated as needed or during the next HMP update process.
Property Protection	Work with the NCDOT Division Five Highway Operations unit and convene a working group to	Flood	Low	Creedmoor Manager	NCDOT Division Maintenance		Deleted	--	--

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
	develop solutions to localized drainage issues caused (in part or entire) by NCDOT-maintained drainage facilities.								
Public Education and Awareness	Create and update the outreach website for the public, designed to display risk information for all hazards developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Granville County, City of Creedmoor	Local	High	Deferred	Medium-Term	This action is deferred due to a lack of funding but will be reconsidered during the next HMP update process.
Public Education and Awareness	Encourage buildings, developers, and architects to become familiar with the NFIP land use and building standards by attending annual workshops presented by the NCEM. This can be accomplished by creating a mailing list and providing it to DEM to use for its announcements. This task can be further supported by distributing copies of DEM's announcement from the county's inspections department when builders and developers apply for permits.	Flood	Medium	Creedmoor Manager	FEMA, Red Cross	Moderate	To Be Continued	Long-Term	Will continue to coordinate and participate in County outreach efforts. The development community has been made aware of programs from NCEM to some degree, but the city would like to implement a bigger push to let this community know about potential programs/workshops that are available and to encourage attendance. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Ensure that the local library maintains documents about flood insurance, flood protection, floodplain management, and natural and beneficial functions of floodplains. Many documents are available free of charge from the FEMA .	Flood	Medium	Creedmoor Manager	FEMA, Red Cross	Moderate	To Be Continued	Medium-Term	The library has resources, and those resources are updated on a regular and continual basis. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education	Implement public education efforts designed to help inform	All Hazards	Medium	Creedmoor Manager	FEMA, Red Cross	Moderate	To Be Continued	Medium-Term	The city receives from Granville County Emergency

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
and Awareness	the public of their exposure to natural hazards and to inform them of actions they can take to mitigate the damage to their health and property from all natural hazards.								Services updates on weather and emergencies and forwards updates to staff and the general public.
Public Education and Awareness	Provide the local real estate agency with handouts that will advise potential buyers to investigate the flood hazard for the property they are considering purchasing.	Flood	Medium	Creedmoor Manager	FEMA, Red Cross	Moderate	To Be Continued	Long-Term	City is unaware of any Continual efforts related to this program. However, this action will be reviewed and reconsidered as needed or during the next HMP update process.
Public Education and Awareness	Provide public education forums, workshops, and related meetings regarding the required methods and materials for hazard mitigation for all hazards.	All Hazards	Medium	City of Creedmoor, Granville County, NCEM	FEMA, Red Cross	Moderate	To Be Continued	Long-Term	City relies on Granville County Emergency Management for this program. City will coordinate and participate in County efforts as opportunities are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Send a flood protection flyer to all properties in the county through a community newsletter, utility bill, telephone book, or other document that is distributed to all residences. The flyer should include the following information: the name and location of the closest, county-approved shelter, a general identification of the local flood hazard, flood safety, flood insurance, property protection, floodplain development permit	Flood	Medium	Creedmoor Manager	FEMA, Red Cross	Moderate	To Be Continued	Long-Term	Creedmoor will continue to coordinate and participate in County outreach efforts. This action will be updated and reviewed as needed.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
	requirements, and drainage system maintenance.								

Oxford

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Adoption or Refinement of a CIP.	All Hazards	Medium	Oxford City Planner	NC Rural Economic Development Center	Moderate	To Be Continued	Long-Term	Although the city currently has a Capital Improvements Program, it would like to keep this action in place, as further refinements to the program will likely be needed in the next 5 years to improve the program and ensure county goals are met. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Development and adoption of a Comprehensive Land Use Plan (CLUP).	All Hazards	Medium	Oxford City Planner	State Department of Commerce	High	In Progress	Long-Term	The city has developed a CLUP, which was updated in 2023, but the plan will need to be updated, so this action will remain in place going forward. The CLUP will be in the next 10 years. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Development of a Parks and Recreation Master Plan, focusing priority on the purchase and development of flood-prone lands for recreational activities.	Flood	Low	Oxford City Planner	NC Parks and Recreation Trust Fund	Moderate	In Progress	Long-Term	Although the city has many parks and recreational facilities, it has not developed a Parks and Recreation Master Plan that focuses on the purchase of flood-prone lands. The town will pursue this action going forward as funding allows. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Review “Firewise” zoning and subdivision standards and report on their appropriateness for incorporation into existing (or new) zoning and subdivision ordinances.	Wildfire	Low	Oxford City Planner	Local	Moderate	To Be Continued	Long-Term	Staff have not reviewed Firewise zoning and subdivision standards. County planning officials have requested further clarification of the standards and will work to determine the appropriateness of these standards going forward to consider implementation in building codes. This action will be updated as needed during the future plan maintenance cycle.
Property Protection	Apply for funding from the HMGP for mitigation projects.	All Hazards	High	Oxford City Planner	Federal, State	Moderate	To Be Continued	Long-Term	In general, the city has not received grant funding for brick-and-mortar projects under the HMGP, but this is still an action the city would like to have in place going forward as it pursues these types of projects. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information	All Hazards	High	Tar River Region, Granville County,	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
	developed during the Hazard Mitigation Plan process.			City of Oxford					
Public Education and Awareness	Encourage buildings, developers, and architects to become familiar with the NFIP land use and building standards by attending annual workshops presented by the NCEM. This can be accomplished by creating a mailing list and providing it to DEM to use for its announcements. This task can be further supported by distributing copies of DEM's announcement from the county's inspections department when builders and developers apply for permits.	Flood	Medium	Oxford City Planner	FEMA, Red Cross	Moderate	To Be Continued	Long-Term	Will continue to coordinate and participate in County outreach efforts. The development community has been made aware of programs from NCEM to some degree, but the city would like to implement a bigger push to let this community know about potential programs/workshops that are available and to encourage attendance. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Ensure that the local library maintains documents about flood insurance, flood protection, floodplain management, and natural and beneficial functions of floodplains. Many documents are available free of charge from the FEMA .	Flood	Medium	Oxford City Planner	FEMA, Red Cross	Moderate	To Be Continued	Medium-Term	Much of this information is available online. County libraires will continue to maintain up-to-date information on flood hazards as needed or as new information is identified. This action will be reviewed and updated during the next HMP update process or as needed.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Implement public education efforts designed to help inform the public of their exposure to all natural hazards and to inform them of actions they can take to mitigate the damage to their health and property from natural hazards.	All Hazards	Medium	Oxford City Planner	FEMA, Red Cross	Moderate	To Be Continued	Short-Term	The county and city have implemented several types of public education efforts in the past, but as the most effective techniques are constantly evolving, the county and city will need to evaluate their outreach programs in the future and ensure they are communicating effectively with the public. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Provide the local real estate agency with handouts that will advise potential buyers to investigate the flood hazard for the property they are considering purchasing.	Flood	Medium	Oxford City Planner	FEMA, Red Cross	Moderate	To Be Continued	Long-Term	Local real estate agents have been given some information that can be passed along to potential home buyers, but the county and town will need to determine if this strategy has been effective and if the information needs to be updated. This action will remain in the plan and will be reviewed and updated as needed.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Send a flood protection flyer to all properties in the county through a community newsletter, utility bill, telephone book, or other document that is distributed to all residences. The flyer should include the following information: the name and location of the closest, county-approved shelter, a general identification of the local flood hazard, flood safety, flood insurance, property protection, floodplain development permit requirements, and drainage system maintenance.	Flood	Medium	Oxford City Planner	FEMA, Red Cross	Moderate	To Be Continued	Long-Term	The county and city have pushed out information to some residents via flyers, but they have not been able to reach all residents, so there will need to be additional efforts to evaluate the best techniques for getting this information out to the public. The county and city will evaluate this action and try to improve it going forward. This action will be reviewed and updated as needed or during the next HMP update process.

Stem

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Adoption of Subdivision Regulations.	All Hazards	Medium	Stem Mayor	State Department of Commerce	High	In Progress	Long-Term	The town has not adopted subdivision regulations due to a lack of staff time, but it will continue to work towards adopting these in the future. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Adoption or Refinement of a CIP.	All Hazards	Medium	Stem Mayor	NC Rural Economic Development Center	Moderate	To Be Continued	Long-Term	The town has not developed a stand-alone Capital Improvements Program due to a lack of staff time. This action will be reevaluated as funding becomes available or during the next HMP update process.
Prevention	Development of a Parks and Recreation Master Plan, focusing priority on the purchase and development of flood-prone lands for recreational activities.	Flood	Low	Stem Mayor	NC Parks and Recreation Trust Fund	Moderate	In Progress	Long-Term	Although the city has many parks and recreational facilities, it has not developed a Parks and Recreation Master Plan that focuses on the purchase of flood-prone lands. The town will pursue this action going forward as funding allows. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Review “Firewise” zoning and subdivision standards and report on their appropriateness for incorporation into existing (or new) zoning and subdivision ordinances.	Wildfire	Low	Stem Mayor	Local	Moderate	To Be Continued	Long-Term	Staff have not reviewed Firewise zoning and subdivision standards. County planning officials have requested further clarification of the standards and will work to determine the appropriateness of these standards going forward to consider implementation in building codes. This action will be updated as needed during the future plan maintenance cycle.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Property Protection	Apply for funding from the HMGP	Flood	High	Stem Mayor	Federal, State	Moderate	To Be Continued	Long-Term	In general, the town has not received grant funding for brick-and-mortar projects under the HMGP, but this is still an action the town would like to have in place going forward as it pursues these types of projects. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Granville County, Town of Stem	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.
Public Education and Awareness	Encourage buildings, developers, and architects to become familiar with the NFIP land use and building standards by attending annual workshops presented by the NCEM. This can be accomplished by creating a mailing list and providing it to DEM to use for its announcements. This task can be further supported by distributing copies of DEM's announcement from the county's inspections department when builders and developers apply for permits.	Flood	Medium	Stem Mayor	FEMA, Red Cross	Moderate	To Be Continued	Long-Term	Will continue to coordinate and participate in County outreach efforts. The development community has been made aware of programs from NCEM to some degree, but the city would like to implement a bigger push to let this community know about potential programs/workshops that are available and to encourage attendance. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Ensure that the local library maintains documents about flood insurance, flood protection, floodplain management, and natural and	Flood	Medium	Stem Mayor	FEMA, Red Cross	Moderate	To Be Continued	Medium-Term	Much of this information is available online. County libraires will continue to maintain up-to-date information on flood hazards as needed or as new information is identified. This action

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
	beneficial functions of floodplains. Many documents are available free of charge from the FEMA .								will be reviewed and updated during the next HMP update process or as needed.
Public Education and Awareness	Implement public education efforts designed to help inform the public of their exposure to all natural hazards and to inform them of actions they can take to mitigate the damage to their health and property from natural hazards.	All Hazards	Medium	Stem Mayor	FEMA, Red Cross	Moderate	To Be Continued	Short-Term	The county and city have implemented several types of public education efforts in the past, but as the most effective techniques are constantly evolving, the county and city will need to evaluate their outreach programs in the future and ensure they are communicating effectively with the public. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Provide the local real estate agency with handouts that will advise potential buyers to investigate the flood hazard for the property they are considering purchasing.	Flood	Medium	Stem Mayor	FEMA, Red Cross	Moderate	To Be Continued	Long-Term	Local real estate agents have been given some information that can be passed along to potential home buyers, but the county and town will need to determine if this strategy has been effective and if the information needs to be updated. This action will remain in the plan and will be reviewed and updated as needed.
Public Education and Awareness	Send a flood protection flyer to all properties in the county through a community newsletter, utility bill, telephone book, or other document that is distributed to all residences. The flyer should include the following information: the name and location of the closest, county-approved shelter, a general identification of the	Flood	Medium	Stem Mayor	FEMA, Red Cross	Moderate	To Be Continued	Long-Term	The county and city have pushed out information to some residents via flyers, but they have not been able to reach all residents, so there will need to be additional efforts to evaluate the best techniques for getting this information out to the public. The county and city will evaluate this action and try to improve it going forward. This action will be reviewed and updated as

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
	local flood hazard, flood safety, flood insurance, property protection, floodplain development permit requirements, and drainage system maintenance.								needed or during the next HMP update process.

Stovall

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Adoption of Subdivision Regulations.	All Hazards	Medium	Stovall Mayor	State Department of Commerce	High	In Progress	Long-Term	The town has not adopted subdivision regulations due to a lack of staff time, but it will continue to work towards adopting these in the future. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Adoption or Refinement of a CIP.	All Hazards	Medium	Stovall Mayor	NC Rural Economic Development Center	Moderate	To Be Continued	Long-Term	The town has not developed a stand-alone Capital Improvements Program due to a lack of staff time. This action will be reevaluated as funding becomes available or during the next HMP update process.
Prevention	Development and adoption of a Comprehensive Land Use Plan (CLUP).	All Hazards	Medium	Stovall Mayor	State Department of Commerce	High	In Progress	Long-Term	The town has not developed a land use plan due to a lack of resources. The town will attempt to complete this action in the future as funding becomes available. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Review “Firewise” zoning and subdivision standards and report on their appropriateness for incorporation into existing (or new) zoning and subdivision ordinances.	Wildfire	Low	Stovall Mayor	Local	Moderate	To Be Continued	Long-Term	Staff have not reviewed Firewise zoning and subdivision standards. County planning officials have requested further clarification of the standards and will work to determine the appropriateness of these standards going forward to consider implementation in building codes. This action will be updated as needed during the future plan maintenance cycle.
Property Protection	Apply for funding from the HMGP for mitigation projects.	All Hazards	High	Stovall Mayor	Federal, State	Moderate	In Progress	Long-Term	In general, the town has not received grant funding for brick-and-mortar projects under the HMGP, but this is still an action the town would like to have in place going forward as it pursues these types of projects. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Granville County, Town of Stovall	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.
Public Education and Awareness	Encourage buildings, developers, and architects to become familiar with the NFIP land use and building standards by attending annual workshops presented by the NCEM. This can be accomplished by creating a mailing list and providing it to DEM to use for its announcements. This task can be further supported by distributing copies of DEM's announcement from the county's inspections department when builders and developers apply for permits.	Flood	Medium	Stovall Mayor	FEMA, Red Cross	Moderate	To Be Continued	Long-Term	Will continue to coordinate and participate in County outreach efforts. The development community has been made aware of programs from NCEM to some degree, but the city would like to implement a bigger push to let this community know about potential programs/workshops that are available and to encourage attendance. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Ensure that the local library maintains documents about flood insurance, flood protection, floodplain management, and natural and beneficial functions of floodplains. Many documents are available free of charge from the FEMA .	Flood	Medium	Stovall Mayor	FEMA, Red Cross	Moderate	To Be Continued	Medium-Term	Much of this information is available online. County libraires will continue to maintain up-to-date information on flood hazards as needed or as new information is identified. This action will be reviewed and updated during the next HMP update process or as needed.
Public Education and Awareness	Provide the local real estate agency with handouts that will advise potential buyers to investigate the flood hazard for the property they are considering purchasing.	Flood	Medium	Stovall Mayor	FEMA, Red Cross	Moderate	To Be Continued	Long-Term	Local real estate agents have been given some information that can be passed along to potential home buyers, but the county and town will need to determine if this strategy has been effective and if the information needs to be updated. This action will remain in the plan and will be reviewed and updated as needed.
Public Education and Awareness	Implement public education efforts designed to help inform the public of their exposure to natural hazards and to inform them of actions they can take to mitigate the damage to their health and property from natural hazards.	All Hazards	Medium	Stovall Mayor	FEMA, Red Cross	Moderate	To Be Continued	Medium-Term	The county and town have implemented several types of public education efforts in the past, but as the most effective techniques are constantly evolving, the county and town will need to evaluate their outreach programs in the future and ensure they are communicating effectively with the public. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Send a flood protection flyer to all properties in the county through a community newsletter, utility bill, telephone book, or other document that is distributed to all residences. The flyer should include the following information: the name and location of the closest, county-approved shelter, a general identification of the local flood hazard, flood safety, flood insurance, property protection, floodplain development permit requirements, and drainage system maintenance.	Flood	Medium	Stovall Mayor	FEMA, Red Cross	Moderate	To Be Continued	Long-Term	The county and city have pushed out information to some residents via flyers, but they have not been able to reach all residents, so there will need to be additional efforts to evaluate the best techniques for getting this information out to the public. The county and city will evaluate this action and try to improve it going forward. This action will be reviewed and updated as needed or during the next HMP update process.

8.2.3. Vance County

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Emergency Services	Coordinate with Duke-Progress Energy Carolinas, Inc. to ensure the quick restoration of electrical power to county residents.	All Hazards	High	Vance County Emergency Management (VCEM)	Local, Duke-Progress Energy	High	To Be Continued	Long-Term	Duke-Progress Energy has a defined method for power restoration, and the county supports these efforts whenever possible. The county will continue to ensure that any needed communication with power suppliers takes place. This action will be reviewed and updated as needed or during the next HMP update process.
Emergency Services	Review and update emergency management plans/operations on a regular basis or as circumstances dictate with regards to natural and man-made hazards and available resources (should be updated every year).	All Hazards	Medium	VCEM	Local	Moderate	To Be Continued	Long-Term	Currently, plans are reviewed on an annual basis. The county intends to continue this process annually and will update plans when reviews dictate. This action will remain in the plan. This action will be reviewed and updated as needed or during the next HMP update process.
Emergency Services	Support participation in the city/county Emergency Operations Plan (EOP), for evacuation procedures/response not stated in the operational structure (HAZMAT, petroleum products, hazardous waste, nuclear threat/attack, and civil disorder).	All Hazards	Medium	VCEM	Local	Moderate	To Be Continued	Long-Term	The plan is currently being updated. Plan already contains this information but will be updated to reflect any changes.
Emergency Services	Review all fire district coverage areas to ensure adequate quantities of fire hydrants for fire safety purposes and that all hydrants are maintained on a	Wildfire	High	Vance County Planning Department, VCEM	Local	High	To Be Continued	Long-Term	The county has periodically done these checks but will recommend a regular flow testing schedule for City and County hydrants going forward. This action will be updated and reviewed as needed.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
	regular basis where water lines currently exist.								
Emergency Services	Continued coordination with NCDOT to ensure adequate capacity for snow/ice removal in the event of major snowstorms (adequate – all major thoroughfares are cleared/remain clear within 12 hours of last snowfall).	Winter Storm	Medium	NCDOT, Vance County	State, Local	Moderate	To Be Continued	Long-Term	The county has worked with NCDOT to ensure capacity for snow/ice removal. NCDOT uses the following in prioritizing response: Tier 1 – Interstates and primary roads Tier 2 – Major Thoroughfares Tier 3 – Secondary Roads The county will continue to help the NCDOT with road clearances going forward. This action will be reviewed and updated as needed or during the next HMP update process.
Emergency Services	Continued coordination with NCDOT, Vance County Sheriff's Office, and City of Henderson Police Department to ensure that traffic is diverted from high-hazard roadways during flooding events.	Flood	Medium	NCDOT, VCEM	State, Local	Moderate	To Be Continued	Long-Term	A working relationship with NCDOT exists currently; detours have been set up successfully as needed. The county will continually work to improve this relationship and ensure that road closures are put in place when required. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Consider revising the county subdivision regulations to enhance existing policies prohibiting development of critical public facilities in the 100-year floodplain (where viable alternatives exist), encourage alternatives to placing lots in flood- prone area; minimize impervious surface coverings.	Flood	High	Vance County Planning Department	Local	High	In Progress	Long-Term	County zoning ordinance recognizes and encourages cluster development and incentivizes smaller lots for clustering away from wetland and flood-prone areas. There are still some improvements that the county would like to implement in this regard, so the action will remain in the plan. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Consider revisions to the county Flood Ordinance for the following: a) raise finished flood elevation requirements for new structures where the Base Flood Elevation (BFE) has been determined from the updated Floodplain Zones (FEMA January/February 2003) as established by the National Flood Insurance Rate Maps; b) structures located within zones (as of 2003) where BFE are identified, are required to elevate two (2) feet above base flood elevation (state minimum-allows for ductwork/wiring to be below this elevation); c) to increase the opportunity for ductwork and wiring to be out of range for damage in the event of potential flooding, the following modification is recommended—increase BFE by one (1) foot, total of three (3) feet.	Flood	High	Vance County Planning Department	Local		To Be Continued	Long-Term	This action was marked completed during the last update, as the finished flood elevation is required to be 3 feet above BFE as per Vance County Ordinance. However, Vance County Planning updates the ordinance periodically – Flood Damage Prevention Ordinance (FDPO) amended 4/2007, 4/2013-, and 2016 – 2017. The county flood ordinance is updated as needed and as required by state regulations. This action will be updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Consider revising the ordinance to require new manufactured housing units to have permanent foundations.	All Hazards	High	Vance County Planning Department	Local	High	In Progress	Long-Term	It has not been completed to date, but the county is working to improve enforcement of skirting for manufactured homes. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Continue expanding its geographic information system (GIS) capabilities, including updates to the county GIS website.	All Hazards	High	Vance County Planning Department	Local	High	In Progress	Long-Term	The county has been updating its GIS system monthly. The county will look for ways to improve and expand its GIS capabilities going forward to promote mitigation continually. This action will be updated as needed or during the next HMP update process.
Prevention	Continued enforcement of state minimum requirements for building codes.	All Hazards	High	Vance County Planning Department, State of North Carolina	Local	High	In Progress	Long-Term	The county has implemented and enforced the state building code over the past several years. Since the county handles this task for the City of Henderson and the towns of Kittrell and Middleburg, the county will look for ways to improve its enforcement in the next 5 years. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Ensure manufactured housing meets the minimum state requirements for proper installation.	All Hazards	High	Vance County Planning Department	Local	High	To Be Continued	Long-Term	The County has enforced the state building code for manufactured homes and will continue to work towards ensuring that manufactured homes are properly installed as per state standards, continually and as needed. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Identify/apply for funding to address all hazard concerns.	All Hazards	High	VCEM	NCEM, FEMA, Local	High	In Progress	Medium-Term	The county has attempted to identify funding sources in the past to address top hazards but has only had minor successes. The county will try to identify funding sources to implement mitigation going forward as projects are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Maintain/provide current information, services, procedures, and code revisions in relation to current/future natural and man-made hazards within Vance County, including the incorporated and unincorporated areas of the county.	All Hazards	High	VCEM	Local	High	To Be Continued	Medium-Term	There have not been major efforts to provide current information to unincorporated and incorporated areas of the county on services available throughout the county, but staff will research ways to do this and push them to get the information out. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Research/obtain (as feasible with resources), grants/alternative funding sources to increase staff/resources for hazard mitigation planning.	All Hazards	High	Vance County Planning Department, VCEM	NCEM, FEMA, Local	High	In Progress	Medium-Term	Grant funds have not been obtained to date; however, the county will continue to pursue funding opportunities that can improve its overall mitigation program. This action will be reviewed and updated as needed.
Prevention	Review and update the county Land Use Plan to ensure that development is occurring in a pattern that best suits the needs of the changing population of the county (with consideration given to areas prone to hazards). The plan should be reviewed and updated every 5 years.	All Hazards	High	Vance County Planning Department	Local	High	To Be Continued	Medium-Term	The last plan update was in 2010, but the next update will occur based on funding availability. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Consider directing each county office/agency to incorporate hazard mitigation goals into planning/implementation duties.	All Hazards	Medium	VCEM	Local	Moderate	To Be Continued	Long-Term	Vance County already does this to some degree but will continue to emphasize the importance of incorporating mitigation goals into planning/ implementation. This action will be reviewed and implemented as needed or during the next HMP update process.
Prevention	Review and expand, as needed, the county CIP for all facilities/services.	All Hazards	Medium	Vance County Admin/Finance	Local	Moderate	To Be Continued	Long-Term	CIP was updated for 2025-2029. The plan will be expanded as needed. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Review and update the county HMGP document to ensure that the goals, objectives, and strategies are being followed.	All Hazards	Medium	VCEM	Local	Moderate	To Be Continued	Medium-Term	The county has not reviewed this document recently but will review it to ensure it is current and make necessary corrections. This action will be reviewed and updated as needed.
Prevention	The State of North Carolina Department of Insurance (NC DOI) has the responsibility of notifying county officials of all revisions to state codes in a timely manner.	All Hazards	Medium	Vance County Planning Department, State of North Carolina	NC DOI, Local	Moderate	To Be Continued	Long-Term	The NC DOI periodically updates the state codes, and the County receives updated state codes as they become effective. The county has enforced new codes when they are updated and will work on improving its efforts to enforce and implement the codes going forward.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Prohibit future development of county critical facilities and structures in identified 100-year floodplains (per current/updated FEMA flood maps).	Flood	High	Vance County Planning Department	Local	High	In Progress	Medium-Term	Recent county developments (animal shelter and farmers market) have not been developed in the 100-year floodplain area, and the county will ensure that, in any updates to ordinances or plans, this standard is maintained. This action will be continually implemented as future development occurs. This action will be updated and reviewed as needed or during the next HMP update process.
Prevention	Support the current Land Use Plan policies encouraging preservation of 100-year floodplain areas for conservation; consideration of revisions to ordinances that direct development away from the floodplains (limit development in these areas; enforce more strict guidelines when development does occur).	Flood	High	Vance County Planning Department	Local	High	To Be Continued	Long-Term	The County continually enforces its FDPO, which directs development away from the 100-year floodplain and requires elevating structures 3 feet above base flood elevation. The county will review and evaluate this aspect of the FDPO in future years to ensure it is carrying out its intended purpose. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Consider developing ordinances to protect natural resources and use them as natural greenways, limiting the opportunity for damage from hazards (floodplains, large open areas prone to wind damage).	Flood	Medium	Vance County Planning Department	Local	Moderate	In Progress	Long-Term	There has not been much progress towards this action due to a lack of staff time. Staff will research how other jurisdictions have covered this and decide at a later date on the viability of continuing to pursue the action. This action will be updated and reviewed as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Consider developing specific regulations that prohibit dumping in the county's drainage system (regulations must specifically address keeping channels clear of materials such as brush, fill, and items not covered in the county's Littering Ordinance). The ordinance must designate an office/official responsible for receiving complaints/monitor compliance, as well as enforcement and abatement provisions (regulatory requirements of the ordinance should be publicized).	Flood	Medium	Vance County Planning Department	Local	Moderate	In Progress	Long-Term	The county has an enforcement officer who handles litter ordinance. The county has not implemented drainage or stormwater ordinances to date due to a lack of staff time, but it will attempt to implement those ordinances going forward. This action will be reviewed and implemented as needed or during the next HMP update process.
Prevention	Continue working toward becoming a participating member of the Community Rating System (CRS) of the National Flood Insurance Program (NFIP).	Flood	Medium	Vance County Planning Department	Local	Moderate	In Progress	Long-Term	The county has not made large-scale progress towards joining the CRS program due to a lack of available staff time, but it will continue to pursue membership. This action will be updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Coordinate with the ODS to ensure that all dams in Vance County for which the ODS has jurisdiction are inspected on a regular basis, ensure that ODS notifies the Vance County Emergency Operations (EM) office of all ODS jurisdictional dams classified as “high hazard” or “distressed” dams, ensure that all high hazard or distressed dams in the county have an updated and implemented operations and maintenance plan and disaster contingency plan.	Dam Failure	Medium	VCEM	ODS, Local	Moderate	In Progress	Long-Term	The county has some older information on dams but will obtain current data showing the locations of all dams in Vance County, as well as their current condition. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Ensure that Vance County EM office has an inventory of all ODS jurisdictional dams in the county and coordinate efforts to produce a coordinated drawdown plan prior to potential hurricane/nor’easter landfall and seasonally.	Dam Failure	Medium	VCEM	ODS, Local	Moderate	To Be Continued	Medium-Term	The county has some older information on dams but will obtain current data showing the locations of all dams in Vance County, as well as their current condition. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Seek grant funding for mitigation opportunities. Projects may include acquisition, elevation, mitigation reconstruction, and wet/dry flood proofing to commercial and/or residential structures as applicable; redundant power to critical facilities, storm shelters, and other activities that reduce the	All Hazards	Medium	Vance County Emergency Management	Local, state, or federal grant funding	Moderate	New	Long-Term	--

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
	loss of life and property as a result of impacts from natural hazards.								
Prevention	Use of floodplains as green space and greenways preserved for these uses and not developed, through the development of a Natural Resources Protection Ordinance. Used to protect the county's natural resources and incorporate practices that will still allow for managed development. Include sections for best management practices, erosion/sediment controls ordinance, and floodplain regulations. Included would be the incorporation of greenways.	Flood	Medium	Vance County Planning Department	Local	Moderate	To Be Continued	Long-Term	There has not been much progress towards this action due to a lack of staff time. Staff will research how other jurisdictions have covered this and decide at a later date on the viability of continuing to pursue the action. This action will be reviewed and updated as needed or during the next HMP update process.
Property Protection	Coordinate work to address localized drainage issues caused (in part or entirely) by NCDOT-maintained drainage facilities.	Flood	High	Vance County Planning Department, NCDOT	Local, State	High	In Progress	Long-Term	NCDOT recently implemented Citizen Action Request System (CARS) on 1/1/2016. 15 days to respond to complaints as per NC General Statutes. The county will work with NCDOT as they implement this new system. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Property Protection	Review methods of school construction to ensure that all new schools are constructed to the maximum cost feasible standards of wind resistance, flood resistance, and access so that they can be used as shelters for evacuees during and after natural hazard events.	All Hazards	High	Vance County Planning Department, VCEM	Local	High	To Be Continued	Medium-Term	VCEM maintains a list of schools available as shelters. Last school built – Clarke Elementary included this type of review. As more schools are built or renovated, the county will work to help ensure that mitigation measures are incorporated. This action will be reviewed and updated as needed or during the next HMP update process.
Property Protection	For any interested homeowners located in floodplain areas, the county will consider applying for mitigation grant funding to acquire or elevate the homes on a strictly voluntary basis for the homeowner.	Flood	Medium	VCEM	FEMA, NCEM	Moderate	To Be Continued	Medium-Term	The county will consider applying for mitigation grant funding to acquire or elevate homes on a voluntary basis of homeowner. This action will be considered as new eligible properties are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Coordinate with local libraries to provide documents on flood insurance, flood protection, floodplain management, and floodplain functions.	Flood	High	Vance County Planning Department, VCEM	Local	High	In Progress	Long-Term	The county has completed the action in the past, but new documentation will be designed and placed at libraries. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Consider mailing flood protection flyers to all county properties through community newsletter, utility bill, or other document to residences (general identification of local flood hazard area, safety/insurance, property protection, floodplain development requirements, drainage system maintenance).	Flood	Medium	Vance County Planning Department	Local	Moderate	In Progress	Long-Term	The county has not completed this action in the past but will consider sending these mailings to Vance County and the City of Henderson water customers through billing.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Vance County	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.
Public Education and Awareness	Encourage builders, developers, and architects to be familiar with NFIP land use/building standards (NCEM workshops, mailing list for announcements, and distributing information from the county inspections department when builders/developers apply for permits).	Flood	Medium	Vance County Planning Department, NCEM	Local	Moderate	To Be Continued	Long-Term	The county is in close contact with current members of the local builders' association and holds monthly meetings and conversations with the association. The county intends to create/distribute brochures that will help further inform these members of the development industry. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Develop a program to provide public education forums, workshops, and related meetings regarding the required methods and materials for hazard mitigation.	All Hazards	Medium	Vance County Planning Department	Local	Moderate	To Be Continued	Long-Term	The county held a public meeting with property owners on 8/4/2015 to review changes in floodplains, so this has been done to some degree in the past. However, the county would like to continue its efforts to improve public information output and will keep this action in the plan. This action will be implemented in the future as funding becomes available, and this action will be updated as needed or during the next HMP update process.
Public Education and Awareness	Provide handouts to real estate agents to advise potential buyers researching flood hazard information when considering property purchases.	Flood	Medium	Vance County Planning Department	Local	Moderate	To Be Continued	Medium-Term	The county has met with the Kerr-Lake Realtors Association to provide education for online GIS systems, including floodplain and wetland data. The county would like to improve its overall outreach to the real estate community, so it will work on developing more information and improving means of communication. This action will be reviewed and updated as needed or during the next HMP update process.

Henderson

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Emergency Services	Provide backup power for critical facilities.	All Hazards	High	VCEM, City of Henderson	FEMA, NCEM	High	To Be Continued	Long-Term	Backup power will be provided as critical facilities are identified and as funding becomes available. This action will be reviewed and updated as needed or during the next HMP update process.
Emergency Services	Continued coordination with NCDOT to ensure adequate capacity for snow/ice removal in the event of major snowstorms (adequate – all major thoroughfares are cleared/remain clear within 12 hours of last snowfall).	Winter Storm	Medium	City of Henderson, NCDOT	State, Local	Moderate	To Be Continued	Long-Term	The county has worked with NCDOT to ensure capacity for snow/ice removal. NCDOT uses the following in prioritizing response: Tier 1 – Interstates and primary roads Tier 2 – Major Thoroughfares Tier 3 – Secondary Roads The county will continue to help the NCDOT with road clearances going forward. This action will be reviewed and updated as needed or during the next HMP update process.
Emergency Services	Continued coordination with NCDOT, Vance County Sheriff's Office, and City of Henderson Police Department to ensure that traffic is diverted from high-hazard roadways during flooding events.	Flood	Medium	City of Henderson, NCDOT	State, Local	Moderate	To Be Continued	Long-Term	A working relationship with NCDOT exists currently; detours have been set up successfully as needed. The county will continually work to improve this relationship and ensure that road closures are put in place when required. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Continued removal/trimming of tree branches and limbs near overhead power lines.	All Hazards	High	City of Henderson, Duke Energy Progress	Duke Progress Energy, Local	High	In Progress	Long-Term	The county has implemented and enforced the state building code over the past several years. Since the county handles this task for the City of Henderson and the towns of Kittrell and Middleburg, the county will look for ways to improve its enforcement in the next 5 years. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Implementation of tree-trimming along Interstate 85 and near exits.	All Hazards	High	NCDOT, Vance Henderson - Vance Economic Development	Local	High	To Be Continued	Medium-Term	As part of the I-85 restoration, trees hanging over signs and roadway are being trimmed back to the right-of-way fence. The city and NCDOT will continue this program in the future and evaluate ways to improve its implementation to ensure safer travel.
Property Protection	Coordinate work to address localized drainage issues caused (in part or entirely) by NCDOT-maintained drainage facilities.	Flood	High	City of Henderson, NCDOT	Local, State	High	In Progress	Long-Term	NCDOT recently implemented CARS on 1/1/2016. 15 days to respond to complaints as per NC General Statutes. The county will work with NCDOT as they implement this new system. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Property Protection	For any interested homeowners located in floodplain areas, the county will consider applying for mitigation grant funding to acquire or elevate the homes on a strictly voluntary basis for the homeowner.	Flood	Medium	VCEM, City of Henderson	FEMA, NCEM	Moderate	To Be Continued	Medium-Term	The county will consider applying for mitigation grant funding to acquire or elevate homes on a voluntary basis of homeowner. This action will be considered as new eligible properties are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Vance County, City of Henderson	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.
Public Education and Awareness	Provide awareness/education to citizens in advance of winter storms	Winter Storm	Medium	City of Henderson, VCEM, NCDOT, Duke Energy Progress	Duke Progress Energy, Local	Moderate	To Be Continued	Medium-Term	The city holds pre-event meetings to discuss impacts; coordinated effort through the Code Red system, paper, and radio station informing citizens to remove vehicles from streets. The city will maintain this action as it looks to improve its public education and awareness outreach. This action will be reviewed and updated as needed or during the next HMP update process.

Kittrell

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Consider revisions to the county Flood Ordinance for the following: a) raise finished flood elevation requirements for new structures where the Base Flood Elevation (BFE) has been determined from the updated Floodplain Zones (FEMA January/February 2003) as established by the National Flood Insurance Rate Maps; b) structures located within zones (as of 2003) where BFE are identified, are required to elevate two (2) feet above base flood elevation (state minimum-allows for ductwork/wiring to be below this elevation); c) to increase the opportunity for ductwork and wiring to be out of range for damage in the event of potential flooding, the following modification is recommended—increase BFE by one (1) foot, total of three (3) feet.	Flood	High	Vance County Planning Department, Town of Kittrell	Local	High	To Be Continued	Long-Term	This action was marked completed during the last update, as the finished flood elevation is required to be 3 feet above BFE as per Vance County Ordinance. However, Vance County Planning updates the ordinance periodically – FDPO amended 4/2007, 4/2013-, and 2016 – 2017. The county flood ordinance is updated as needed and as required by state regulations. This action will be updated as needed or during the next HMP update process.
Prevention	Continued enforcement of state minimum requirements for building codes.	All Hazards	High	Vance County Planning Department, State of North Carolina, Town of Kittrell	Local	High	In Progress	Long-Term	The county has implemented and enforced the state building code over the past several years. Since the county handles this task for the City of Henderson and the towns of Kittrell and Middleburg, the county will look for ways to improve its enforcement in the next 5 years. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Consider directing each county office/agency to incorporate hazard mitigation goals into planning/implementation duties.	All Hazards	Medium	Vance County Planning Department, Town of Kittrell	Local	Moderate	To Be Continued	Long-Term	Vance County and the Town of Kittrell already do this to some degree but will continue to emphasize the importance of incorporating mitigation goals into planning/implementation.
Prevention	Review and update the county HMGP document to ensure that the goals, objectives, and strategies are being followed.	All Hazards	Medium	VCEM, Town of Kittrell	Local	Moderate	To Be Continued	Medium-Term	The county has not reviewed this document recently but will review it to ensure it is current and make necessary corrections. The town will contribute to the review where required. This action will be reviewed and updated as needed.
Prevention	Continue working toward becoming a participating member of the Community Rating System (CRS) of the National Flood Insurance Program (NFIP).	Flood	Medium	Vance County Planning Department, Town of Kittrell	Local	Moderate	To Be Continued	Long-Term	The county has not made large-scale progress towards joining the CRS program due to a lack of available staff time, but it will continue to pursue membership. This action will be updated as needed or during the next HMP update process.
Property Protection	For any interested homeowners located in floodplain areas, the county will consider applying for mitigation grant funding to acquire or elevate the homes on a strictly voluntary basis for the homeowner.	Flood	Medium	VCEM, Town of Kittrell	FEMA, NCEM	Moderate	To Be Continued	Medium-Term	The county will consider applying for mitigation grant funding to acquire or elevate homes on a voluntary basis of homeowner. This action will be considered as new eligible properties are identified. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Encourage builders, developers, and architects to be familiar with NFIP land use/building standards (NCEM workshops, mailing list for announcements, and distributing information from the county inspections department when builders/developers apply for permits).	Flood	High	Vance County Planning Department, NCEM, Town of Kittrell	Local	High	To Be Continued	Long-Term	The county is in close contact with current members of the local builders' association and holds monthly meetings and conversations with the association. The county intends to create/distribute brochures that will help further inform these members of the development industry. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Vance County, Town of Kittrell	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.
Public Education and Awareness	Develop a program to provide public education forums, workshops, and related meetings regarding the required methods and materials for hazard mitigation.	All Hazards	Medium	Vance County Planning Department, VCEM, Town of Kittrell	Local	Moderate	To Be Continued	Long-Term	The county has held a public meeting with property owners to review changes in floodplains, so this has been done to some degree in the past. However, the county and town would like to continue efforts to improve public information output and will keep this action in the plan. This action will be implemented in the future as funding becomes available, and this action will be updated as needed or during the next HMP update process.

Middleburg

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Continued enforcement of state minimum requirements for building codes.	All Hazards	High	Vance County Planning Department, State of North Carolina, Town of Middleburg	Local	High	In Progress	Long-Term	The county has implemented and enforced the state building code over the past several years. Since the county handles this task for the City of Henderson and the towns of Kittrell and Middleburg, the county will look for ways to improve its enforcement in the next 5 years. This action will be reviewed and updated as needed or during the next HMP update process.
Property Protection	For any interested homeowners located in floodplain areas, the county will consider applying for mitigation grant funding to acquire or elevate the homes on a strictly voluntary basis for the homeowner.	Flood	Medium	VCEM, Town of Middleburg	FEMA, NCEM	Moderate	To Be Continued	Medium-Term	The county will consider applying for mitigation grant funding to acquire or elevate homes on a voluntary basis of homeowner. This action will be considered as new eligible properties are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Vance County, Town of Middleburg	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.
Public Education and Awareness	Encourage builders, developers, and architects to be familiar with NFIP land use/building standards (NCEM workshops, mailing list for announcements, and distributing information from the county inspections department when builders/developers apply for permits).	Flood	High	Vance County Planning Department, NCEM, Town of Middleburg	Local	High	To Be Continued	Long-Term	The county is in close contact with current members of the local builders' association and holds monthly meetings and conversations with the association. The county intends to create/distribute brochures that will help further inform these members of the development industry. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Public Education and Awareness	Develop a program to provide public education forums, workshops, and related meetings regarding the required methods and materials for hazard mitigation.	All Hazards	Medium	Vance County Planning Department, VCEM, Town of Middleburg	Local	Moderate	To Be Continued	Long-Term	The jurisdiction has held a public meeting with property owners to review changes in floodplains, so this has been done to some degree in the past. However, the county and town would like to continue efforts to improve public information output and will keep this action in the plan. This action will be implemented in the future as funding becomes available, and this action will be updated as needed or during the next HMP update process.

8.2.4. Warren County

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Emergency Services	Develop grant application(s) to install generators at critical facility locations throughout the county.	All Hazards	High	Warren County Emergency Services	FEMA, NCEM, Local	High	To Be Continued	Long-Term	Will develop grant applications to install generators at critical facility locations throughout the county. This action will be implemented as funding becomes available and as projects are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Emergency Services	Ensure adequate evacuation warning in case of a major hazard event.	All Hazards	High	Warren County Emergency Services	Local	High	To Be Continued	Long-Term	The county has worked with a number of resources to ensure adequate evacuation warnings for residents. However, there are many improvements to information sharing that may be implemented, and the county would like to evaluate ways to improve its warning system. This action

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
									will be reviewed and updated as needed or during the next HMP update process.
Emergency Services	Identify alternate detour routes from major arteries in the county.	All Hazards	High	Warren County Emergency Services	Local	High	To Be Continued	Long-Term	Alternate detour routes from major arteries have been identified in some cases, but there is no comprehensive plan in place, so the county would like to continue to pursue this action going forward. This action will be implemented as funding and staff availability allow. This action will be reviewed and updated as needed or during the next HMP update process.
Emergency Services	Improve shelter capacities with alternate power/heat sources.	Winter Storm	High	Warren County Emergency Services, Town of Norlina	Local	High	To Be Continued	Long-Term	The county has made little progress in terms of improving shelter power/heat capacities due to a lack of funding but would like this to be a focus going forward, so it will remain an action. This action will be implemented as funding becomes available. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Seek grant funding for mitigation opportunities. Projects may include acquisition, elevation, mitigation reconstruction, and wet/dry flood proofing to commercial and/or residential structures as applicable; redundant power to critical facilities, storm shelters, and other activities that reduce the loss of life and property as a result of impacts from natural hazards.	All Hazards	Medium	Warren County Emergency Management	Local, state, or federal grant funding	Moderate	New	Long-Term	--

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Building Inspections – Flood-Damaged Structures. All portions of buildings that have been submerged for any length of time will be inspected for flood-related damage as well as other conditions that may be dangerous to life, health, or other property. Plan for Damaged Structures: 1. Overall damage assessment/data collection (visual inspection from roadways). 2. Data compiled and geographical areas assigned to teams. 3. Second detailed assessment by area teams. 4. Portions of walls, floors, ceilings, etc. that have been exposed to water will be opened for evaluation. 5. All construction that is repaired, replaced, dried, or sealed will be inspected before covered. Structure inspected for certificate of compliance.	Flood	High	Warren County Code Enforcement, Town of Warrenton, Town of Norlina, Town of Macon	Local	Moderate	To Be Continued	Long-Term	The county, in coordination with the town, has carried out building inspections after flood events have damaged structures, following the process outlined. The county will continue to perform these inspections post-flood events and is dedicated to improving its inspection process to ensure buildings are efficiently inspected. Therefore, this action will remain in the plan going forward. This action will be updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Policies and procedures related to storm damage and disconnected utility services: 1) inform the public via television, radio, and newspaper of the necessary steps to have utilities restored; 2) restrict travel as necessary while collecting damage assessment data; conduct inspections on first come, first serve basis; 4) work overtime to expedite utility reconnections.	All Hazards	High	Warren County Code Enforcement and Emergency Services	Local	High	To Be Continued	Long-Term	The county will develop procedures related to storm damage and disconnected utility services. This will be reviewed and updated as needed or during the next HMP update process.
Property Protection	Address previous flooding issues at critical facilities (e.g., wastewater treatment plant) via retrofitting, better drainage, and other mitigation protection projects.	Flood	High	Warren County Emergency Services	Federal, State, Local	High	To Be Continued	Long-Term	Addressing previous flooding issues at critical facilities as issues are identified and funding allows. This action will be reviewed and updated as needed or during the next HMP update process.
Property Protection	Construct a new EOC to withstand tornado / hurricane / thunderstorm force winds.	Tornado, Hurricane, Thunderstorm, Winter Storm	High	Warren County Emergency Services	Federal, State, Local	High	Complete	--	County has constructed a new EOC.
Property Protection	Continue to enforce state and local building codes and fire codes.	All Hazards	Medium	Warren County Planning and Zoning	Local	Moderate	To Be Continued	Long-Term	State and local building and fire codes are enforced continually and as needed. This action will be updated as needed or during the next HMP update process.
Property Protection	Create and maintain a list of repetitive flood loss properties.	Flood	Medium	Warren County Planning and Zoning	Local	Moderate	To Be Continued	Long-Term	The county will continually maintain a list of repetitive flood loss properties. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Property Protection	For any interested homeowners located in floodplain areas, the county will consider applying for mitigation grant funding to acquire or elevate the homes on a strictly voluntary basis for the homeowner.	Flood	Medium	Warren County Emergency	FEMA, NCEM	Moderate	To Be Continued	Long-Term	The county will consider applying for mitigation grant funding to acquire or elevate homes on a voluntary basis of homeowner. This action will be considered as new eligible properties are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Warren County	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.
Public Education and Awareness	Place all hazards education materials in all branches of the Warren County public library system.	All Hazards	High	Warren County Planning and Zoning, Town of Warrenton	Local	Moderate	To Be Continued	Long-Term	Some materials have been placed in public libraries, but the county would like to improve these materials and get the information out through additional venues, so the action will remain in place. New education materials will be placed in public libraries as they are identified. This action will be reviewed and updated as needed or during the next HMP update process.

Macon

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Building Inspections – Flood-Damaged Structures. All portions of buildings that have been submerged for any length of time will be inspected for flood-related damage as well as other conditions that may be dangerous to life, health, or other property. Plan for Damaged Structures: 1. Overall damage assessment/data collection (visual inspection from roadways). 2. Data compiled and geographical areas assigned to teams. 3. Second detailed assessment by area teams. 4. Portions of walls, floors, ceilings, etc., that have been exposed to water will be opened for evaluation. 5. All construction that is repaired, replaced, dried, or sealed will be inspected before covered. 6. Structure inspected for certificate of compliance.	Flood	High	Warren County Code Enforcement, Town of Macon	Local	High	To Be Continued	Long-Term	The county, in coordination with the town, has carried out building inspections after flood events have damaged structures, following the process outlined. The county will continue to perform these inspections post-flood events and is dedicated to improving its inspection process to ensure buildings are efficiently inspected. Therefore, this action will remain in the plan going forward. This action will be updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Seek to join NFIP.	Flood	High	Town of Macon	Local	Low	To Be Continued	Long-Term	The town has not joined the NFIP due to a lack of staff time and resources to implement the program. The town will continue to pursue this action going forward as staff time and resources are available. This action will be reviewed and updated as needed or during the next HMP update process.
Property Protection	Provide Backup power to critical facilities.	All Hazards	High	Town of Macon Administrators	FEMA, NCEM	High	To Be Continued	Long-Term	Backup power will be provided as critical facilities are identified and as funding becomes available. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Warren County, Town of Macon	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability but will be reconsidered during the next HMP update process.

Norlina

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Emergency Services	Improve shelter capacities with alternate power/heat sources.	Winter Storm	High	Warren County Emergency Services, Town of Norlina	Local	High	To Be Continued	Long-Term	The county has made little progress in terms of improving shelter power/heat capacities due to a lack of funding but would like this to be a focus going forward, so it will remain an action. This action will be implemented as funding becomes available. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Building Inspections – Flood-Damaged Structures. All portions of buildings that have been submerged for any length of time will be inspected for flood-related damage as well as other conditions that may be dangerous to life, health, or other property. Plan for Damaged Structures: 1. Overall damage assessment/data collection (visual inspection from roadways). 2. Data compiled and geographical areas assigned to teams. 3. Second detailed assessment by area teams. 4. Portions of walls, floors, ceilings, etc., that have been exposed to water will be opened for evaluation. 5. All construction that is repaired, replaced, dried, or sealed will be inspected before covered. 6. Structure inspected for certificate of compliance.	Flood	High	Warren County Code Enforcement, Town of Norlina,	Local	High	To Be Continued	Long-Term	The county, in coordination with the town, has carried out building inspections after flood events have damaged structures, following the process outlined. The county will continue to perform these inspections post-flood events and is dedicated to improving its inspection process to ensure buildings are efficiently inspected. Therefore, this action will remain in the plan going forward. This action will be updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Seek to join the NFIP.	Flood	High	Town of Norlina	Local	Low	To Be Continued	Long-Term	The town has not joined the NFIP due to a lack of staff time and resources to implement the program. The town will continue to pursue this action going forward as staff time and resources are available. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Investigate joining the Firewise Communities Program	Wildfire	Medium	Town of Norlina	Local	Moderate	To Be Continued	Long-Term	The town has not joined the Firewise program due to a lack of staff time, but this is still something the town would like to pursue, so it will remain in the plan. This action will be implemented as staffing allows. This action will be reviewed and updated as needed or during the next HMP update process.
Prevention	Trim trees to reduce the effects of windstorms and ice storms	Severe Weather, Winter Storm, Tornado, Hurricane	Medium	Town of Norlina	Local	High	To Be Continued	Long-Term	The town has worked to trim trees ahead of storm events in the past, but there are some improvements to the program that could be implemented, and the town will evaluate the program in the future as staff availability and funding allow.
Property Protection	Provide Backup power to critical facilities.	All Hazards	High	Warren County Emergency Services, Town of Norlina	FEMA, NCEM	High	To Be Continued	Long-Term	Backup power will be provided as critical facilities are identified and as funding becomes available. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Property Protection	Building a stormwater sewer system to help control run-off and reduce shallow flooding.	Flood	Medium	Town of Norlina	Local	High	To Be Continued	Long-Term	The town has not built a complete stormwater sewer system to reduce shallow flooding due to a lack of funding. The town will continue to pursue this action in the future as funding opportunities are identified. This action will be updated as needed or during the next HMP update process.
Property Protection	For any interested homeowners located in floodplain areas, the county will consider applying for mitigation grant funding to acquire or elevate the homes on a strictly voluntary basis for the homeowner.	Flood	Medium	Warren County Emergency Services, Town of Norlina	FEMA, NCEM	Moderate	To Be Continued	Long-Term	The county will consider applying for mitigation grant funding to acquire or elevate homes on a voluntary basis of homeowner. This action will be considered as new eligible properties are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Warren County, Town of Norlina	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability, but will be reconsidered during the next HMP update process.

Warrenton

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Building Inspections – Flood-Damaged Structures. All portions of buildings that have been submerged for any length of time will be inspected for flood-related damage as well as other conditions that may be dangerous to life, health, or other property. Plan for Damaged Structures: 1. Overall damage assessment/data collection (visual inspection from roadways). 2. Data compiled and geographical areas assigned to teams. 3. Second detailed assessment by area teams. 4. Portions of walls, floors, ceilings, etc., that have been exposed to water will be opened for evaluation. 5. All construction that is repaired, replaced, dried, or sealed will be inspected before covered. 6. Structure inspected for certificate of compliance.	Flood	High	Warren County Code Enforcement, Town of Warrenton	Local	High	To Be Continued	Long-Term	The county, in coordination with the town, has carried out building inspections after flood events have damaged structures, following the process outlined. The county will continue to perform these inspections post-flood events and is dedicated to improving its inspection process to ensure buildings are efficiently inspected. Therefore, this action will remain in the plan going forward. This action will be updated as needed or during the next HMP update process.
Prevention	Investigate joining the Firewise Communities Program	Wildfire	Medium	Town of Warrenton	Local	Moderate	To Be Continued	Long-Term	The town has not joined the Firewise program due to a lack of staff time, but this is still something the town would like to pursue, so it will remain in the plan. This action will be implemented as staffing allows. This action will be reviewed and updated as needed or during the next HMP update process.

Action Type	Action Description	Hazard Addressed	Relative Priority	Responsible Party	Potential Funding Sources	Estimated Cost	Action Status	Implementation Time Frame	Implementation Details
Prevention	Trim trees to reduce the effects of windstorms and Ice storms	Wind and winter storms	Medium	Town of Warrenton	Local	High	To Be Continued	Long-Term	The town has worked to trim trees ahead of storm events in the past, but there are some improvements to the program that could be implemented, and the town will evaluate the program in the future as staff availability and funding allow.
Property Protection	For any interested homeowners located in floodplain areas, the county will consider applying for mitigation grant funding to acquire or elevate the homes on a strictly voluntary basis for the homeowner.	Flood	Medium	Warren County Emergency Services, Town of Warrenton	FEMA, NCEM	Moderate	To Be Continued	Long-Term	The county will consider applying for mitigation grant funding to acquire or elevate homes on a voluntary basis of homeowner. This action will be considered as new eligible properties are identified. This action will be reviewed and updated as needed or during the next HMP update process.
Public Education and Awareness	Create an outreach website for the public, designed to display risk information developed during the Hazard Mitigation Plan process.	All Hazards	High	Tar River Region, Warren County, Town of Warrenton	Local	Moderate	Deferred	Long-Term	This action is deferred due to a lack of funding and staff availability, but will be reconsidered during the next HMP update process.
Public Education and Awareness	Place all hazard education materials in all branches of the Warren County public library system.	All Hazards	High	Warren County Planning and Zoning, Town of Warrenton	Local	Moderate	To Be Continued	Long-Term	Some materials have been placed in public libraries, but the county would like to improve these materials and get the information out through additional venues, so the action will remain in place. New education materials will be placed in public libraries as they are identified. This action will be reviewed and updated as needed or during the next HMP update process.

SECTION 9: PLAN MAINTENANCE

CFR §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 & Incorporation**
- **9.2 Plan Integration**
- **9.3 Role of the HMPC in Implementation & Maintenance**
- **9.4 Monitoring, Evaluating, and Updating**
- **9.5 Continued Public Involvement**

9.1. Implementation & Incorporation

Implementation and maintenance of the plan are critical to the overall success of hazard mitigation planning. Implementation of the Regional Hazard Mitigation Plan (RHMP) 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 RHMP faces its truest test – implementation. Implementation implies two closely related concepts: action and priority. While this plan offers many worthwhile, high-priority recommendations, the Hazard Mitigation Planning Committee (HMPC) first needs to decide which action to undertake. 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 is the most likely to succeed. Central to the success of this plan is the need for regional coordination to implement planned 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. Franklin, Granville, Vance, and Warren Counties will be responsible for ensuring the implementation of strategies specific to their jurisdictions. 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 reviewing 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. Once all participating jurisdictions adopt the RHMP, these existing mechanisms will integrate hazard mitigation strategies. The communities will utilize the planning tools outlined in Section 6 – Capability Assessments.

After the adoption of the RHMP, 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 RHMP's goals. The jurisdictions will work with capital improvements planners to secure high-hazard areas for low-risk uses. During the RHMP planning/implementation period, each participating jurisdiction will strive to achieve formal adoption of the RHMP policies.

9.3. Role of the HMPC in Implementation & Maintenance

Upon adoption of this plan, the HMPC will be tasked with its implementation and maintenance. The HMPC, led by Nickolas Thorpe, Emergency Management Director of Franklin County; Robin Edwards, Emergency Management Coordinator, and Carolton Thornton, Assistant Planning Director of Granville County; Willie Kearney, Emergency Manager of Vance County; Christopher Tucker, Emergency Management Coordinator, and Ken Krulik, Emergency Services Director of Warren 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 ensure the plan is successfully carried out and to report to the community governing boards and the public on the status of 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, forwarding those concerns to the 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 the Plan is integrated into local activities and appropriately implemented. Each jurisdiction outlined a process in the previous mitigation plan for monitoring, evaluating, and updating the plan during the interim period between 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 how the monitoring, evaluation, and updating process was and will be carried out, as well as any changes identified by the jurisdictions that would be useful to implement in 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 Section 8 of this plan, the HMPC will revisit the plan annually and after a hazard event. Nickolas Thorpe, Emergency Management Director of Franklin County; Robin Edwards, Emergency Management Coordinator, and Carolton Thornton, Assistant Planning Director of Granville County; Willie Kearney, Emergency Manager of Vance County; Christopher Tucker, Emergency Management Coordinator, and Ken Krulik, Emergency Services Director of Warren County, 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 RHMP 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 RHMP 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 RHMP review also provides the opportunity to address mitigation actions that may not have been successfully implemented as assigned. Participants 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, if applicable, as approved by the Board of Commissioners or the participating municipalities' governing boards. 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 and all participating municipalities will adopt the final product. The plan will be updated every five years, as required.

Monitoring

Monitoring means tracking the implementation of the plan over time. For example, monitoring may include a system for tracking the status of the identified hazard mitigation actions. The HMPC will use the worksheets in Appendix I to support the implementation and monitoring of mitigation actions between plan updates.

9.5. Continued Public Involvement

Public participation is an integral component of the new mitigation planning process and will remain essential as the RHMP 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 RHMP's maintenance, implementation, monitoring, evaluation, and review 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 Franklin, Granville, Vance, and Warren Counties' government website to advertise any maintenance and/or periodic review activities taking place;
- Keeping copies of the RHMP in local libraries; and
- Soliciting public feedback via social media surveys.

APPENDIX A: ACRONYMS

Acronym	Definition
ACS	American Community Survey
AFB	Air Force Base
AMS	American Meteorological Society
ARC	American Red Cross
ATS	Automatic Transfer Switch
ATSDR	Agency for Toxic Substances and Disease Registry
BCEGS	Building Code Effectiveness Grading Schedule
BFE	Base Flood Elevation
BP	Burn Probability
BRIC	Building Resilient In Communities
CAPE	Convective Available Potential Energy
CARS	Citizen Action Request System
CDBG	Community Development Block Grants
CDC	Centers for Disease Control and Prevention
CERT	Community Emergency Response Teams
CFR	Code of Federal Regulations
CIP	Capital Improvements Program
CLUP	Comprehensive Land Use Plan
COG	Council of Government
CRREL	Cold Regions Research and Engineering Laboratory
CRS	Community Rating System
CWPP	Community Wildfire Protection Plan
DEM	Department of Emergency Management
DFIRM	Digital Flood Insurance Rate Map
DMA	Disaster Mitigation Act of 2000
EAL	Expected Annual Loss
EAP	Emergency Action Plan
EF	Enhanced Fujita Scale
EM	Emergency Management
EMPs	electromagnetic pulses
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOP	emergency operations plan
ETJ	Extraterritorial Jurisdiction
FCPU	Franklin County Public Utilities
FDOP	Flood Damage Prevention Ordinance
FEMA	Federal Emergency Management Agency
FEMA	Federeal Emergency Management Agency

Acronym	Definition
FIL	Conditional Fire Intensity Level
FIRM	Flood Insurance Rate Maps
FIS	Fire Intensity Scale
FMA	Flood Mitigation Assistance Program
FSIM	Fire Simulation System
FWUI	Functional Wildland Urban Interface
GEM	Global Earthquake Model
GIS	Geographic Information System
HHPD	High Hazard Potential Dam
HMA	Hazard Mitigation Assistance Program
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
HMPC	Hazard Mitigation Planning Committee
HRI	heat-related illness
HUC	Hydrologic Unit Code
HVAC	Heating, Ventilation, and Air Conditioning
HVRI	University of South Carolina's Hazards and Vulnerability Research Institute
HVRI-BRIC	University of South Carolina's Hazards and Vulnerability Research Institute Baseline Resilience Indicators for Communities
IBTRACS	International Best Track Archive for Climate Stewardship
IPAWS	Integrated Public Alert and Warning System
IPZ	Ingestion Pathway Zone
ISO	Insurance Services Office, Inc.
KLRWS	Kerr-Lake Regional Water Syste
KTRPO	Kerr-Tar Rural Planning Organization
LEPC	Local Emergency Preparedness Committee
MAP	Mitigation Action Plan
MCV	Mesoscale Convective Vortex
MGD	Million Gallons per Day
MPH	Miles Per Hour
NASA	National Aeronautics and Space Administration
NASF	National Association of State Foresters State
NC	North Carolina
NCCSR	North Carolina Climate Science Report
NCDC	National Climatic Data Center
NCDEQ	North Carolina Department of Environmental Quality
NCDOI	NC Department of Insurance
NCDOT	North Carolina Department of Transportation

Acronym	Definition
NCEI	National Center for Environmental Information
NCEM	NC Division of Emergency Management
NCGS	North Carolina General Statute
NCSCO	NC State Climate Office
NCSHP	NC State Highway Patrol
NCSU	North Carolina State University
NDMC	University of Nebraska-Lincoln National Drought Mitigation Center
NEIC	National Earthquake Information Center
NFIA	National Flood Insurance Act
NFIP	National Floodplain Insurance Program
NHC	National Hurricane Center
NID	National Inventory of Dams
NLD	National Levee Database
NLDN	National Lightning Detection Network
NOAA	National Oceanic and Atmospheric Administration
NRI	National Risk Index
NWS	National Weather Service
NWSFO	National Weather Service Forecast Office
ODS	NC State Office of Dam Safety
PA	Public Assistance
PDI	Palmer Drought Index
PDM	Pre-Disaster Mitigation Program
PDSI	Palmer Drought Severity Index
PGA	Predicted Ground Acceleration
PWP	Planning Work Program
QCEW	Quarterly Census of Employment and Wages
RDU	Raleigh-Durham International Airport
RHMP	Regional Hazard Mitigation Plan
RL	Repetitive Loss
RV	Recreational Vehicle
SBA	Small Business Asminitration Funding
SDA	US Department of Agriculture
SFHA	Special Flood Hazard Area
SGWASA	Southern Granville Water and Sewer Authority
SIBDA	Special Intensity Bonus Development Allocation
SPC	NWS Storm Prediction Center
SPI	Standardized Precipitation Index
SRL	Severe Repetitive Loss
SRMP	School Risk Management Plan

Acronym	Definition
STIP	State Transportation Improvement Program
SVI	Social Vulnerability Index
SWRAP	Southern Wildfire Risk Assessment
TAC	Transportation Advisory Committee
TCC	Technical Coordinating Committee
UDO	Unified Development Ordinance
US/USA	United States of America
USACE	U.S. Army Corps of Engineers
USDOT	US Department of Transportation
USGS	United States Geological Survey
VCEM	Vance County Emergency Management
VCWD	Vance County Water District
WFSI	Wildland Fire Susceptibility Index
WUI	Wildland Urban Interface
YDO	Youngsville Development Ordinance

APPENDIX B: PARTICIPATION AND MEETINGS

Table B-1: Hazard Mitigation Planning Pre-Kick-off Meeting on August 28th, 2025, Virtual Attendance

Name	Organization	Title	Role
Mckenzie Houston	AECOM	Resilience Planner	Organizer
Peyton Campbell	AECOM	Environmental Planner	Organizer
Kelly Keefe	AECOM	Lead Resilience Planner	Organizer
Nicholas Thorpe	Franklin County	Emergency Management Director	Attendee
Robin Edwards	Granville County	Emergency Management Coordinator	Attendee
Jason Reavis	Granville County	Emergency Management Director	Attendee
Willie Kearney	Vance County	Emergency Manager	Attendee
Chris Tucker	Warren County	Emergency Management Coordinator	Attendee

Table B-2: Hazard Mitigation Planning Kick-Off Meeting on September 25th, 2025, Virtual Attendance

Name	Organization	Title	Role
Kelly Keefe	AECOM	Lead Planner	Organizer
Kelsey Peterson	AECOM	Environmental Planner	Organizer
McKenzie Houston	AECOM	Resilience Planner	Organizer
Peyton Campbell	AECOM	Environmental Planner	Organizer
Janet Snotherly	Franklin County	Emergency Management Specialist	Attendee
Jason Rogers	Franklin County Emergency Management Department	Interim Planning & Inspections Director	Attendee
Nicholas Thorpe	Franklin County Emergency Management Department	Director	Attendee
Robin Edwards	Granville County	Emergency Management Coordinator	Attendee
Jason Reavis	Granville County	Director of EM/FM	Attendee
Barry Baker	Granville County	Planning Director	Attendee
Carlton Thornton	Granville County	Assistant Planning Director	Attendee
Tim Karan	Granville County	Board of Commissioners	Attendee

Name	Organization	Title	Role
Jennifer Ganser	Town of Butner	Planning Director	Attendee
Dallas Baker	City of Creedmoor	City Planner	Attendee
Cheryl Hart	City of Oxford	Planning Director	Attendee
Tyrelle Evans	City of Oxford	Planner	Attendee
Brent Fisher	North Carolina Emergency Management	Area 6 Coordinator	Attendee
Carl Baker	North Carolina Emergency Management	Mitigation Plans Manager	Attendee
Willie Kearney	Vance County	Emergency Management Specialist	Attendee
Chris Tucker	Warren County	Emergency Services Director	Attendee
Karen Solomon	Warren County	Senior Administrative Assistant	Attendee

Table B-3: Hazard Identification and Risk Assessment Meeting on October 23rd, 2025, Virtual Attendance

Name	Organization	Title	Role
Kelly Keefe	AECOM	Lead Planner	Organizer
Kelsey Peterson	AECOM	Environmental Planner	Organizer
Mckenzie Houston	AECOM	Resilience Planner	Organizer
Peyton Campbell	AECOM	Environmental Planner	Organizer
Janet Snotherly	Franklin County	Emergency Management Coordinator	Attendee
Jason Rogers	Franklin County	Interim Planning & Inspections Director	Attendee
Carlton Thornton	Granville County Planning and Zoning	Assistant Planning Director	Attendee
Robin Edwards	Granville County	Emergency Management Coordinator	Attendee
Dallas Baker	City of Creedmoor	Planner	Attendee
Michael Frangos	City of Creedmoor	Community Development Director	Attendee
Cheryl Hart	City of Oxford	Planning Director	Attendee
Janet Parrott	Town of Stovall	Administrator	Attendee
Nicole Goddard	North Carolina Department of Environmental Quality	Resilience Outreach and Engagement Manager	Attendee

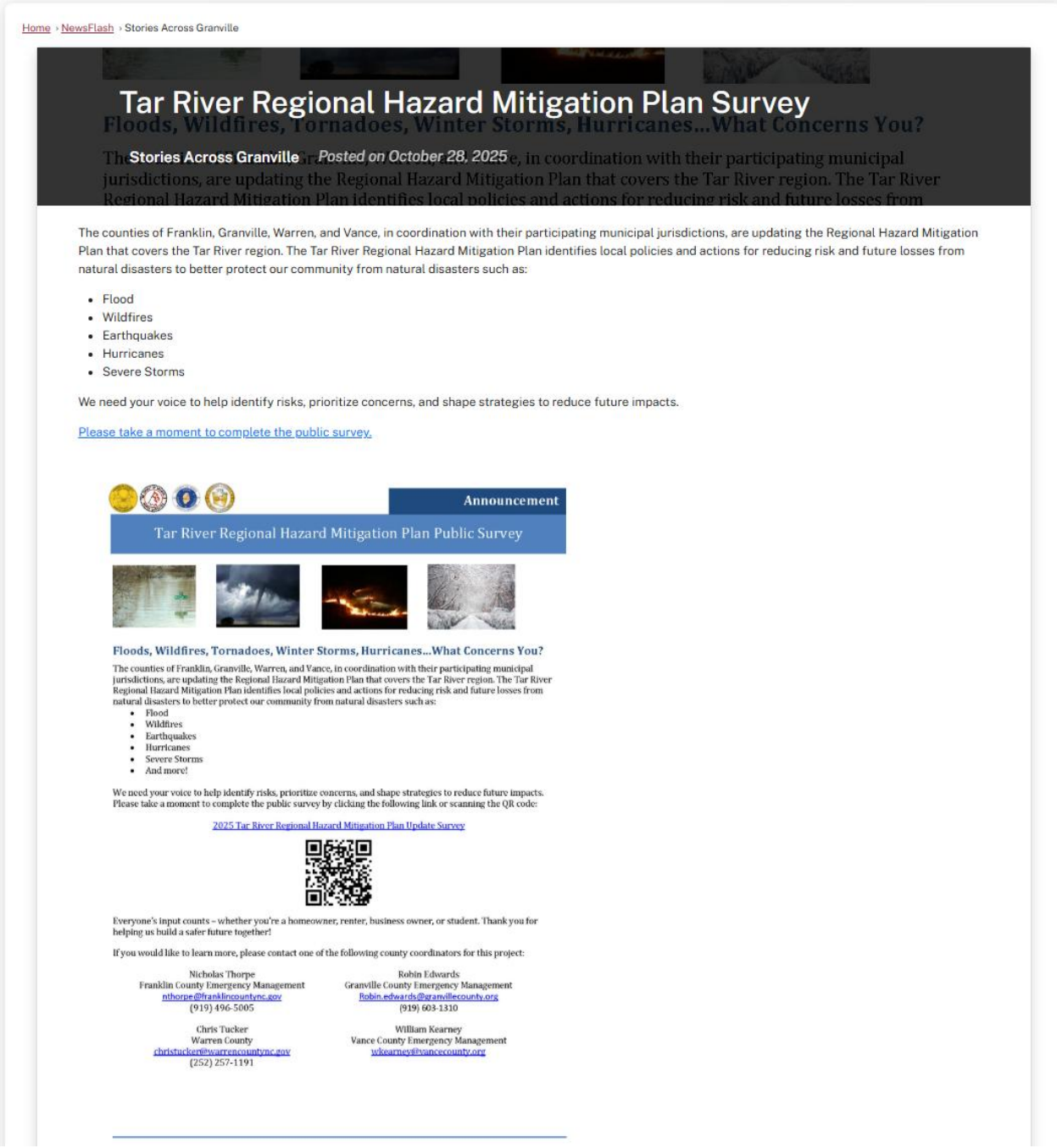
Name	Organization	Title	Role
Brent Fisher	North Carolina Emergency Management	Area Coordinator	Attendee
Carl Baker	North Carolina Emergency Management	Mitigation Plans Manager	Attendee
Nicole Goddard	North Carolina Department of Environmental Quality	Resilience Outreach and Engagement Manager	Attendee
Chris Tucker	Warren County Emergency Management	Emergency Services Director	Attendee
Walter Gardner	Town of Warrenton	Mayor	Attendee

Table B-4: Mitigation Action Strategy Meeting on December 18th, 2025, Virtual Attendance

Name	Organization	Title	Role
Mckenzie Houston	AECOM	Resilience Planner	Organizer
Peyton Campbell	AECOM	Environmental Planner	Organizer
Kelly Keefe	AECOM	Resilience Planner	Organizer
Janet Snotherly	Franklin County	Emergency Management Specialist	Attendee
Jason Rogers	Franklin County	Interim Director	Attendee
Brian Christmas	Town of Youngsville	Fire Chief	Attendee
Jason Reavis	Granville County	Emergency Management Director	Attendee
Robin Edwards	Granville County	Emergency Management Coordinator	Attendee
Michael Frangos	City of Creedmoor	Community Development Director	Attendee
Janet Parrott	Town of Stovall	Administrator	Attendee
Brent Fisher	North Carolina Emergency Management	Area 6 Coordinator	Attendee
Carl Baker	North Carolina Emergency Management	Mitigation Plans Manager	Attendee
Willie Kearney	Vance County	Emergency Management Specialist	Attendee
Chris Tucker	Warren County	Emergency Services Director	Attendee
Katherine Hilliard	Town of Macon	Mayor	Attendee
Tyrone Simes	Town of Norlina	Commissioner	Attendee

Table B-4: Draft Plan Review Meeting on February 19th, 2026, Virtual Attendance

Name	Organization	Title	Role
Kelly Keefe	AECOM	Lead Planner	Organizer
Kelsey Peterson	AECOM	Environmental Planner	Organizer
Mckenzie Houston	AECOM	Resilience Planner	Organizer
Jason Rogers	Franklin County	Planning & Inspections Director	Attendee
Janet Snotherly	Franklin County	Emergency Management Specialist	Attendee
Nicholas Thorpe	Franklin County	Emergency Management Director	Attendee
William Doerfer	Town of Youngsville	Town Manager	Attendee
Barry Baker	Granville County	Planning Director	Attendee
Carlton Thornton	Granville County	Assistant Planning Director	Attendee
Robin Edwards	Granville County	Emergency Coordinator	Attendee
Sean Medlin	Town of Louisburg	Town Administrator	Attendee
Cheryl Hart	City of Oxford	Planning Director	Attendee
Tim Karan	Town of Stem	Board of County Commissioners	Attendee
Carl Baker	North Carolina Emergency Management	Mitigation Plans Manager	Attendee
Brent Fisher	North Carolina Emergency Management	Area 6 Coordinator	Attendee
John Mello	North Carolina Emergency Management	Hazard Mitigation Planner	Attendee
Willie Kearney	Vance County	Emergency Management Specialist	Attendee
Timoty L. Twisdale	City of Henderson	Fire Chief	Attendee
Chris Tucker	Warren County	Emergency Management Coordinator	Attendee



Home › NewsFlash › Stories Across Granville

Tar River Regional Hazard Mitigation Plan Survey

Stories Across Granville *Posted on October 28, 2025*

The counties of Franklin, Granville, Warren, and Vance, in coordination with their participating municipal jurisdictions, are updating the Regional Hazard Mitigation Plan that covers the Tar River region. The Tar River Regional Hazard Mitigation Plan identifies local policies and actions for reducing risk and future losses from natural disasters to better protect our community from natural disasters such as:

- Flood
- Wildfires
- Earthquakes
- Hurricanes
- Severe Storms

We need your voice to help identify risks, prioritize concerns, and shape strategies to reduce future impacts.

Please take a moment to complete the public survey.

Announcement

Tar River Regional Hazard Mitigation Plan Public Survey

Floods, Wildfires, Tornadoes, Winter Storms, Hurricanes...What Concerns You?

The counties of Franklin, Granville, Warren, and Vance, in coordination with their participating municipal jurisdictions, are updating the Regional Hazard Mitigation Plan that covers the Tar River region. The Tar River Regional Hazard Mitigation Plan identifies local policies and actions for reducing risk and future losses from natural disasters to better protect our community from natural disasters such as:

- Flood
- Wildfires
- Earthquakes
- Hurricanes
- Severe Storms
- And more!

We need your voice to help identify risks, prioritize concerns, and shape strategies to reduce future impacts. Please take a moment to complete the public survey by clicking the following link or scanning the QR code:

2025 Tar River Regional Hazard Mitigation Plan Update Survey

Everyone's input counts – whether you're a homeowner, renter, business owner, or student. Thank you for helping us build a safer future together!

If you would like to learn more, please contact one of the following county coordinators for this project:

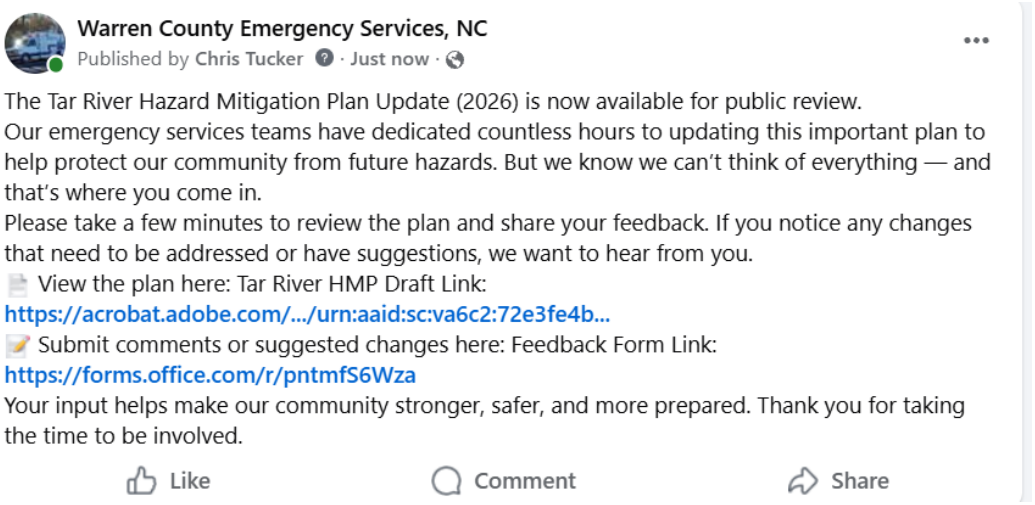
Nicholas Thorpe
Franklin County Emergency Management
nthorpe@franklincountync.gov
(919) 496-5005

Robin Edwards
Granville County Emergency Management
Robin.edwards@granvillecounty.org
(919) 603-1310

Chris Tucker
Warren County
christucker@warrencountync.gov
(252) 257-1191

William Kearney
Vance County Emergency Management
wkearney@vancecounty.org

Figure B-1: Granville County NewsFlash on the Tar River Regional Hazard Mitigation Plan Public Survey, posted on October 28th, 2025

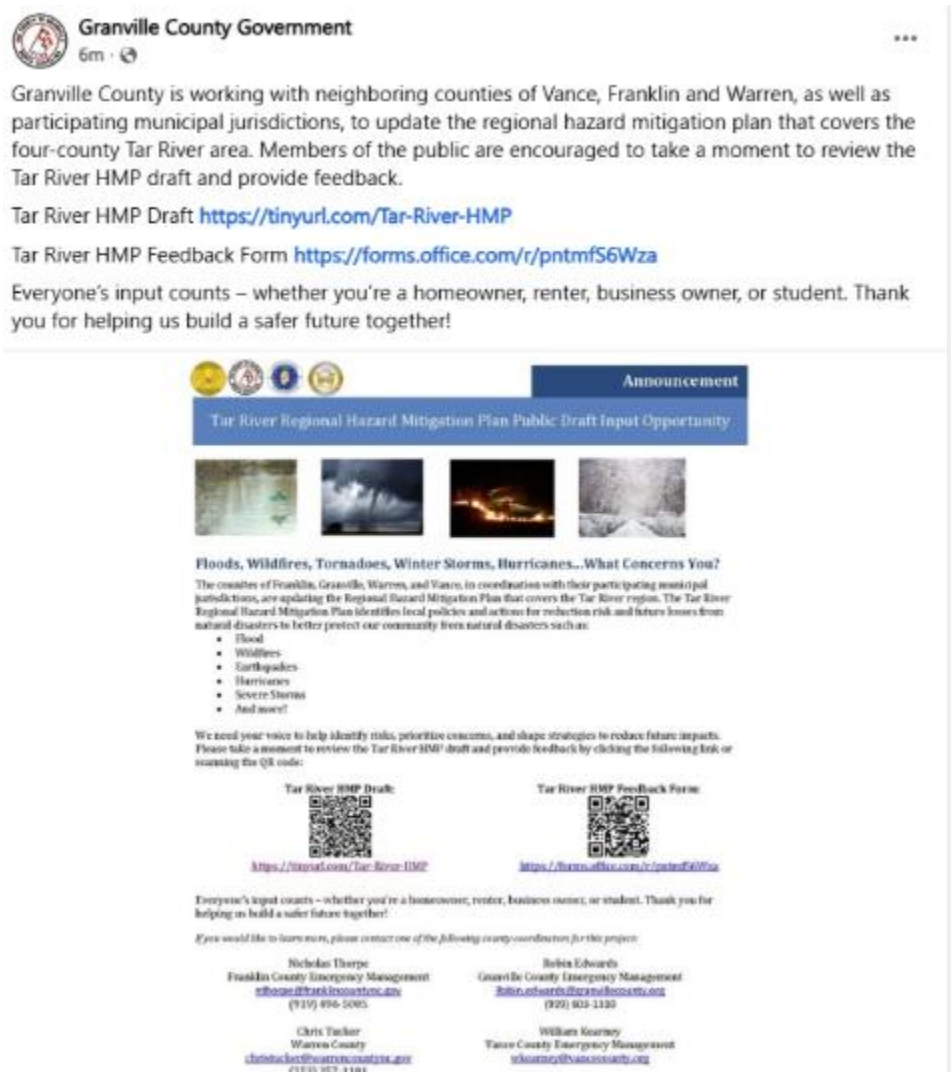


Warren County Emergency Services, NC
Published by Chris Tucker · Just now ·

The Tar River Hazard Mitigation Plan Update (2026) is now available for public review.
Our emergency services teams have dedicated countless hours to updating this important plan to help protect our community from future hazards. But we know we can't think of everything — and that's where you come in.
Please take a few minutes to review the plan and share your feedback. If you notice any changes that need to be addressed or have suggestions, we want to hear from you.
📄 View the plan here: Tar River HMP Draft Link:
https://acrobat.adobe.com/.../urn:aaid:sc:va6c2:72e3fe4b...
📝 Submit comments or suggested changes here: Feedback Form Link:
https://forms.office.com/r/pntmfS6Wza
Your input helps make our community stronger, safer, and more prepared. Thank you for taking the time to be involved.

Like Comment Share

Figure B- 1: Warren County Public Draft Opportunity for Comment



Granville County Government
6m ·

Granville County is working with neighboring counties of Vance, Franklin and Warren, as well as participating municipal jurisdictions, to update the regional hazard mitigation plan that covers the four-county Tar River area. Members of the public are encouraged to take a moment to review the Tar River HMP draft and provide feedback.

Tar River HMP Draft https://tinyurl.com/Tar-River-HMP

Tar River HMP Feedback Form https://forms.office.com/r/pntmfS6Wza

Everyone's input counts – whether you're a homeowner, renter, business owner, or student. Thank you for helping us build a safer future together!

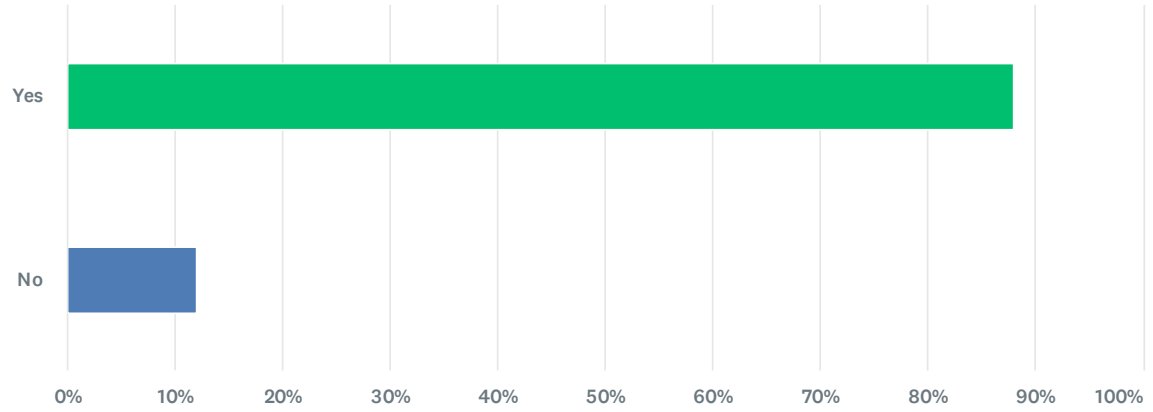
Figure B- 2: Granville County Participation Opportunity to View HMP Draft



Figure B- 3: Butner Advertisement of the Tar River HMP Draft Availability

Q1 Have you ever experienced or been impacted by a natural disaster?

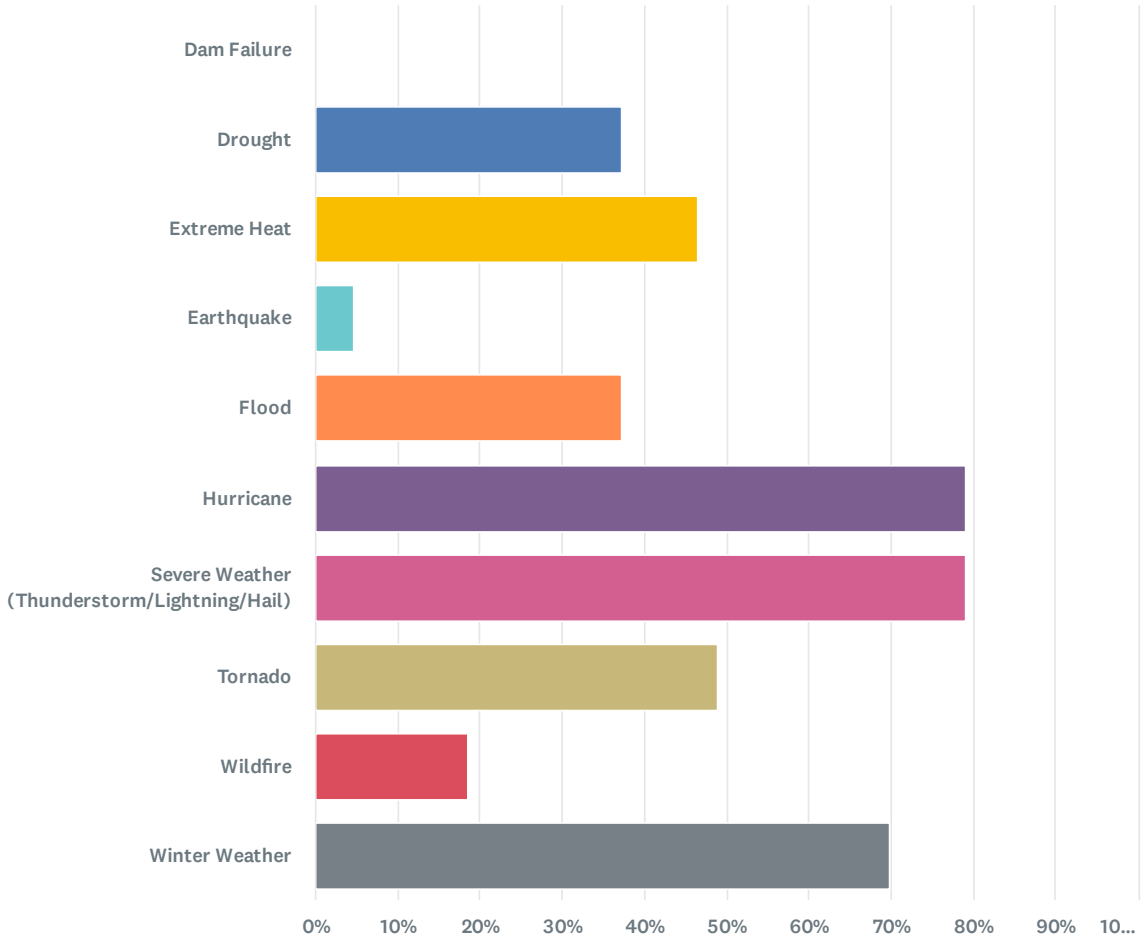
Answered: 50 Skipped: 0



Answer Choices	Percentage	Responses
Yes	88.00%	44
No	12.00%	6
Total		**50**

Q2 If yes, Which of these natural hazards have you experienced or been impacted by? (Check all that apply.)

Answered: 43 Skipped: 7



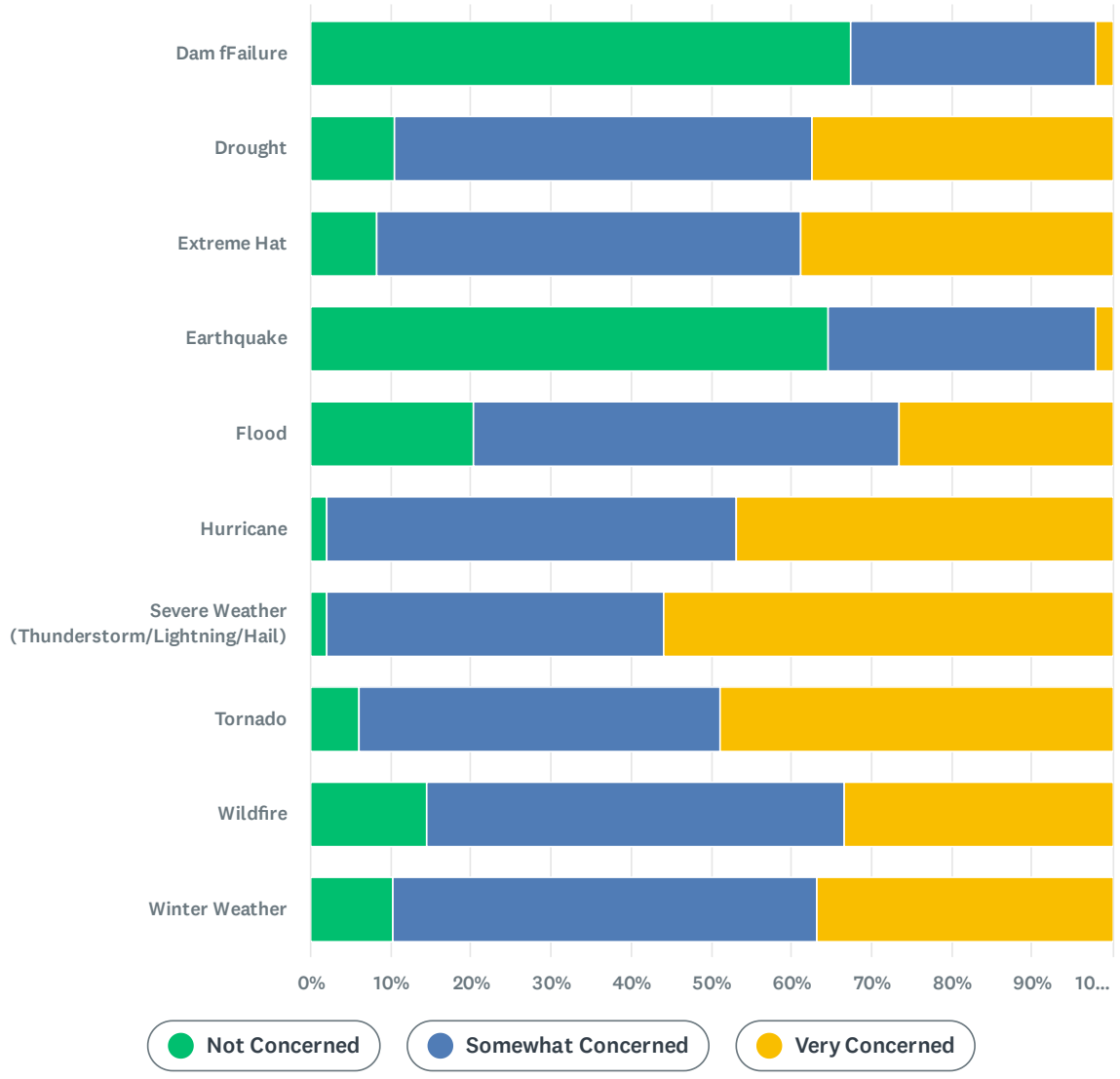
Answer Choices	Percentage	Responses
Dam Failure	0%	0
Drought	37.21%	16
Extreme Heat	46.51%	20
Earthquake	4.65%	2
Total		**181**

Answer Choices	Percentage	Responses
Flood	37.21%	16
Hurricane	79.07%	34
Severe Weather (Thunderstorm/Lightning/Hail)	79.07%	34
Tornado	48.84%	21
Wildfire	18.60%	8
Winter Weather	69.77%	30
Show comments		
Total		**181**

#	OTHER (PLEASE SPECIFY)	DATE
1	Ice storm	11/8/2025 1:22 PM
2	Extreme Cold	11/7/2025 3:17 PM
3	Note: the slightest of tremors from an earthquake, no damage. Flash flooding of low lying streets.	10/23/2025 3:35 PM

Q3 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: 50 Skipped: 0

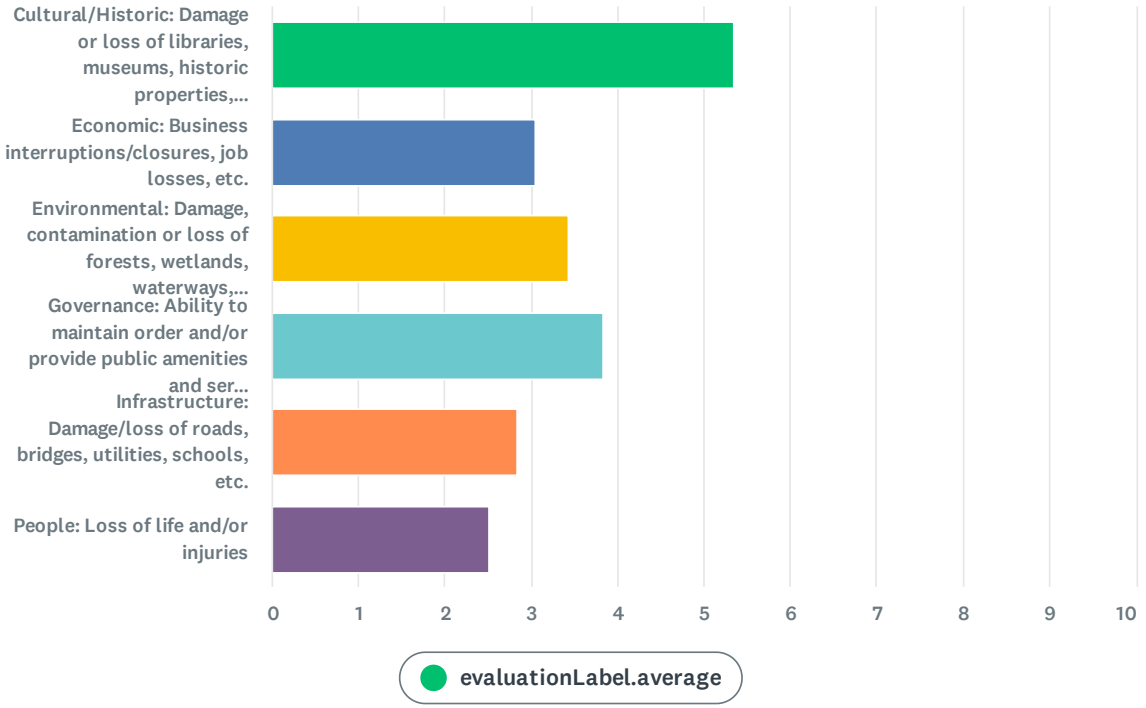


	Not Concerned	Somewhat Concerned	Very Concerned	Total
				488

	Not Concerned	Somewhat Concerned	Very Concerned	Total
Dam fFailure	67.35% 33	30.61% 15	2.04% 1	49
Drought	10.42% 5	52.08% 25	37.50% 18	48
Extreme Hat	8.16% 4	53.06% 26	38.78% 19	49
Earthquake	64.58% 31	33.33% 16	2.08% 1	48
Flood	20.41% 10	53.06% 26	26.53% 13	49
Hurricane	2.04% 1	51.02% 25	46.94% 23	49
Severe Weather (Thunderstorm/Lightning/Hail)	2.00% 1	42.00% 21	56.00% 28	50
Tornado	6.12% 3	44.90% 22	48.98% 24	49
Wildfire	14.58% 7	52.08% 25	33.33% 16	48
Winter Weather	10.20% 5	53.06% 26	36.73% 18	49
				488

Q4 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: 49 Skipped: 1

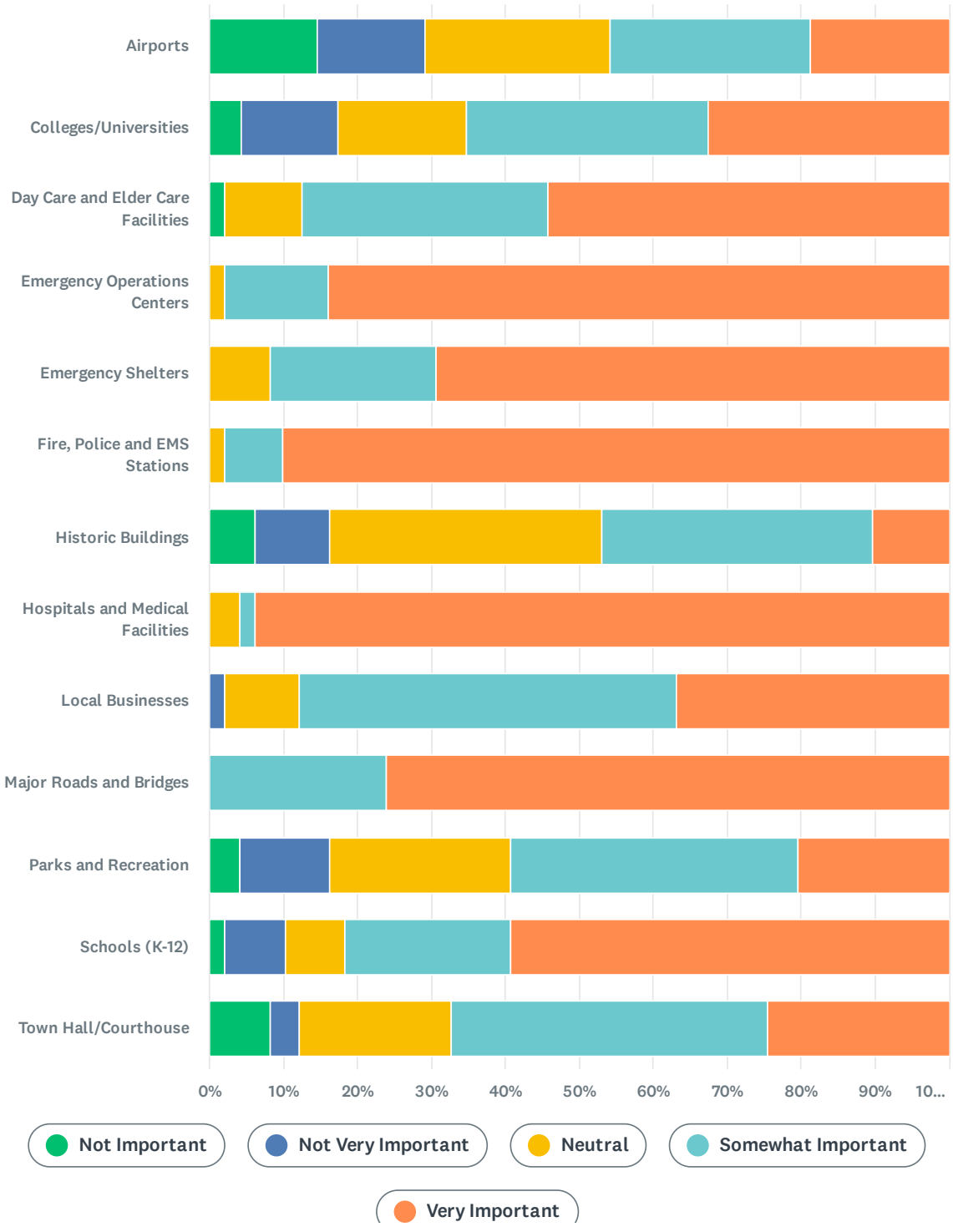


	1	2	3	4	5	6	Total	Weighted ...
Cultural/Historic: Damage or loss of libraries, museums, historic properties, etc.	2.04% 1	4.08% 2	2.04% 1	8.16% 4	16.33% 8	67.35% 33	49	5.35
							294	**3.50**

	1	2	3	4	5	6	Total	Weighted ...
Economic: Business interruptions/closures, job losses, etc.	8.16% 4	32.65% 16	20.41% 10	24.49% 12	14.29% 7	0% 0	49	3.04
Environmental: Damage, contamination or loss of forests, wetlands, waterways, etc.	10.20% 5	22.45% 11	18.37% 9	16.33% 8	28.57% 14	4.08% 2	49	3.43
Governance: Ability to maintain order and/or provide public amenities and services	14.29% 7	10.20% 5	14.29% 7	18.37% 9	24.49% 12	18.37% 9	49	3.84
Infrastructure: Damage/loss of roads,	22.45% 11	24.49% 12	22.45% 11	12.24% 6	14.29% 7	4.08% 2	49	2.84

Q5 How important is each of the following specific community assets to you? (Check the appropriate circle for each asset.)

Answered: 50 Skipped: 0



	Not Important	Not Very Important	Neutral	Somewhat Important	Very Important	Total
Airports	14.58% 7	14.58% 7	25.00% 12	27.08% 13	18.75% 9	48
Colleges/Universities	4.35% 2	13.04% 6	17.39% 8	32.61% 15	32.61% 15	46
Day Care and Elder Care Facilities	2.08% 1	0% 0	10.42% 5	33.33% 16	54.17% 26	48
Emergency Operations Centers	0% 0	0% 0	2.00% 1	14.00% 7	84.00% 42	50
Emergency Shelters	0% 0	0% 0	8.16% 4	22.45% 11	69.39% 34	49
Fire, Police and EMS Stations	0% 0	0% 0	2.00% 1	8.00% 4	90.00% 45	50
Historic Buildings	6.12% 3	10.20% 5	36.73% 18	36.73% 18	10.20% 5	49
Hospitals and Medical Facilities	0% 0	0% 0	4.08% 2	2.04% 1	93.88% 46	49
Local Businesses	0% 0	2.04% 1	10.20% 5	51.02% 25	36.73% 18	49
						635

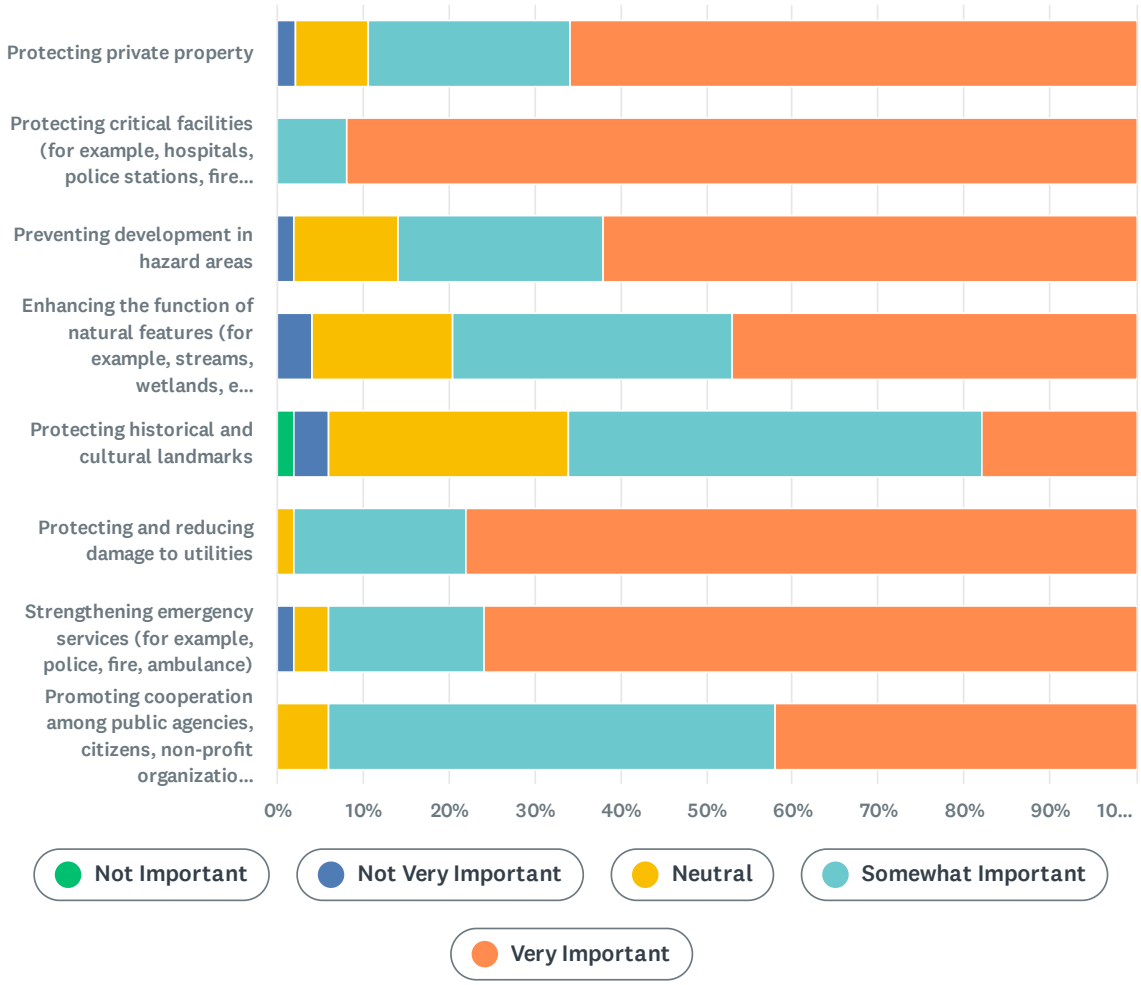
	Not Important	Not Very Important	Neutral	Somewhat Important	Very Important	Total
Major Roads and Bridges	0% 0	0% 0	0% 0	24.00% 12	76.00% 38	50
Parks and Recreation	4.08% 2	12.24% 6	24.49% 12	38.78% 19	20.41% 10	49
Schools (K-12)	2.04% 1	8.16% 4	8.16% 4	22.45% 11	59.18% 29	49
Town Hall/Courthouse	8.16% 4	4.08% 2	20.41% 10	42.86% 21	24.49% 12	49
						635

Show comments

#	OTHER (PLEASE SPECIFY)	DATE
1	What is this question asking? I responded based on what I would prioritize protecting in a natural disaster. But should I be responding in general? In relation to a natural disaster? What I would value most in maintaining or updating in preparation of a disaster? Some of these things don't exist in Granville county either, at least not publicly available, like the airport.	10/28/2025 5:38 PM

Q6 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: 50 Skipped: 0

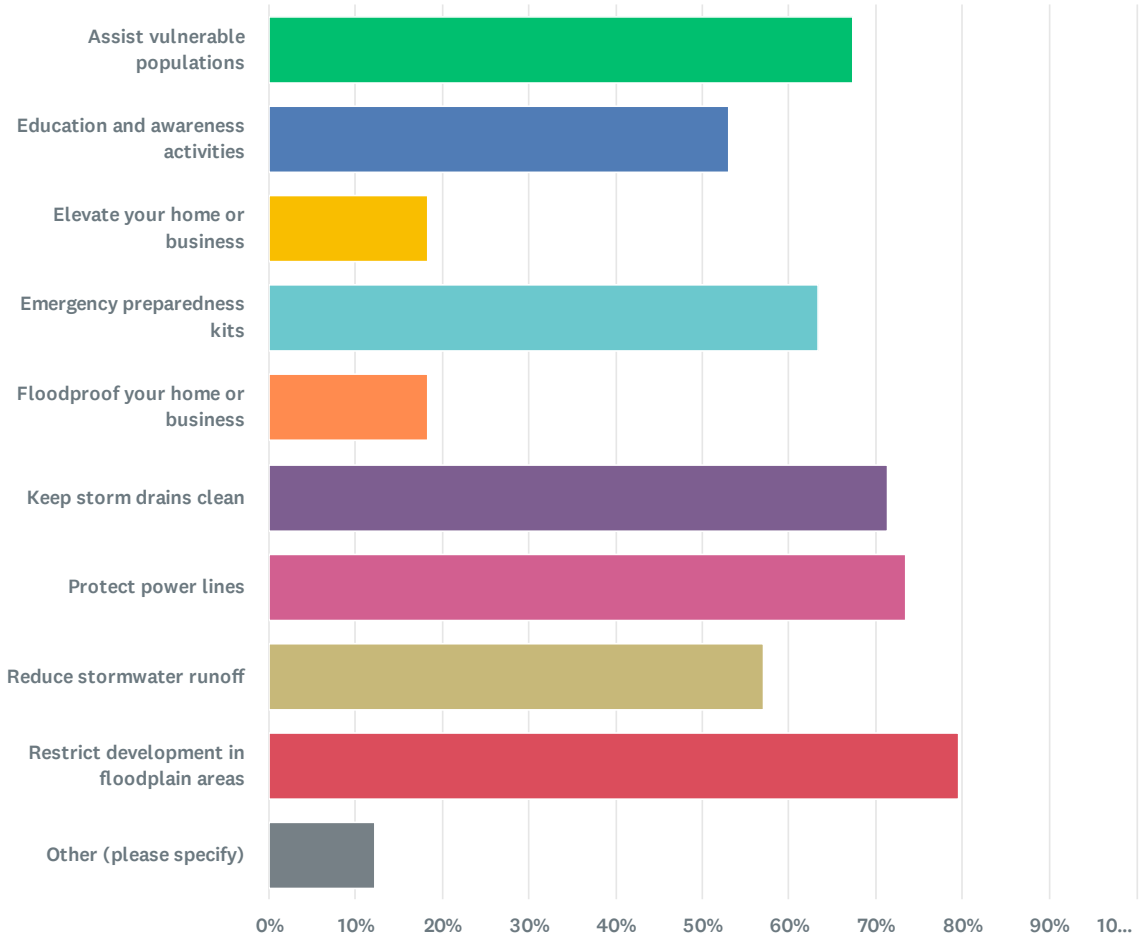


	Not Important	Not Very Important	Neutral	Somewhat Important	Very Important	Total
Protecting private property	0% 0	2.13% 1	8.51% 4	23.40% 11	65.96% 31	47
						396

	Not Important	Not Very Important	Neutral	Somewhat Important	Very Important	Total
Protecting critical facilities (for example, hospitals, police stations, fire stations, etc.)	0% 0	0% 0	0% 0	8.00% 4	92.00% 46	50
Preventing development in hazard areas	0% 0	2.00% 1	12.00% 6	24.00% 12	62.00% 31	50
Enhancing the function of natural features (for example, streams, wetlands, etc.)	0% 0	4.08% 2	16.33% 8	32.65% 16	46.94% 23	49
Protecting historical and cultural landmarks	2.00% 1	4.00% 2	28.00% 14	48.00% 24	18.00% 9	50
Protecting and reducing damage to utilities	0% 0	0% 0	2.00% 1	20.00% 10	78.00% 39	50
Strengthening emergency services (for example, police, fire, ambulance)	0% 0	2.00% 1	4.00% 2	18.00% 9	76.00% 38	50

Q7 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: 49 Skipped: 1



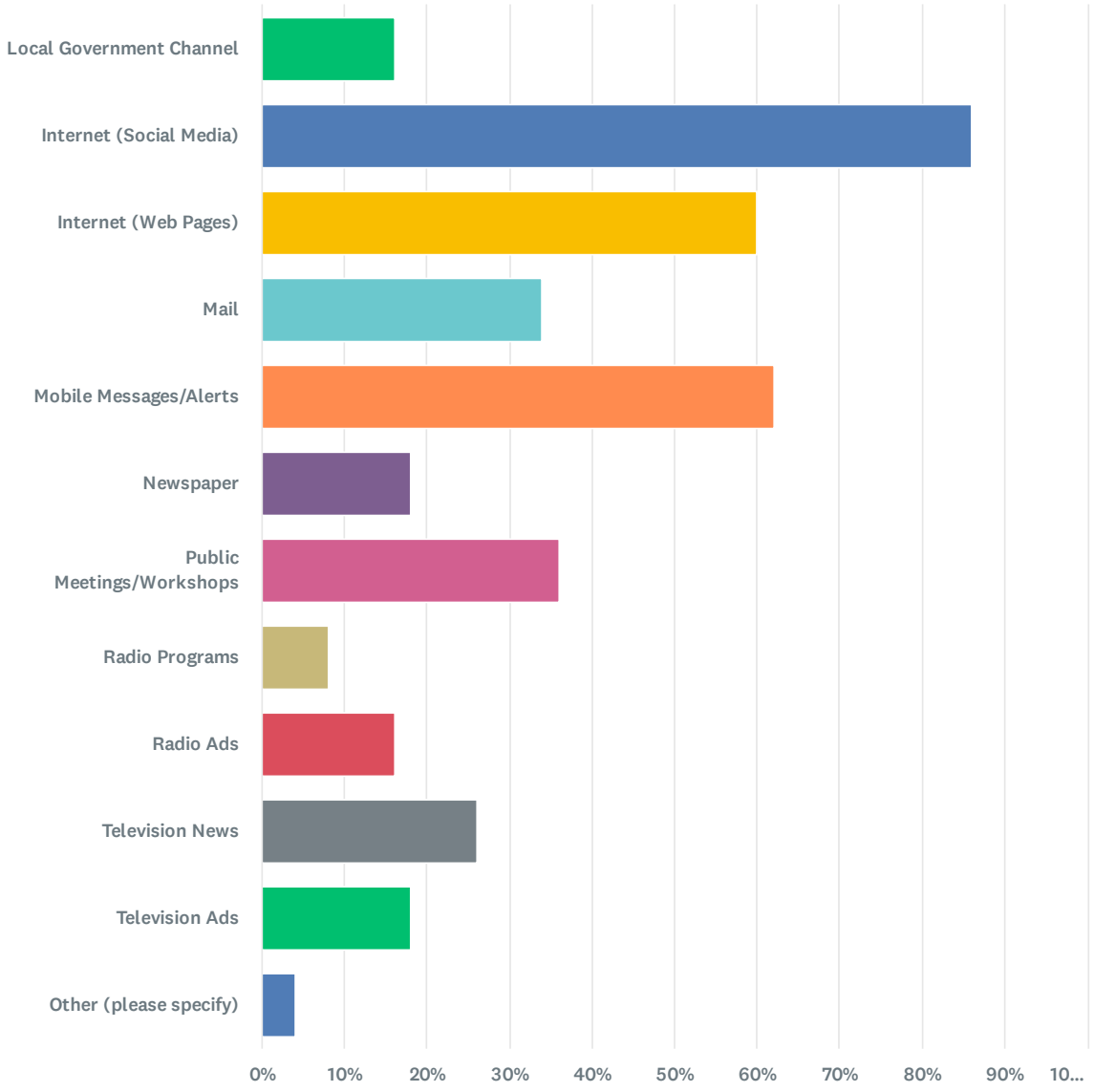
Answer Choices	Percentage	Responses
Assist vulnerable populations	67.35%	33
Education and awareness activities	53.06%	26
Elevate your home or business	18.37%	9
Emergency preparedness kits	63.27%	31
Total		**252**

Answer Choices	Percentage	Responses
Floodproof your home or business	18.37%	9
Keep storm drains clean	71.43%	35
Protect power lines	73.47%	36
Reduce stormwater runoff	57.14%	28
Restrict development in floodplain areas	79.59%	39
Other (please specify) Show responses	12.24%	6
Total		**252**

#	OTHER (PLEASE SPECIFY)	DATE
1	More emergency shelters available for everyone	11/10/2025 9:35 AM
2	stop development - preserve the natural surroundings	11/10/2025 9:16 AM
3	County ordinances to preserve natural environmental protections in high-risk areas (instead of over-developing and putting low-quality replacements in, which will ultimately result in lost buildings and economic turmoil). Duke Energy should be responsible for power line maintenance.	10/28/2025 5:38 PM
4	Southern Granville has a lot of rock and pretty non-existent mitigation for storm water. We need to get better at dealing with intense rain.	10/28/2025 4:45 PM
5	Clean log jams from streams and rivers	10/28/2025 10:14 AM
6	Stop over building in this area,	10/27/2025 11:38 AM

Q8 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: 50 Skipped: 0



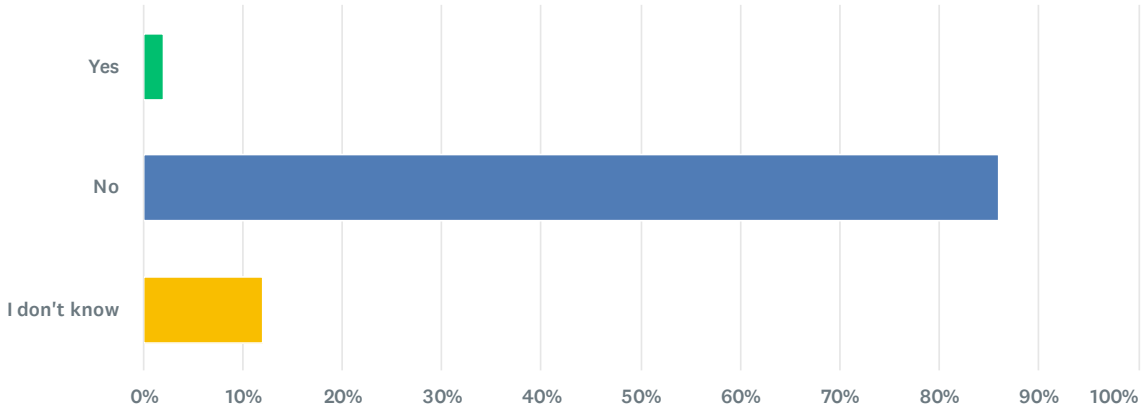
Answer Choices	Percentage	Responses
Local Government Channel	16.00%	8
Total		**192**

Answer Choices	Percentage	Responses
Internet (Social Media)	86.00%	43
Internet (Web Pages)	60.00%	30
Mail	34.00%	17
Mobile Messages/Alerts	62.00%	31
Newspaper	18.00%	9
Public Meetings/Workshops	36.00%	18
Radio Programs	8.00%	4
Radio Ads	16.00%	8
Television News	26.00%	13
Television Ads	18.00%	9
Other (please specify) Show responses	4.00%	2
Total		**192**

#	OTHER (PLEASE SPECIFY)	DATE
1	phone call	10/31/2025 12:20 PM
2	email	10/28/2025 5:38 PM

Q9 Is your home located in a floodplain?

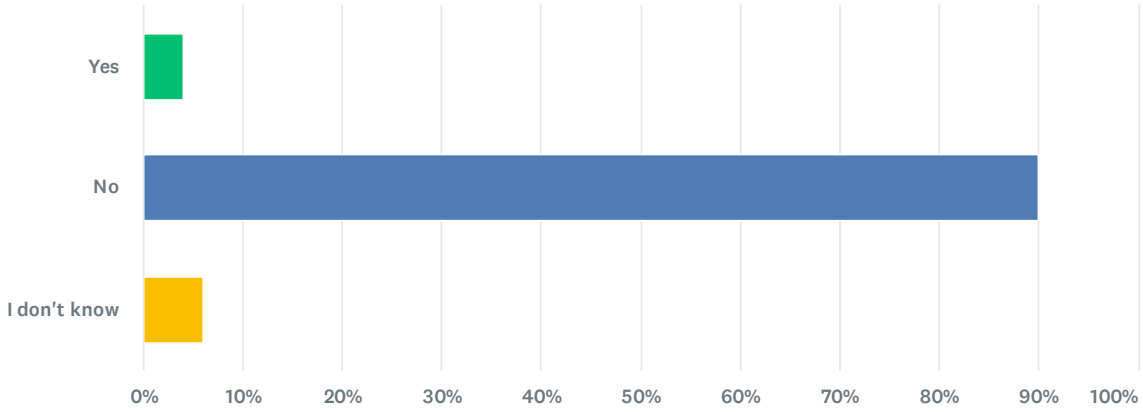
Answered: 50 Skipped: 0



Answer Choices	Percentage	Responses
Yes	2.00%	1
No	86.00%	43
I don't know	12.00%	6
Total		**50**

Q10 Do you have flood insurance?

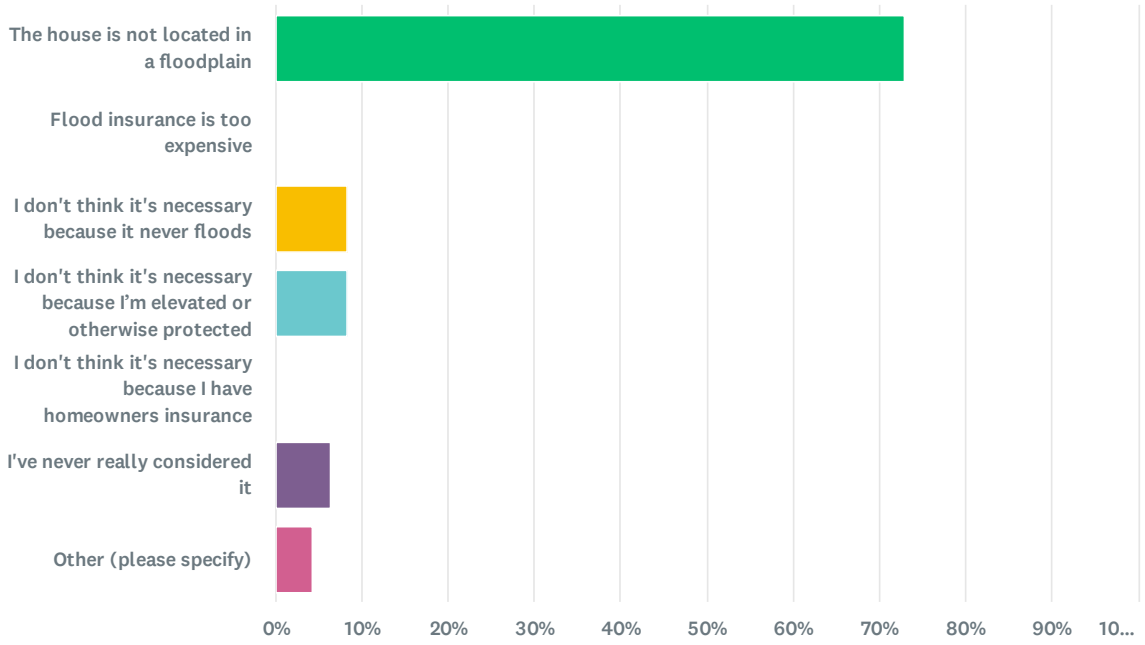
Answered: 50 Skipped: 0



Answer Choices	Percentage	Responses
Yes	4.00%	2
No	90.00%	45
I don't know	6.00%	3
Total		**50**

Q11 If “No,” why not?

Answered: 48 Skipped: 2

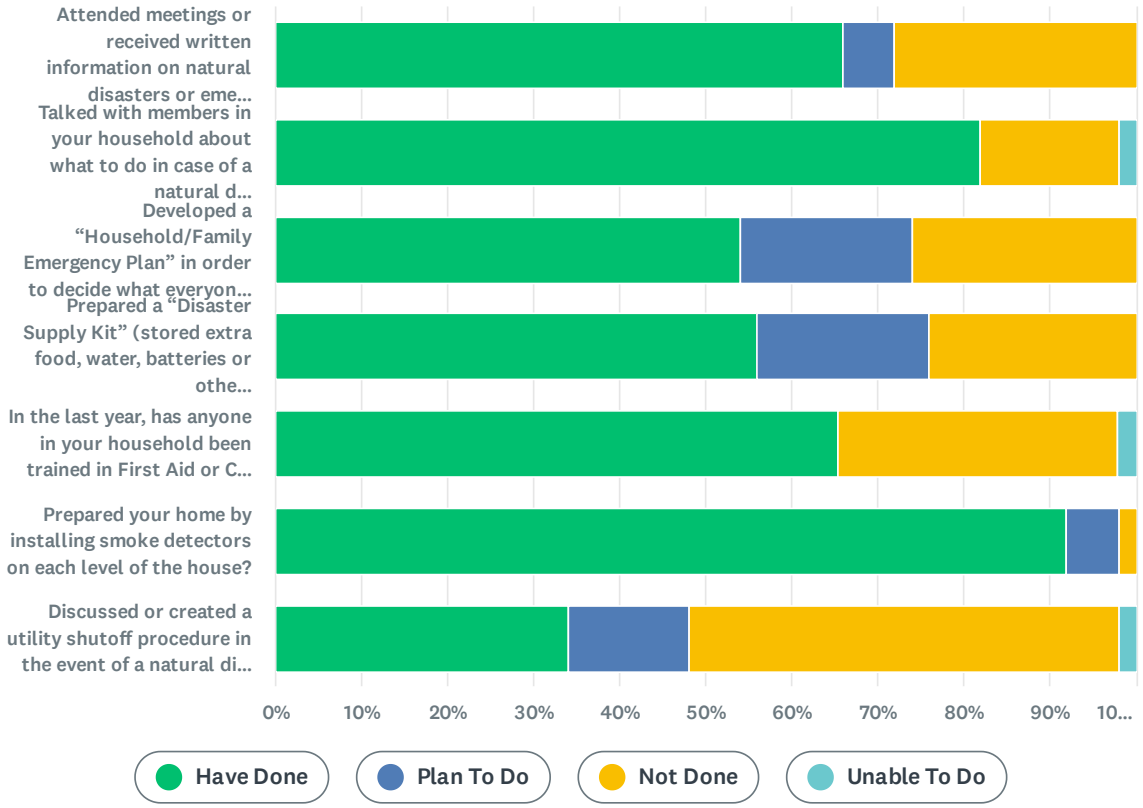


Answer Choices	Percentage	Responses
The house is not located in a floodplain	72.92%	35
Flood insurance is too expensive	0%	0
I don't think it's necessary because it never floods	8.33%	4
I don't think it's necessary because I’m elevated or otherwise protected	8.33%	4
I don't think it's necessary because I have homeowners insurance	0%	0
I've never really considered it	6.25%	3
Other (please specify) Show responses	4.17%	2
Total		**48**

#	OTHER (PLEASE SPECIFY)	DATE
1	not sure	11/10/2025 9:35 AM
2	Not in a floodplain, no water sources nearby	10/23/2025 3:35 PM

Q12 In the following list, please check the activities that you have done in your household, plan to do in the near future, have not done, or are unable to do. (Please check one response for each preparedness activity.)

Answered: 50 Skipped: 0

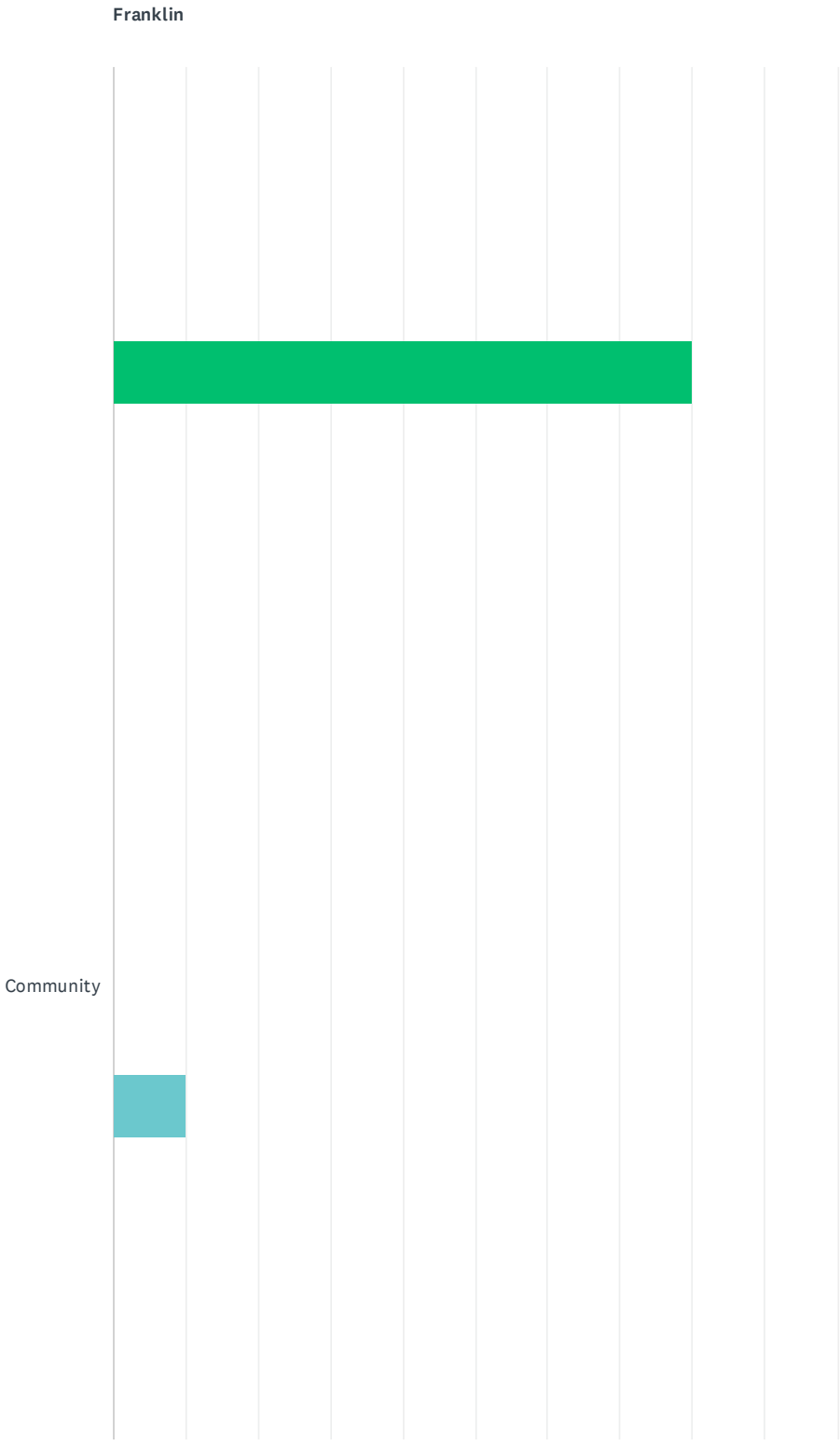


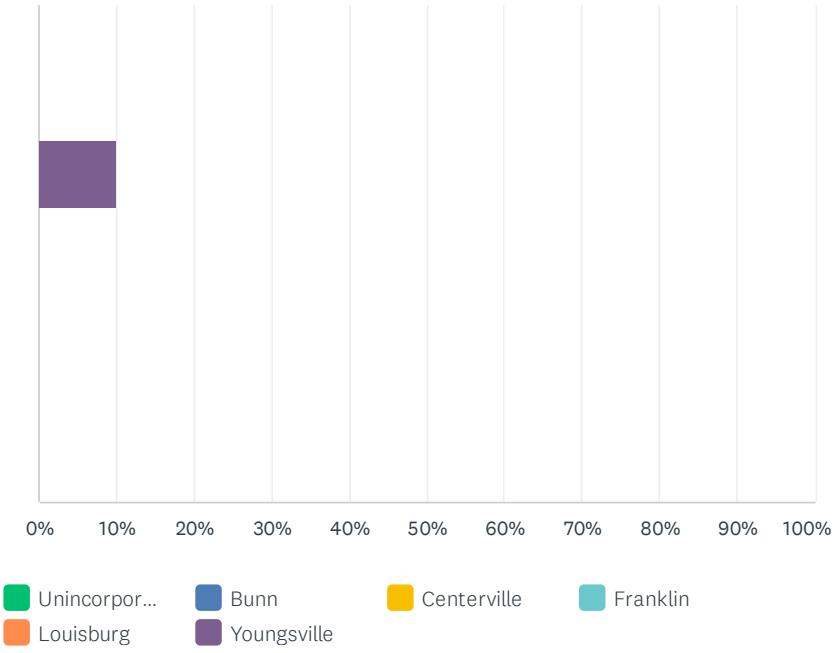
	Have Done	Plan To Do	Not Done	Unable To Do	Total
Attended meetings or received written information on natural disasters or emergency preparedness?	66.00% 33	6.00% 3	28.00% 14	0% 0	50
Talked with members in your household about what to do in case of a natural disaster or emergency?	82.00% 41	0% 0	16.00% 8	2.00% 1	50
Developed a "Household/Family Emergency Plan" in order to decide what everyone would do in the event of a disaster?	54.00% 27	20.00% 10	26.00% 13	0% 0	50
					349

	Have Done	Plan To Do	Not Done	Unable To Do	Total
Prepared a “Disaster Supply Kit” (stored extra food, water, batteries or other emergency supplies)?	56.00% 28	20.00% 10	24.00% 12	0% 0	50

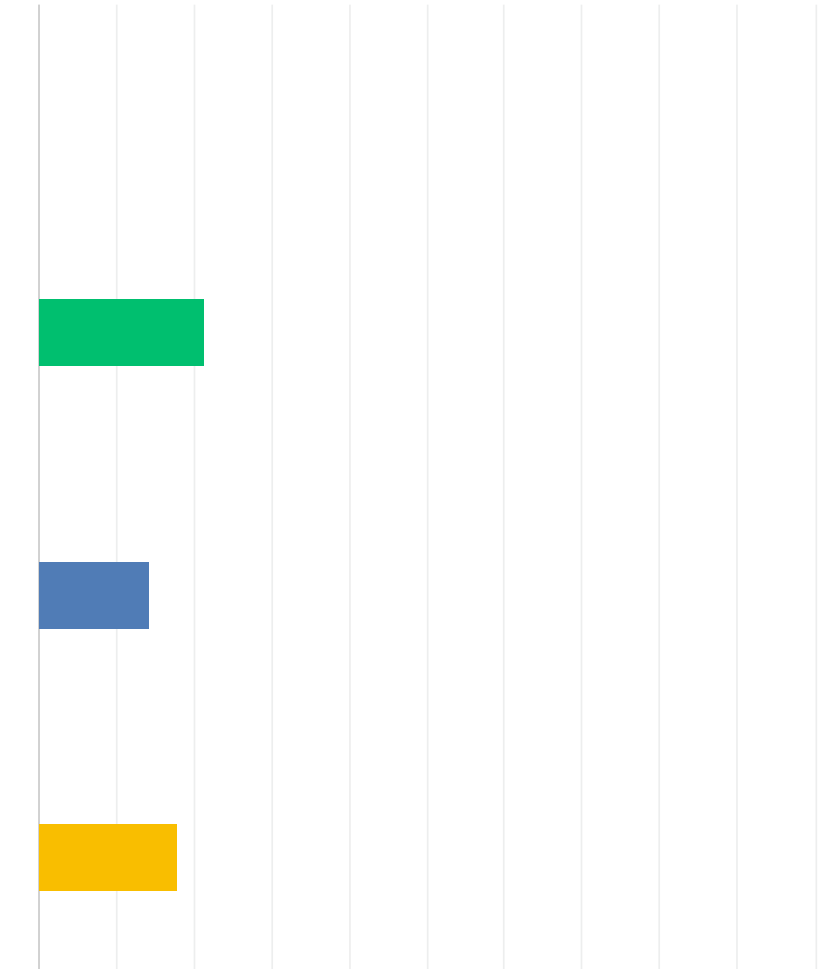
Q13 In which community do you live?

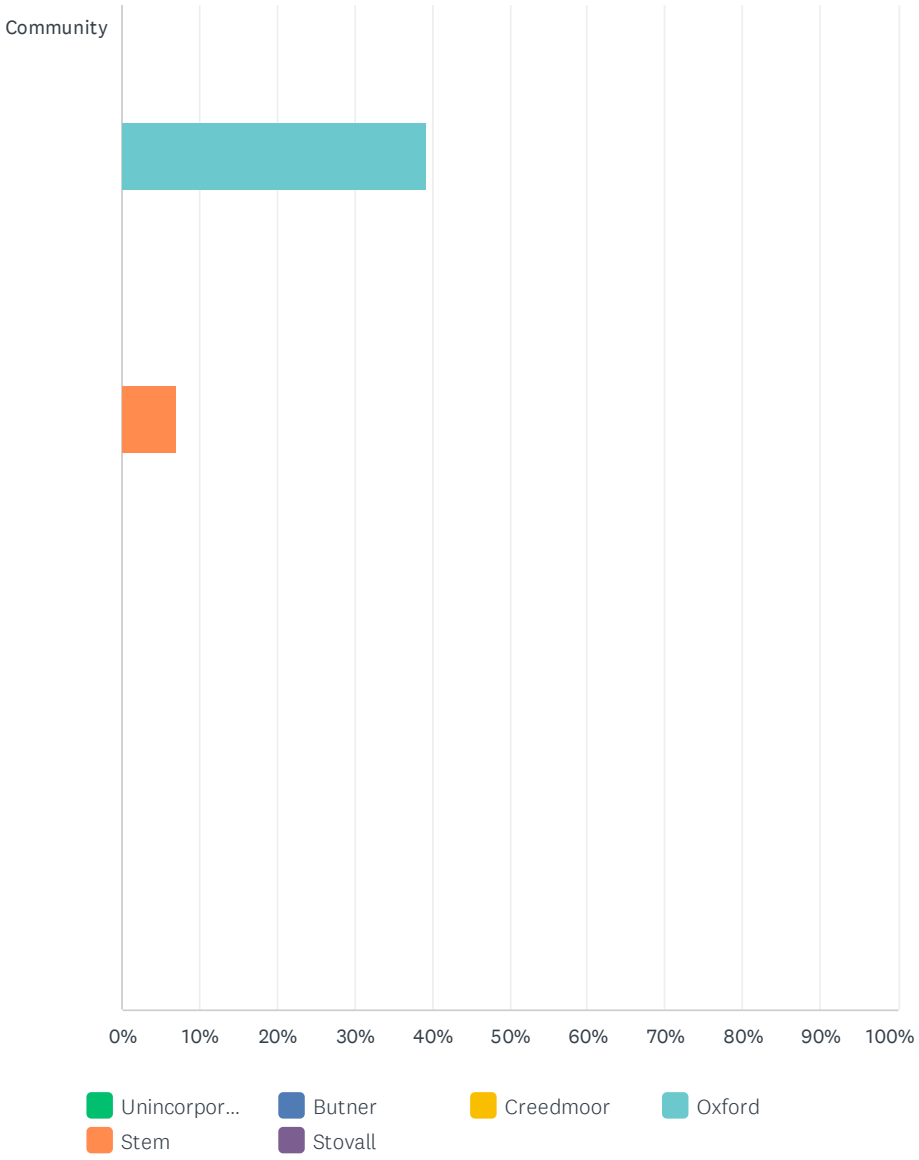
Answered: 42 Skipped: 8

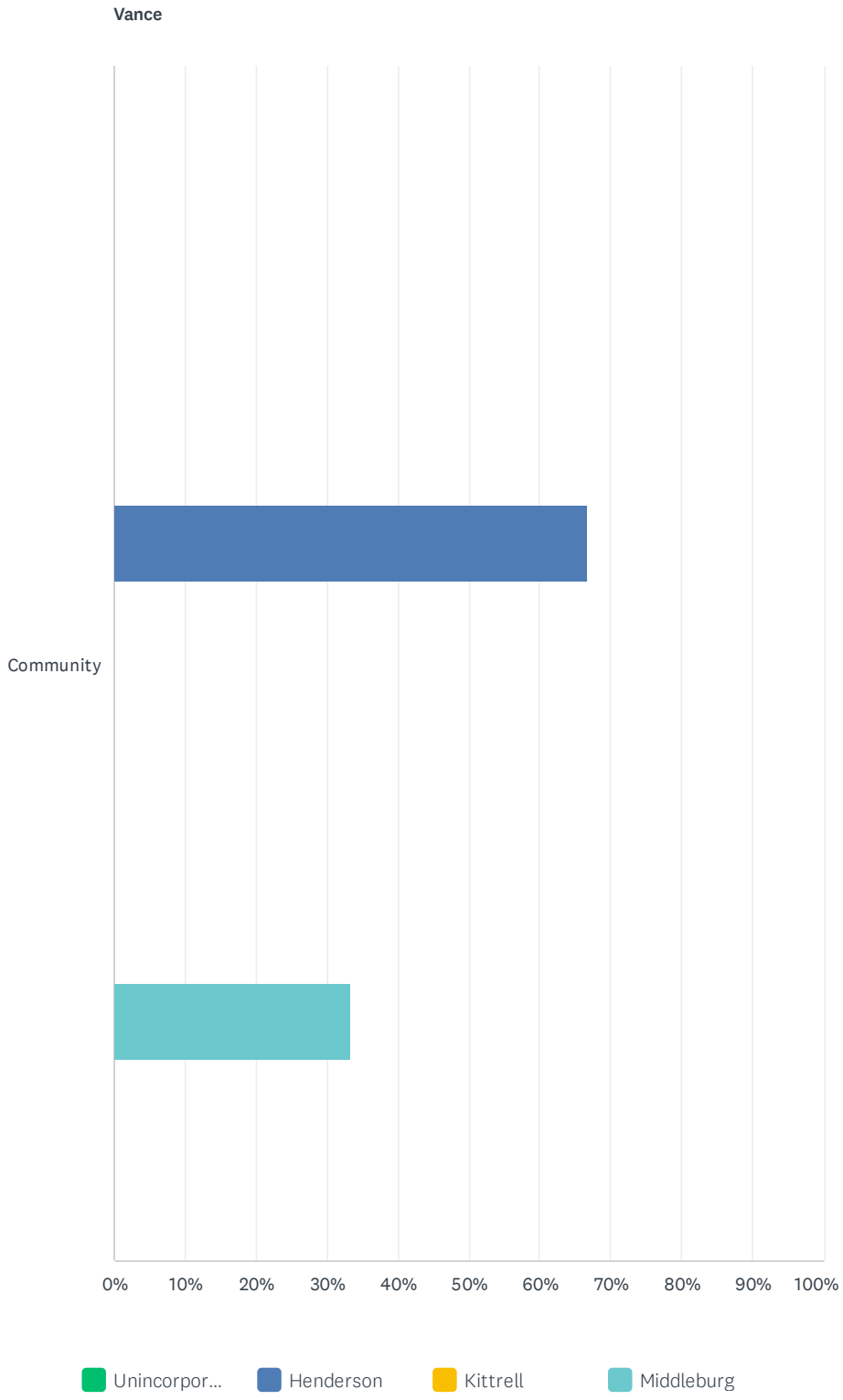


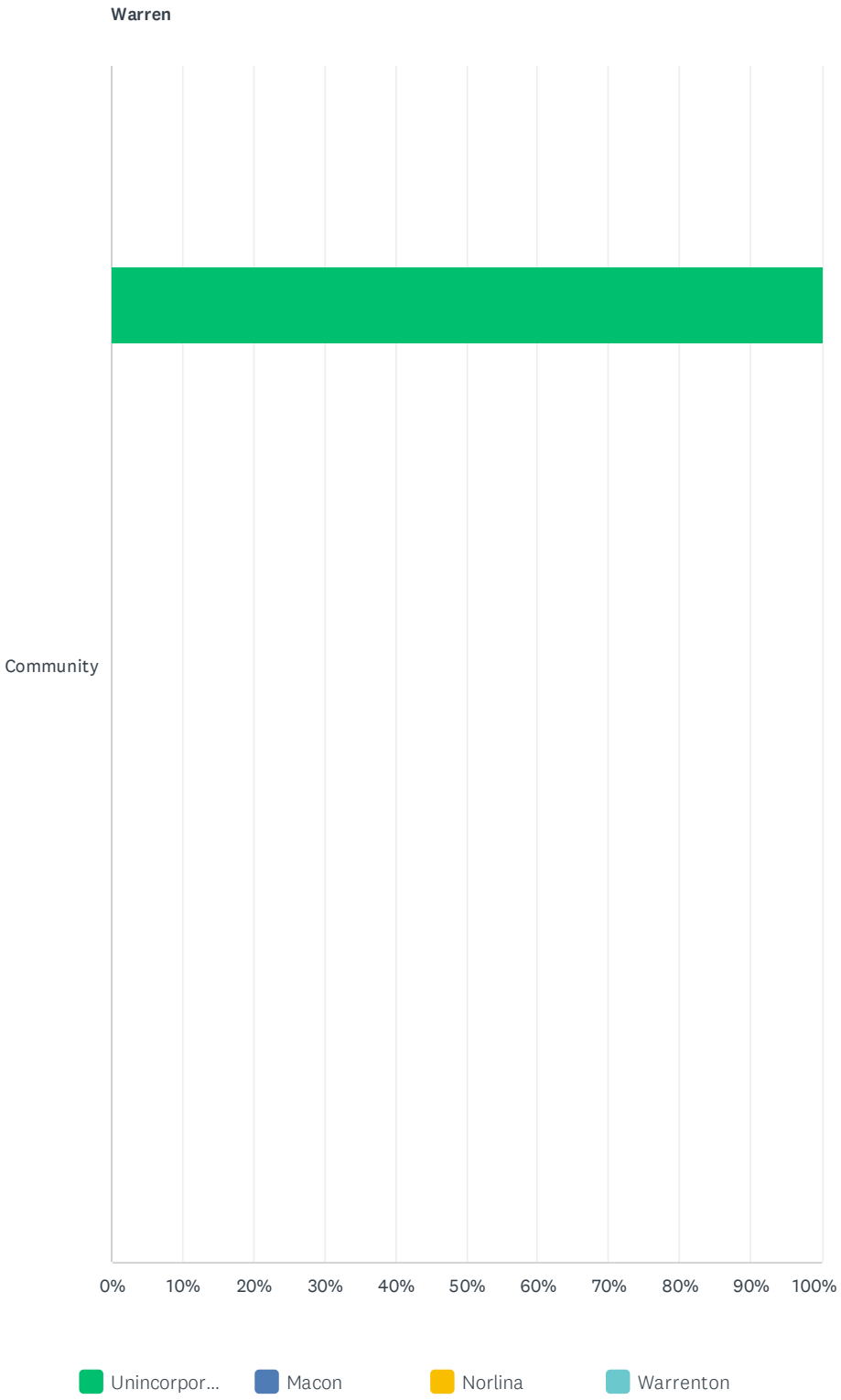

0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Unincorpor...
Bunn
Centerville
Franklin
Louisburg
Youngsville

Granville




Community
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Unincorpor...
Butner
Creedmoor
Oxford
Stem
Stovall


Vance
Community
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Unincorpor...
Henderson
Kittrell
Middleburg


Warren
Community
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Unincorpor...
Macon
Norlina
Warrenton

Franklin							
	UNINCORPORATED	BUNN	CENTERVILLE	FRANKLIN	LOUISBURG	YOUNGSVILLE	TOTAL
Community	80.00% 8	0.00% 0	0.00% 0	10.00% 1	0.00% 0	10.00% 1	10

Granville							
	UNINCORPORATED	BUTNER	CREEDMOOR	OXFORD	STEM	STOVALL	TOTAL
Community	21.43% 6	14.29% 4	17.86% 5	39.29% 11	7.14% 2	0.00% 0	28

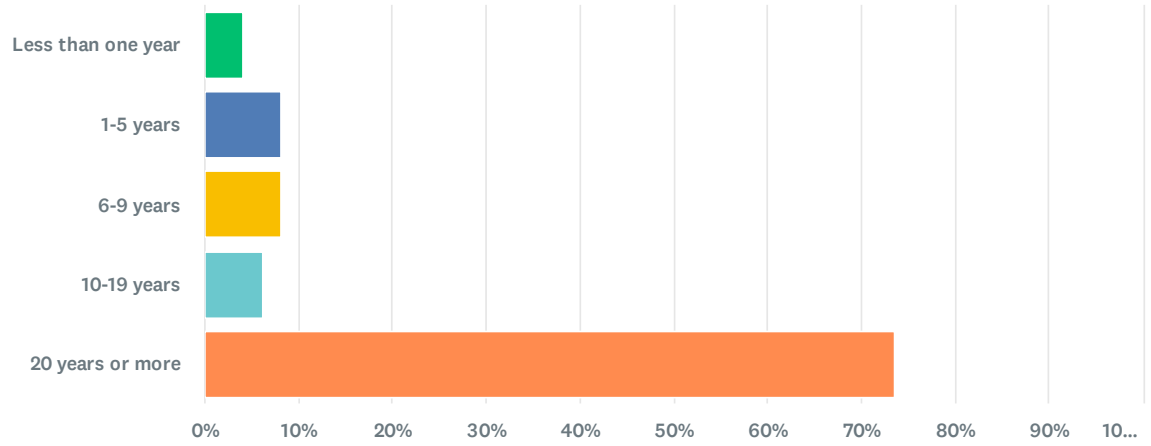
Vance					
	UNINCORPORATED	HENDERSON	KITTRELL	MIDDLEBURG	TOTAL
Community	0.00% 0	66.67% 2	0.00% 0	33.33% 1	3

Warren					
	UNINCORPORATED	MACON	NORLINA	WARRENTON	TOTAL
Community	100.00% 4	0.00% 0	0.00% 0	0.00% 0	4

#	OTHER (PLEASE SPECIFY)	DATE
1	Ridgeway	12/18/2025 2:41 PM
2	FRANKLINTON	12/13/2025 5:51 AM
3	Bullock - Grassy Creek community	11/10/2025 11:37 AM
4	Berea	11/8/2025 1:22 PM
5	Durham (work in Granville)	11/7/2025 4:23 PM
6	Vance Co	11/7/2025 1:56 PM
7	Vance county	11/2/2025 10:26 AM
8	Butner	10/29/2025 12:03 PM
9	Creedmoor	10/29/2025 1:41 AM
10	Granville	10/28/2025 9:20 PM
11	Creedmoor	10/27/2025 11:38 AM
12	Creedmoor	10/27/2025 11:14 AM
13	Wake Forest	10/27/2025 9:14 AM
14	Ridgeway	10/23/2025 2:51 PM

Q14 How long have you lived in the Tar River Region?

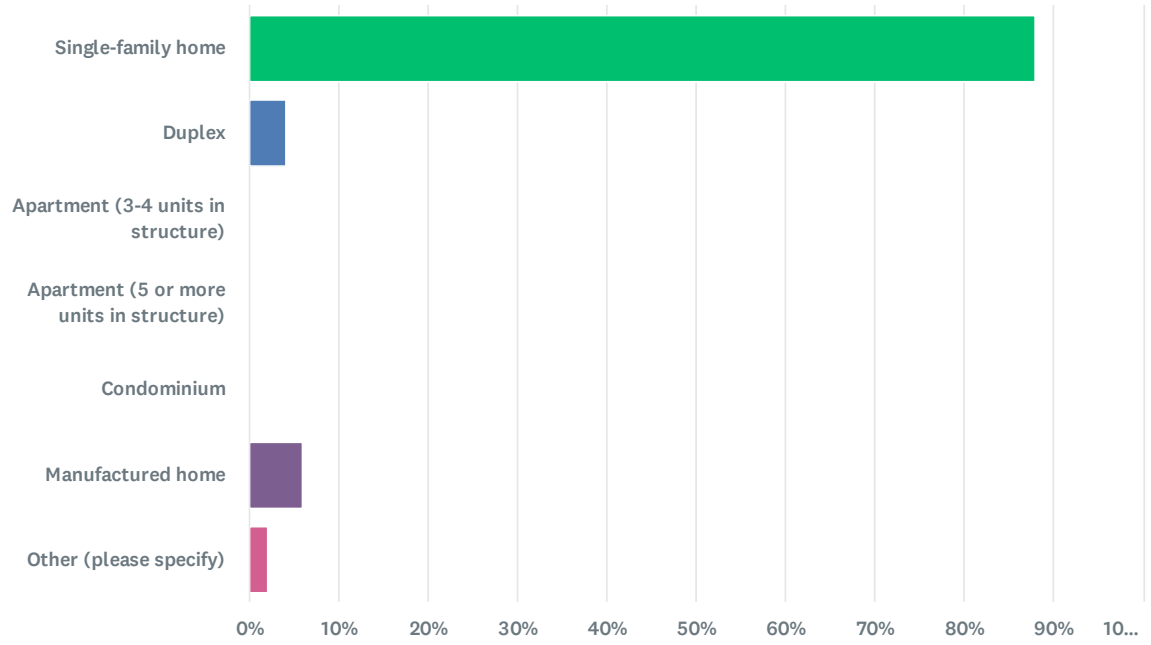
Answered: 49 Skipped: 1



Answer Choices	Percentage	Responses
Less than one year	4.08%	2
1-5 years	8.16%	4
6-9 years	8.16%	4
10-19 years	6.12%	3
20 years or more	73.47%	36
Total		**49**

Q15 What type of building do you live in?

Answered: 50 Skipped: 0



Answer Choices	Percentage	Responses
Single-family home	88.00%	44
Duplex	4.00%	2
Apartment (3-4 units in structure)	0%	0
Apartment (5 or more units in structure)	0%	0
Condominium	0%	0
Manufactured home	6.00%	3
Other (please specify) Show responses	2.00%	1
Total		**50**

#	OTHER (PLEASE SPECIFY)	DATE
1	townhouse	10/27/2025 9:14 AM

Q16 Additional Comments

Answered: 2 Skipped: 48

#	RESPONSES	DATE
1	None	11/8/2025 1:22 PM
2	Some of these questions were a bit unclear. Will there be more survey or feedback opportunities in the future? Are there environmental & conservation scientists involved in this work for this region?	10/28/2025 5:38 PM

APPENDIX D: CRITICAL FACILITIES

Table D-1: Critical Facilities in the Tar River Region

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Bunn Rescue and Emergency Medical Services Incorporated	West Jewett Avenue	Bunn	27508	Franklin	Rescue Services, Medical	EMS	X
Bunn Rural Fire Association, Incorporated of Bunn, N.C.	505 Main St	Bunn	27508	Franklin	-	Fire Stations	X
Bunn Branch Library	324 S. Main Street	Bunn	27508	Franklin	Branch	Public Library	X
Bunn High	29 Bunn Elem School Road	Bunn	27508	Franklin	Regular School	Public Schools	X
Franklinton Rescue and Emergency Medical Services Incorporated	9 South Hillsborough Street	Franklinton	27525	Franklin	Rescue Services, Medical	EMS	X
Franklinton Fire Department, Inc.	9 South Hillsboro St.	Franklinton	27525	Franklin	-	Fire Stations	X
Franklinton Police Department	7 West Mason Street	Franklinton	27525	Franklin	Police Departments (Except American Indian or Alaska Native)	Law Enforcement	X
Fannie Lawrence Home	324 South Hillsborough Street	Franklinton	27525	Franklin	Mental Health Homes	Medical Facilities	X
Mill Street Home	104 Mill Street	Franklinton	27525	Franklin	Mental Health Homes	Medical Facilities	X
Sam's Home	32 Howard Harris Road	Franklinton	27525	Franklin	Mental Health Homes	Medical Facilities	X
Franklinton Public Library	9 West Mason Street	Franklinton	27525	Franklin	Branch	Public Library	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Franklinton Elementary	431 S Hillsborough St.	Franklinton	27525	Franklin	Regular School	Public Schools	X
Louisburg College	501 N. Main St.	Louisburg	27549	Franklin	Colleges (Except Junior Colleges)	Colleges & Universities	X
Louisburg Rescue and Emergency Medical Services Incorporated	121 Davis Street	Louisburg	27549	Franklin	Rescue Services, Medical	EMS	X
Louisburg Fire Department	102 Wade Avenue	Louisburg	27549	Franklin	Ambulance and Fire Service Combined	EMS	X
Louisburg Fire Department	102 Wade Ave	Louisburg	27549	Franklin	-	Fire Stations	X
Louisburg Police Department	104 Wade Avenue	Louisburg	27549	Franklin	Police Departments (Except American Indian or Alaska Native)	Law Enforcement	X
Carefocus	216-D, N. Bickett Blvd. Suite 2	Louisburg	27549	Franklin	Home Care	Medical Facilities	X
Franklin County Home Health Agency	107 Industrial Drive	Louisburg	27549	Franklin	Home Care	Medical Facilities	X
Genesis Health Care	202 N. Main Street	Louisburg	27549	Franklin	Home Care	Medical Facilities	X
Regional Home Health	100 Hospital Drive	Louisburg	27549	Franklin	Home Care	Medical Facilities	X
Louisburg Manor	114 Smoketree Way	Louisburg	27549	Franklin	Home for the Aged	Medical Facilities	X
The Meadows of Louisburg	844, Highway 39 South	Louisburg	27549	Franklin	Home for the Aged	Medical Facilities	X
Franklin Regional Medical Center	100 Hospital Dr	Louisburg	27549	Franklin	Hospital	Medical Facilities	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Genesis	216 South Main Street	Louisburg	27549	Franklin	Mental Health Homes	Medical Facilities	X
The Sweetom's Home	909 Bickett Boulevard	Louisburg	27549	Franklin	Mental Health Homes	Medical Facilities	X
VGFW Area Authority - Franklin Clinic	107 Industrial Drive, Suite B	Louisburg	27549	Franklin	Mental Health Homes	Medical Facilities	X
Louisburg Nursing Center	202 Smoketree Way	Louisburg	27549	Franklin	Nursing Home Facility	Medical Facilities	X
Franklin County Library	906 N. Main Street	Louisburg	27549	Franklin	Headquarters	Public Library	X
Terrell Lane Middle	101 Terrell Lane	Louisburg	27549	Franklin	Regular School	Public Schools	X
Louisburg Elementary	50 Stone Southerland Road	Louisburg	27549	Franklin	Regular School	Public Schools	X
Louisburg High	201 Allen Lane	Louisburg	27549	Franklin	Regular School	Public Schools	X
Crosscreek Charter School	306 Sandalwood Drive	Louisburg	27549	Franklin	Regular School	Public Schools	X
Centerville Fire and Rescue	5939 State Highway 561	Unincorporated Area	27549	Franklin	Fire and Rescue Service	EMS	X
Youngsville Fire Department Station 2	1088 Hart Road	Unincorporated Area	27525	Franklin	Ambulance and Fire Service Combined	EMS	X
Pilot Volunteer Fire and Rescue Department Incorporated	8028 State Highway 39 South	Unincorporated Area	27597	Franklin	Fire and Rescue Service	EMS	X
Epsom Fire and Rescue Department Incorporated	8067 State Highway 39	Unincorporated Area	27537	Franklin	Fire and Rescue Service	EMS	X
Gold Sand Rural Fire Department	2295 Person Road	Unincorporated Area	27549	Franklin	Ambulance and Fire Service Combined	EMS	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
North Carolina Division of Forest Resources District 5 - Franklin County	2177 Fire Tower Road	Unincorporated Area	27549	Franklin	Firefighting, Forest	EMS	X
Justice Rural Volunteer Fire Association Incorporated	4060 State Highway 581	Unincorporated Area	27882	Franklin	Ambulance and Fire Service Combined	EMS	X
White Level Volunteer Rescue	2465 White Level Road	Unincorporated Area	27549	Franklin	Rescue Services, Medical	EMS	X
Franklin County Emergency Medical Squad	8146 State Highway 56	Unincorporated Area	27549	Franklin	Ambulance Services, Air or Ground	EMS	X
Franklin County Emergency Management	8146 Nc Highway 56	Unincorporated Area	27549	Franklin	Emergency Planning and Management Offices, Government	EOC	X
Bunn Rural Fire Association, Incorporated of Bunn, N.C.	2882 Nc 98 W	Unincorporated Area	27549	Franklin	-	Fire Stations	X
Bunn Rural Fire Association, Incorporated of Bunn, N.C.	1520 Baptist Rd	Unincorporated Area	27508	Franklin	-	Fire Stations	X
Epsom Fire and Rescue Association, Incorporated, Henderson, North Carolina	8120 Hwy 39 South	Unincorporated Area	27537	Franklin	-	Fire Stations	X
Fire and Rescue Association, Incorporated, Centerville, North Carolina	5939 Nc 561	Unincorporated Area	27549	Franklin	-	Fire Stations	X
Gold Sand Rural Fire Department, Inc.	2295 Person Rd	Unincorporated Area	27549	Franklin	-	Fire Stations	X
Justice Rural Volunteer Fire Association, Inc.	4113 Nc Hwy 581 North	Unincorporated Area	27882	Franklin	-	Fire Stations	X
Justice Rural Volunteer Fire Association, Inc.	942 Sykes Rd	Unincorporated Area	27882	Franklin	-	Fire Stations	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Mitchiner's Cross Road Rural Fire Department, Inc.	2964 West River Rd	Unincorporated Area	27525	Franklin	-	Fire Stations	X
Pilot Fire Department, Inc	8028 Nc Hwy 39 S	Unincorporated Area	27597	Franklin	-	Fire Stations	X
White Level Rural Fire Department, Inc.	2465 White Level Rd	Unincorporated Area	27549	Franklin	-	Fire Stations	X
Youngsville Volunteer Fire Department, Inc.	1126 Flat Rock Church Road	Unincorporated Area	27549	Franklin	-	Fire Stations	X
Youngsville Volunteer Fire Department, Inc.	6755 Nc Hwy 96 W	Unincorporated Area	27596	Franklin	-	Fire Stations	X
Bunn Police Department	601 Main Street	Unincorporated Area	27508	Franklin	Police Departments (Except American Indian or Alaska Native)	Law Enforcement	X
Franklin County Sheriffs Office / Franklin County Detention Center	285 T Kemp Road	Unincorporated Area	27549	Franklin	Sheriffs' Offices (Except Court Functions Only)	Law Enforcement	X
Mangum Home	2950 Highway 58	Unincorporated Area	27549	Franklin	Mental Health Homes	Medical Facilities	AE
Alston Family Care Home	476 Leonard Road	Unincorporated Area	27549	Franklin	Family Care	Medical Facilities	X
Lee Family Care Home	945 Vaiden Road	Unincorporated Area	27549	Franklin	Family Care	Medical Facilities	X
Continuum Home Care of Louisburg	1704 Nc Hwy. 39 N	Unincorporated Area	27549	Franklin	Home Care	Medical Facilities	X
Franklin County Department of Aging	127 Shannon Village	Unincorporated Area	27549	Franklin	Home Care	Medical Facilities	X
Handy Hands Services	117 Ridgewood Road	Unincorporated Area	27596	Franklin	Home Care	Medical Facilities	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Tender Loving Care	1937 N C 39 Hwy. N.	Unincorporated Area	27549	Franklin	Home Care	Medical Facilities	X
Burnette's Retirement Village, Inc.	361 Leonard Road	Unincorporated Area	27549	Franklin	Home for the Aged	Medical Facilities	X
The Pines	29 George Leonard Road	Unincorporated Area	27549	Franklin	Home for the Aged	Medical Facilities	X
Zollieville Rest Home	1437 East River Road	Unincorporated Area	27549	Franklin	Home for the Aged	Medical Facilities	X
Anderson Home	4349 West River Road	Unincorporated Area	27525	Franklin	Mental Health Homes	Medical Facilities	X
Eason Court	113 Eason Court	Unincorporated Area	27596	Franklin	Mental Health Homes	Medical Facilities	X
Extended Care	1084 Fuller Road	Unincorporated Area	27549	Franklin	Mental Health Homes	Medical Facilities	X
Franklin County Group Home #1	663 Moulton Road	Unincorporated Area	27549	Franklin	Mental Health Homes	Medical Facilities	X
Franklin County Group Home #2	29 Strange Road	Unincorporated Area	27549	Franklin	Mental Health Homes	Medical Facilities	X
Galloway Home	5286 Hwy 401 North	Unincorporated Area	27549	Franklin	Mental Health Homes	Medical Facilities	X
Hopkins Therapeutic Home	350 Bunn Elementary Road	Unincorporated Area	27508	Franklin	Mental Health Homes	Medical Facilities	X
James & Orelia Alston Home	2715 Schloss Road	Unincorporated Area	27549	Franklin	Mental Health Homes	Medical Facilities	X
Jones Home	973 Vaiden Road	Unincorporated Area	27549	Franklin	Mental Health Homes	Medical Facilities	X
Ruby Williams/Alpha Omega Health, Inc.	4407 West River Road	Unincorporated Area	27525	Franklin	Mental Health Homes	Medical Facilities	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
The Ainuddin's Home	234 East River Rd	Unincorporated Area	27549	Franklin	Mental Health Homes	Medical Facilities	X
Williams Home	641 South Main Street	Unincorporated Area	27525	Franklin	Mental Health Homes	Medical Facilities	X
Britthaven of Louisburg	1704 Highway 39 North	Unincorporated Area	27549	Franklin	Nursing Home Facility	Medical Facilities	X
Calvary Christian School	394 Ferrells Bridge Road	Unincorporated Area	27549	Franklin	-	Non-Public Schools	X
Mill Creek Mennonite School	339 Preacher Ball Road	Unincorporated Area	27549	Franklin	-	Non-Public Schools	X
Bunn Elementary	686 Bunn Elem School Road	Unincorporated Area	27508	Franklin	Regular School	Public Schools	X
Edward Best Elementary	4011 Nc 56 Hwy East	Unincorporated Area	27549	Franklin	Regular School	Public Schools	X
Bunn Middle	4742 Nc 39 Hwy S	Unincorporated Area	27508	Franklin	Regular School	Public Schools	X
Cedar Creek Middle	2228 Cedar Creek Road	Unincorporated Area	27596	Franklin	Regular School	Public Schools	X
Franklinton High	910 Cedar Creek Road	Unincorporated	27525	Franklin	Regular School	Public Schools	X
Laurel Mill Elementary	730 Laurel Mill Road	Unincorporated Area	27549	Franklin	Regular School	Public Schools	X
Royal Elementary	308 Flat Rock Church Road	Unincorporated Area	27549	Franklin	Regular School	Public Schools	X
Long Mill Elementary	1753 Long Mill Rd	Unincorporated Area	27596	Franklin	Regular School	Public Schools	X
Franklin County Early College	8150 Nc Highway 56	Unincorporated Area	27549	Franklin	Regular School	Public Schools	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Youngsville Fire Department Station 1	803 Wheaton Drive	Youngsville	27596	Franklin	Ambulance and Fire Service Combined	EMS	X
Youngsville Rescue	215 Northwest Railroad Street	Youngsville	27596	Franklin	Rescue Services, Medical	EMS	X
Youngsville Volunteer Fire Department, Inc.	803 Wheaton Ave	Youngsville	27596	Franklin	-	Fire Stations	X
Youngsville Police Department	112 North Cross Street	Youngsville	27596	Franklin	Police Departments (Except American Indian or Alaska Native)	Law Enforcement	X
Commission Leadership Academy	249 Holden Rd	Youngsville	27596	Franklin	-	Non-Public Schools	X
Youngsville Branch Library	218 US-1a South	Youngsville	27596	Franklin	Branch	Public Library	X
Youngsville Elementary	125 US IA	Youngsville	27596	Franklin	Regular School	Public Schools	X
Butner Public Safety	611 Central Avenue	Butner	27509	Granville	Ambulance and Fire Service Combined	EMS	X
Granville County Emergency Medical Services Station 4	1546 South Campus Drive	Butner	27522	Granville	Ambulance Services, Air or Ground	EMS	X
Butner Public Safety	611 Central Ave.	Butner	27509	Granville	-	Fire Stations	X
Butner Public Safety	611 Central Avenue	Butner	27509	Granville	Sheriffs' Offices (Except Court Functions Only)	Law Enforcement	X
Granville County Sheriffs Department - South Administration Building	1546 South Campus Drive	Butner	27522	Granville	Sheriffs' Offices (Except Court Functions Only)	Law Enforcement	X
South Granville Counseling Service	Po Box 33	Butner	27522	Granville	Mental Health Homes	Medical Facilities	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Butner-Stem Middle	501 East D Street	Butner	27509	Granville	Regular School	Public Schools	X
Butner-Stem Elementary	201 East D Street	Butner	27509	Granville	Regular School	Public Schools	X
The Springer School at Murdoch Center	1600 East C Street	Butner	27509	Granville	Exceptional Children	Public Schools	X
Granville Correctional Institution	Po Box 2500	Butner	27509	Granville	Regular School	Public Schools	X
Granville County Emergency Medical Services Station 2	406 North Grey Street	Creedmoor	27522	Granville	Ambulance Services, Air or Ground	EMS	X
Creedmoor Volunteer Fire Department	101 South Elm Street	Creedmoor	27522	Granville	-	Fire Stations	X
City of Creedmoor Police Department	111 West Masonic Road	Creedmoor	27522	Granville	Police Departments (Except American Indian or Alaska Native)	Law Enforcement	X
Granville County DSS 1	2531 East Lyon Station Rd	Creedmoor	27522	Granville	Home Care	Medical Facilities	X
Granville County Senior Services	114 Douglas Dr	Creedmoor	27522	Granville	Home Care	Medical Facilities	X
RHA Health Services, Inc.	Po Box 868	Creedmoor	27522	Granville	Home Care	Medical Facilities	X
Creedmoor Vocational Center	2527 East Lyon Station Road	Creedmoor	27522	Granville	Mental Health Homes	Medical Facilities	X
Crossings	308 Bridgit Way	Creedmoor	27522	Granville	Mental Health Homes	Medical Facilities	X
Park Avenue Home	105 Park Avenue	Creedmoor	27522	Granville	Mental Health Homes	Medical Facilities	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Stem Road Home	702 Stem Road	Creedmoor	27610	Granville	Mental Health Homes	Medical Facilities	X
Will's Place	320 Hidden Valley Drive	Creedmoor	27522	Granville	Mental Health Homes	Medical Facilities	X
Christian Faith Center Acad.	101 South Peachtree Street	Creedmoor	27522	Granville	-	Non-Public Schools	X
South Branch Library	1547 S. Campus Dr	Creedmoor	27522	Granville	Branch	Public Library	X
Creedmoor Elementary	305 E Wilton Avenue	Creedmoor	27522	Granville	Regular School	Public Schools	X
Mount Energy Elementary	2652 Hwy 56	Creedmoor	27522	Granville	Regular School	Public Schools	X
S Granville High School	701 N Crescent Drive	Creedmoor	27522	Granville	Regular School	Public Schools	X
Granville Early College High	1552 S Campus Dr	Creedmoor	27522	Granville	Regular School	Public Schools	X
Granville County Life Saving and Rescue	100 Wall Street	Oxford	27565	Granville	Rescue Services, Medical	EMS	X
Granville County Emergency Medical Services Station 1	1040 College Street Extension	Oxford	27565	Granville	Ambulance Services, Air or Ground	EMS	X
Granville County Emergency Management	5662 Cornwall Rd	Oxford	27565	Granville	Emergency Planning and Management Offices, Government	EOC	X
Oxford Fire Dept.	112 East Mcclanahan St	Oxford	27565	Granville	-	Fire Stations	X
Granville County Sheriffs Department / Granville County Detention Center	525 New Commerce Dr	Oxford	27565	Granville	Sheriffs' Offices (Except Court Functions Only)	Law Enforcement	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Oxford Police Department	204 East Mcclanahan Street	Oxford	27565	Granville	Police Departments (Except American Indian or Alaska Native)	Law Enforcement	X
Cooper Rest Home	107 Green Street	Oxford	27565	Granville	Family Care	Medical Facilities	X
Lewis Rest Haven	503 Henderson Street	Oxford	27565	Granville	Family Care	Medical Facilities	X
S & J Family Care Home	308 Person Street	Oxford	27565	Granville	Family Care	Medical Facilities	X
Seb-Bex Rest Home	105 Green Street	Oxford	27565	Granville	Family Care	Medical Facilities	X
Carefocus	P O Box 1785	Oxford	27216	Granville	Home Care	Medical Facilities	X
Granville County DSS 2	410 West Spring St	Oxford	27565	Granville	Home Care	Medical Facilities	X
Granville County DSS 3	143 Williamsboro St	Oxford	27565	Granville	Home Care	Medical Facilities	X
Granville County Senior Services	107 Lanier St	Oxford	27565	Granville	Home Care	Medical Facilities	X
Granville-Vance Public Health Department	1032 College St	Oxford	27565	Granville	Home Care	Medical Facilities	X
Option Care	142 Roxboro Road	Oxford	27565	Granville	Home Care	Medical Facilities	X
Granville House	Po Box 366	Oxford	27565	Granville	Home for the Aged	Medical Facilities	X
Toney Rest Home Inc.	904 Raleigh Street	Oxford	27565	Granville	Home for the Aged	Medical Facilities	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Granville Medical Center	P O Box 947	Oxford	27565	Granville	Hospital	Medical Facilities	X
Bumper Home	113 Frost Street	Oxford	27565	Granville	Mental Health Homes	Medical Facilities	X
Granville Clinic (VGFW Area MH Authority)	134 South Garnett Street	Oxford	27536	Granville	Mental Health Homes	Medical Facilities	X
Oxford Group Home	605 North Country Club Drive	Oxford	27565	Granville	Mental Health Homes	Medical Facilities	X
Serenity Counseling and Referral Services	503 Lewis Street	Oxford	27575	Granville	Mental Health Homes	Medical Facilities	X
Oxford Manor	500 Prospect Avenue	Oxford	27565	Granville	Nursing Home Facility	Medical Facilities	X
Dependable Nursing Service, Inc.	711 Linden Avenue	Oxford	27565	Granville	Nursing Pool	Medical Facilities	X
Richard H Thornton Library	210 Main Street	Oxford	27565	Granville	Headquarters	Public Library	X
C. G. Credle Elementary	223 College Street	Oxford	27565	Granville	Regular School	Public Schools	X
Mary Potter Middle	448 Taylor St	Oxford	27565	Granville	Regular School	Public Schools	X
Stem Community Fire Department and EMS, Inc.	100 Franklin Road	Stem	27581	Granville	-	Fire Stations	X
Stem City Police Department	102 West Tally Ho Road	Stem	27581	Granville	Police Departments (Except American Indian or Alaska Native)	Law Enforcement	X
Granville County Emergency Medical Services Station 3	101 Railroad Street	Stovall	27582	Granville	Ambulance Services, Air or Ground	EMS	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Stovall Volunteer Fire Department, Inc.	204 Hwy 15 N	Stovall	27582	Granville	-	Fire Stations	X
Stovall City Police Department	107 Main Street	Stovall	27582	Granville	Police Departments (Except American Indian or Alaska Native)	Law Enforcement	X
Granville County Senior Services	301 Oxford St	Stovall	27582	Granville	Home Care	Medical Facilities	X
Stovall Branch Library	101 Hwy 15 N	Stovall	27582	Granville	Branch	Public Library	X
Granville County Emergency Medical Services Station 7	8061 State Highway 96 North	Unincorporated Area	27565	Granville	Ambulance Services, Air or Ground	EMS	X
Granville County Emergency Medical Services Station 6	2547 State Highway 96 South	Unincorporated Area	27525	Granville	Ambulance Services, Air or Ground	EMS	X
Central Regional Hospital Annex	1003 12th Street	Unincorporated Area	27509	Granville	Ambulance Services, Air or Ground	EMS	X
Antioch-Fishing Creek Volunteer Fire Department, Incorporated	5065 Antioch Road	Unincorporated Area	27565	Granville	-	Fire Stations	X
Brassfield Volunteer Fire Department	1680 Nc Hwy 96	Unincorporated Area	27525	Granville	-	Fire Stations	X
Bullock Volunteer Fire Department	8677 US Hwy 15 North	Unincorporated Area	27507	Granville	-	Fire Stations	X
Corinth Volunteer Fire Department	3660 Hwy 96	Unincorporated Area	27565	Granville	-	Fire Stations	X
Cornwall Volunteer Fire Department	8114 Cornwall Rd	Unincorporated Area	27565	Granville	-	Fire Stations	X
Granville Rural Fire Department	6619 Hwy 15 North	Unincorporated Area	27565	Granville	-	Fire Stations	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Providence Community Fire Department, Inc.	4631 Watkins Rd	Unincorporated Area	27565	Granville	-	Fire Stations	X
Total Community Fire Department of Berea	1213 Hwy 158	Unincorporated Area	27565	Granville	-	Fire Stations	X
North Carolina State Highway Patrol Troop C District VII - Substation	100 Providence Road	Unincorporated Area	27565	Granville	Highway Patrols, Police	Law Enforcement	X
Federal Correctional Institution - Butner Low	Old State Highway 75	Unincorporated Area	27509	Granville	Prisons	Law Enforcement	X
Dunrovin Home	1654 Country Lane	Unincorporated Area	27522	Granville	Mental Health Homes	Medical Facilities	AE
Harris Home	1017 Highway 158	Unincorporated Area	27572	Granville	Family Care	Medical Facilities	X
Heritage Meadows Long Term Care Facility	6659 Private School Road	Unincorporated Area	27565	Granville	Home for the Aged	Medical Facilities	X
Pine Gardens Rest Home	6016 Pine Town Road	Unincorporated Area	27565	Granville	Home for the Aged	Medical Facilities	X
Dove Road Home	910 North Durham Avenue	Unincorporated Area	27522	Granville	Mental Health Homes	Medical Facilities	X
Granville ICF/MR Group Home	Po Box 88	Unincorporated Area	27536	Granville	Mental Health Homes	Medical Facilities	X
Granville Respite	910 North Durham Avenue	Unincorporated Area	27522	Granville	Mental Health Homes	Medical Facilities	X
Hall Therapeutic Home	2515 E. Nc Hwy 54, Bldg 2200	Unincorporated Area	27713	Granville	Mental Health Homes	Medical Facilities	X
Naturally Nourished	405 Ivey Day Road	Unincorporated Area	27565	Granville	-	Non-Public Schools	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Berea Branch Library	1211 Hwy 158	Unincorporated Area	27565	Granville	Branch	Public Library	X
Wilton Elementary	2555 Hwy 96	Unincorporated Area	27525	Granville	Regular School	Public Schools	X
Stovall Shaw Elementary	7696 Hwy 15 N	Unincorporated Area	27582	Granville	Regular School	Public Schools	X
J. F. Webb High School	3200 Webb School Road	Unincorporated Area	27565	Granville	Regular School	Public Schools	X
West Oxford Elementary	412 Ivey Day Road	Unincorporated Area	27565	Granville	Regular School	Public Schools	X
JF Webb High School of Health and Life S	3200 Webb Road	Unincorporated Area	27565	Granville	Regular School	Public Schools	X
Granville Central Middle School	2043 Sanders Road	Unincorporated Area	27581	Granville	Regular School	Public Schools	X
The Whitaker School PRTF	1003 12th Street	Unincorporated Area	27509	Granville	Alternative Education	Public Schools	X
C A Dillon School	100 Dillon Dr	Unincorporated Area	27509	Granville	Alternative Education	Public Schools	X
Pine Valley and Bowling Green Schools	300 Veazey Road	Unincorporated Area	27509	Granville	Alternative Education	Public Schools	X
Tar River Elementary	2642 Philo White Rd	Unincorporated Area	27525	Granville	Regular School	Public Schools	X
Vance County Fire and Ambulance Service Station 3	188 Bickett Street	Henderson	27536	Vance	Ambulance and Fire Service Combined	EMS	X
Vance County Rescue Squad	1735 Maynard Street	Henderson	27536	Vance	Rescue Services, Medical	EMS	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Vance County Emergency Management	300 S Garnett St	Henderson	27536	Vance	Emergency Planning and Management Offices, Government	EOC	X
Henderson Fire Department 1	211 Dabney Dr	Henderson	27536	Vance	-	Fire Stations	X
Henderson Fire Department 2	205 North Garnett St	Henderson	27536	Vance	-	Fire Stations	X
Vance County Emergency Services	188 Bickett St	Henderson	27536	Vance	-	Fire Stations	X
Vance County Sheriffs Office	156 Church Street	Henderson	27536	Vance	Sheriffs' Offices (Except Court Functions Only)	Law Enforcement	X
City of Henderson Police Department	200 Breckenridge Street	Henderson	27536	Vance	Police Departments (Except American Indian or Alaska Native)	Law Enforcement	X
Roanoke Avenue Group Home	264 S. Beckford Drive	Henderson	27536	Vance	Mental Health Homes	Medical Facilities	0.2 PCT Annual Chance Flood Hazard
Guardian Care of Henderson	280 South Beckford Drive	Henderson	27536	Vance	Nursing Home Facility	Medical Facilities	0.2 PCT Annual Chance Flood Hazard
Maria Parham Same Day Surgical Center	P.O. Box 59	Henderson	27536	Vance	Ambulatory Surgery	Medical Facilities	X
Heart Wise	566 Ruin Creek Road	Henderson	27536	Vance	Cardiac Rehabilitation	Medical Facilities	X
Small Family Care Home	1421 Ross Mill Road	Henderson	27537	Vance	Family Care	Medical Facilities	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Thomas Family Care Home	111 Northwoods Road	Henderson	27536	Vance	Family Care	Medical Facilities	X
Thompson Rest Home	Po Drawer 1736	Henderson	27536	Vance	Family Care	Medical Facilities	X
Advantage Care in Home Services, Inc	P.O. Box 1258	Henderson	27536	Vance	Home Care	Medical Facilities	X
Alpha Omega Health, Inc.	6036 Six Forks Road	Henderson	27609	Vance	Home Care	Medical Facilities	X
Carefocus	P O Box 1785	Henderson	27216	Vance	Home Care	Medical Facilities	X
Gericare & Health Services	4117 North Roxboro Road	Henderson	27704	Vance	Home Care	Medical Facilities	X
Homecare Nursing Services, Inc.	943 West Andrews Avenue Unit # K-2	Henderson	27536	Vance	Home Care	Medical Facilities	X
Maria Parham Regional Home Health	566 Ruin Creek Road	Henderson	27536	Vance	Home Care	Medical Facilities	X
Restoration Health Care, Inc.	312 S. Chestnut Street Suite 205	Henderson	27536	Vance	Home Care	Medical Facilities	X
Sun Medical Supply	946 P West Andrews Avenue	Henderson	27536	Vance	Home Care	Medical Facilities	X
Triangle Home Health Care, Inc.	1413 Broad Street	Henderson	27705	Vance	Home Care	Medical Facilities	X
Vance County DSS	350 Ruin Creek Road	Henderson	27536	Vance	Home Care	Medical Facilities	X
Vance County Office of Aging/Senior Center	1000 South Chestnut Street	Henderson	27536	Vance	Home Care	Medical Facilities	X
Christian Care of Henderson	P.O. Drawer 1498	Henderson	27536	Vance	Home for the Aged	Medical Facilities	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Vance Manor Rest Home	P O Drawer 563	Henderson	27536	Vance	Home for the Aged	Medical Facilities	X
Maria Parham Hospital	Po Box 59	Henderson	27536	Vance	Hospital	Medical Facilities	X
A&S Family Pride	732 North Pinkston Street	Henderson	27536	Vance	Mental Health Homes	Medical Facilities	X
A.D.P. House	134 S. Garnett Street	Henderson	27536	Vance	Mental Health Homes	Medical Facilities	X
Addiction Recovery Center	Po Box 367	Henderson	27536	Vance	Mental Health Homes	Medical Facilities	X
Brownstone Care Facility	531 Breckenridge Street	Henderson	27536	Vance	Mental Health Homes	Medical Facilities	X
Charles Rollins Road -Vance Clinic	134 S. Garnett St.	Henderson	27536	Vance	Mental Health Homes	Medical Facilities	X
Genesis	804 South Garnett Street	Henderson	27536	Vance	Mental Health Homes	Medical Facilities	X
Graham Avenue Group Home	1642 Graham Avenue	Henderson	27536	Vance	Mental Health Homes	Medical Facilities	X
Inco	134 S. Garnett Street	Henderson	27536	Vance	Mental Health Homes	Medical Facilities	X
Lemay Home	221 N. Clark Street	Henderson	27536	Vance	Mental Health Homes	Medical Facilities	X
Pendergrass/Alpha-Omega Health, Inc.	836 Shirley Drive	Henderson	27536	Vance	Mental Health Homes	Medical Facilities	X
Root Home	125 E. Young Avenue	Henderson	27536	Vance	Mental Health Homes	Medical Facilities	X
Scott Parker School	920 County Home Road	Henderson	27536	Vance	Mental Health Homes	Medical Facilities	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Twelve Steps Home	Po Box 367, 1020 County Home Road	Henderson	27536	Vance	Mental Health Homes	Medical Facilities	X
Britthaven of Henderson	1245 Park Avenue	Henderson	27536	Vance	Nursing Home Facility	Medical Facilities	X
Visions Educational Academy	200 Parkview Dr.	Henderson	27536	Vance	-	Non-Public Schools	X
H. Leslie Perry Memorial Library	134 Rose Avenue	Henderson	27536	Vance	Headquarters	Public Library	X
Eaton Johnson Middle	500 N Beckford Drive	Henderson	27536	Vance	Regular School	Public Schools	X
Henderson Middle	219 Charles St	Henderson	27536	Vance	Regular School	Public Schools	X
Pinkston Street Elementary	855 Adams St	Henderson	27536	Vance	Regular School	Public Schools	X
E M Rollins Elementary	1600 S Garnett St	Henderson	27536	Vance	Regular School	Public Schools	X
Vance Charter School	1227 Dabney Drive	Henderson	27536	Vance	Regular School	Public Schools	X
Henderson Collegiate	906 Health Center Road	Henderson	27536	Vance	Regular School	Public Schools	X
Kittrell Volunteer Fire Department Incorporated	54 West Main Street	Kittrell	27544	Vance	Ambulance and Fire Service Combined	EMS	X
Kittrell Volunteer Fire Department, Incorporated	54 West Main St	Kittrell	27544	Vance	-	Fire Stations	X
E O Young Jr Elementary	6655 Broad Street	Middleburg	27537	Vance	Regular School	Public Schools	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Cokesbury Volunteer Fire Department Incorporated Company 4	1516 South Cokesbury Road	Unincorporated Area	27537	Vance	Ambulance and Fire Service Combined	EMS	X
Watkins Volunteer Fire Department	1590 Horseshoe Bend Road	Unincorporated Area	27537	Vance	Ambulance and Fire Service Combined	EMS	X
Bearpond Volunteer Fire Department Incorporated	325 Bearpond Road	Unincorporated Area	27537	Vance	Ambulance and Fire Service Combined	EMS	X
Townsville Rural Volunteer Fire Department	12729 State Highway 39 North	Unincorporated Area	27537	Vance	Ambulance and Fire Service Combined	EMS	X
Hicksboro Volunteer Fire Department	6595 Hicksboro Road	Unincorporated Area	27565	Vance	Ambulance and Fire Service Combined	EMS	X
Bearpond Rural Fire Department, Inc.	325 Bear Pond Road	Unincorporated Area	27537	Vance	-	Fire Stations	X
Cokesbury Volunteer Fire Department, Inc.	1516 South Cokesbury Rd	Unincorporated Area	27537	Vance	-	Fire Stations	X
Hicksboro Fire Department	6595 Hicksboro Road	Unincorporated Area	27565	Vance	-	Fire Stations	X
Hicksboro Fire Department	2589 Thomas Road	Unincorporated Area	27537	Vance	-	Fire Stations	X
Townsville Rural Volunteer Fire Department, Inc.	12781 Nc 39 North	Unincorporated Area	27584	Vance	-	Fire Stations	X
Vance County Emergency Services	5021 Satterwhite Point Road	Unincorporated Area	27536	Vance	-	Fire Stations	X
Watkins Community Volunteer Fire Department, Inc.	1590 Horseshoe Bend Road	Unincorporated Area	27537	Vance	-	Fire Stations	X
North Carolina Division of Parks - Kerr Lake State Park	6254 Satterwhite Point Road	Unincorporated Area	27537	Vance	Park Police	Law Enforcement	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
North Carolina State Highway Patrol Troop C District Iv	1080 Eastern Boulevard	Unincorporated Area	27536	Vance	Highway Patrols, Police	Law Enforcement	X
Loving Care Retirement Home	1865 Clearview Drive	Unincorporated Area	27536	Vance	Family Care	Medical Facilities	X
Woodlawn Retirement Home	Po Box 848	Unincorporated Area	27536	Vance	Home for the Aged	Medical Facilities	X
Abbott Home	1681 Carey Chapel Road	Unincorporated Area	27536	Vance	Mental Health Homes	Medical Facilities	X
Alexander Home	34 Al Brown Lane	Unincorporated Area	27589	Vance	Mental Health Homes	Medical Facilities	X
Hanks Home	3125 Poplarwood Court-Ste. 300	Unincorporated Area	27604	Vance	Mental Health Homes	Medical Facilities	X
James & Marsha Ranes Home	525 Skenes Avenue	Unincorporated Area	27536	Vance	Mental Health Homes	Medical Facilities	X
Lynn Bank Road Home	Po Box 37399	Unincorporated Area	27627	Vance	Mental Health Homes	Medical Facilities	X
Nicholas Home	96 Wendy Ct	Unincorporated Area	27536	Vance	Mental Health Homes	Medical Facilities	X
Vance Adult Group Home	P O Box 1909	Unincorporated Area	27536	Vance	Mental Health Homes	Medical Facilities	X
Vaughan Home	P.O. Box 1025	Unincorporated Area	27536	Vance	Mental Health Homes	Medical Facilities	X
Senior Citizen's Home, Inc.	2275 Ruin Creek Road	Unincorporated Area	27536	Vance	Nursing Home Facility	Medical Facilities	X
Crossroads Christian School	583 Old County Home Road	Unincorporated Area	27537	Vance	-	Non-Public Schools	X
Kerr-Vance Academy	700 Vance Academy Road	Unincorporated Area	27537	Vance	-	Non-Public Schools	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
The Learning Academy	416 Carey Chapel Rd	Unincorporated Area	27537	Vance	-	Non-Public Schools	X
The Learning Tree Academy	6581 Highway 158 Business	Unincorporated Area	27537	Vance	-	Non-Public Schools	X
Victory Baptist Church School	475 J. P. Taylor Road	Unincorporated Area	27536	Vance	-	Non-Public Schools	X
New Hope Elementary	10199 Nc 39 Hwy N	Unincorporated Area	27537	Vance	Regular School	Public Schools	X
Zeb Vance Elementary	4800 Raleigh Road	Unincorporated Area	27544	Vance	Regular School	Public Schools	X
Aycock Elementary	305 Carey Chapel Rd	Unincorporated Area	27537	Vance	Regular School	Public Schools	X
Carver Elementary	987 Carver Sch Rd	Unincorporated Area	27537	Vance	Regular School	Public Schools	X
Dabney Elementary	150 Lanning Road	Unincorporated Area	27537	Vance	Regular School	Public Schools	X
Southern Vance High	925 Garrett Road	Unincorporated Area	27537	Vance	Regular School	Public Schools	X
Western Vance High	2785 Poplar Creek Rd	Unincorporated Area	27537	Vance	Alternative Education	Public Schools	X
Northern Vance High	293 Warrenton Road	Unincorporated Area	27537	Vance	Regular School	Public Schools	X
L B Yancey Elementary	311 Hawkins Drive	Unincorporated Area	27536	Vance	Regular School	Public Schools	X
Clarke Elementary	309 Mount Carmel Church Road	Unincorporated Area	27537	Vance	Regular School	Public Schools	X
Vance Co Early College	200 Community College Rd	Unincorporated Area	27537	Vance	Regular School	Public Schools	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Vance - Granville Community College	200 Community College Road	Unincorporated Area	27537	Vance	Community Colleges	Colleges & Universities	X
Macon Rural Fire Department Incorporated	1644 United States Highway 158 East	Macon	27551	Warren	Ambulance and Fire Service Combined	EMS	X
Macon Rural Fire Department, Inc.	1644 US Highway 158 Business East	Macon	27551	Warren	Ambulance and Fire Service Combined	Fire Stations	X
Norlina Volunteer Fire Department, Inc.	103 Center Street	Norlina	27563	Warren	Ambulance and Fire Service Combined	Fire Stations	X
Norlina Police Department	101 Main Street	Norlina	27563	Warren	Police Departments (Except American Indian or Alaska Native)	Law Enforcement	X
Smith's Landing	P.O. Box 476	Norlina	27563	Warren	Mental Health Homes	Medical Facilities	X
Norlina Christian School	305 Old Warrenton Road	Norlina	27563	Warren	-	Non-Public Schools	X
Ridgeway Volunteer Rural Fire Association, Inc.	668 US Highway 1 South	Norlina	27563	Warren	Ambulance and Fire Service Combined	Fire Stations	X
Drewry Volunteer Fire Department Incorporated	125 Firefighter Drive	Unincorporated Area	27553	Warren	Ambulance and Fire Service Combined	EMS	X
Afton-Elberon Volunteer Fire Department Incorporated	2351 United States Highway 401 South	Unincorporated Area	27589	Warren	Ambulance and Fire Service Combined	EMS	X
Arcola Rural Volunteer Fire Department Incorporated	2169 State Highway 43	Unincorporated Area	27589	Warren	Ambulance and Fire Service Combined	EMS	X
Soul City Volunteer Rural Fire Association Incorporated	103 Cresent Drive	Unincorporated Area	27553	Warren	Ambulance and Fire Service Combined	EMS	X
Roanoke-Wildwood Volunteer Fire Department Incorporated	790 Lizard Creek Road	Unincorporated Area	27850	Warren	Ambulance and Fire Service Combined	EMS	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Hawtree Volunteer Fire Department Incorporated	1724 United States Highway 1	Unincorporated Area	27563	Warren	Ambulance and Fire Service Combined	EMS	X
Halifax Emergency Medical Services Station 1 / Warren County Rescue Squad	672 Enterprise Road	Unincorporated Area	27850	Warren	Rescue Services, Medical	EMS	X
Afton-Elberon Volunteer Fire Department, Inc.	2350 US Highway 401 South	Unincorporated Area	27589	Warren	Ambulance and Fire Service Combined	Fire Stations	X
Arcola Rural Volunteer Fire Department, Inc.	2169 Nc Hwy 43	Unincorporated Area	27589	Warren	Ambulance and Fire Service Combined	Fire Stations	X
Churchill-Five Forks Volunteer Fire Department, Inc.	1168 Church Hill Road	Unincorporated Area	27551	Warren	Ambulance and Fire Service Combined	Fire Stations	X
Churchill-Five Forks Volunteer Fire Department, Inc.	549 Nocarva Road	Unincorporated Area	27551	Warren	Ambulance and Fire Service Combined	Fire Stations	X
Drewry Volunteer Fire Department, Inc.	125 Firefighter Drive	Unincorporated Area	27553	Warren	Ambulance and Fire Service Combined	Fire Stations	X
Drewry Volunteer Fire Department, Inc.	7054 Drewry Virginia Line Road	Unincorporated Area	27553	Warren	Ambulance and Fire Service Combined	Fire Stations	X
Hawtree Volunteer Fire Department, Inc.	1724 US Highway 1	Unincorporated Area	27563	Warren	Ambulance and Fire Service Combined	Fire Stations	X
Inez Volunteer Fire Department, Inc.	2588 Nc Highway 58	Unincorporated Area	27589	Warren	Ambulance and Fire Service Combined	Fire Stations	X
Long Bridge Volunteer Fire Department, Incorporated	1678 Eaton Ferry Road	Unincorporated Area	27850	Warren	Ambulance and Fire Service Combined	Fire Stations	X
Roanoke-Wildwood Volunteer Fire Department, Incorporated	790 Lizard Creek Road	Unincorporated Area	27850	Warren	Ambulance and Fire Service Combined	Fire Stations	X
Soul City Volunteer Rural Fire Association, Inc.	103 Cresent Drive	Unincorporated Area	27553	Warren	Ambulance and Fire Service Combined	Fire Stations	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
Warren County Sheriffs Department	132 Rafters Lane	Unincorporated Area	27589	Warren	Sheriffs' Offices (Except Court Functions Only)	Law Enforcement	X
Hicks Home	40 Ebony Road	Unincorporated Area	27850	Warren	Family Care	Medical Facilities	X
Littleton Academy	414 Ferguson Street	Unincorporated Area	27850	Warren	-	Non-Public Schools	X
South Warren Elementary	216 Shocco Springs Rd	Unincorporated Area	27589	Warren	Regular School	Public Schools	X
Northside Elementary	164 Elementary Ave	Unincorporated Area	27563	Warren	Regular School	Public Schools	X
Vaughan Elementary	2936 US Hwy 158e	Unincorporated Area	27551	Warren	Regular School	Public Schools	X
Warren County High	149 Campus Drive	Unincorporated Area	27589	Warren	Regular School	Public Schools	X
Warren County Middle	118 Campus Drive	Unincorporated Area	27589	Warren	Regular School	Public Schools	X
Warrenton Rural Volunteer Fire Department	236 South Main Street	Warrenton	27589	Warren	Ambulance and Fire Service Combined	EMS	X
Warren County Emergency Medical Services	890 U.S. Highway 158 By-Pass	Warrenton	27589	Warren	Ambulance Services, Air or Ground	EMS	X
Warren County Emergency Management	890 U.S. Highway 158 By-Pass	Warrenton	27589	Warren	Emergency Planning and Management Offices, Government	EOC	X
Warrenton Rural Voluntary Fire Association, Inc.	236 South Main Street	Warrenton	27589	Warren	Ambulance and Fire Service Combined	Fire Stations	X
Warrenton Police Department	119 East Market Street	Warrenton	27589	Warren	Police Departments (Except American Indian or Alaska Native)	Law Enforcement	X

Facility Name	Address	Jurisdiction	Zip Code	County	Facility Type Description	Type	Flood Hazard Zone
K & G Family Care Home	Po Box 601	Warrenton	27589	Warren	Family Care	Medical Facilities	X
Carefocus	P. O. Box 1785	Warrenton	27589	Warren	Home Care	Medical Facilities	X
Coordinating Council for Sr. Citizens of Warren Co.	435 West Franklin Street	Warrenton	27589	Warren	Home Care	Medical Facilities	X
Warren County Home Health Agency	544a West Ridgeway Street	Warrenton	27589	Warren	Home Care	Medical Facilities	X
Warren Mental Health Clinic	548 Ridgeway Street	Warrenton	27589	Warren	Mental Health Homes	Medical Facilities	X
Warren Street	548 Ridgeway Street	Warrenton	27589	Warren	Mental Health Homes	Medical Facilities	X
Warren County Memorial Library	117 S. Main Street	Warrenton	27589	Warren	Headquarters	Public Library	X
Mariam Boyd Elementary	203 Cousin Lucy's Lane	Warrenton	27589	Warren	Regular School	Public Schools	X
Warren New Tech High	219 US Hwy 158 Bypass	Warrenton	27589	Warren	Regular School	Public Schools	X
Warren Early College High	210 Ridgeway St	Warrenton	27589	Warren	Regular School	Public Schools	X

APPENDIX E: NFIP INFORMATION

Table E-1: Summary of Identified Flood Ordinances in the Tar River Region

Jurisdiction	Participates in the NFIP?	Jurisdiction-Specific Ordinance or Resolution to Adopt the County's Ordinance?	Most Recent Adoption/Update
Franklin County	**Yes**	**County Ordinance**	**3/18/2013**
Bunn	No	NA	NA
Franklinton	Yes	Jurisdiction-Specific Ordinance	6/15/2021
Louisburg	Yes	Jurisdiction-Specific Ordinance	3/15/2021
Youngsville	Yes	Jurisdiction-Specific Ordinance	9/10/2020
Granville County	Yes	**County Ordinance**	**10/21/2019**
Butner	Yes	Jurisdiction-Specific Ordinance	11/7/2019
Creedmoor	Yes	Jurisdiction-Specific Ordinance	6/1/2021
Oxford	Yes	Jurisdiction-Specific Ordinance	7/1/2021
Stem	Yes	Jurisdiction-Specific Ordinance	10/22/2025
Stovall	Yes	Jurisdiction-Specific Ordinance	5/8/2012
Vance County	Yes	**County Ordinance**	**10/7/2019**
Henderson	Yes	Jurisdiction-Specific Ordinance	7/14/2025
Kittrell	Yes	Unknown	Unknown
Middleburg	No	NA	NA
Warren County	**Yes**	**County Ordinance**	**6/7/2021**
Macon	No	NA	NA
Norlina	No	NA	NA
Warrenton	Yes	Jurisdiction-Specific Ordinance	4/10/2000

Table E-2: Summarized Flood Ordinances and NFIP/CRS Information, Including Substantial Damage and Substantial Improvement Procedures

Jurisdiction	Floodplain Management & NFIP Administration
Franklin County	1) Franklin County's ordinance designates the Franklin County Planning Director or designee as the Floodplain Administrator. This individual is appointed to administer and implement the flood damage prevention ordinance and is responsible for coordinating Franklin County's overall compliance with the National Flood Insurance Program. 2) The ordinance assigns responsibility for substantial damage and substantial improvement determinations to the Floodplain Administrator, identified as the Franklin County Planning Director or designee. In the "Determinations for Existing Buildings and Structures" subsection, the ordinance states that the Floodplain Administrator, in coordination with the Building Official, must estimate market value, compare repair or improvement costs, and formally determine whether proposed work constitutes substantial improvement or repair of substantial damage. 3) Franklin County implements its substantial improvement and substantial damage provisions by requiring the Floodplain Administrator to evaluate proposed repairs or improvements by comparing the total cost of work occurring within a one-year period to the structure's pre-damage or pre-improvement market value. The ordinance defines substantial damage and substantial improvement as occurring when costs equal or exceed 50 percent of the structure's market value, regardless of the actual repair work performed. Following flood events, the ordinance requires the Floodplain Administrator to document damage, determine whether the substantial damage threshold has been met, notify the applicant, and require full compliance with flood-resistant construction and elevation standards, as outlined in the "Determinations for Existing Buildings and Structures" section. 4) Franklin County's ordinance meets, and in some cases, exceeds minimum requirements by establishing a Regulatory Flood Protection Elevation equal to the Base Flood Elevation plus four (4) feet of freeboard where BFEs are available, and at least four feet above the highest adjacent grade where BFEs are not established, as defined in the "Regulatory Flood Protection Elevation" definition. The ordinance also requires floodway and non-encroachment area encroachments to demonstrate no increase in flood levels, applies cumulative cost thresholds for substantial improvement determinations, and specifies that when ordinance provisions conflict with other regulations, the more restrictive standard governs, as stated in the "Abrogation and Greater Restrictions" section. 5) Franklin County requires a Floodplain Development Permit before the commencement of any development within a Special Flood Hazard Area. Applications must be submitted to the Floodplain Administrator and include detailed plot plans, flood zone and floodway information, base flood elevations, proposed reference levels, utility elevations, foundation plans, certifications, and confirmation that all required state and federal permits have been obtained. The issued permit specifies the required Regulatory Flood Protection Elevation, certification submittal timelines, floodway restrictions, and construction conditions, with final elevation or floodproofing certifications required before issuance of

Jurisdiction	Floodplain Management & NFIP Administration
	a Certificate of Compliance or Occupancy, as outlined in the "Floodplain Development Application, Permit and Certification Requirements" section. 6) Compliance is monitored through required recordkeeping, review of elevation and floodproofing certifications, and on-site inspections conducted by the Floodplain Administrator, who is authorized to enter properties at reasonable hours for inspection. The ordinance establishes formal corrective procedures that include written notices of violation, hearings, written orders to remedy violations, stop-work orders, permit revocation, and misdemeanor penalties for failure to comply. These monitoring and enforcement authorities are detailed in the "Duties and Responsibilities of the Floodplain Administrator" and "Corrective Procedures" sections of Article 9. 7) Franklin County has no (identified) outstanding compliance issues with the National Flood Insurance Program 8) Franklin County does not participate in the Community Rating System.
Bunn	1) The Town of Bunn does not participate in the National Flood Insurance Program (Sanction Date: 01/19/2002)
Franklinton	1) Franklinton's ordinance designates the Zoning Administrator as the Floodplain Administrator. The Zoning Administrator is appointed to administer and implement the special flood hazard area–related provisions of the ordinance and is responsible for coordinating the Town of Franklinton's overall compliance with the National Flood Insurance Program. These responsibilities include making determinations of substantial damage and substantial improvement. 2) Franklinton implements substantial improvement and substantial damage provisions by evaluating the cumulative cost of repairs, reconstruction, rehabilitation, additions, or other improvements made to a structure during any one year. A structure is considered substantially improved or substantially damaged when the cumulative cost equals or exceeds 50 percent of the structure's market value before the work begins. The ordinance further states that if a structure has sustained substantial damage, any repairs are considered substantial improvements regardless of the actual repair work performed. Following a flood event, these provisions require that damaged structures that meet the threshold be brought into full compliance with new-construction standards. 3) Franklinton's ordinance meets, and in some cases, exceeds minimum requirements by establishing a Regulatory Flood Protection Elevation equal to the Base Flood Elevation plus four (4) feet of freeboard where BFEs are available and two feet above the highest adjacent grade where BFEs are not available. The ordinance also treats its provisions as minimum standards that must be liberally construed in favor of the Town and requires that the more restrictive requirements apply in the event of a conflict. In addition, development in floodways and non-encroachment areas is restricted unless certification demonstrates that flood levels will not be increased.

Jurisdiction	Floodplain Management & NFIP Administration
	4) Franklinton requires a Floodplain Development Permit before the start of any development within a Special Flood Hazard Area. Applications must be submitted to the Floodplain Administrator and include a detailed plot plan, flood zone and floodway information, base flood elevation data, proposed structure and utility elevations, and documentation that all required local, state, and federal permits have been obtained. The issued permit specifies required regulatory flood protection elevations, certification timelines, and floodway restrictions, with elevation or floodproofing certifications required before construction begins and before a certificate of compliance or occupancy is issued. 5) Compliance is monitored through recordkeeping, review of elevation and floodproofing certifications, and on-site inspections conducted by the Floodplain Administrator, who is authorized to enter properties at reasonable hours. The ordinance authorizes the Floodplain Administrator to issue stop-work orders for violations of the ordinance and provides for corrective actions and penalties when violations are not remedied, with each day a violation continues considered a separate offense. 6) Franklinton has no (identified) outstanding compliance issues with the National Flood Insurance Program 7) Franklinton does not participate in the Community Rating System.
Louisburg	1) Louisburg's ordinance designates the Assistant Town Administrator as the Floodplain Administrator. This individual is formally appointed to administer and implement all provisions of the flood damage prevention article and carries out floodplain management responsibilities on behalf of the Town of Louisburg. These responsibilities include making determinations of substantial damage and substantial improvement. 2) Louisburg implements substantial improvement and substantial damage provisions by evaluating the cumulative cost of repairs, reconstruction, rehabilitation, additions, or other improvements made to a structure during any one year and comparing that cost to the structure's market value before the start of construction or before damage. A structure is considered substantially damaged or substantially improved when the cost equals or exceeds 50 percent of the market value, and any structure that has incurred substantial damage is treated as a substantial improvement regardless of the actual repair work performed. Following a flood event, these provisions require the Floodplain Administrator to assess damage costs, determine whether the threshold has been met, and require the structure to be brought into full compliance with applicable standards for new construction. 3) Louisburg's ordinance meets, and in some cases, exceeds minimum requirements by establishing a Regulatory Flood Protection Elevation equal to the Base Flood Elevation where BFEs are available, and requiring that structures in areas without established BFEs be elevated or floodproofed to two (2) feet above the highest adjacent grade. The ordinance also restricts encroachments in non-encroachment floodways and regions unless certified engineering

Jurisdiction	Floodplain Management & NFIP Administration
	analyses demonstrate no increase in flood levels, and it specifies that where ordinance provisions conflict with other regulations, the more restrictive standard applies, ensuring higher levels of flood protection. 4) Louisburg requires a floodplain development permit before the commencement of any development within a Special Flood Hazard Area. Applications must be submitted to the Floodplain Administrator and include detailed plot plans, flood zone and floodway boundaries, base flood elevation data, proposed reference level elevations, utility elevations, foundation plans, floodproofing certifications where applicable, and copies of all required state and federal permits. Issued permits specify the required regulatory flood protection elevation, certification submittal timelines, and development conditions, and final elevation or floodproofing certifications must be approved before issuance of a certificate of compliance or occupancy. 5) Compliance is monitored through required recordkeeping, review of elevation and floodproofing certifications, and on-site inspections conducted by the Floodplain Administrator, who is authorized to enter properties at reasonable hours. When violations are identified, the ordinance establishes corrective procedures that include written notices, hearings before the Floodplain Administrator, and written orders requiring corrective action within specified timeframes. Enforcement measures include stop-work orders, permit revocation, orders to alter or demolish noncompliant development, and misdemeanor penalties for noncompliance. 6) Louisburg has no (identified) outstanding compliance issues with the National Flood Insurance Program 7) Louisburg does not participate in the Community Rating System.
Youngsville	1) Youngsville's ordinance designates the Town Engineer as the Floodplain Administrator. The Town Engineer is formally appointed to administer and implement the flood damage prevention regulations and is responsible for coordinating the Town of Youngsville's overall compliance with the National Flood Insurance Program. 2) The Floodplain Administrator, in coordination with the Building Official, is specifically responsible for determining whether proposed work constitutes a substantial improvement or repair of substantial damage by comparing repair or improvement costs to the structure's market value and documenting that determination. 3) Youngsville implements its substantial improvement and substantial damage provisions by requiring the Floodplain Administrator to estimate or require an appraisal of a structure's market value before construction or, in the case of damage, before the flood event. The Floodplain Administrator then compares the cost of proposed improvements or repairs, or the combined cost of improvements and flood repairs, to the market value of the structure. If the cost equals or exceeds 50 percent of the market value, the work is classified as a substantial improvement or repair of substantial damage, and the applicant is notified that the structure must comply with flood-resistant construction and elevation requirements. Following flood events, this process applies to damaged structures to determine whether repairs trigger full compliance with current floodplain standards.

Jurisdiction	Floodplain Management & NFIP Administration
	4) Youngsville's regulations meet, and in some cases, exceed minimum requirements by establishing a Regulatory Flood Protection Elevation equal to the Base Flood Elevation plus two (2) feet of freeboard, or two feet above the highest adjacent grade where no Base Flood Elevation is available. The ordinance also prohibits fill within the Special Flood Hazard Area, including the use of fill to elevate structures. It requires recorded non-conversion agreements for enclosed areas below the lowest floor, along with annual inspections by the Town. In addition, development within floodways and non-encroachment areas is restricted unless certified engineering analyses demonstrate that no increase in flood levels will occur, and the ordinance requires that the more restrictive standard apply where conflicts exist. 5) Youngsville requires a Floodplain Development Permit before the commencement of any development activity within a Special Flood Hazard Area. Applications must be submitted to the Floodplain Administrator and include detailed plot plans, flood zone and floodway boundaries, Base Flood Elevation data, proposed reference level elevations, foundation plans, utility elevations, and certifications that all required state and federal permits have been obtained. The issued permit specifies the required Regulatory Flood Protection Elevation, certification submittal timelines, floodway restrictions, and material requirements, and final elevation or floodproofing certifications are required before issuance of a Certificate of Compliance or Occupancy. 6) Compliance is monitored through required recordkeeping, review of elevation and floodproofing certifications, periodic and project-specific site inspections, and annual inspections of enclosed areas subject to non-conversion agreements. The Floodplain Administrator is authorized to enter properties at reasonable hours, issue stop-work orders for violations, revoke permits issued in error or based on false information, and initiate corrective procedures that may result in orders to alter, vacate, remove fill, or demolish noncompliant development. Violations are subject to criminal penalties, with each day of noncompliance treated as a separate offense. 7) Youngsville has no (identified) outstanding compliance issues with the National Flood Insurance Program 8) Youngsville does not participate in the Community Rating System.
Granville County	1) Granville County's ordinance designates the Zoning Administrator as the Floodplain Administrator. The Zoning Administrator is appointed to administer and implement the flood damage prevention provisions and is responsible for coordinating the County's overall compliance with the National Flood Insurance Program when assistance from other staff or agencies is involved. 2) The ordinance assigns responsibility for determining substantial improvement and repair of substantial damage to the Floodplain Administrator, acting in coordination with the Building Official. This determination is made by estimating or requiring an appraisal of the structure's market value and comparing it to the cost of proposed improvements or repairs, including repairs following flood damage.

Jurisdiction	Floodplain Management & NFIP Administration
	3) Granville County implements its substantial improvement and substantial damage provisions by requiring the Floodplain Administrator to determine the market value of a structure before construction or, in the case of flood damage, before the damage occurred. The cost of proposed improvements, repairs, or combined improvements and repairs is then compared to the market value. If the cost equals or exceeds 50 percent of the market value, the work is classified as a substantial improvement or repair of substantial damage, and the applicant is formally notified that the structure must comply with current flood-resistant construction and elevation standards. The ordinance also treats flood-related damage occurring on two occasions within a ten-year period, where average repair costs equal or exceed 25 percent of market value, as substantial damage, triggering full compliance requirements after subsequent flood events. 4) Granville County's regulations meet, and in some cases, exceed minimum requirements by establishing a Regulatory Flood Protection Elevation equal to the Base Flood Elevation plus two (2) feet of freeboard, or two feet above the highest adjacent grade where no Base Flood Elevation is available. The ordinance also restricts encroachments within floodways and non-encroachment areas, unless a certified engineering analysis demonstrates that no increase in flood levels will result. In addition, the ordinance requires that when conflicts exist between floodplain regulations and other local requirements, the more restrictive standard applies, ensuring higher levels of flood protection. 5) Granville County requires a floodplain development permit before the commencement of any development within a Special Flood Hazard Area. Permit applications must be submitted to the Floodplain Administrator and include detailed plot plans, flood zone and floodway boundaries, Base Flood Elevation data, proposed reference level elevations, foundation plans, utility protection details, and certification that all required state and federal permits have been obtained. The issued permit specifies the applicable Regulatory Flood Protection Elevation, floodway restrictions, and required certification submittals, and final elevation or floodproofing certifications must be approved before a certificate of compliance or occupancy is issued. 6) Compliance is monitored through required recordkeeping, review of elevation and floodproofing certifications, and on-site inspections conducted by the Floodplain Administrator, who is authorized to enter properties at reasonable hours. When violations are identified, the ordinance establishes formal corrective procedures, including written notices, hearings before the Floodplain Administrator, and written orders requiring corrective action within specified timeframes. Enforcement mechanisms include stop-work orders, permit revocation, orders to alter or remove noncompliant development, and criminal penalties, with each day of noncompliance treated as a separate offense. 7) Granville County has no (identified) outstanding compliance issues with the National Flood Insurance Program. 8) Granville County does not participate in the Community Rating System.

Jurisdiction	Floodplain Management & NFIP Administration
Butner	1) Butner's ordinance designates the Ordinance Administrator, or his or her designee, as the Floodplain Administrator. The Floodplain Administrator is appointed to administer and implement all provisions of the flood damage prevention ordinance and is responsible for coordinating the Town of Butner's overall compliance with the National Flood Insurance Program, even when assistance from other staff or agencies is used. 2) The ordinance assigns responsibility for determining substantial improvement and repair of substantial damage to the Floodplain Administrator, acting in coordination with the Building Official. This includes estimating or requiring an appraisal of the structure's market value, comparing that value to the cost of proposed improvements or repairs, documenting the determination, and notifying the applicant when the work constitutes substantial improvement or repair of a substantially damaged structure. 3) Butner implements its substantial improvement and substantial damage provisions by requiring the Floodplain Administrator to determine a structure's pre-improvement or pre-damage market value, using either an estimate or a qualified independent appraisal. The cost to perform improvements, repair flood damage, or a combination of improvements and repairs is then compared to the market value. If the cost equals or exceeds 50 percent of the market value, the work is classified as a substantial improvement or repair of substantial damage, and the applicant must bring the structure into compliance with current flood-resistant construction and elevation standards. The ordinance further specifies that flood-related damage sustained on two separate occasions within a ten-year period, where the average repair cost equals or exceeds 25 percent of market value, is also considered substantial damage, meaning that any repairs thereafter are treated as substantial improvement. 4) Butner's regulations meet, and in some cases, exceed minimum requirements by establishing a Regulatory Flood Protection Elevation defined as the Base Flood Elevation plus two (2) feet of freeboard, or two feet above the highest adjacent grade where Base Flood Elevation data is not available. The ordinance also strictly limits development within floodways and non-encroachment areas, prohibiting encroachments unless certified engineering analyses demonstrate that no increase in flood levels will occur during the base flood. In addition, the ordinance requires cumulative substantial improvement tracking within one year. It includes the two-event, ten-year substantial damage standard, which imposes compliance obligations beyond a single flood event. 5) Butner requires a floodplain development permit before the commencement of any development activity within a Special Flood Hazard Area. Permit applications must be submitted to the Floodplain Administrator and include detailed plot plans, flood zone and floodway boundaries, Base Flood Elevation data, proposed reference level elevations, foundation plans, utility protection details, and certifications that all other required local, state, and federal permits have been obtained. Issued permits specify the required Regulatory Flood Protection Elevation, floodway restrictions, certification submittal timelines, and construction conditions, and final elevation or floodproofing certifications must be approved before a certificate of compliance or occupancy is issued.

Jurisdiction	Floodplain Management & NFIP Administration
	6) Compliance is monitored through required recordkeeping, review of elevation and floodproofing certifications, and on-site inspections conducted by the Floodplain Administrator, who is authorized to enter properties at reasonable hours. The ordinance establishes formal corrective procedures for violations, including written notices, hearings before the Floodplain Administrator, and written orders requiring corrective action within specified timeframes. Enforcement tools include stop-work orders, permit revocation, orders to alter, vacate, or demolish structures, or to remove fill, and criminal penalties, with each day of noncompliance treated as a separate offense. 7) Butner has no (identified) outstanding compliance issues with the National Flood Insurance Program 8) Butner does not participate in the Community Rating System.
Creedmoor	1) Creedmoor's ordinance designates the Planning, Zoning, and Subdivision Administrator, or that person's designee, as the Floodplain Administrator. This individual is appointed to administer and implement all provisions of the Flood Damage Prevention ordinance and is responsible for coordinating the City of Creedmoor's overall compliance with the National Flood Insurance Program, including when assistance from other staff or agencies is used. 2) The Floodplain Administrator is responsible for making substantial improvement and substantial damage determinations. The ordinance specifies that the Floodplain Administrator, in coordination with planning, zoning, and building inspection staff, when applicable, must estimate or require an appraisal of market value, compare that value to the cost of proposed improvements or repairs, document the determination, and notify the applicant when the work constitutes substantial improvement or repair of substantial damage. 3) Creedmoor implements its substantial improvement and substantial damage provisions by requiring an evaluation of the market value of a structure before construction or, in the case of damage, before the flood event. The Floodplain Administrator compares the cost of proposed improvements, the cost to repair flood damage, or the combined costs of improvements and repairs to the structure's market value. If those costs equal or exceed 50 percent of the market value, the work is classified as a substantial improvement or a repair due to substantial damage. The ordinance further states that flood-related damage sustained on two separate occasions within a ten-year period, where the average cost of repairs equals or exceeds 25 percent of the market value, also constitutes substantial damage. When substantial damage is determined after a flood, any repairs are treated as substantial improvement regardless of the scope of work, and the structure must be brought into compliance with all applicable flood-resistant construction and elevation standards. 4) Creedmoor's regulations meet, and in some cases, exceed minimum requirements by establishing a Regulatory Flood Protection Elevation equal to the Base Flood Elevation plus two (2) feet of freeboard, or two feet above the highest adjacent grade where Base Flood Elevation data is not available. The ordinance also strictly limits development in floodways and non-encroachment areas, unless certified engineering analyses demonstrate that no

Jurisdiction	Floodplain Management & NFIP Administration
	increase in flood levels will occur during the base flood. In addition, the ordinance applies cumulative substantial damage criteria over a 10-year period and requires that, where floodplain regulations conflict with other local requirements, the more restrictive standard governs. 5) Creedmoor requires a Floodplain Development Permit before any development occurs within a Special Flood Hazard Area. Applicants must submit a detailed application to the Floodplain Administrator that includes a scaled plot plan, flood zone and floodway determinations, Base Flood Elevation information, proposed structure and utility elevations, foundation details, floodproofing documentation where applicable, and certification that all required local, state, and federal permits have been obtained. Issued permits specify the required Regulatory Flood Protection Elevation, certification submittal timelines, floodway limitations, and construction conditions, and final elevation or floodproofing certifications must be approved before a certificate of compliance or occupancy is issued. 6) Compliance is monitored through required recordkeeping, review of elevation and floodproofing certifications, and on-site inspections conducted by the Floodplain Administrator, who is authorized to enter properties at reasonable hours. When violations are identified, the ordinance establishes corrective procedures that include written notices, hearings, and written orders requiring violations to be remedied within specified timeframes. Enforcement measures include stop-work orders, permit revocation, orders to alter, vacate, or demolish structures, or to remove fill, and criminal penalties, with each day a violation continues treated as a separate offense. 7) Creedmoor has no (identified) outstanding compliance issues with the National Flood Insurance Program 8) Creedmoor does not participate in the Community Rating System.
Oxford	1) Oxford's ordinance assigns responsibility for floodplain management to the Zoning Administrator, referred to throughout the ordinance as the Administrator. This individual is responsible for administering and implementing the City of Oxford's flood damage prevention regulations, including reviewing permits, maintaining records, and coordinating floodplain-related decisions within the City. 2) The Zoning Administrator serves as the Floodplain Administrator and is the official responsible for determining whether proposed work constitutes a substantial improvement or repair of substantial damage. The ordinance assigns this responsibility to the Administrator through duties that include reviewing permit applications, obtaining elevation and floodproofing information, and evaluating whether repairs or improvements must comply with new construction standards due to flood damage or improvement thresholds. 3) Oxford implements its substantial improvement and substantial damage provisions by requiring that any building or structure within the Special Flood Hazard Area that is substantially improved or substantially damaged be brought into full compliance with the flood hazard reduction standards applicable to new construction. The ordinance applies these requirements to any repair, reconstruction, rehabilitation, addition, or improvement that meets the ordinance's

Jurisdiction	Floodplain Management & NFIP Administration
	definitions, including work performed after flood events. When flood damage occurs, repairs may only proceed if the work complies with all applicable provisions of the ordinance, and damaged nonconforming structures may not be enlarged, replaced, or rebuilt unless they are reconstructed in conformity with current elevation, anchoring, flood-resistant construction, and utility protection standards. The ordinance further requires that any structure undergoing substantial improvement or repair, or substantial damage, must meet the required elevation standards above the Base Flood Elevation, and that development be designed and constructed to minimize flood damage. These determinations are implemented through the permitting and review process, where the Administrator evaluates proposed work and conditions for approval, ensuring full compliance with floodplain development requirements before allowing reconstruction or continued use. 4) Oxford's regulations meet, and in some cases, exceed minimum requirements by requiring that residential and nonresidential structures, including basements, in the Special Flood Hazard Area be elevated no less than three (3) feet above the Base Flood Elevation, which establishes a higher protection standard than basic floodplain elevation requirements. Similarly, manufactured homes that are placed or substantially improved on sites in an existing manufactured home park/subdivision must be elevated so that the lowest floor is three feet above BFE and securely anchored to an adequately anchored foundation to resist flotation, collapse, and lateral movement. Manufactured homes that are placed or substantially improved on sites (i) outside a manufactured home park or subdivision; (ii) in a new manufactured home park or subdivision; (iii) in an expansion to an existing manufactured home park or subdivision; or (iv) in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as the result of a flood, must be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated three (3) feet above the base flood elevation and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement. The ordinance also prohibits the use of fill to elevate buildings in flood hazard areas except for property access, imposes strict limitations on development within floodways, and requires professional engineering certification demonstrating that no increase in flood levels will result from any permitted encroachments. These provisions collectively provide enhanced flood protection beyond minimum standards. 5) Oxford requires that applications for zoning, special use, or conditional use permits be submitted to the Zoning Administrator before any development activity occurs in a Special Flood Hazard Area. Permit applications must include detailed, certified plot plans showing floodplain and floodway boundaries, structure locations and elevations, and Base Flood Elevation data, where available. The Administrator reviews applications to ensure development is reasonably safe from flooding, requires submission of elevation or floodproofing certifications after construction of the lowest floor, and may issue stop-work orders if required certifications are not submitted or deficiencies are not corrected.

Jurisdiction	Floodplain Management & NFIP Administration
	6) Compliance is monitored through mandatory recordkeeping, review of elevation and floodproofing certifications, and on-site inspections conducted by the Zoning Administrator. The ordinance authorizes the Administrator to enter properties, issue notices of violation, revoke permits, and take corrective action when development does not comply with floodplain standards. Enforcement measures include stop-work orders, denial or revocation of permits, requirements to bring development into compliance, and other corrective actions necessary to enforce the flood damage prevention regulations. 7) Oxford has no (identified) outstanding compliance issues with the National Flood Insurance Program 8) Oxford does not participate in the Community Rating System.
Stem	1) Stem's Zoning Administrator is the designated Floodplain Administrator. They are responsible for administering and implementing all provisions of the Town's Unified Development Ordinance, including the Special Flood Hazard Overlay Regulations, which serve as the jurisdiction's flood ordinance. The Administrator is responsible for coordinating the County's overall compliance with the National Flood Insurance Program and making determinations of substantial damage and substantial improvement. 2) Construction is restricted within designated floodways. No encroachments, including new construction, substantial improvements, or fill, are allowed in these areas, as they are crucial for carrying floodwaters. For new construction and substantial improvements, the lowest floor of residential buildings shall be elevated at least two (2) feet above the Base Flood Elevation (BFE). 3) Stem's ordinance meets, and in some cases, exceeds minimum floodplain requirements by requiring that for new construction and substantial improvements, the lowest floor of residential buildings shall be elevated at least two (2) feet above the Base Flood Elevation (BFE). Non-residential structures shall be elevated or flood-proofed at least two (2) feet above the Base Flood Elevation (BFE). The ordinance also prohibits all encroachments, including substantial improvements and fill, within designated floodways. Additionally, it mandates the use of the most current flood hazard data from federal and state sources when determining flood risk and development standards. The ordinance does not describe the internal review process. 4) The ordinance requires a floodplain permit, including an Elevation Certificate, for any development within a FEMA-mapped floodplain. Development is broadly defined to include buildings, grading, filling, and other land-disturbing activities. Applicants must provide flood hazard data and elevation information, and development may not proceed unless it complies with the applicable floodplain standards. The ordinance does not describe the internal review process or identify the reviewing authority. 5) The ordinance does not describe inspection procedures, compliance monitoring mechanisms, or enforcement actions explicitly related to floodplain regulations.

Jurisdiction	Floodplain Management & NFIP Administration
	6) Stem has no (identified) outstanding compliance issues with the National Flood Insurance Program 7) Stem does not participate in the Community Rating System.
Stovall	1) During the RHMP plan update process, the Town of Stovall shared its Resolution of Intent to comply with the requirements of the NFIP and to adopt its Flood Plain Ordinance, which was adopted on May 8th, 2012. 2) Stovall has no (identified) outstanding compliance issues with the National Flood Insurance Program. 3) Stovall does not participate in the Community Rating System.
Vance County	1) Vance County's ordinance designates the Director of the Planning and Development Department, or his or her designee, as the Floodplain Administrator. This individual is appointed to administer and implement all provisions of the Flood Damage Prevention Ordinance and is responsible for coordinating the County's overall compliance with the National Flood Insurance Program, even when assistance from other staff or agencies is used. 2) The Floodplain Administrator, identified as the Director of the Planning and Development Department or designee, is responsible for making substantial damage and substantial improvement determinations. The ordinance specifies that these determinations are made by the Floodplain Administrator in coordination with the Building Official, using documented market value estimates and cost comparisons for proposed improvements or repairs. 3) Vance County implements its substantial improvement and substantial damage provisions by requiring the Floodplain Administrator to determine the market value of a building or structure before construction begins or, in the case of flood damage, before the damage occurred. The Floodplain Administrator compares the cost of proposed improvements, the cost to repair flood damage, or the combined costs of improvements and repairs to the structure's market value. If those costs equal or exceed 50 percent of the market value, the work is classified as a substantial improvement or a repair due to substantial damage. The ordinance also specifies that flood-related damage occurring on two separate occasions within a ten-year period, where the average repair cost equals or exceeds 25 percent of the market value, is considered substantial damage. When a structure is determined to be substantially damaged, any repairs are treated as a substantial improvement regardless of the scope of work and must comply with all flood-resistant construction and elevation requirements before reconstruction may proceed. 4) Vance County's regulations meet, and in some cases, exceed minimum requirements by establishing a Regulatory Flood Protection Elevation equal to the Base Flood Elevation plus three (3) feet of freeboard where Base Flood Elevations are available, and at least three (3) feet above the highest adjacent grade where no Base Flood Elevation has been established. The ordinance also strictly limits development within floodways and non-encroachment areas unless certified engineering analyses demonstrate that proposed encroachments will not increase flood levels during

Jurisdiction	Floodplain Management & NFIP Administration
	the base flood. In addition, the ordinance applies cumulative substantial damage criteria over 10 years and requires the more restrictive standard when floodplain regulations conflict with other local requirements. 5) Vance County requires a Floodplain Development Permit before the commencement of any development activity within a Special Flood Hazard Area. Applicants must submit a detailed application to the Floodplain Administrator that includes a scaled plot plan, identification of flood zones and floodways, Base Flood Elevation data, proposed reference level elevations, foundation details, utility protection measures, and documentation that all required local, state, and federal permits have been obtained. Issued permits specify the required Regulatory Flood Protection Elevation, floodway restrictions, certification submittal requirements, and construction conditions, and final elevation or floodproofing certifications must be approved before a certificate of compliance or occupancy is issued. 6) Compliance is monitored through required recordkeeping, review of elevation and floodproofing certifications, and frequent on-site inspections conducted by the Floodplain Administrator, who is authorized to enter properties at reasonable hours. The ordinance establishes corrective procedures that include written notices of violation, hearings before the Floodplain Administrator, and written orders requiring violations to be remedied within specified timeframes. Enforcement measures include stop-work orders, permit revocation, orders to alter, vacate, demolish structures, or remove fill, and criminal penalties, with each day a violation continues treated as a separate offense. 7) Vance County has no (identified) outstanding compliance issues with the National Flood Insurance Program 8) Vance County does not participate in the Community Rating System.
Henderson	1) Henderson's ordinance designates the Planning Director (Development Services Director), or his or her designee, as the Floodplain Administrator. This individual is formally appointed to administer and implement all provisions of the Flood Damage Prevention Ordinance and is responsible for coordinating the City of Henderson's overall compliance with the National Flood Insurance Program, including when assistance from other staff or agencies is involved. 2) The Floodplain Administrator is the official responsible for making substantial improvement and substantial damage determinations. The ordinance specifies that the Floodplain Administrator, working in coordination with the Building Official, must evaluate proposed work on existing buildings, determine market value, compare that value to the cost of improvements or repairs, document whether the work constitutes substantial improvement or repair of substantial damage, and notify the applicant when compliance with flood-resistant construction requirements is required. 3) Henderson implements its substantial improvement and substantial damage provisions through a formal evaluation process applied to existing buildings and structures. For proposed improvements or post-flood repairs, the Floodplain Administrator estimates or requires an independent appraisal of the structure's market value before construction or, in the case of damage, before the flood event. The cost to perform improvements, the cost to restore flood damage, or the combined costs of improvements and repairs is then compared to that market value. If the cost equals or

Jurisdiction	Floodplain Management & NFIP Administration
	exceeds 50 percent of the market value, the work is classified as a substantial improvement or a repair due to substantial damage. The ordinance also treats flood-related damage occurring on two separate occasions within a ten-year period, where the average repair cost equals or exceeds 25 percent of market value, as substantial damage. When a structure is determined to be substantially damaged, any repairs are considered a substantial improvement regardless of scope and must meet all applicable elevation, anchoring, utility protection, and flood-resistant construction standards before reconstruction may proceed. 4) Henderson's regulations meet, and in some cases, exceed minimum requirements by establishing a Regulatory Flood Protection Elevation equal to the Base Flood Elevation plus two (2) feet of freeboard, or two feet above the highest adjacent grade where no Base Flood Elevation is available. The ordinance strictly regulates development in floodways and non-encroachment areas, prohibiting encroachments unless certified engineering analyses demonstrate that flood levels will not increase during the base flood. It also applies cumulative substantial damage criteria over 10 years and requires that when floodplain regulations conflict with other local regulations, the more restrictive standard governs. 5) Henderson requires a Floodplain Development Permit before the commencement of any development activity within a Special Flood Hazard Area. Permit applications must be submitted to the Floodplain Administrator and include a detailed, certified plot plan showing development locations, flood zone and floodway boundaries, Base Flood Elevation data, proposed reference level elevations, foundation details, utility elevations or floodproofing methods, and documentation that all required local, state, and federal permits have been obtained. Issued permits specify required Regulatory Flood Protection Elevations, floodway restrictions, certification submittal timelines, limitations on enclosure uses below the lowest floor, and material requirements. Elevation and floodproofing certifications are required at multiple stages of construction and must be approved before a certificate of compliance or occupancy is issued. 6) Compliance is monitored through extensive recordkeeping, mandatory submission and review of elevation and floodproofing certifications, and repeated on-site inspections conducted by the Floodplain Administrator, who is authorized to enter properties at reasonable hours. The ordinance provides a structured enforcement process that includes written notices of violation, hearings before the Floodplain Administrator, and written orders requiring corrective action within specified timeframes. Enforcement tools include stop-work orders, permit revocation, orders to alter, vacate, or demolish structures, or to remove fill, and criminal penalties, with each day a violation continues treated as a separate offense. 7) Henderson has no (identified) outstanding compliance issues with the National Flood Insurance Program 8) Henderson does not participate in the Community Rating System.

Jurisdiction	Floodplain Management & NFIP Administration
Kittrell	1) There are no mapped Special Flood Hazard Areas in the corporate limits of Kittrell 2) The AECOM team, in coordination with the Central Area NFIP Planner with NC Emergency Management, was unable to identify a flood ordinance or resolution/inter-local agreement to adopt the County's version. 3) Kittrell has no (identified) outstanding compliance issues with the National Flood Insurance Program 4) Kittrell does not participate in the Community Rating System.
Middleburg	1) The Town of Middleburg does not participate in the National Flood Insurance Program. 2) There is no mapped Special Flood Hazard Area within the corporate limits of Middleburg.
Warren County	1) Warren County's ordinance designates the Warren County Zoning Administrator as the Floodplain Administrator. This individual is formally appointed to administer and implement all provisions of the Flood Damage Prevention Ordinance and is responsible for enforcing floodplain regulations and coordinating the County's overall compliance with the National Flood Insurance Program. 2) The Floodplain Administrator, identified as the Warren County Zoning Administrator, is responsible for making substantial damage and substantial improvement determinations. These determinations are made as part of the Floodplain Administrator's duties to review development applications, evaluate existing structures, and ensure compliance with floodplain management requirements. 3) Warren County implements its substantial improvement and substantial damage provisions by evaluating the cost of repairs, reconstruction, rehabilitation, additions, or other improvements to a structure within any one year and comparing those costs to the structure's market value before the damage or start of construction. A structure is considered substantially damaged or substantially improved when the cost equals or exceeds 50 percent of the market value, and any structure that has incurred substantial damage is treated as a substantial improvement regardless of the scope of the repair work. The ordinance also defines substantial damage to include flood-related damage occurring on two separate occasions within ten years when the average cost of repairs equals or exceeds 25 percent of the market value. When substantial damage is determined following a flood, repairs may only proceed if the structure is brought into full compliance with current floodplain development standards, including elevation and flood-resistant construction requirements. 4) Warren County's regulations meet, and in some cases, exceed minimum requirements by establishing a Regulatory Flood Protection Elevation equal to the Base Flood Elevation plus two (2) feet of freeboard, or two feet above the highest adjacent grade where no Base Flood Elevation is available. The ordinance also strictly limits development within floodways and non-encroachment areas unless certified engineering analyses demonstrate that no increase in flood levels will occur during the base flood. In addition, the ordinance applies cumulative and repetitive loss criteria

Jurisdiction	Floodplain Management & NFIP Administration
	for substantial damage and requires that, where floodplain regulations conflict with other laws, the more restrictive standard governs. 5) Warren County requires a floodplain development permit before the commencement of any development within a Special Flood Hazard Area. Applicants must submit detailed plans and information to the Floodplain Administrator, including a scaled plot plan, flood zone and floodway boundaries, Base Flood Elevation data, proposed reference level elevations, foundation details, utility protection measures, and documentation that all required state and federal permits have been obtained. Issued permits specify the required Regulatory Flood Protection Elevation, floodway limitations, certification submittal timelines, and construction conditions, and require elevation or floodproofing certifications both during construction and before issuance of a certificate of compliance or occupancy. 6) Compliance is monitored through recordkeeping, mandatory submission and review of elevation and floodproofing certifications, and on-site inspections conducted by the Floodplain Administrator, who is authorized to enter properties at reasonable hours. When violations are identified, the ordinance establishes corrective procedures that include written notices, hearings, and written orders requiring violations to be remedied within specified timeframes. Enforcement measures include stop-work orders, permit revocation, orders to alter, vacate, or demolish structures, or to remove fill, and criminal penalties, with each day a violation continues treated as a separate offense. 7) Warren County has no (identified) outstanding compliance issues with the National Flood Insurance Program 8) Warren County does not participate in the Community Rating System.
Macon	1) The Town of Macon does not participate in the National Flood Insurance Program. 2) There is no mapped Special Flood Hazard Area within the corporate limits of Macon.
Norlina	1) The Town of Norlina does not participate in the National Flood Insurance Program. (Sanction Date: 4/16/2008) 2) There is no mapped Special Flood Hazard Area within the corporate limits of Norlina.
Warrenton	1) Warrenton's ordinance designates the Town Administrator as the local administrator, who serves as the Floodplain Administrator. The Town Administrator is formally appointed to administer and implement all provisions of the Flood Damage Prevention ordinance on behalf of the Town of Warrenton, including permit review, inspections, recordkeeping, and coordination with state and federal agencies for National Flood Insurance Program compliance. 2) The Town Administrator, acting as the Floodplain Administrator, is responsible for administering all floodplain requirements, including determinations related to substantial improvement and substantial damage. These determinations are made as part of the administrator's duties to review development permits, evaluate existing

Jurisdiction	Floodplain Management & NFIP Administration
	structures, and ensure that alterations, repairs, or reconstructions comply with the ordinance's flood hazard reduction standards. 3) Warrenton implements substantial improvement and substantial damage provisions by applying ordinance requirements to any repair, reconstruction, rehabilitation, addition, or other improvement where the cost equals or exceeds 50 percent of the market value of the structure before the start of construction or before the damage occurred. The ordinance explicitly states that structures that have incurred substantial damage are considered substantial improvements regardless of the actual repair work performed. Following flood events, damaged structures may not be enlarged, replaced, or rebuilt unless reconstruction is accomplished in full conformance with current floodplain standards, including anchoring, elevation, and flood-resistant construction requirements. Nonconforming buildings are allowed to be repaired only when the bulk of the structure below the Base Flood Elevation is not increased, and all other flood hazard reduction provisions are met. 4) Warrenton's regulations meet, and in some cases, exceed minimum requirements by requiring that new construction and substantial improvements be elevated no less than two (2) feet above the Base Flood Elevation where elevation data is available, or at least two (2) feet above the highest adjacent grade where Base Flood Elevation data is not available. The ordinance also strictly prohibits floodway encroachments unless certified hydrologic and hydraulic analyses demonstrate that no increase in flood levels will occur during the base flood, and it establishes mandatory stream setbacks for streams without designated floodways, unless engineering certification is provided. In addition, the ordinance requires cumulative flood hazard considerations and applies the more restrictive standard where regulatory conflicts exist. 5) Warrenton requires a Development Permit before any development activity occurs within areas subject to flood hazard regulation. Applicants must submit detailed plans to the Town Administrator, including scaled plot plans showing floodplain and floodway boundaries, structure locations, proposed elevations, fill locations, drainage facilities, and Base Flood Elevation information when available. Elevation or floodproofing certifications prepared by registered professionals are required after the lowest floor is constructed, and work performed before certification is done at the permit holder's risk. The administrator reviews all permit materials, verifies compliance, and may issue stop-work orders if required documentation is not submitted or deficiencies are identified. 6) Compliance is monitored through mandatory recordkeeping, repeated on-site inspections, and review of elevation and floodproofing certifications conducted by the Town Administrator, who has the authority to enter properties at reasonable hours. The ordinance establishes a formal enforcement process that includes notices of violation, stop-work orders, permit revocation, and written orders requiring corrective action within specified timeframes. If violations are not remedied, the administrator may order structures altered, vacated, demolished, or require removal of fill, and violations are subject to criminal penalties, with each day of noncompliance treated as a separate offense.

Jurisdiction	Floodplain Management & NFIP Administration
	7) Warrenton has no (identified) outstanding compliance issues with the National Flood Insurance Program 8) Warrenton does not participate in the Community Rating System.

APPENDIX G: HHPD REPORT

Placeholder left intentionally blank. Will be revised as necessary in the future to support HHPD risk assessment or grant applications.

APPENDIX H: COMPLETED MITIGATION ACTIONS

The following table contains mitigation actions that participating jurisdictions have completed since the last Tar River Regional Hazard Mitigation Plan update (August 2021). 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 August 2021 and November 2025

Jurisdiction	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Details
Franklin County	Prevention	Review “Firewise” zoning and subdivision standards and report on their appropriateness for incorporation into existing (or new) zoning and subdivision ordinances.	Wildfire	Low	Franklin County Planning Director, Local Fire Chief Officials, Franklin County Fire Marshall	Local	Moderate	The County has adopted the minimum turnaround standards established in the North Carolina State Fire Prevention Code into its Unified Development Ordinance.
Granville County	Property Protection	Work with the NC State Highway Patrol to replace existing metal communications equipment sheds with an NC FHP concrete structure.	Flood, Tornado, Hurricane, Severe Weather	Medium	Granville County Emergency Services	NC Highway Patrol	Moderate	The last remaining NCSHP metal communications equipment shed was replaced with a concrete structure in 2021.
Butner	Prevention	Development and adoption of a Comprehensive Land Use Plan (CLUP).	All Hazards	Medium	Butner Town Planner	State Department of Commerce	High	The plan was updated in 2021 and is okay for the time being.

Jurisdiction	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Details
Creedmoor	Prevention	Continued enforcement of state minimum requirements for building codes.	All Hazards	Medium	City of Creedmoor Administration, State of North Carolina	Local	Moderate	Building code is enforced by Granville County inspections.
Creedmoor	Prevention	As part of the continuing process to review and revise city Zoning and Subdivision Ordinances, primary hazard areas for the city to consider are the floodplains bordering the east and west areas of the city's ETJ. The city should ultimately direct development away from the floodplains but the following recommendations should be considered: 1) increase the minimum vegetative buffer requirements associate with development near perennial and intermittent water sources (streams, creeks, surface waters-as identified on USGS maps)— NOTE: As of the October 22, 2002 City of Creedmoor Board of Commissioners meeting, the City adopted the Division of Water Quality (NC) minimum requirements of 50' each side (total of 100') buffer for	Flood	Medium	City of Creedmoor Administration	Local	Moderate	As of 2012, the Falls Lake Rules have prevented the establishment of wide vegetative buffer areas. Our ordinance reflects current state law - with 50-foot vegetative riparian buffers (both intermittent and perennial) and a 50-foot vegetative buffer at Lake Rogers.

Jurisdiction	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Details
		intermittent streams and 100' each side (total of 200') for perennial streams; and 2) incorporate a minimum 200' vegetative buffer surrounding Lake Rogers, measured at normal lake elevation. NOTE: As of the November 26, 2002, City of Creedmoor Board of Commissioners meeting, the City adopted an amendment to its City Zoning Ordinance and Subdivision Ordinance to incorporate a minimum 200' vegetative buffer surrounding Lake Rogers, measured at normal lake elevation.						
Creedmoor	Prevention	Continued coordination with property owners/business owners to obtain flood insurance (under the Community Rating System-CRS of NFIP).	Flood	Medium	City of Creedmoor Administration	Local	Low	The city is and continues to be part of the NFIP.
Vance County	Natural Resource Protection	Maintain/utilize state agencies in enforcing minimum vegetative buffer requirements associated with development near perennial- intermittent water sources (surface waters identified on USGS maps), applicable for the Tar-Pamlico River Basin Guidelines, NC	Flood	Medium	Vance County Planning Department	NC DWQ, Local	Moderate	Local and State regulations require 50' buffer in the Tar Pamlico Basin, and local subdivision regulations require 30-foot buffers in the Roanoke Basin.

Jurisdiction	Action Type	Description	Hazard(s) Addressed	Relative Priority	Lead Agency or Department	Potential Funding Sources	Cost Estimate	Implementation Details
		Division of Water Quality: minimum requirements of 50' buffer each side (total of 100').						

APPENDIX I: Mitigation Action Implementation & 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:	