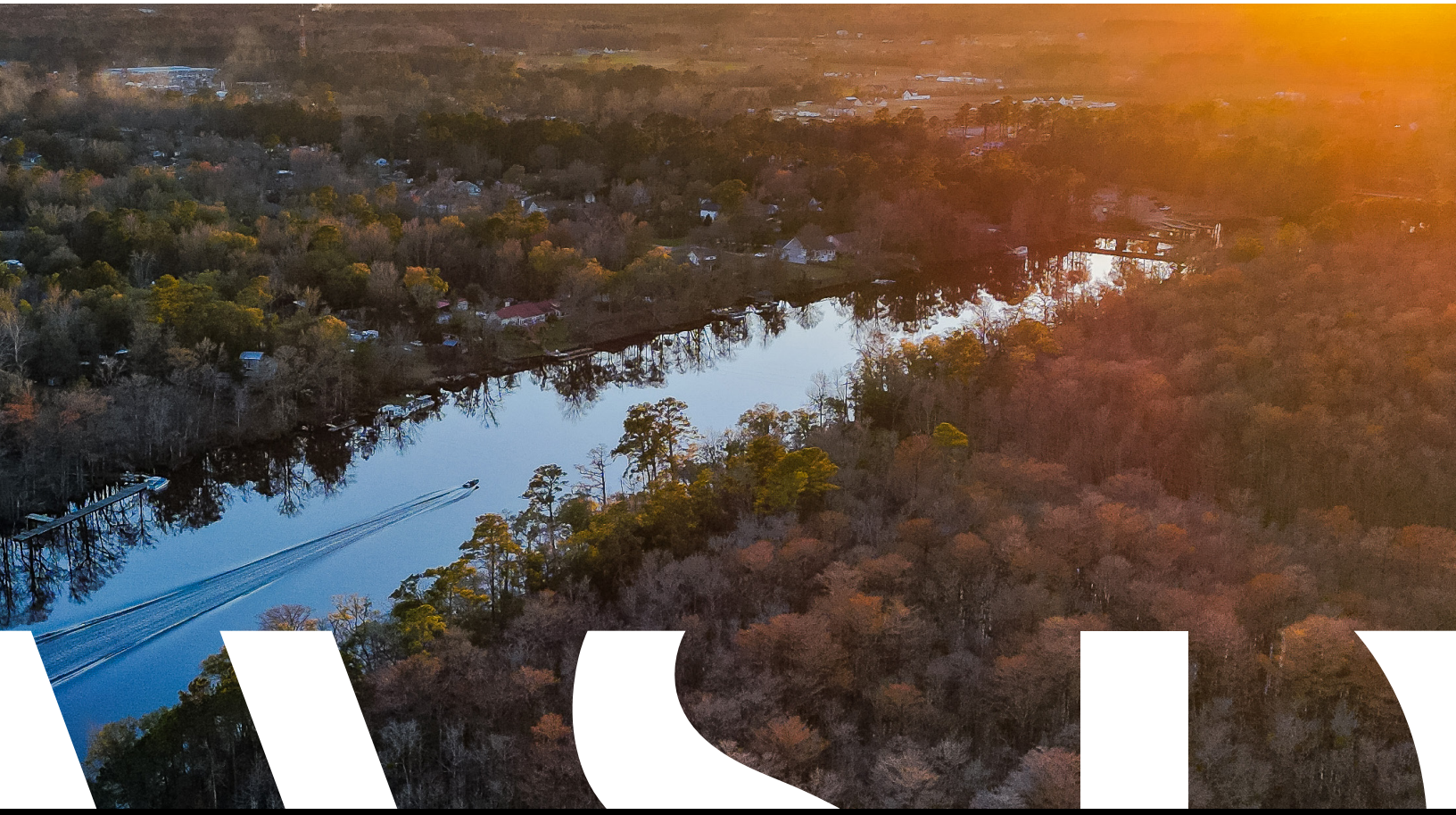
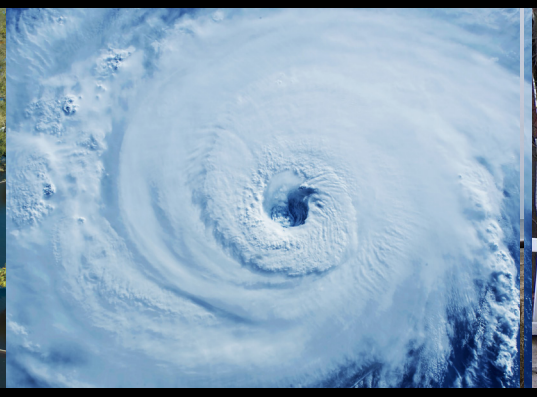
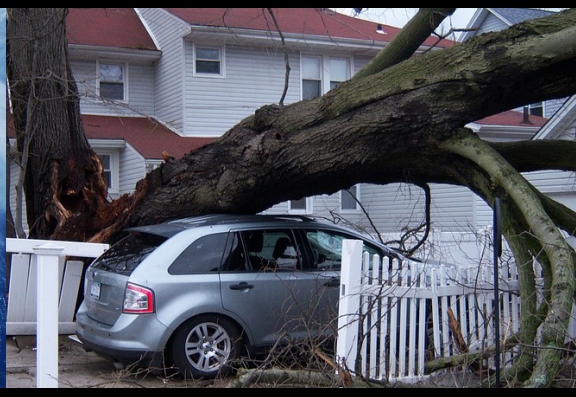


# Northeast NC Regional
# HAZARD MITIGATION PLAN







Approved April 15, 2026

wsp

# TABLE OF CONTENTS


1 INTRODUCTION ..... 1

**1.1 Background ..... 1**

**1.2 Purpose and Authority ..... 2**

**1.3 Scope ..... 2**

**1.4 References ..... 3**

**1.5 Plan Organization ..... 4**

2 PLANNING PROCESS ..... 5

**2.1 Purpose and Vision ..... 5**

**2.2 What's Changed in the Plan ..... 6**

**2.3 Preparing the Plan ..... 7**

2.3.1 Phase I – Planning Process ..... 8

2.3.2 Phase II – Risk Assessment ..... 9

2.3.3 Phase III – Mitigation Strategy ..... 10

2.3.4 Phase IV – Plan Maintenance ..... 10

**2.4 Hazard Mitigation Planning Committee ..... 10**

**2.5 Meetings and Workshops ..... 14**

**2.6 Involving the Public ..... 15**

**2.7 Outreach Efforts ..... 16**

**2.8 Involving the Stakeholders ..... 16**

**2.9 Documentation of Plan Progress ..... 17**

3 PLANNING AREA PROFILE ..... 23

**3.1 Regional Characteristics ..... 23**

3.1.1 Wetlands ..... 26

3.1.2 Parks, Preserve, and Conservation ..... 29

3.1.3 Threatened and Endangered Species ..... 30

3.1.4 Land Cover ..... 31

**3.2 Population and Demographics ..... 31**

**3.3 Historic Properties ..... 35**

**3.4 Housing Characteristics ..... 37**

**3.5 Infrastructure ..... 38**
3.5.1 Transportation ..... 38
3.5.2 Utilities ..... 39
**3.6 Current and Future Land Use ..... 39**
**3.7 Employment and Industry ..... 51**
4 RISK ASSESSMENT ..... 54
**4.1 Overview ..... 54**
**4.2 Hazard Identification ..... 55**
**4.3 Risk Assessment Methodology and Assumptions ..... 59**
**4.4 Asset Inventory ..... 64**
4.4.1 Population ..... 64
4.4.2 Property ..... 65
4.4.3 Critical Facilities & Infrastructure ..... 66
4.4.4 Agriculture ..... 76
**4.5 Hazard Profiles, Analysis, and Vulnerability ..... 77**
4.5.1 Dam & Levee Failure ..... 77
4.5.2 Drought ..... 90
4.5.3 Earthquake ..... 100
4.5.4 Excessive Heat ..... 116
4.5.5 Flooding ..... 124
4.5.6 Hurricanes & Coastal Hazards ..... 170
4.5.7 Tornadoes & Thunderstorms ..... 206
4.5.8 Severe Winter Weather ..... 249
4.5.9 Sinkhole ..... 258
4.5.10 Wildfire ..... 263
4.5.11 Hazardous Substances ..... 286
**4.6 Conclusions on Hazard Risk ..... 295**
5 CAPABILITY ASSESSMENT ..... 297
**5.1 Overview ..... 297**
**5.2 Conducting the Capability Assessment ..... 297**
**5.3 Capability Assessment Findings ..... 298**
5.3.1 Planning and Regulatory Capability ..... 298
5.3.2 Administrative and Technical Capability ..... 308
5.3.3 Fiscal Capability ..... 311

5.3.4 Education and Outreach Capability ..... 312
5.3.5 Mitigation Capability ..... 314
5.3.6 Political Capability ..... 315
5.3.7 Local Self-Assessment Rating ..... 315
**5.4 Conclusions on Local Capability ..... 316**

6 MITIGATION STRATEGY ..... 318

**6.1 Goals and Objectives ..... 318**
6.1.1 Coordination with Other Planning Efforts ..... 318
6.1.2 Goal Setting ..... 319
6.1.3 Resulting Goals and Objectives ..... 319
**6.2 Identification and Analysis of Mitigation Activities ..... 320**
6.2.1 Prioritization Process ..... 320

7 MITIGATION ACTION PLANS ..... 322

8 PLAN MAINTENANCE ..... 345

**8.1 Implementation ..... 345**
8.1.1 Mitigation Plan Implementation ..... 345
8.1.2 Plan Integration ..... 345
**8.2 Monitoring, Evaluation, and Enhancement ..... 348**
8.2.1 Role of HMPC in Implementation, Monitoring and Maintenance ..... 348
8.2.2 Maintenance Schedule ..... 349
8.2.3 Maintenance Evaluation Process ..... 349
**8.3 Continued Public Involvement ..... 351**

9 PLAN ADOPTION ..... 352

ANNEX A. BERTIE COUNTY ..... 409

**A.1 Asset Inventory ..... 409**
**A.2 Risk Assessment ..... 430**
A.2.1 Flooding ..... 430
A.2.2 Hurricanes and Coastal Hazards ..... 449
A.2.3 Wildfire ..... 452
**A.3 Mitigation Strategy ..... 481**

ANNEX B. HYDE COUNTY ..... 484

**B.1 Asset Inventory ..... 484**

**B.2 Risk Assessment ..... 491**

B.2.1 Flooding ..... 491

B.2.2 Hurricanes and Coastal Hazards ..... 496

B.2.3 Wildfire ..... 499

**B.3 Mitigation Strategy ..... 506**

ANNEX C. MARTIN COUNTY ..... 514

**C.1 Asset Inventory ..... 514**

**C.2 Risk Assessment ..... 527**

C.2.1 Flooding ..... 527

C.2.2 Hurricanes and Coastal Hazards ..... 540

C.2.3 Wildfire ..... 543

**C.3 Mitigation Strategy ..... 575**

ANNEX D. TYRRELL COUNTY ..... 578

**D.1 Asset Inventory ..... 578**

**D.2 Risk Assessment ..... 584**

D.2.1 Flooding ..... 584

D.2.2 Hurricanes and Coastal Hazards ..... 591

D.2.3 Wildfire ..... 594

**D.3 Mitigation Strategy ..... 602**

ANNEX E. WASHINGTON COUNTY ..... 605

**E.1 Asset Inventory ..... 605**

**E.2 Risk Assessment ..... 617**

E.2.1 Flooding ..... 617

E.2.2 Hurricanes and Coastal Hazards ..... 629

E.2.3 Wildfire ..... 632

**E.3 Mitigation Strategy ..... 646**

APPENDIX A PLAN REVIEW TOOL ..... A.1

APPENDIX B PLANNING PROCESS DOCUMENTATION ..... B.1

APPENDIX C MITIGATION ALTERNATIVES ..... C.1

**C.1 Categories of Mitigation Measures Considered C.1**

**C.2 Alternative Mitigation Measures per Category . C.1**

C.2.1 Preventative and Regulatory Measures ..... C.2

C.2.2 Property Protection Measures ..... C.5

C.2.3 Natural Resource Protection ..... C.9

C.2.4 Emergency Services Measures ..... C.13

C.2.5 Structural Projects ..... C.16

C.2.6 Public Information ..... C.18

APPENDIX D REFERENCES ..... D.1

# 1 INTRODUCTION

Section 1 provides a general introduction to hazard mitigation and an introduction to the Northeastern NC Regional Hazard Mitigation Plan. This section contains the following subsections:

1.1 Background
1.2 Purpose and Authority
1.3 Scope
1.4 References
1.5 Plan Organization

## 1.1 BACKGROUND

This document comprises a Hazard Mitigation Plan for the Northeastern NC Region of North Carolina.

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

Hazards are a natural part of the environment that will inevitably continue to occur, but there is much we can do to minimize their impacts on our communities and prevent them from resulting in disasters. Every community faces different hazards, has different resources to draw upon in combating problems, and has different interests that influence the solutions to those problems. Because there are many ways to deal with hazards and many agencies that can help, there is no one solution for managing or mitigating their effects. Planning is one of the best ways to develop a customized program that will mitigate the impacts of hazards while accounting for the unique character of a community.

A well-prepared hazard mitigation plan will ensure that all possible activities are reviewed and implemented so that the problem is addressed by the most appropriate and efficient solutions. It can also coordinate activities with each other and with other goals and activities, preventing conflicts and reducing the costs of implementing each individual activity. This plan provides a framework for all interested parties to work together toward mitigation. It establishes the vision and guiding principles for reducing hazard risk and proposes specific mitigation actions to eliminate or reduce identified vulnerabilities.

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

This plan was prepared in coordination with FEMA Region 4 and the North Carolina Division of Emergency Management (NCEM) to ensure that it meets all applicable federal and state planning

requirements. A Local Mitigation Plan Review Tool, found in Appendix A, provides a summary of FEMA's current minimum standards of acceptability and notes the location within this plan where each planning requirement is met.

## 1.2 PURPOSE AND AUTHORITY

This plan was developed in a joint and cooperative manner by members of a Hazard Mitigation Planning Committee (HMPC) which included representatives of County, City, and Town departments, federal and state agencies, citizens, and other stakeholders. This plan will ensure all jurisdictions in the Northeastern Region remain eligible for federal disaster assistance including FEMA HMGP, BRIC, and FMA programs.

This plan has been prepared in compliance with Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), 42 U.S.C. 5165, enacted under Section 104 of DMA 2000, Public Law 106-390 of October 30, 2000, as implemented at CFR 201.6 and 201.7 dated October 2007. Additionally, this plan will be monitored and updated on a routine basis in compliance with the above legislation and with the National Flood Insurance Act of 1968, as amended by 42 U.S.C. 4001 et seq, and North Carolina General Statutes, Chapter 166A: North Carolina Emergency Management Act, as amended by Senate Bill 300: An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response and Recovery Commission (2001).

This plan will be adopted by each participating jurisdiction in accordance with standard local procedures under the authority and police powers granted to counties as defined by the State of North Carolina (N.C.G.S., Chapter 153A) and the authority granted to cities and towns as defined by the State of North Carolina (N.C.G.S., Chapter 160A). Copies of adoption resolutions are provided in Section 9 Plan Adoption.

## 1.3 SCOPE

This document comprises a Regional Hazard Mitigation Plan for the Northeastern NC Region. The planning areas includes all incorporated municipalities and unincorporated areas listed in Table 1.1.

**Table 1.1 – Participating Jurisdictions in the Northeastern NC Regional Hazard Mitigation Plan**

| | | |
|---|---|---|
| **Bertie County** | | |
| Askewville | Roxobel | Powellsville |
| Colerain | Aulander | Windsor |
| Lewiston-Woodville | Kelford | |
| **Hyde County*** | | |
| **Martin County** | | |
| Bear Grass | Parmele | Hassell |
| Hamilton | Williamston | Oak City |
| Jamesville | Everetts | Robersonville |
| **Tyrrell County** | | |
| Columbia | | |
| **Washington County** | | |
| Creswell | Plymouth | Roper |

* There are no incorporated jurisdictions in Hyde County

The Northeastern NC Region followed the planning process prescribed by FEMA, and this plan was developed under the guidance of a HMPC, comprised of representatives of County and Town departments; citizens; and other stakeholders. The HMPC conducted a risk assessment that identified and profiled hazards that pose a risk to the planning area, assessed the planning area's vulnerability to these hazards, and examined each participating jurisdiction's capabilities in place to mitigate them.

The plan evaluates and prioritizes hazards for the planning area using a Priority Risk Index, as determined through the risk and vulnerability assessments. Hazards are categorized as "low," "moderate," or "high" priority, however, mitigation strategies are identified for all profiled hazards. The hazards profiled in this plan include:

- Dam & Levee Failure
- Drought
- Earthquake
- Excessive Heat
- Flooding
- Hurricanes & Coastal Hazards
- Tornadoes & Thunderstorms
- Severe Winter Weather
- Sinkholes
- Wildfire
- Hazardous Substances

## 1.4 REFERENCES

The following FEMA guides and reference documents were used to prepare this document:


- FEMA 386-1: Getting Started: Building Support for Mitigation Planning. September 2002.
- FEMA 386-2: Understanding Your Risks: Identifying Hazards and Estimating Losses. August 2001.
- FEMA 386-3: Developing the Mitigation Plan. April 2003.
- FEMA 386-4: Bringing the Plan to Life. August 2003.
- FEMA 386-5: Using Benefit-Cost Review in Mitigation Planning. May 2007.
- FEMA 386-6: Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning. May 2005.
- FEMA 386-7: Integrating Manmade Hazards into Mitigation Planning. September 2003.
- FEMA 386-8: Multijurisdictional Mitigation Planning. August 2006.
- FEMA 386-9: Using the Hazard Mitigation Plan to Prepare Successful Mitigation Projects. August 2008.
- FEMA. Local Mitigation Planning Handbook. June 2025.
- FEMA. Local Mitigation Planning Policy Guide. April 11, 2025.
- FEMA Hazard Mitigation Assistance Program and Policy Guide. January 20, 2025.
- FEMA Hazard Mitigation Assistance Unified Guidance. June 1, 2010.
- FEMA. Integrating Hazard Mitigation into Local Planning: Case Studies and Tools for Community Officials. March 1, 2013.
- FEMA. Mitigation Ideas. A Resource for Reducing Risk to Natural Hazards. January 2013.
- FEMA National Fire Incident Reporting System 5.0: Complete Reference Guide. January 2008.

Additional sources used in the development of this plan, including data compiled for the hazard identification and risk assessment, capability assessment, and mitigation strategy, are listed in Appendix D.

## 1.5 PLAN ORGANIZATION

The Northeastern NC Regional Hazard Mitigation Plan is organized into the following sections:

- Section 1: Introduction
- Section 2: Planning Process
- Section 3: Planning Area Profile
- Section 4: Risk Assessment
- Section 5: Capability Assessment
- Section 6: Mitigation Strategy
- Section 7: Mitigation Action Plans
- Section 8: Plan Maintenance
- Section 9: Plan Adoption
- Annexes
- Appendix A: Local Plan Review Tool
- Appendix B: Planning Process Documentation
- Appendix C: Mitigation Alternatives
- Appendix D: References

# 2 PLANNING PROCESS

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

This section provides a review of the planning process followed for the development of the Northeastern NC Regional Hazard Mitigation Plan. It consists of the following sub-sections:

2.1 Purpose and Vision
2.2 History of Hazard Mitigation Planning
2.3 Preparing the Plan
2.4 Hazard Mitigation Planning Committee
2.5 Meetings and Workshops
2.6 Involving the Public
2.7 Outreach Efforts
2.8 Involving the Stakeholders
2.9 Documentation of Plan Progress

## 2.1 PURPOSE AND VISION

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

The purpose of the Northeastern NC Regional Hazard Mitigation Plan is to identify, assess, and mitigate hazard risk to better protect the people and property within the Region from the effects of natural and human-caused hazards. This plan documents progress on existing hazard mitigation planning efforts, updates the previous plan to reflect current conditions in the Region including relevant hazards and vulnerabilities, increases public education and awareness about the plan and planning process, maintains grant eligibility for participating jurisdictions, maintains compliance with state and federal requirements for local hazard mitigation plans, and identifies and outlines strategies the Region's participating jurisdictions will use to decrease vulnerability and increase resiliency.

During the development of the 2021 Northeastern NC Regional Hazard Mitigation Plan, the Hazard Mitigation Planning Committee (HMPC) developed a vision for the Region in terms of hazard mitigation planning by considering what the successful implementation of the plan would achieve, what outcomes the plan would generate, and what the Region will look like in the future. This vision statement, presented below, remains relevant to define and guide the planning process and the Region's approach to hazard mitigation:

*The vision of the Northeastern NC Regional Hazard Mitigation Plan is to establish sound public policy to protect life, property, and the quality of the natural environment; and to reduce risk and prevent loss from future hazard events.*

## 2.2 WHAT'S CHANGED IN THE PLAN

This plan is an update to the 2021 Northeastern NC Regional Hazard Mitigation Plan, which included participation from Bertie, Hyde, Martin, Tyrell, and Washington Counties and was approved by FEMA on April 13, 2021.

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

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

Section 4.2 provides a comparison of the hazards addressed in the 2023 State of North Carolina HMP and the 2021 Northeastern NC Regional plan and provides the final decision made by the HMPC as to which hazards should be included in the updated 2026 Northeastern NC Regional Plan.

In addition to the specific changes in hazard analyses identified in Section 4.2, the following items were also addressed in this 2026 plan update:

- GIS was used, to the extent data allowed, to analyze the priority hazards as part of the vulnerability assessment.
- Assets at risk to identified hazards were identified by property type and values of properties based on current data in North Carolina Emergency Management's IRISK Database.
- An updated discussion on the effects of climate change and other future conditions was included in each hazard profile in the risk assessment.
- The discussion on growth and development trends was enhanced utilizing 2023 American Community Survey data.
- An effort was made to provide underserved communities and vulnerable populations with opportunities to participate in and contribute to the plan update process. Engagement opportunities were provided through the public survey, the plan website, and stakeholder coordination.

— Enhanced public outreach and agency coordination efforts were conducted throughout the plan update process in order to meet the more rigorous requirements of the 2017 CRS Coordinator's Manual, in addition to DMA requirements.

## 2.3 PREPARING THE PLAN

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

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

Into this process, the planning consultant integrated a more detailed 10-step planning process used for FEMA's CRS and FMA programs. Thus, the modified 10-step process used for this plan meets the requirements of six major programs: FEMA's HMGP; BRIC program; CRS; FMA program; and Severe Repetitive Loss Program; and new flood control projects authorized by the U.S. Army Corps of Engineers.

Table 2.1 shows how the 10-step CRS planning process aligns with the four phases of hazard mitigation planning pursuant to the Disaster Mitigation Act of 2000.

**Table 2.1 – Mitigation Planning and CRS 10-Step Process Reference Table**

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

In addition to meeting DMA and CRS requirements, this plan also meets the recommended steps for developing a Community Wildfire Protection Plan (CWPP). Table 2.2 below outlines the recommended CWPP process and the CRS step and sections of this plan that meet each step.

**Table 2.2 – Community Wildfire Protection Plan Process Reference**

| CWPP Process | CRS Step | Fulfilling Plan Section |
|---|---|---|
| Convene decision makers | Step 1 | Section 2 – HMPC |
| Involve Federal agencies | Step 3 | Section 2 – Involving Stakeholders |

| CWPP Process | CRS Step | Fulfilling Plan Section |
|---|---|---|
| Engage interested parties (such as community representatives) | Step 1, 2, and 3 | Section 2 – HMPC, Involving the Public, Involving Stakeholders |
| Establish a community base map | | Section 4 – Wildfire |
| Develop a community risk assessment, including fuel hazards, risk of wildfire occurrence, homes, business and essential infrastructure at risk, other community values at risk, local preparedness, and firefighting capability | Step 4 and 5 | Section 4 – Wildfire<br>Section 6 – Capability |
| Establish community hazard reduction priorities and recommendations to reduce structural ignitability | Step 6, 7, and 8 | Section 6 – Mitigation Strategy<br>Section 7 – Mitigation Action Plans |
| Develop an action plan and assessment strategy | Step 8 and 10 | Section 7 – Mitigation Action Plans<br>Section 8 – Plan Maintenance |
| Finalize the CWPP | Step 9 | Section 9 – Plan Adoption |

The process followed for the preparation of this plan, as outlined in Table 2.1 above, is as follows:

### 2.3.1 PHASE I – PLANNING PROCESS

**Planning Step 1: Organize to Prepare the Plan**

With the Region's commitment to participate in the DMA planning process, community officials worked to establish the framework and organization for development of the plan. An initial meeting was held with key community representatives to discuss the organizational aspects of the plan development process. The County Emergency Managers led each County's effort to reorganize and coordinate for the plan update. Consultants from WSP assisted by leading the Region through the planning process and preparing the plan document.

**Planning Step 2: Involve the Public**

Public involvement in the development of the plan was sought using various methods, as detailed in Section 2.6.

**Planning Step 3: Coordinate**

The Hazard Mitigation Planning Committee (HMPC) formed for development of the 2021 plan was reconvened for this plan update. Where necessary, additional members were added to the HMPC. Each community also sought to incorporate stakeholder and public participation on the HMPC. More details on the HMPC are provided in Section 2.4. Stakeholder coordination was incorporated into the formation of the HMPC and was also sought through additional outreach methods, which are detailed in Section 2.8.

***Coordination with Other Community Planning Efforts and Hazard Mitigation Activities***

In addition to stakeholder involvement, coordination with other community planning efforts was also seen as 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. The Northeastern NC Region participating jurisdictions use a variety of planning mechanisms, such as Comprehensive Plans, subdivision regulations, building codes, and ordinances to guide growth and development. 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. As detailed in Table 2.3, the

development of this plan incorporated information from existing plans, studies, reports, and initiatives as well as other relevant data from neighboring communities and other jurisdictions.

These and other documents were reviewed and considered, as appropriate, during the collection of data to support the planning process and plan development, including the hazard identification, risk and vulnerability assessment, and capability assessment. The Hazard Identification and Risk Assessment can be found in Section 4 and the Capability Assessment can be found in Section 5.

**Table 2.3 – Summary of Existing Studies and Plans Reviewed**

| Resource Referenced | Use in this Plan |
|---|---|
| Local Comprehensive Plans | Local comprehensive plans from around the region were referenced in the Planning Area Profile in Section 3. Other local comprehensive plans were incorporated into Mitigation Action Plans where applicable in Section 7 and referenced in the Capability Assessment in Section 5. |
| Local Ordinances (Flood Damage Prevention Ordinances, Subdivision Ordinances, Zoning Ordinances, etc.) | Local ordinances were referenced in the Capability Assessment in Section 5 and where applicable for updates or enforcement in Mitigation Action Plans in Section 7. |
| Bertie, Hyde, Martin, Tyrrell, and Washington Flood Insurance Studies (FIS) | The Flood Insurance Studies were referenced during preparation of the flood hazard profile in Section 4. |
| Northeastern NC Regional Hazard Mitigation Plan, 2021 | The previous plan was referenced in compiling the Hazard Identification and Risk Assessment in Section 4 and in reporting on implementation status and developing the Mitigation Action Plans in Section 2 and Section 7, respectively. |
| Albemarle Regional Resilience Portfolio, Mid-East Regional Resilience Portfolio | These plans were referenced in the Capability Assessment in Section 5 and for development of the Mitigation Action Plans in Section 7. |
| Resilient Coastal Communities Program Resilience Strategies (Bertie County, Aulander, Windsor, Hyde County (Ocracoke), Washington County, Creswell, Plymouth) | These plans were referenced in the Capability Assessment in Section 5 and for development of the Mitigation Action Plans in Section 7. |
| 2023 North Carolina State Hazard Mitigation Plan | The State plan was references in compiling the Hazard Identification and Risk Assessment in Section 4. |

## *2.3.2 PHASE II – RISK ASSESSMENT*

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

The HMPC completed a comprehensive effort to identify, document, and profile all hazards that have, or could have, an impact on the planning area. Geographic information systems (GIS) were used to display, analyze, and quantify hazards and vulnerabilities. A draft of the risk and vulnerability assessment was made available on the plan website for the HMPC, stakeholders, and the public to review and comment.

The HMPC also conducted a capability assessment to review and document the planning area's current capabilities to mitigate risk from and vulnerability to hazards. By collecting information about existing government programs, policies, regulations, ordinances, and emergency plans, the HMPC could assess

those activities and measures already in place that contribute to mitigating some of the risks and vulnerabilities identified. A more detailed description of the risk assessment process and the results are included in Section 4 Risk Assessment.

### 2.3.3 PHASE III – MITIGATION STRATEGY

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

WSP facilitated brainstorming and discussion sessions with the HMPC that described the purpose and process of setting planning goals and objectives and reviewing a comprehensive range of mitigation alternatives and provided a method of selecting and defending recommended mitigation actions using a series of selection criteria. This information is included in Section 6 Mitigation Strategy.

**Planning Step 8: Draft an Action Plan**

A complete first draft of the plan was prepared based on input from the HMPC regarding the draft risk assessment and the goals and activities identified in Planning Steps 6 and 7. This draft was shared for HMPC, stakeholder, and public review and comment via the plan website. HMPC, public, and stakeholder comments were integrated into the final draft for the NCEM and FEMA Region 4 to review and approve, contingent upon final adoption by the County and its participating jurisdictions.

### 2.3.4 PHASE IV – PLAN MAINTENANCE

**Planning Step 9: Adopt the Plan**

To secure buy-in and officially implement the plan, the plan will be reviewed and adopted by all participating jurisdictions. Resolutions will be provided in Section 9.

**Planning Step 10: Implement, Evaluate and Revise the Plan**

Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. Up to this point in the planning process, the HMPC's efforts have been directed at researching data, coordinating input from participating entities, and developing mitigation actions. Section 8 Plan Maintenance provides an overview of the strategy for plan implementation and maintenance and outlines the method and schedule for monitoring, updating, and evaluating the plan. The Section also discusses incorporating the plan into existing planning mechanisms and how to continue public involvement.

## 2.4 HAZARD MITIGATION PLANNING COMMITTEE

This hazard mitigation plan was developed under the guidance of a planning committee comprising representatives of county and town departments, federal and state agencies, citizens, and stakeholders.

To reconvene the HMPC, County Emergency Managers and County Planning Directors were asked for their assistance to convene the County, City, and Town HMPC contacts from the previous planning effort. Each community was asked to designate a contact for the HMPC. Communities were also asked to identify local stakeholder representatives to participate on the HMPC alongside the County and Town officials in order to improve the integration of stakeholder input into the plan. Table 2.4 lists the membership of the HMPC, the agencies and jurisdictions that members represented, and members' attendance at meetings. Many of these representatives were involved in the development of the 2021 plan and have since participated in regular plan reviews and maintenance.

### Table 2.4 – HMPC Members

| Jurisdiction | Representative | Agency/Department | Position/Title or *Stakeholder | HMPC Meeting Attendance | | | |
|---|---|---|---|---|---|---|---|
| | | | | Mtg.1 | Mtg.2 | Mtg.3 | Mtg.4 |
| Bertie County | Traci White | Bertie Co Planning | Planning Director | ✓ | ✓ | | ✓ |
| Kelford | Marie Garris | Town of Kelford | Clerk and Finance Officer | | ✓ | | |
| Windsor | Allen Castelloe | Town of Windsor Administration | Town Administrator | ✓ | ✓ | | |
| Hyde County | Kris Noble | Hyde County Administration | County Manager | | | | |
| Hyde County | Johnny Gibbs | Hyde County ES | Deputy Emergency Manager | | | | ✓ |
| Hyde County | Jo Anne Spencer | Spencer True Value Furniture | Citizen/Stakeholder* | | | | |
| Hyde County | Jeffrey Stotesberry | SQ Volunteer Fire Dept. | Fire Chief* | | | | |
| Martin County | Jody Griffin | Martin County Emergency Management | EM Director | ✓ | ✓ | ✓ | ✓ |
| Bear Grass | Charlotte B. Griffin | Town of Bear Grass | Mayor | ✓ | ✓ | ✓ | ✓ |
| Everetts | Ben Jones | Town of Everetts | Commissioner | ✓ | | | |
| Parmele | Jerry McCrary | Town of Parmele | Mayor | ✓ | ✓ | | ✓ |
| Robersonville | Tina Brown | Town of Robersonville | Mayor | ✓ | | | |
| Williamston | Andrew Brownfield | Town of Williamston | Town Planner & Zoning Administrator | ✓ | ✓ | ✓ | ✓ |
| Tyrrell County | Wesley Hopkins | Tyrrell County Emergency Management | Emergency Mgmt Coordinator | | | | ✓ |
| Washington County | Lance Swindell | Emergency Management | EM Coordinator | ✓ | ✓ | ✓ | |
| Washington County | Connie Barnes | Planning; Emergency Management | Code Enforcement Officer, CERT Team Coordinator | ✓ | ✓ | | |
| Washington County | David Clifton | N/A | Citizen/Stakeholder* | | | | |
| Washington County | Katie Walker | N/A | Citizen/Stakeholder* | | | | |
| Creswell | Penny Chapman | Town of Creswell | Town Clerk | | | | |
| Creswell | Ryan Swain | N/A | Citizen/Stakeholder* | | | | |
| Creswell | Brenda Logan | N/A | Citizen/Stakeholder* | | | | |
| Creswell | Syble Spruill | N/A | Citizen/Stakeholder* | | | | |
| Plymouth | Mike Wright | Public Works | Public Works Director | | | | |
| Plymouth | Joyce Koss | Administration | Accounting Supervisor | | | | |

| Jurisdiction | Representative | Agency/Department | Position/Title or *Stakeholder | HMPC Meeting Attendance | | | |
|---|---|---|---|---|---|---|---|
| | | | | Mtg.1 | Mtg.2 | Mtg.3 | Mtg.4 |
| Plymouth | Vanessa P. Palin | N/A | Citizen/Stakeholder* | | | | |
| Roper | Jessica Clifton | Town of Roper | Assistant Clerk | | | | |
| Roper | Raemona Jackson | N/A | Citizen/Stakeholder* | | | | |
| Roper | Denise Blount | N/A | Citizen/Stakeholder* | | | | |
| Roper | Charles Sharpe | N/A | Citizen/Stakeholder* | | | | |
| N/A | Carl Baker | NCEM | Mitigation Plans Manager* | | ✓ | ✓ | ✓ |
| N/A | John Mello | NCEM | Hazard Mitigation Planner* | ✓ | ✓ | ✓ | ✓ |

*Asterisk indicates that the representative is a citizen or outside stakeholder not affiliated with the local government

Several of the jurisdictions elected to designate their respective county official to represent their jurisdiction on the HMPC, generally because they did not have the time or staff to be able to attend on their own. Although these members designated county officials to represent them at in-person meetings, each was still contacted throughout the planning process and participated by providing suggestions and comments on the plan and updates to mitigation actions and local capabilities via emails and phone conversations. These members are listed in Table 2.5 by jurisdiction.

**Table 2.5 – Jurisdictions Designating County Representation on the HMPC**

| Jurisdiction | Representative | Agency/Position |
|---|---|---|
| Askewville | Gloria Bryant | Mayor |
| Aulander | Steven A. Draper | Public Works Director |
| Colerain | John Adams | Public Works Director |
| Powellsville | James Peele | Mayor |
| Roxobel | Gary Johnson | Mayor |
| Lewiston-Woodville | Diane Harrington | Town Clerk |
| Hamilton | William Freeman | Mayor Pro Tem |
| Hassell | Michelle Davis Sledge | Mayor |
| Jamesville | Kimberly Cockrell | Town Clerk/Finance Officer |
| Oak City | Sue Harrell | Mayor Pro Tem |
| Columbia | Monica Mauffray | Town Manager |
| Creswell | Penny Chapman | Town Clerk |
| Plymouth | Mike Wright | Public Works Director |
| Roper | Jessica Clifton | Assistant Clerk |

The HMPC led the planning and decision-making efforts throughout the planning process; however, other staff from the participating communities were involved in an advisory role to provide input and local data, review plan drafts, update the status of their respective mitigation actions, and otherwise support the HMPC in this plan update. These were not members of the HMPC. Additional local staff that supported the HMPC are recognized in Table 2.6 below.

**Table 2.6 – Additional Staff Supporting the Planning Process**

| Jurisdiction | Representative | Agency | Position/Title |
|---|---|---|---|
| Bertie County | John Rawls | Bertie Co Emergency Svcs | Emergency Services Director |
| Martin County | Michael Bryant | Martin County Emergency Management | EM Specialist/Fire Marshal |
| Martin County | Drew Batts | Martin County Administration | County Manager |
| Robersonville | Jonathan Dale | Town of Robersonville Fire Dept. | Fire Chief |
| Robersonville | Chris Roberson | Town of Robersonville | Town Manager |
| Williamston | Travis Cowan | Town of Williamston | Town Administrator |
| Williamston | Michael Peaks | Williamston Fire / EMS | Fire Chief |
| Williamston | Dean McCall | Town of Williamston | Mayor |
| Washington County | Allen Pittman | Planning & Inspections | Planning Director |
| Plymouth | Joanne Floyd | Administration | Town Manager |

The formal HMPC meetings followed the 10 CRS Planning Steps. Agendas, minutes, and sign-in sheets for the HMPC meetings are included in Appendix B. The meeting dates and topics discussed are summarized in Section 2.5 Meetings and Workshops. All HMPC meetings were open to the public.

The DMA planning regulations and guidance stress that to satisfy multi-jurisdictional participation requirements, each local government seeking FEMA approval of their mitigation plan must participate in the planning effort in the following ways:

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

For the Northeastern NC Region HMPC, "participation" meant the following:

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

Detailed summaries of HMPC meetings are provided under Meetings and Workshops, including meeting dates, locations, and topics discussed. During the planning process, the HMPC members communicated through face-to-face meetings, email, and telephone conversations. This continued communication ensured that coordination was ongoing throughout the entire planning process despite the fact that not all HMPC members could be present at every meeting. Additionally, draft documents were distributed via the plan website so that the HMPC members could easily access and review them and provide comments.

## 2.5 MEETINGS AND WORKSHOPS

The preparation of this plan required a series of meetings and workshops for facilitating discussion, gaining consensus, and initiating data collection efforts with local government staff, community officials, and other identified stakeholders. More importantly, the meetings and workshops prompted continuous input and feedback from relevant participants throughout the drafting stages of the plan.

Table 2.7 summarizes the key meetings and workshops held by the HMPC during the development of the plan. In many cases, routine discussions and additional meetings were held by local staff to accomplish planning tasks specific to their department or agency. For example, completing the Local Capability Self-Assessment or seeking approval of specific mitigation actions for their department or agency to undertake and include in their Mitigation Action Plan. These meetings were informal and are not documented here.

Public meetings are summarized in subsection 2.6.

**Table 2.7 – Summary of HMPC Meetings**

| Meeting Title | Meeting Topic | Meeting Date | Meeting Location |
|---|---|---|---|
| HMPC Mtg. #1 – Project Kick-Off | 1) Introduction to DMA and CRS requirements and the planning process<br>2) Review of HMPC responsibilities and the project schedule. | July 16, 2025<br>2:00 p.m. | Microsoft Teams & Bertie County Library<br>102 Lancaster Ave,<br>Windsor, NC |
| HMPC Mtg. #2 | 1) Review Draft Hazard Identification & Risk Assessment (HIRA) | September 15, 2025<br>1:00 p.m. | Microsoft Teams & NC TeleCenter<br>415 East Blvd,<br>Williamston, NC |
| HMPC Mtg. #3 | 1) Review and update capability<br>2) Review and update plan goals<br>3) Report on status of actions from the 2021 plan | November 6, 2025<br>11:00 a.m. | Microsoft Teams & Washington County Commissioner's Room<br>116 Adams St,<br>Plymouth, NC |
| HMPC Mtg. #4 | 3) Review the draft Hazard Mitigation Plan<br>4) Solicit comments and feedback | December 10, 2025<br>3:00 p.m. | Microsoft Teams & Bertie County Library<br>102 Lancaster Ave,<br>Windsor, NC |

## 2.6 INVOLVING THE PUBLIC

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

Public involvement in the development of the plan was sought using various methods including open public meetings, an interactive plan website, a public participation survey, and by making copies of draft plan documents available for public review online and at government offices. Additionally, all HMPC meetings were made open to the public.

All public meetings were advertised on the plan website, which was shared on local community websites where possible. Copies of meeting announcements are provided in Appendix B. The public meetings held during the planning process are summarized in Table 2.8.

**Table 2.8 – Summary of Public Meetings**

| Meeting Title | Meeting Topic | Meeting Date | Meeting Location |
|---|---|---|---|
| Public Meeting #1 | 1) Introduction to DMA and CRS requirements, the planning process, and project schedule<br>2) Review of opportunities for public involvement | July 16, 2025<br>5:00 p.m. | Bertie County Library<br>102 Lancaster Ave,<br>Windsor, NC |

| Meeting Title | Meeting Topic | Meeting Date | Meeting Location |
|---|---|---|---|
| Public Meeting #2 | 1) Review draft Hazard Mitigation Plan<br>2) Solicit comments and feedback | December 10, 2025<br>5:00 p.m. | Bertie County Library<br>102 Lancaster Ave,<br>Windsor, NC |

## 2.7 OUTREACH EFFORTS

The HMPC agreed to employ a variety of public outreach methods including established public information mechanisms and resources within the community. Public involvement activities for this plan update included creation of a website for the plan, a public survey, use of community websites and social media, and the collection of public and stakeholder comments on the draft plan. The table below details public outreach efforts employed during the preparation of this plan. Documentation of these efforts is provided in Appendix B.

**Table 2.9 – Public Outreach Efforts**

| Outreach | Date | Event/Message |
|---|---|---|
| Plan website | Ongoing | Meeting announcements, meeting materials; contact information provided to request additional information and/or provide comments |
| Public notice on county website | July 2025 | Announcement posted for Public Meeting #1 and plan website link shared |
| Local community social media posts | July 2025, November 2025 | Announcements posted for Public Meeting #1 and Public Meeting #2 |
| Public survey | July-November 2025 | Survey hosted online and made available via shareable link |
| Draft Risk Assessment | October 2025 | Draft hazard identification and risk assessment made available for review and comment online |
| Draft Capability Assessment | November 2025 | Draft capability assessment made available for review and comment online |
| Draft Plan | December 2025 | Full draft plan made available for review and comment online |

The public outreach survey was made available in July 2025 and remained open for response until the end of November 2025. The public survey requested public input into the hazard mitigation planning process and the identification of mitigation activities to lessen the risk and impact of future hazard events. The survey is shown in Appendix B. The survey was available online on the plan website. In total, 13 survey responses were received.

Detailed survey results are provided in Appendix B.

## 2.8 INVOLVING THE STAKEHOLDERS

In addition to representatives of each participating jurisdiction, the HMPC included a variety of stakeholders. Stakeholders on the HMPC included a fire chief from a volunteer fire department, and several local residents. Representatives from NCEM, NC Forest Service, and the NC State Resilience Office also attended HMPC meetings. Input from additional stakeholders, including neighboring

communities, was solicited through invitations to the open public meetings and distribution of the public survey. However, if any additional stakeholders representing other agencies and organizations participated through the public survey, that information is unknown due to the anonymous nature of the survey.

## 2.9 DOCUMENTATION OF PLAN PROGRESS

Progress on the mitigation strategy developed in the previous plan is documented in this plan update. Table 2.10 below details the status of mitigation actions from the previous plan. More detail on actions being carried forward is provided in Section 7 Mitigation Action Plans.

**Table 2.10 – Status of Previous Mitigation Actions**

| Jurisdiction | Completed | Deleted | Carried Forward |
|---|---|---|---|
| **Bertie County** | **4** | **1** | **11** |
| Askewville | 3 | 1 | 9 |
| Aulander | 3 | 1 | 9 |
| Colerain | 3 | 1 | 9 |
| Kelford | 3 | 1 | 9 |
| Lewiston-Woodville | 3 | 1 | 9 |
| Powellsville | 3 | 1 | 9 |
| Roxobel | 3 | 1 | 9 |
| Windsor | 3 | 1 | 9 |
| **Hyde County** | **1** | **2** | **14** |
| **Martin County** | **2** | **1** | **12** |
| Bear Grass | 1 | 1 | 11 |
| Everetts | 1 | 1 | 11 |
| Hamilton | 1 | 1 | 11 |
| Hassell | 1 | 1 | 11 |
| Jamesville | 1 | 1 | 11 |
| Oak City | 1 | 1 | 11 |
| Parmele | 1 | 1 | 11 |
| Robersonville | 1 | 1 | 11 |
| Williamston | 1 | 1 | 11 |
| **Tyrrell County** | **2** | **2** | **11** |
| Columbia | 2 | 2 | 8 |
| **Washington County** | **1** | **0** | **18** |
| Creswell | 0 | 0 | 16 |
| Plymouth | 0 | 0 | 17 |
| Roper | 0 | 0 | 16 |
| **Counties Total** | **10** | **6** | **66** |

Table 2.11 on the following pages details all completed and deleted actions from the 2021 plan.

Community capability continues to improve with the implementation of new plans, policies, and programs that help to promote hazard mitigation at the local level. The current state of local capabilities for the participating jurisdictions is captured in Section 5 Capability Assessment. The participating jurisdictions continue to demonstrate their commitment to hazard mitigation and have proven this by

reconvening the HMPC to update this multi-jurisdictional plan and by continuing to involve the public in the hazard mitigation planning process.

Moving forward, information in this plan will be used to help guide and coordinate mitigation activities and decisions for local plans and policies in the future. Proactive mitigation planning will help reduce the cost of disaster response and recovery to communities and their residents by protecting critical community facilities, reducing liability exposure, and minimizing overall community impacts and disruptions. This plan identifies activities that can be undertaken by both the public and the private sectors to reduce safety hazards, health hazards, and property damage.

**Table 2.11 – Completed and Deleted Actions from the 2021 Northeastern NC Regional Hazard Mitigation Plan**

| 2021 Action # | Jurisdictions | Description | 2025 Status | Status Comments/ Explanation |
|---|---|---|---|---|
| **Bertie County** | | | | |
| B1 | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Revise/update regulatory maps upon completion of FIRM update. | Completed | Update went effective January 2025. |
| B3 | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Consider participating in the Community Rating System (CRS) to reduce flood insurance premiums for citizens. | Delete | Not feasible due to administrative burden. |
| B6 | Bertie County | Consider adopting subdivision regulations that include minimum standards for property divisions. | Completed | Bertie County has subdivision regulations in place. |
| B7 | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Review and update the flood damage prevention ordinance to:<br>• Ensure maximum protection from flood hazard events.<br>• Raise the minimum finished floor elevation to at least 2' above base flood elevation (BFE) to provide more flood protection for new or substantially improved structures.<br>• Consider prohibiting any fill within the 100-year floodplain to discourage development.<br>• Prohibit enclosures to the lower areas of elevated buildings, including breakaway walls.<br>• Continue to require and maintain FEMA elevation certificates for all permits for new buildings or improvements to buildings on lots including any portion of the 100-year floodplain. | Completed | Bertie County adopted a 5' freeboard requirement and enclosure limitations are in place. |

| 2021 Action # | Jurisdictions | Description | 2025 Status | Status Comments/ Explanation |
|---|---|---|---|---|
| B11 | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Review rebuilding activities in wake of recent hurricanes and flooding and establish policies/procedures for minimizing repetitive flood losses. | Completed | Bertie County has adopted a 5' freeboard and is seeking funding to implement drainage improvements to address repetitive flooding. |
| **Hyde County** | | | | |
| H1 | Hyde County | Consider revising the county's Flood Damage Prevention Ordinance to increase the current established two foot freeboard requirement regarding base flood elevation for new structures developed within the Flood Hazard Area. This effort will also address any necessary updates required by the National Flood Insurance Program (NFIP). | Completed | In mainland Hyde County in AE zones, the RFPE is the BFE plus 3' of freeboard OR an elevation to above 7.5 feet NAVD 1988, whichever is greater.<br>In mainland Hyde County in AO zones, the RFPE is the base flood depth on the effective FIRM plus 3' of freeboard above the highest natural adjacent grade OR an elevation to or above 7.5 feet NAVD 1988, whichever is greatest.<br>In mainland Hyde County in shaded X and X zones, the RFPE is three feet NAVD 1988 OR the natural grade elevation if the natural grade is greater than three feet NAVD 1988.<br>On the Island of Ocracoke, the RFPE is nine feet NAVD 1988 for all zones for residential buildings (see definition below) and the RFPE is 7.5 feet NAVD 1988 for all zones with non-residential buildings. |
| H16 | Hyde County | Work to implement all recommendations outlined within the Hurricane Matthew Resilient Redevelopment Plan. | Delete | Relevant projects incorporated into other actions. |

| 2021 Action # | Jurisdictions | Description | 2025 Status | Status Comments/ Explanation |
|---|---|---|---|---|
| H17 | Hyde County | Hyde County will continue to work diligently on efforts to address the recovery of the Village of Ocracoke from the impacts of Hurricane Dorian. The County will exhaust all resources available to carry this effort out. | Delete | Replace with new resilience-focused action. |
| **Martin County** | | | | |
| M2 | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Consider applying for participation in the National Flood Insurance Program Community Rating System Program. | Delete | Participation in CRS as a County is no longer in consideration. None of the communities in Martin County have enough flood insurance policies to warrant participation. |
| M4 | Martin Co. | Annually assess the need for the establishment of subdivision regulations. If the county determines that regulations are necessary to address increased development pressure, then this effort will be initiated. | Completed | UDO adopted regulating subdivisions and mobile home/RV parks |
| M14 | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Work to improve the emergency notification system in an effort to increase awareness regarding the locations of shelters and evacuation routes during natural hazard events. | Completed | |
| **Tyrrell County** | | | | |
| T1 | Tyrrell Co., Columbia | Make information available regarding floodplain protection and hazards at the county administrative building, and in the building inspections office. The county will aim to make this information available through the local library and real estate agencies, as well as the Town municipal building. | Completed | |

| 2021 Action # | Jurisdictions | Description | 2025 Status | Status Comments/ Explanation |
|---|---|---|---|---|
| T6 | Tyrrell Co., Columbia | Develop a county website and include information pertinent to emergency preparedness, response, and mitigation. Information will be made available focused on expanding the county's mitigation effectiveness. | Completed | |
| T7 | Tyrrell Co., Columbia | Consider applying for participation in the National Flood Insurance (NFIP) Community Rating System Program. | Delete | Not being pursued due to limited NFIP policies in Tyrrell County and Columbia and administrative burden to join CRS and maintain rating. |
| T14 | Tyrrell Co., Columbia | Work to implement all strategies and recommendations outlined within the County's Hurricane Matthew Resilient Redevelopment Plan. | Delete | Other plans and identified projects are being prioritized. |
| **Washington County** | | | | |
| W4 | Washington Co. | Through implementation of this plan, consider increasing the County's required freeboard within the county's FDPO. | Completed | Washington County updated the FDPO and enforces a 2' freeboard above BFE and 2' freeboard above highest adjacent grade where no BFE is established. |

# 3 PLANNING AREA PROFILE

This section provides a general overview of the current conditions of the Northeastern NC Region and its participating municipalities. It consists of the following subsections:

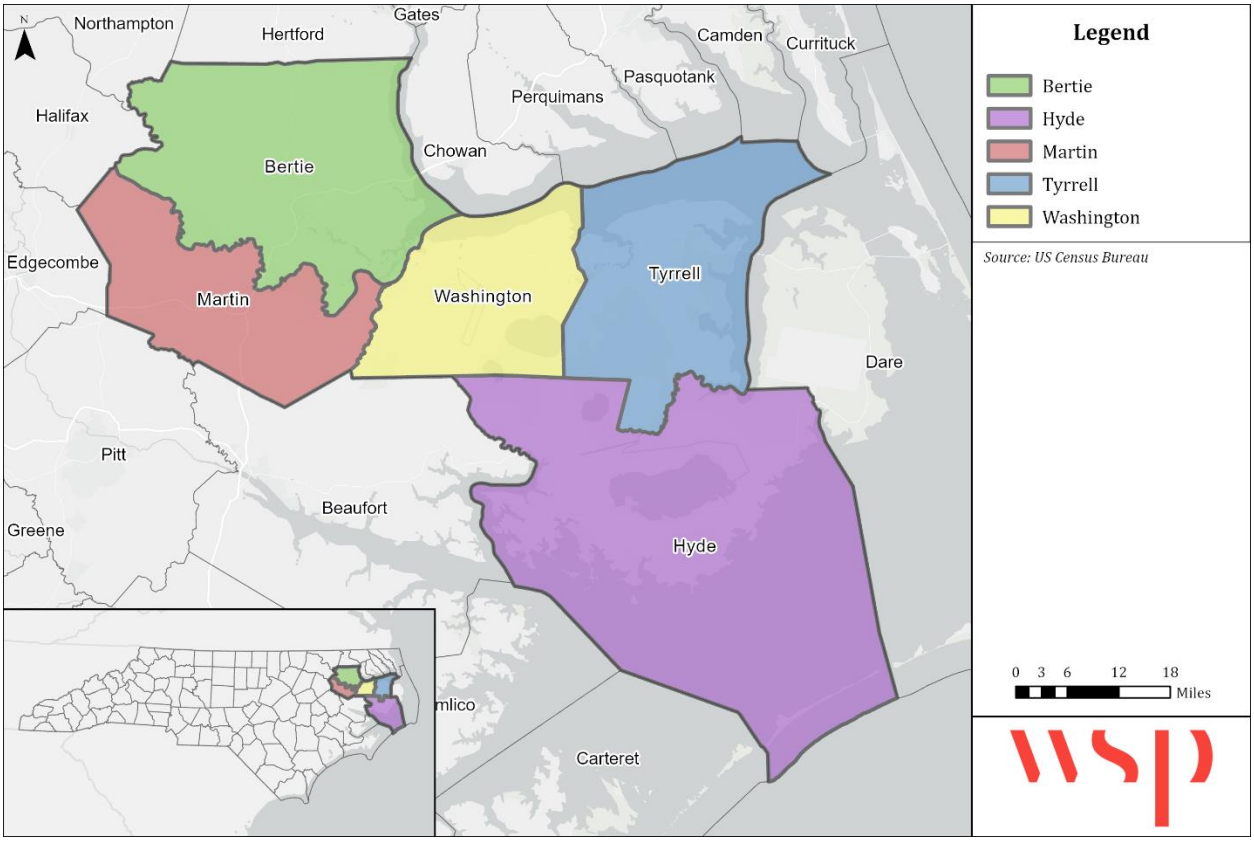
3.1 Geography and Environment
3.2 Population and Demographics
3.3 Historic Properties
3.4 Housing
3.5 Infrastructure
3.6 Current and Future Land Use
3.7 Employment and Industry

## 3.1 REGIONAL CHARACTERISTICS

Bertie, Hyde, Martin, Tyrrell, and Washington counties are located in the Coastal Plain region of eastern North Carolina. Washington County is flanked to the west by Martin County and to the east by Tyrrell County, with Bertie County to the north of Martin County and Hyde County to the south of Tyrrell County (see Figure 3-1). US Highway 64 traverses east to west through Martin, Washington, and Tyrrell counties with US Highway 264 traversing through Hyde County, and US Highway 17 travels north-south through Martin and Bertie counties, then to the east in Bertie County alone. US Highway 13 also travels north-south through Martin and Bertie counties. Other roadway transportation in the area includes NC Highways 12, 32, 34, 42, 45, 94, 99, 125, 142, 171, 305, 308, and 903. Railway transportation in the area is provided by the North Carolina and Virginia Railroad (Bertie County), CSX Railway (Martin County) and Carolina Coastal Railway (Washington County). General aviation airports in the area include Hyde County Airport in Engelhard, Ocracoke Island Airport in Ocracoke (Hyde County), Martin County Airport in Williamston, and Plymouth Municipal Airport in Plymouth (Washington County).

An abundance of water courses surround the area: the Albemarle Sound to the north of Washington and Tyrrell counties; the Alligator and Scuppernong Rivers in Tyrrell County; Intracoastal Waterway to Tyrrell's east; the Roanoke River to Washington's and Martin's north and Bertie's south and west; the Chowan River to the east of Bertie County; Phelps Lake and Pungo Lake in Washington County; Pamlico Sound to the southeast of Hyde County; and Alligator Lake and Lake Mattamuskeet occupying a large percentage of Hyde County's area. The area is also rich in wildlife refuges, with the Roanoke River National Wildlife Refuge in Bertie County and to the north of Martin County, the Mattamuskeet and Swan Quarter National Wildife Refuges in Hyde County, the Pocosin Lakes National Wildlife Refuge lying in Hyde, Washington and Tyrrell counties, and part of the Alligator River National Wildlife Refuge lying in Hyde and Tyrrell County as well. The area's countryside is enhanced by streams and brooks, natural lakes and ponds, and swampy woodlands.

**Figure 3-1 – Northeastern NC Region Location Map**




Source: U.S. Census Bureau

Table 3-1 provides the area in square miles for all jurisdictions participating in the Northeastern NC Regional Hazard Mitigation Plan Update.

**Table 3-1 – Northeastern NC Region Total Land Area**

| Jurisdiction | Total Land Area (Square Miles) |
|---|---|
| **Bertie County** | **741** |
| Askewville | 0.6 |
| Aulander | 1.5 |
| Colerain | 0.3 |
| Kelford | 0.5 |
| Lewiston-Woodville | 2.0 |
| Powellsville | 0.4 |
| Roxobel | 1.0 |
| Windsor | 2.8 |
| **Hyde County** | **612.3** |
| **Martin County** | **456.4** |
| Bear Grass | 0.3 |
| Everetts | 0.5 |
| Hamilton | 0.5 |
| Hassell | 0.3 |

| Jurisdiction | Total Land Area (Square Miles) |
|---|---|
| Jamesville | 1.4 |
| Oak City | 0.5 |
| Parmele | 1.2 |
| Robersonville | 1.2 |
| Williamston | 4.4 |
| **Tyrrell County** | **390.8** |
| Columbia | 1.2 |
| **Washington County** | **346.4** |
| Creswell | 0.6 |
| Plymouth | 4.0 |
| Roper | 0.9 |

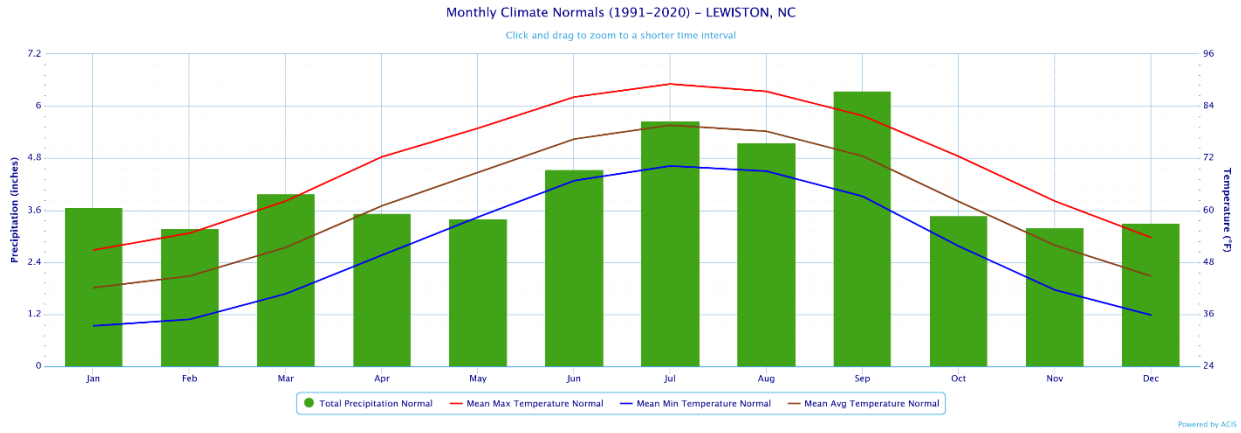
Source: U.S. Census Bureau

The Northeastern NC Region has cool, short winters and long, hot, and humid summers, with peak temperatures occurring in July and August. Afternoon thunderstorms are the main form of precipitation during the summer, with most summer precipitation occurring in July through September. Precipitation is generally adequate for all crops, and the region benefits by a lengthy growing season.

The average temperature in the Northeastern Region hovers around 60 – 61 degrees F. The mean annual maximum temperature is approximately 71 – 72 degrees F and the mean minimum temperature is approximately 48 – 51 degrees F. The highest mean maximum temperature occurs in July and is approximately 89 degrees. The lowest minimum temperature occurs in January and is approximately 29 – 33 degrees F. Rainfall is usually well distributed throughout the year, with an average annual precipitation of 49 – 54 inches. The average snowfall is around 0.6 inches.

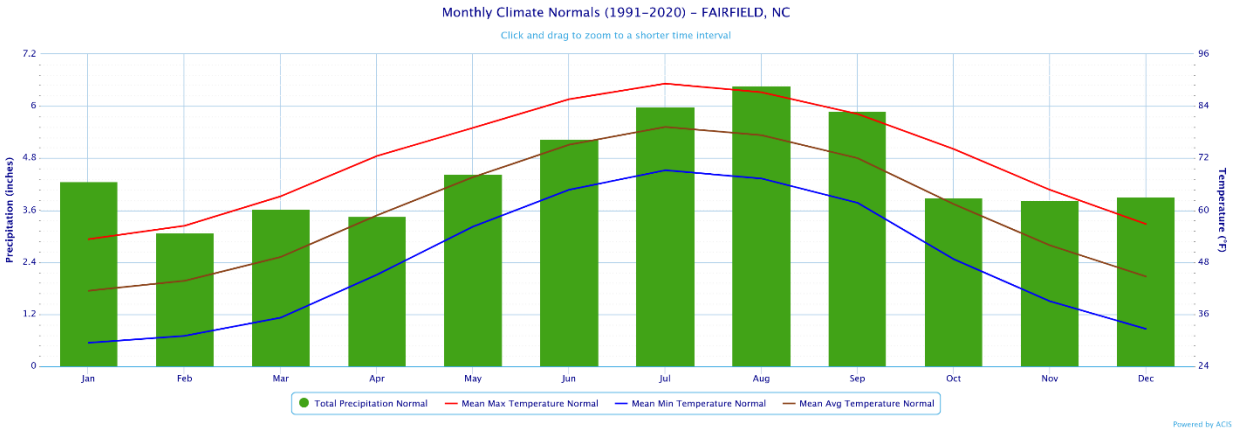
Figure 3-2 and Figure 3-3 show the average monthly temperature and precipitation for the Lewiston and Fairfield weather stations, respectively, which approximate temperature and precipitation for the region.

**Figure 3-2 – Average Monthly Climate Normals, Lewiston, NC**




Source: Northeast Climod 2

**Figure 3-3 – Average Monthly Climate Normals, Fairfield, NC**




Source: Northeast Climod 2

## *3.1.1 WETLANDS*

The benefits of wetlands are hard to overestimate. They provide critical habitat for many plant and animal species that could not survive in other habitats. They are also critical for water management as they absorb and store vast quantities of storm water, helping reduce floods and recharge aquifers. Not only do wetlands store water like sponges, they also filter and clean water as well, absorbing toxins and other pollutants. Table 3-2 provides a summary of wetland coverage within each County located in the Northeastern NC Region as reported by the U.S. Fish and Wildlife Service's National Wetlands Inventory.

**Table 3-2 – Northeastern NC Region, Wetlands Acreage**

| County | Wetland Acreage |
|---|---|
| Bertie County | 146,601.5 |
| Hyde County | 791,296.1 |
| Martin County | 72,408.2 |
| Tyrrell County | 293,297.8 |
| Washington County | 120,445.5 |
| **Total** | **1,424,049.1** |

Source: U.S. Fish & Wildlife Service, National Wetlands Inventory

**Figure 3-4 – Wetlands in Northeastern Region**

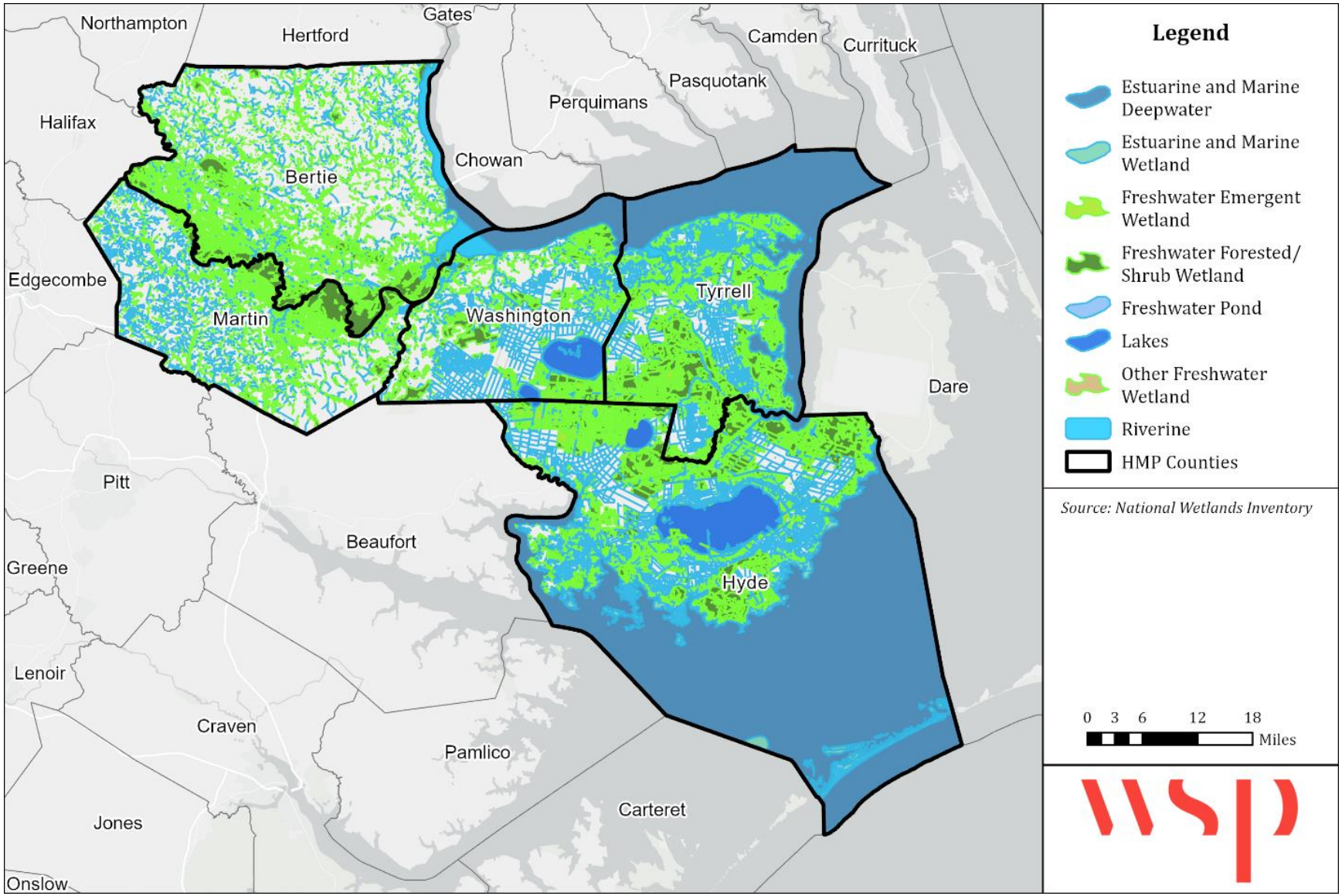
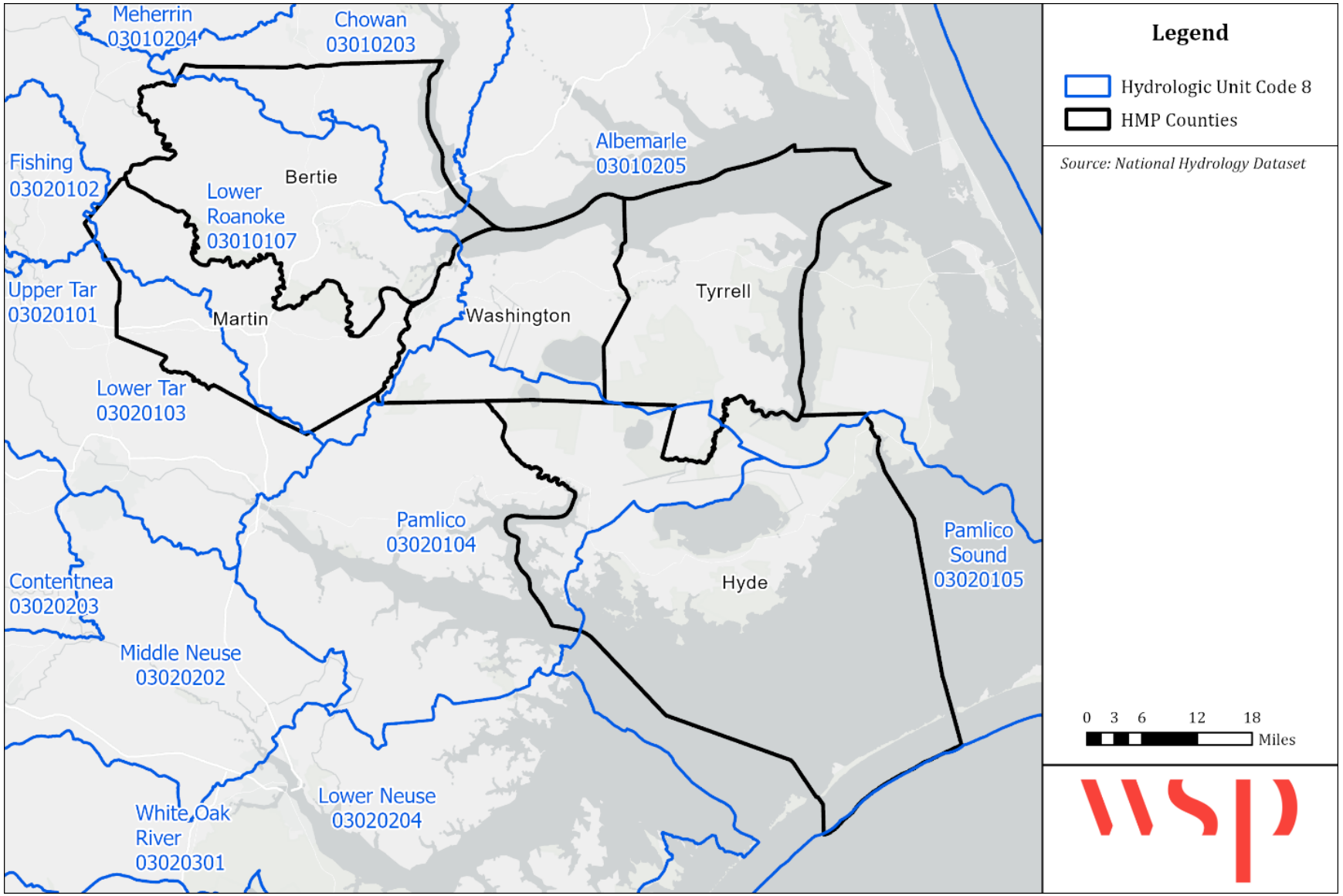


**Figure 3-5 – HUC-8 Drainage Basins**



### 3.1.2 PARKS, PRESERVE, AND CONSERVATION

The Northeastern Region is home to parks, preserves, and other natural areas. There are several state and federal natural areas in the region including Alligator River National Wildlife Refuge, Cape Hatteras National Seashore, Gull Rock Game Land, Mattamuskeet National Wildlife Refuge, Pocosin Lakes National Wildlife Refuge, Roanoke River National Wildlife Refuge, and Swanquarter National Wildlife Refuge.

**Table 3-3 – Parks and Natural Areas, Northeastern Region**

| County | Name |
|---|---|
| **Bertie** | Aulander Elementary School (under shared use agreement) |
| | Colerain Elementary School (under shared use agreement) |
| | Cashie River Campground/Treehouse Village |
| | Cashie Wetland Walk and Canoe Trail |
| | Davis Ball Park |
| | Livermon Park & Mini Zoo |
| | Roanoke/Cashie River Center & Boardwalk |
| | West Bertie Elementary School (under shared use agreement) |
| | Windsor Elementary School (under shared use agreement) |
| | Riverside Park (Rotary Club Park) |
| | Williford Park |
| | Cashie River Campground |
| | Cashie River Disk Golf Course |
| | Windsor Tennis Courts |
| | Windsor Craftsman & Farmers Museum |
| **Hyde** | Davis Youth Center/Engelhard Community Park |
| | Hyde County Health Department Facilities |
| | Matamuskeet School |
| | Ocracoke Community Park |
| | OA Peay School |
| | Ocracoke Community Center |
| | Ocracoke Lighthouse |
| | Pleasant Grove Community Garden |
| | Ponzer Community Center/Park |
| | Sladesville Baptist Church |
| | Swan Quarter Community Park |
| **Martin** | Devil's Gut Preserve |
| | Gaylord Perry Park |
| | Godwin-Coppage Park |
| | Hamilton Recreation Park |
| | Junior League Park |
| | Kehukee Park |
| | Maratoc Park |
| | Park Development (Oak City) |
| | Roanoke River (TNC/GP Partnership) |
| | Roanoke River Bottomlands |

| County | Name |
|---|---|
| | Robersonville Playfield |
| | Williamston Youth Park |
| | Moratoc Park |
| **Tyrrell** | Children's Park |
| | Kiddie Park |
| | Scuppernong River Boardwalk |
| **Washington** | Creswell Town Park |
| | Pea Ridge Park |
| | Washington County Recreation Center |
| | Wilson Street Park |

### *3.1.3 THREATENED AND ENDANGERED SPECIES*

The U.S. Fish and Wildlife Service maintains a regular listing of threatened species, endangered species, species of concern, and candidate species for counties across the United States. There are a range of species that are listed throughout the Northeastern NC Region. Table 3-4 provides the status of threatened or endangered species within each participating County.

**Table 3-4 – Northeastern Region Threated and Endangered Species**

| Group | Common Name | Scientific Name | Federal Status | Counties Identified |
|---|---|---|---|---|
| Amphibians | Neuse River waterdog | *Necturus lewisi* | Threatened | M |
| Birds | Black Rail | *Lateralllus jamaicensis* | Species of Concern | H |
| Birds | Eastern Black rail | *Laterallus jamaicensis ssp. jamaicensis* | Threatened | H |
| Birds | Piping Plover | *Chadarius melodus* | Threated | H |
| Birds | Red-cockaded woodpecker | *Dryobates borealis* | Threatened | B, M, W |
| Birds | Roseate tern | *Sterna dougallii dougallii* | Endangered | H |
| Birds | Rufa red knot | *Calidris canutus rufa* | Threatened | B, H, M, W |
| Clams | Yellow lance | *Elliptio lanceolata* | Threatened | M |
| Clams | Atlantic pigtoe | *Fusconaia masoni* | Threatened | M |
| Clams | Carolina madtom | *Noturus furiosus* | Endangered | M |
| Fishes | Shortnose sturgeon | *Acipenser brevirostrum* | Endangered | B, H, W |
| Flowering plants | Sensitive joint-vetch | *Aeschynomene virginica* | Threatened | H, M, W |
| Flowering plants | Rough-leaved loosestrife | *Lysimachia asperulaefolia* | Endangered | H, M, W |
| Flowering plants | Seabeach amaranth | *Amaranthus pumilus* | Threatened | H |
| Insects | Monarch butterfly | *Danaus plexippus* | Proposed Threatened | B, H, M, W |
| Mammals | Little brown bat | *Myotis lucifugus* | Under Review | B, H, M, W |
| Mammals | Northern Long-Eared Bat | *Myotis septentrionalis* | Endangered | B, H, M, W |
| Mammals | Red wolf | *Canis rufus* | Endangered | B, H, M, W |
| Mammals | Tricolored bat | *Perimyotis subflavus* | Proposed Endangered | B, H, M, W |
| Mammals | West Indian Manatee | *Trichechus manatus* | Threatened | B, H, M, W |
| Reptiles | American alligator | *Alligator mississippiensis* | Threatened | B, H, M, W |

| Group | Common Name | Scientific Name | Federal Status | Counties Identified |
|---|---|---|---|---|
| Reptiles | Green sea turtle | *Chelonia mydas* | Similarity of Appearance (Threatened) | H, M, W |
| Reptiles | Hawksbill sea turtle | *Eretmochelys imbricata* | Threatened | H |
| Reptiles | Hawksbill sea turtle | *Eretmochelys imbricata* | Endangered | H |
| Reptiles | Kemp's ridley sea turtle | *Lepidochelys kempii* | Endangered | H, M, W |
| Reptiles | Leatherback sea turtle | *Dermochelys coriacea* | Endangered | H |
| Reptiles | Loggerhead sea turtle | *Caretta caretta* | Endangered | H |

Source: U.S. Fish & Wildlife Service

Note: B = Bertie, H = Hyde, M = Martin, T = Tyrrell, W = Washington

### *3.1.4 LAND COVER*

The National Oceanographic and Atmospheric Administration's (NOAA) Coastal Change Analysis Program (C-CAP) tracks land cover change for the coastal regions of the United States. Understanding how land cover has changed and is continuing to change is important information for any hazard mitigation planning effort. The information below is meant to serve as a general overview of how the counties within the Albemarle Region have changed overtime.

Table 3-5 shows the percent changes in land cover from one category to another during 1996 to 2021 for all counties located in the Northeast Region.

**Table 3-5 – Land Cover Change between 1996 and 2021, Northeast Region**

| County | Total % Area that Changed | % Net Increase of Developed Area | % Net Increase of Impervious Surface Area | % Net Decrease of Forested Area | % Net Decrease of Total Wetlands |
|---|---|---|---|---|---|
| **Bertie** | 21.85% | 13.78% | 14.07% | -12.84% | -1.71% |
| **Hyde** | 5.05% | 6.71% | 8.99% | -12.9% | -0.15% |
| **Tyrrell** | 6.15% | 7.53% | 9.76% | -11.51% | -0.23% |
| **Washington** | 13.02% | 16.83% | 16.11% | -22.47% | -1.15% |

Source: NOAA C-CAP Atlas

## 3.2 POPULATION AND DEMOGRAPHICS

Participating jurisdictions in the Northeastern Region have experienced moderate population decline over the last several decades. From 2010 to 2023, the Region's total population declined by 15.9 percent. During this period, every county in the Northeastern Region lost population overall; however, some jurisdictions such as Bear Grass, Colerain, Roxobel, Oak City, and unincorporated Martin County experienced notable population growth. Overall, the Northeastern counties lost between approximately 11.1% (Martin County) and 23.4% (Tyrrell County) of their population.

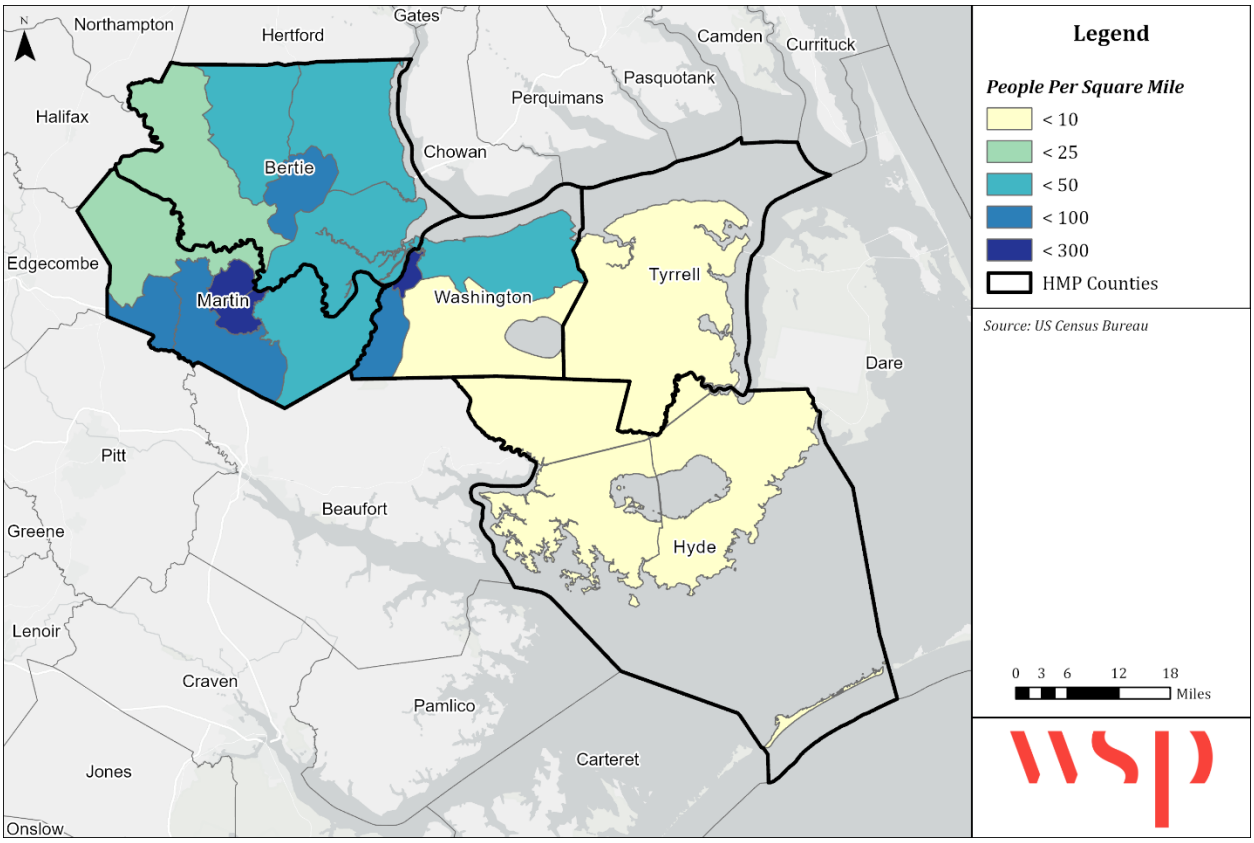
Table 3-6 provides population counts from 2000, 2010, and 2023 for each participating jurisdiction. **Error! Reference source not found.** on the following page shows 2023 population density by census t ract in persons per square mile.

### Table 3-6 – Northeastern Region Population Counts

| Jurisdiction | 2000 Census Population | 2010 Census Population | 2023 ACS Population Estimate | Total Change 2010-2023 | % Change 2010-2023 |
|---|---|---|---|---|---|
| **Bertie County** | | | | | |
| Unincorporated Bertie County | 14,821 | 14,996 | 11,675 | -3,321 | -22.1% |
| Askewville | 180 | 241 | 152 | -89 | -36.9% |
| Aulander | 888 | 895 | 748 | -147 | -16.4% |
| Colerain | 221 | 204 | 291 | 87 | 42.6% |
| Kelford | 245 | 251 | 245 | -6 | -2.4% |
| Lewiston-Woodville | 613 | 549 | 466 | -83 | -15.1% |
| Powellsville | 259 | 276 | 141 | -135 | -48.9% |
| Roxobel | 263 | 240 | 347 | 107 | 44.6% |
| Windsor | 2,283 | 3,630 | 3,417 | -213 | -5.9% |
| Subtotal Bertie County | **19,773** | **21,282** | **17,482** | **-3,800** | **-17.9%** |
| **Hyde County** | **5,826** | **5,810** | **4,625** | **-1,185** | **-20.4%** |
| **Martin County** | | | | | |
| Unincorporated Martin County | 16,068 | 15,691 | 18,837 | 3,146 | 20.0% |
| Bear Grass | 53 | 73 | 94 | 21 | 28.8% |
| Everetts | 179 | 164 | 158 | -6 | -3.7% |
| Hamilton | 516 | 408 | 183 | -225 | -55.1% |
| Hassell | 72 | 84 | 49 | -35 | -41.7% |
| Jamesville | 502 | 491 | 373 | -118 | -24.0% |
| Oak City | 339 | 317 | 472 | 155 | 48.9% |
| Parmele | 290 | 278 | 288 | 10 | 3.6% |
| Robersonville | 1,731 | 1,488 | 1,319 | -169 | -11.4% |
| Subtotal Martin County | **25,593** | **24,505** | **21,773** | **-2,732** | **-11.1%** |
| **Tyrrell County** | | | | | |
| Unincorporated Tyrrell County | 3,338 | 3,516 | 2,702 | -814 | -23.2% |
| Columbia | 819 | 891 | 674 | -217 | -24.4% |
| Subtotal Tyrrell County | **4,149** | **4,407** | **3,376** | **-1,031** | **-23.4%** |
| **Washington County** | | | | | |
| Unincorporated Washington County | 8,725 | 8,463 | 6,850 | -1,613 | -19.1% |
| Creswell | 278 | 276 | 205 | -71 | -25.7% |
| Plymouth | 4,107 | 3,878 | 3,264 | -614 | -15.8% |
| Roper | 613 | 611 | 586 | -25 | -4.1% |
| Subtotal Washington County | **13,723** | **13,228** | **10,905** | **-2,323** | **-17.6%** |
| Total | **69,064** | **69,232** | **58,161** | **-11,071** | **-15.9%** |

Source: U.S. Census Bureau, 2023 ACS 5-Year Estimates

**Table 3-7 – Population Density, Northeastern Region**




According to the 2023 American Community Survey 5-Year Estimates, the median age in the Northeastern Region, ranging from 45.9 in Bertie County to 49.3 in Washington County, is older than the median age of the State of North Carolina (39.4) and the U.S. (39.2). Of the population aged 25 years and older, 83.4% of the population 25 years and older has a high school degree or higher and 15.3% of the population has a bachelor's degree or higher, which is significantly lower than the state average of 36.8%. Approximately, 1.5% of the population speaks English less than very well. This information is further detailed by county in Table 3-8. The racial characteristics of the participating jurisdictions are presented in Table 3-9. The population is almost evenly split between black (46.6%) and white (46.6%) residents.

**Table 3-8 – Northeastern Region Demographic Summary, 2023**

| | Bertie | Hyde | Martin | Tyrrell | Washington |
|---|---|---|---|---|---|
| Median Age | 45.9 | 48.5 | 46.7 | 46.0 | 49.3 |
| **Educational Attainment** | | | | | |
| High school graduate or higher[1] | 82.0% | 86.8% | 83.3% | 80.5% | 85.6% |
| Bachelor's degree or higher[1] | 17.8% | 13.7% | 15.1% | 14.7% | 12.2% |
| **Language Spoken at Home** | | | | | |
| Speak language other than English | 3.5% | 4.6% | 3.8% | 11.3% | 0.6% |
| Speak English less than "very well"[2] | 1.7% | 2.6% | 2.5% | 5.3% | 0.1% |

Source: U.S. Census Bureau, American Community Survey 2019-2023 5-Year Estimates

[1]Of the population aged 25 and older; [2]Of the population that speaks a language other than English at home

**Table 3-9 – Racial Demographics of Northeastern Region, 2023**

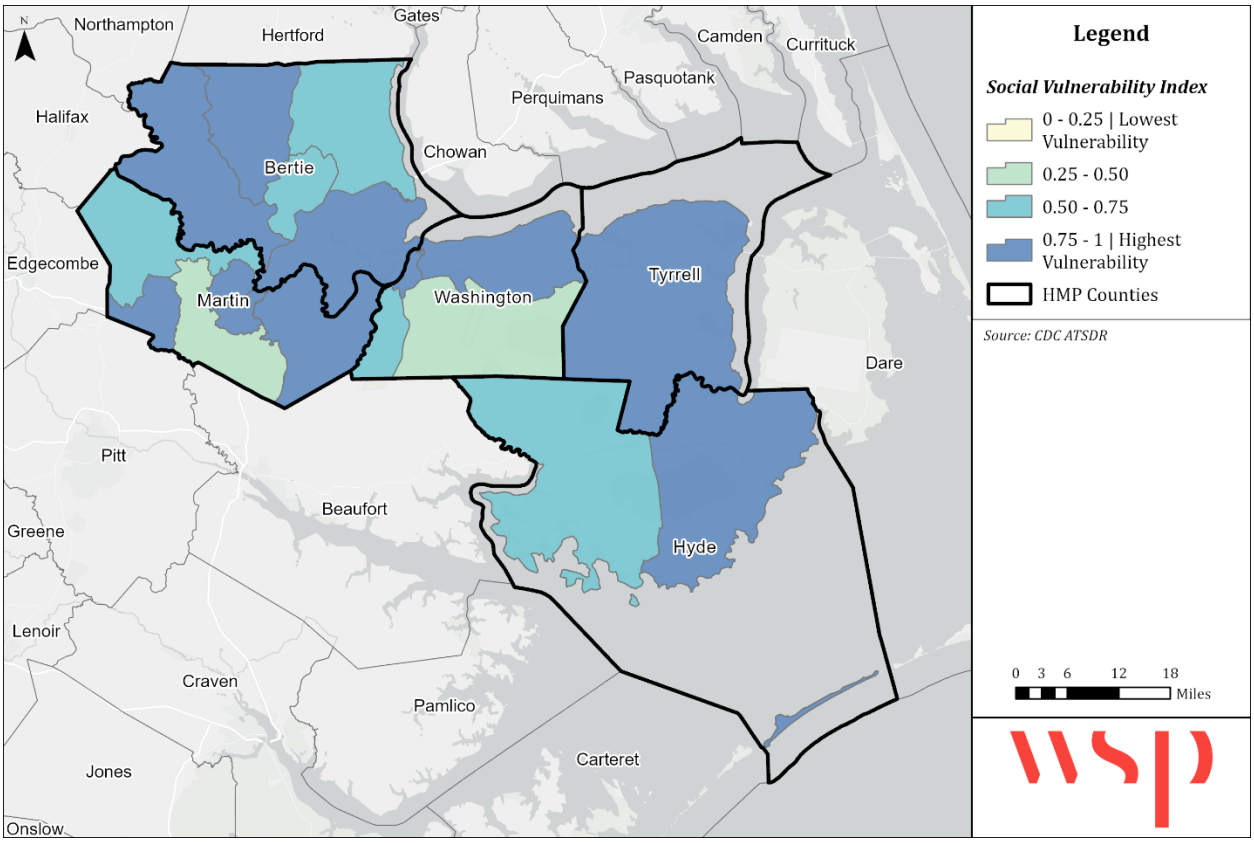
| Jurisdiction | White, % | Black, % | Asian, % | Other Race, % | Two or More Races, % | Persons of Hispanic or Latino Origin*, % |
|---|---|---|---|---|---|---|
| **Bertie County** | **34.7%** | **60.1%** | **0.8%** | **0.5%** | **2.8%** | **2.2%** |
| Askewville | 60.7% | 25.0% | 0.0% | 1.7% | 12.6% | 7.7% |
| Aulander | 36.5% | 60.7% | 0.0% | 1.7% | 1.1% | 1.7% |
| Colerain | 63.6% | 35.4% | 0.3% | 0.0% | 0.3% | 0.0% |
| Kelford | 8.2% | 81.2% | 0.0% | 4.1% | 6.5% | 8.2% |
| Lewiston-Woodville | 22.3% | 74.9% | 0.0% | 0.0% | 2.6% | 1.5% |
| Powellsville | 56.0% | 44.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Roxobel | 46.7% | 47.3% | 0.0% | 0.6% | 5.5% | 1.2% |
| **Hyde County** | **60.7%** | **25.0%** | **0.0%** | **1.7%** | **12.6%** | **7.7%** |
| **Martin County** | **51.6%** | **41.0%** | **0.6%** | **1.4%** | **5.2%** | **4.3%** |
| Bear Grass | 95.7% | 0% | 0% | 0% | 4.3% | 0% |
| Everetts | 75.3% | 15.2% | 0% | 0% | 8.9% | 8.9% |
| Hamilton | 27.3% | 70.5% | 0% | 2.2% | 0% | 0% |
| Hassell | 6.1% | 85.7% | 0% | 0% | 8.2% | 0% |
| Jamesville | 70.5% | 26.5% | 0% | 0% | 2.9% | 3.5% |
| Oak City | 27.3% | 71.2% | 0% | 1.5% | 0% | 2.1% |
| Parmele | 36.8% | 62.5% | 0% | 0% | 0.7% | 0% |
| Robersonville | **34.4%** | **62.9%** | **0%** | **0%** | **2.7%** | **0.6%** |
| **Tyrrell County** | **56.4%** | **32.7%** | **0.9%** | **5.8%** | **4.4%** | **10.0%** |
| Columbia | 40.1% | 29.8% | 0.0% | 22.3% | 7.9% | 32.6% |
| **Washington County** | **46.6%** | **49.6%** | **0.1%** | **0.2%** | **3.4%** | **3.9%** |
| Creswell | 25.9% | 74.1% | 0.0% | 0.0% | 0.0% | 0.0% |
| Plymouth | 29.7% | 69.7% | 0.3% | 0.2% | 0.1% | 0.4% |
| Roper | 27.1% | 66.0% | 0.0% | 0.0% | 6.8% | 26.1% |

Source: U.S. Census Bureau, American Community Survey 2019-2023 5-Year Estimates

*Persons of Hispanic origin may be of any race, so also included in applicable race categories

Figure 3-6 displays social vulnerability information for the Northeastern Region by census tract according to 2023 data and analysis by the Centers for Disease Control and Prevention (CDC). The CDC's Social Vulnerability Index (SVI) indicates the relative vulnerability within census tracts based on 15 social factors: poverty, unemployment, income, education, age, disability, household composition, minority status, language, housing type, and transportation access. Higher social vulnerability is an indicator that a community may be limited in its ability to respond to and recover from hazard events. Therefore, using this SVI information can help the Region and jurisdictions to prioritize pre-disaster aid, allocate emergency preparedness and response resources, and plan for the provision of recovery support.

**Figure 3-6 – Social Vulnerability by Census Tract, Northeastern Region**




Source: Centers for Disease Control and Prevention (CDC) / Agency for Toxic Substances and Disease Registry (ATSDR) / Geospatial Research, Analysis, and Services Program (GRASP).

## 3.3 HISTORIC PROPERTIES

As of July 16, 2025, Bertie County had 25 listings on the National Register of Historic Places; Hyde County had 11; Martin County had 29; Tyrell County had 3; and Washington County had 10. These properties are detailed in Table 3-10.

**Table 3-10 – National Register of Historic Places in the Northeastern Region**

| Reference # | Property Name | Listed Date | Category | City |
|---|---|---|---|---|
| **Bertie County** | | | | |
| 03000268 | Ashland | 4/18/2003 | Building | Ashland |
| 79001662 | Bertie County Courthouse | 5/10/1979 | Building | Windsor |
| 04000647 | Bertie Memorial Hospital | 6/22/2004 | Building | Windsor |
| 100002797 | Broad Creek Block Ships | 8/24/2018 | Structure | Plymouth |
| 100004797 | Colerain Historic District | 4/3/2020 | District | Colerain |
| 02001710 | Elmwood | 1/15/2003 | Building | Merry Hill |
| 82003431 | Elmwood | 6/8/1982 | Building | Windsor |
| 82003432 | Freeman Hotel | 9/9/1982 | Building | Windsor |
| 82003425 | Garrett-White House | 6/28/1982 | Building | Colerain |
| 82003427 | The Hermitage | 6/8/1982 | Building | Merry Hill |

| Reference # | Property Name | Listed Date | Category | City |
|---|---|---|---|---|
| 70000441 | Hope Plantation | 4/17/1970 | Building | Windsor |
| 71000569 | Jordan House | 8/26/1971 | Building | Windsor |
| 71000570 | King House | 8/26/1971 | Building | Windsor |
| 82001280 | King-Freeman-Speight House | 12/2/1982 | Building | Republican |
| 12000213 | Lee, William H., House | 4/16/2012 | Building | Lewiston |
| 82003433 | Liberty Hall | 6/8/1982 | Building | Windsor |
| 82003429 | Oaklana | 4/15/1982 | Building | Roxobel |
| 82003430 | Pineview | 6/28/1982 | Building | Roxobel |
| 86001955 | Rhodes Site (31BR90) | 8/28/1986 | Site | Hamilton |
| 82003434 | Rosefield | 8/26/1982 | Building | Windsor |
| 82003428 | Scotch Hall | 4/29/1982 | Building | Merry Hill |
| 82003426 | St. Frances Methodist Church | 4/29/1982 | Building | Lewiston |
| 86003146 | Windsor Historic District | 7/29/1991 | District | Windsor |
| 71000568 | Woodbourne | 8/26/1971 | Building | Roxobel |
| 98001112 | Woodville Historic District | 8/28/1998 | District | Lewiston-Woodville |
| **Hyde County** | | | | |
| 85001670 | Credle, George V., House and Cemetery | 7/29/1985 | District | Rose Bay |
| 100008848 | Davis School | 4/21/2023 | Building | Engelhard |
| 85001448 | Fairfield Historic District | 7/5/1985 | District | Fairfield |
| 79001726 | Hyde County Courthouse | 5/10/1979 | Building | Swan Quarter |
| 78001960 | Inkwell | 9/1/1978 | Building | Lake Landing |
| 86000786 | Lake Landing Historic District | 3/10/1986 | District | Lake Landing |
| 80002849 | Lake Mattamuskeet Pump Station | 5/28/1980 | Structure | Swanquarter |
| 90001465 | Ocracoke Historic District | 9/28/1990 | District | Ocracoke |
| 77000110 | Ocracoke Light Station | 11/25/1977 | Building | Ocracoke |
| 86001641 | Swindell, Albin B., House and Store | 8/14/1986 | Building | Swindell Fork |
| 77001002 | Wynne's Folly | 12/6/1977 | Building | Engelhard |
| **Martin County** | | | | |
| 05000352 | Bear Grass Primitive Baptist Church | 4/28/2005 | Building | Bear Grass |
| 05000515 | Bear Grass School | 6/1/2005 | District | Bear Grass |
| 79003335 | Biggs, Asa, House and Site | 10/10/1979 | Building | Williamston |
| 78001962 | Burras House | 3/30/1978 | Building | Jamesville |
| 98000230 | Conoho Creek Historic District | 3/12/1998 | District | Hassell |
| 75001280 | Darden Hotel | 12/30/1975 | Building | Hamilton |
| 05000351 | Everetts Christian Church | 4/28/2005 | Building | Everetts |
| 14000988 | Everetts Historic District | 12/2/2014 | District | Everetts |
| 05000353 | First Christian Church | 4/28/2005 | Building | Robersonville |
| 73001358 | Fort Branch Site | 6/18/1973 | Site | Hamilton |
| 01001134 | Griffin, W.W., Farm | 10/20/2001 | Building | Williamston |
| 80002884 | Hamilton Historic District | 6/3/1980 | District | Hamilton |
| 84000546 | Hickory Hill | 12/20/1984 | Building | Hamilton |
| 84000556 | Jamesville Primitive Baptist Church and Cemetery | 12/20/1984 | Building | Jamesville |
| 82003485 | Jones, Jesse Fuller, House | 4/29/1982 | Building | Spring Green |
| 85002420 | Little, W. J., House | 9/19/1985 | Building | Robersonville |

| Reference # | Property Name | Listed Date | Category | City |
|---|---|---|---|---|
| 79001733 | Martin County Courthouse | 5/10/1979 | Building | Williamston |
| 05000354 | Oak City Christian Church | 4/28/2005 | Building | Oak City |
| 10000602 | Roberson-Everett-Roebuck House | 8/30/2010 | Building | Robersonville |
| 05000322 | Robersonville Primitive Baptist Church | 4/20/2005 | Building | Robersonville |
| 84000552 | Sherrod Farm | 12/20/1984 | Building | Hamilton |
| 05000355 | Skewarkey Primitive Baptist Church | 4/28/2005 | Building | Williamston |
| 05000324 | Smithwick's Creek Primitive Baptist Church | 4/20/2005 | Building | Farm Life |
| 05000323 | Spring Green Primitive Baptist Church | 4/20/2005 | Building | Hamilton |
| 95001396 | Sunny Side Inn | 11/29/1995 | Building | Williamston |
| 100002049 | West Martin School | 1/26/2018 | Building | Oak City |
| 14000445 | Williamston Colored School | 7/25/2014 | Building | Williamson |
| 95000174 | Williamston Commercial Historic District | 3/9/1995 | District | Williamston |
| 01001095 | Williamston Historic District | 10/12/2001 | District | Williamston |
| **Tyrrell County** | | | | |
| 94000219 | Columbia Historic District | 3/17/1994 | District | Columbia |
| 92000078 | Scuppernong River Bridge | 3/5/1992 | Structure | Columbia |
| 79001756 | Tyrrell County Courthouse | 5/10/1979 | Building | Columbia |
| **Washington County** | | | | |
| 78001983 | Belgrade and St. David's Church | 1/26/1978 | Building | Creswell |
| 02001112 | Creswell Historic District | 10/10/2002 | District | Creswell |
| 07000932 | Davenport House | 9/5/2007 | Building | Creswell |
| 01000047 | Garrett's Island House | 2/2/2001 | Building | Plymouth |
| 76001348 | Latham House | 12/12/1976 | Building | Plymouth |
| 85000905 | Perry-Spruill House | 4/25/1985 | Building | Plymouth |
| 90002140 | Plymouth Historic District | 1/16/1991 | District | Plymouth |
| 76001349 | Rehoboth Methodist Church | 5/13/1976 | Building | Skinnersville |
| 70000481 | Somerset Place State Historic Site | 2/26/1970 | Building | Creswell |
| 79001761 | Washington County Courthouse | 5/10/1979 | Building | Plymouth |

Source: National Parks Service, National Register of Historic Places, July 2025

## 3.4 HOUSING CHARACTERISTICS

According to the 2018-2022 ACS 5-Year Estimates, there are approximately 33,492 housing units in the Northeastern Region, of which approximately 79.1% are occupied. Approximately 28.9% of occupied units are renter-occupied. A high percentage of renters is an indicator of higher pre- and post-disaster vulnerability because, according to Cutter, et al. (2003), renters often do not have the financial resources of homeowners, are more transient, are less likely to have information about or access to recovery aid following a disaster and are more likely to require temporary shelter following a disaster.

68 percent of housing units in the Northeastern Region are detached single family homes, and approximately 25 percent are mobile homes, which can be more vulnerable to certain hazards, such as tornadoes and wind storm, especially if they aren't secured with tie downs.

Approximately 54% of all housing units in the region were built prior to 1980. Age can indicate the potential vulnerability of a structure to certain hazards. Counties that participate in the NFIP entered the NFIP between 1985 and 1991, and many of their communities entered in the 2000s. Around 68% of

housing was built prior to 1990. Based on these numbers it can be assumed that greater than half of Northeastern Region's housing was built before any floodplain development restrictions were required.

**Figure 3-7 – Housing Characteristics, Northeastern Region, 2010 and 2023**

| Jurisdiction | Housing Units (2010) | Housing Units (2023) | Housing Units % Change (2010-2023) | Owner-Occupied, % (2023) | Vacant Units, % (2023) | Median Home Value (2023) |
|---|---|---|---|---|---|---|
| **Bertie County** | **9,882** | **8,988** | **-9.1%** | **74.5%** | **21.9%** | **$95,800** |
| Askewville | 108 | 97 | -10.2% | 74.3% | 9.2% | $150,000 |
| Aulander | 450 | 419 | -6.9% | 61.2% | 9.5% | $87,600 |
| Colerain | 120 | 135 | 12.5% | 73.2% | 17.0% | $155,800 |
| Kelford | 130 | 168 | 29.2% | 81.9% | 16.7% | $72,900 |
| Lewiston-Woodville | 262 | 215 | -17.9% | 86.6% | 15.3% | - |
| Powellsville | 150 | 118 | -21.3% | 91.8% | 28.0% | $120,800 |
| Roxobel | 128 | 136 | 6.3% | 76.8% | 8.1% | $98,900 |
| Windsor | 1,193 | 1,030 | -13.7% | 58.4% | 16.6% | $111,400 |
| **Hyde County** | **3,347** | **3,168** | **-5.4%** | **71.5%** | **33.2%** | **$119,600** |
| **Martin County** | **11,704** | **11,100** | **-5.2%** | **68.5%** | **15.7%** | **$109,000** |
| Bear Grass | 40 | 39 | -2.5% | 76.9% | 0% | $98,200 |
| Everetts | 88 | 58 | -34.1% | 42.6% | 6.9% | - |
| Hamilton | 224 | 151 | -32.6% | 86.0% | 38.4% | $75,000 |
| Hassell | 40 | 36 | -10.0% | 0% | 25% | - |
| Jamesville | 256 | 280 | 9.4% | 71.8% | 5.8% | $94,800 |
| Oak City | 188 | 250 | 33.0% | 42.9% | 23.6% | $87,400 |
| Parmele | 145 | 165 | 13.8% | 81.6% | 17.6% | $81,900 |
| Robersonville | 799 | 819 | 2.5% | 58.2% | 22.2% | $85,900 |
| **Tyrrell County** | **2,068** | **2,004** | **-3.1%** | **78.6%** | **28.8%** | **$138,400** |
| Columbia | 433 | 455 | 5.1% | 41.5% | 36.9% | $120,700 |
| **Washington County** | **6,491** | **6,045** | **-6.9%** | **68.7%** | **20.1%** | **$107,000** |
| Creswell | 133 | 116 | -12.8% | 42/9% | 21.6% | $119,600 |
| Plymouth | 1,856 | 1,968 | 6.0% | 47.9% | 24.2% | $83,900 |
| Roper | 318 | 378 | 18.9% | 43.9% | 24.1% | $72,100 |

Source: U.S. Census Bureau 2010 Decennial Census, American Community Survey 2019-2023 5-Year Estimates
Note: 1) Owner-Occupied reported as percent of occupied units; 2) vacant-unit reported as a percent of the total number of housing units.

# 3.5 INFRASTRUCTURE

## *3.5.1 TRANSPORTATION*

Due to the rural nature of the Northeastern Region, most of the transportation is car centric and depends on US-13, US-17, and US-64. Each county has access to a public or nonprofit demand response bus service. These services typically accommodate the elderly or people with disabilities and offer curb-to-curb transportation service. Due to the region's low-density, fixed route bus service is difficult.

### 3.5.2 UTILITIES

Electric power for the region is provided by various providers, including Dominion NC, Tideland Electric Membership Corp, and Roanoke Electric Cooperative. The Town of Windsor operates its own electric cooperative. Water is provided by individual counties. In the Northeastern Region, natural gas is provided by Piedmont Natural Gas.

## 3.6 CURRENT AND FUTURE LAND USE

A community's comprehensive plan and future land use map guide development decisions and indicate where growth can be expected to occur based on land suitability and the community's overall vision and priorities. This section summarizes current and future land use and growth and development trends in each participating jurisdiction.

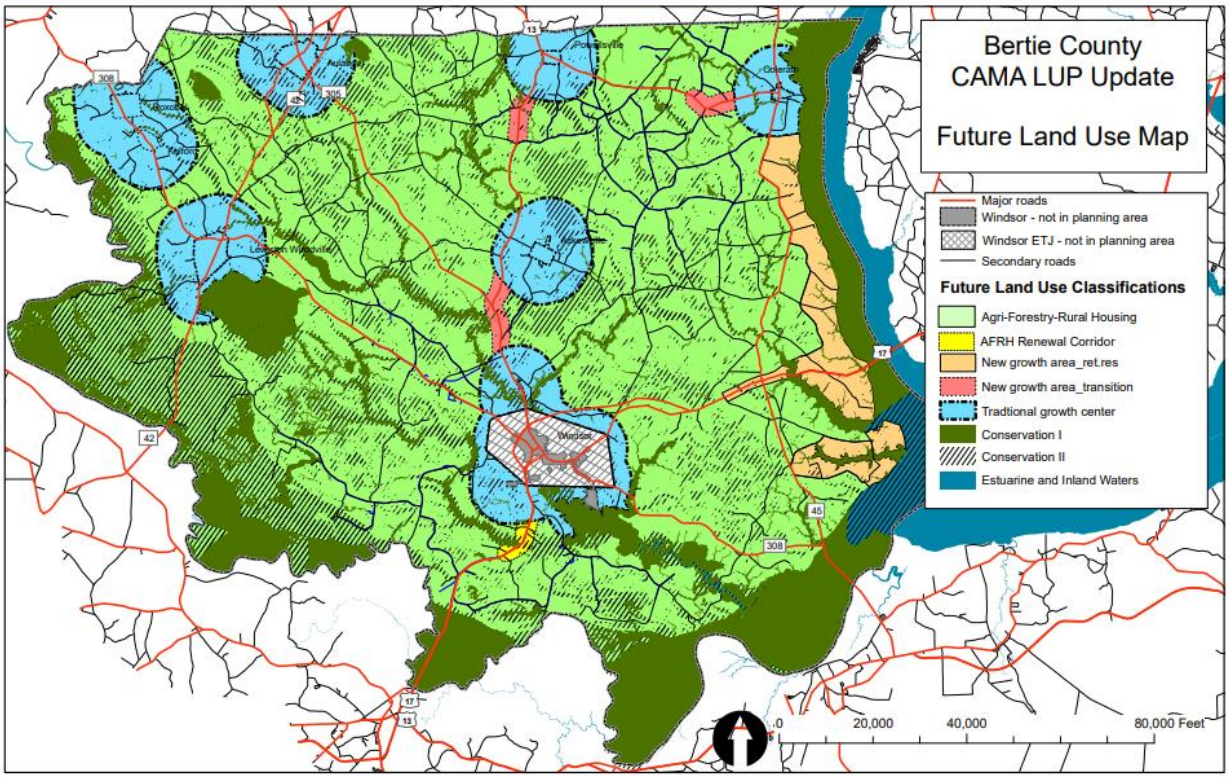
### BERTIE COUNTY

In Bertie County, land use, environment, and development regulations are the responsibility of the Bertie County Planning & Inspections Department. Bertie County adopted its most recent land use plan in 2016. The Towns of Roxobel, Kelford, Aulander, Powellsville, Colerain, Lewiston-Woodville, and Askewville fall under the purview of the Bertie County Land Use Plan. The remaining incorporated municipality, Winsor, prepares an individual land use plan.

#### FUTURE LAND USE

Bertie County's 2016 land use finds that the County and its towns have experienced little land development in recent years. Generally, limited residential and commercial development have occurred. During the planning process, participants identified several goals including satisfactory access for residents and visitors to the planning area's public trust waters, protection of natural areas, and land use and development patterns that mitigate risks to people and property from storms and flooding. Bertie County's future land use map reflects these goals and encourages conservation around the Chowain River as well as new development to offer water access.  Figure 3-8 shows future land use in Bertie County per its comprehensive plan.

**Figure 3-8 – Future Land Use, Bertie County**




Source: Bertie County CAMA Land Use Plan Update, 2016

### TOWN OF WINDSOR

The Town of Windsor oversees its own land use plan. The land use plan identifies actions including applying for public access funding to extend the riverwalk on Cashie River, adopting a riverfront zoning district, and pursuing building code enforcement against substandard structures. Additionally, the Town adopted a unified development ordinance in 2011 and amended it in 2020.

## *HYDE COUNTY*

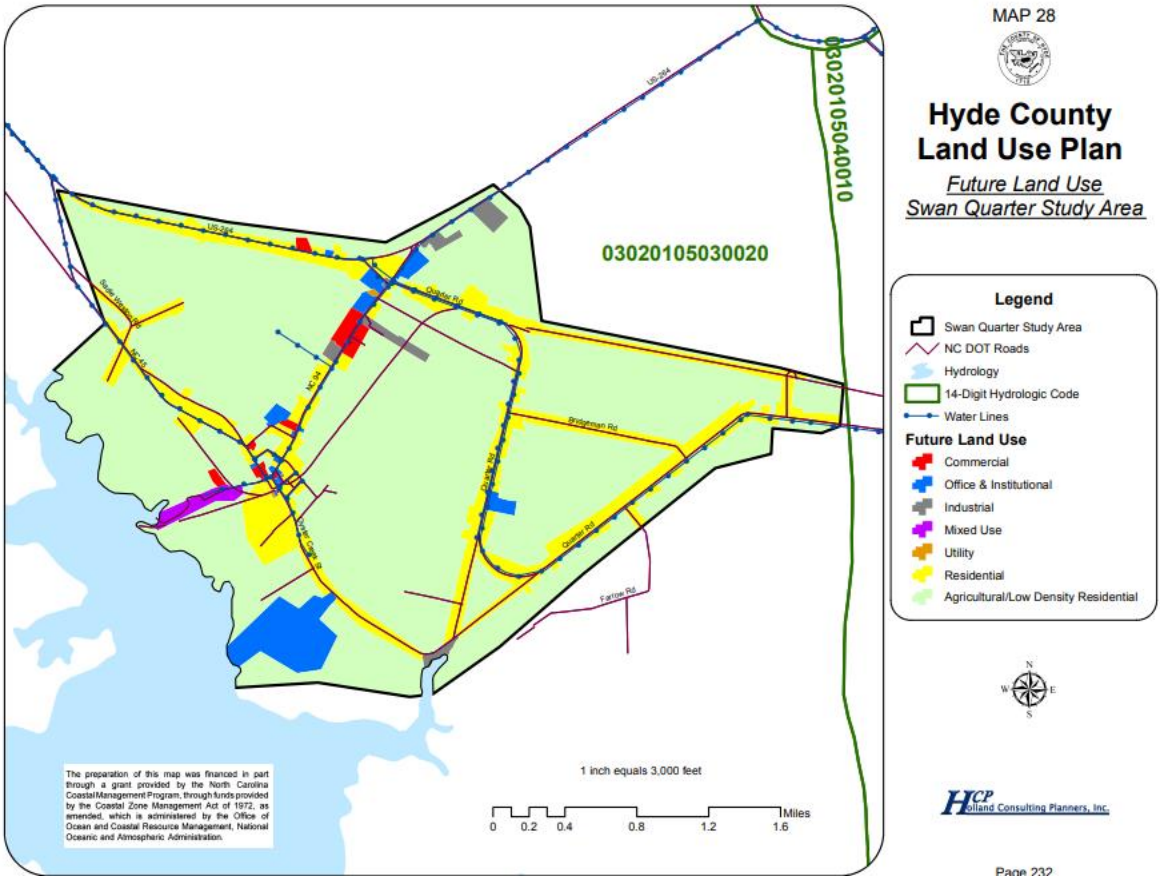
In Hyde County, land use, environment, and development regulations are the responsibility of the Hyde County Office of Planning & Economic Development. Hyde County adopted its most recent land use plan in 2008. In 2011, Hyde County established a Planning Advisory Board for Ocracoke and adopted an Ocracoke Development Ordinance to regulate development on the island, enabling development appropriate to the unique context of Ocracoke which differs significantly from mainland Hyde County. Hyde County is in the process of updating the CAMA Land Use Plan; this update is expected to be completed in 2026.

### FUTURE LAND USE

Hyde County's 2008 Land Use Plan creates two separate visions for mainland Hyde County and Ocracoke Island. The first vision, for Hyde County Mainland, focuses on encouraging sustainable economic growth and attracting new industrial and commercial development. The vision for Ocracoke Island seeks to maintain the island's historic assets and traditional occupations while increasing locally-owned businesses and providing affordable housing.

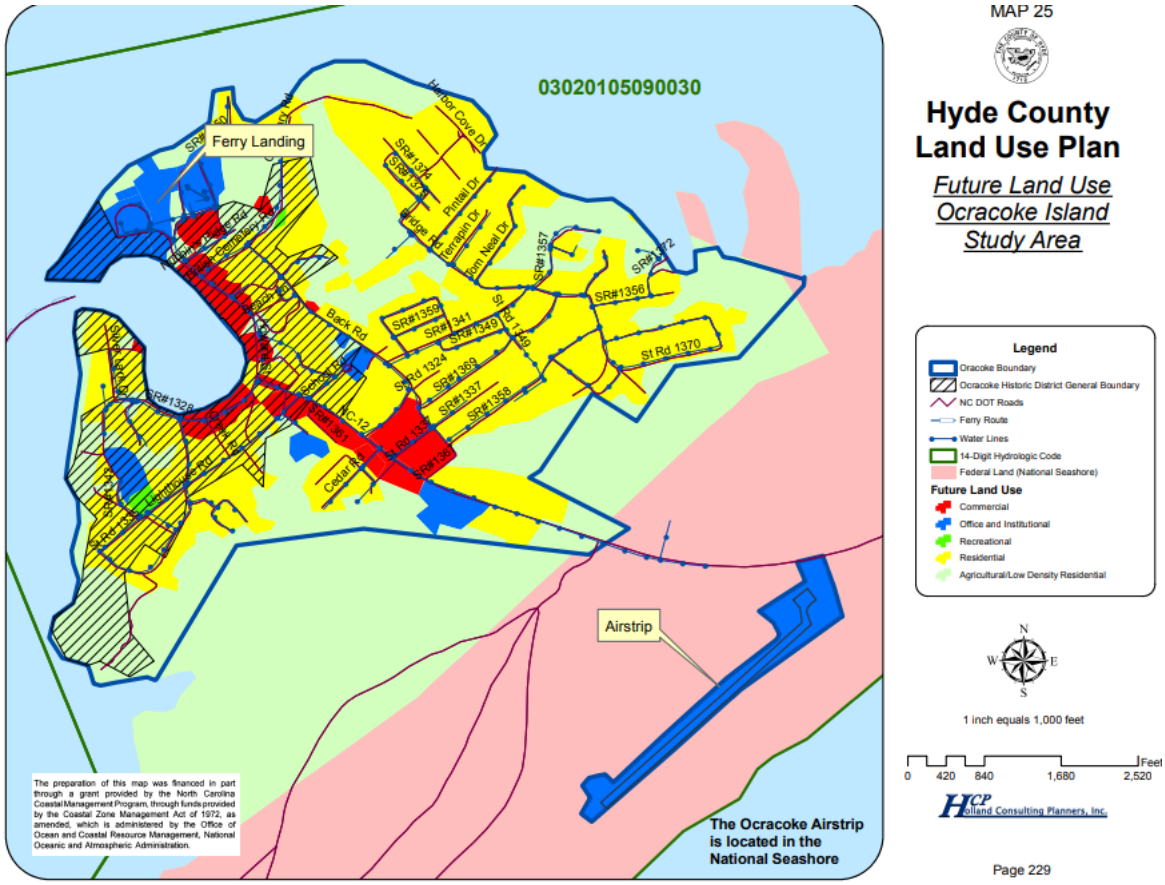
The Hyde County Land Use Plan includes study areas, which represent areas potentially suitable for development in the primarily rural county. Figure 3-9 provides the future land use designations for the Swan Quarter Study Area, and Figure 3-10 provides designations for the Ocracoke Island study area.

**Figure 3-9 - Future Land Use Map, Swan Quarter Study Area**




Source: Hyde County CAMA Land Use Plan, 2008

**Figure 3-10 – Future Land Use Map, Ocracoke Island Study Area**




Source: Hyde County CAMA Land Use Plan, 2008

## *MARTIN COUNTY*

The Martin County Inspections Department provides building inspections and permitting services for all of Martin County including its incorporated municipalities. Martin County adopted its most recent comprehensive plan in 2013. The land use plan includes the municipalities of Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, and Robersonville.

### FUTURE LAND USE

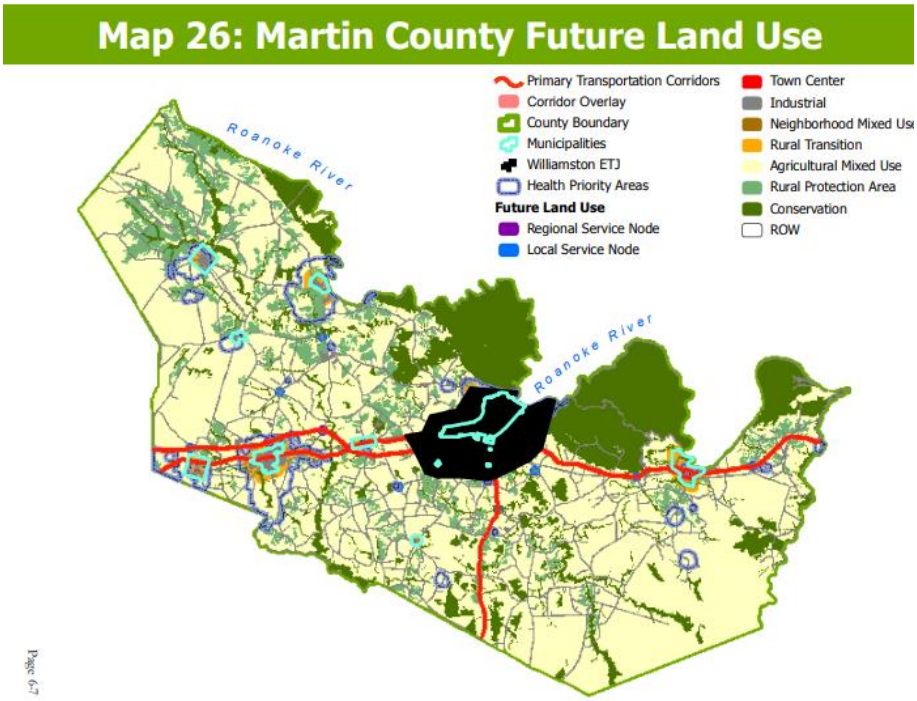
Martin County identifies the following future land use categories:

- Regional Service Node: intends to service a regional market area and include a variety of retail sales and services, public and private administrations, etc.
- Local Service Node: represents intensive, defined concentrations of mixed services.
- Industrial: intends to be segregated from other uses where feasible.
- Town Center: provides for a mix of uses associated with traditional core of municipalities in Martin County
- Neighborhood Mixed Use: encourages a mix of uses associated with an urban development pattern
- Rural Transition: maintains rural character while allowing for clusters of development with conservation design.
- Agricultural Mixed Use: preserves agricultural use.

— Rural Protection Area: protects lands with prime farmland soils.
— Conservation: intends for area to remain in natural state and protects sensitive natural features.

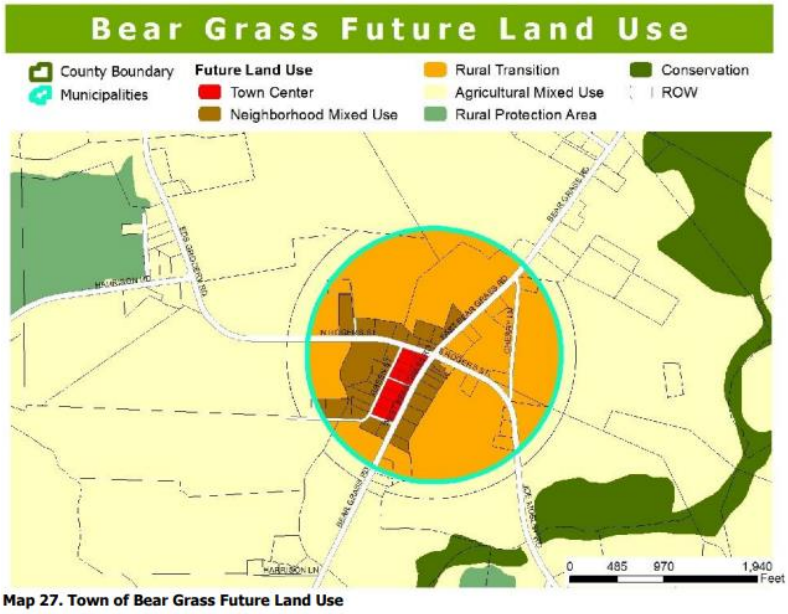
Figure 3-11 through Figure 3-19 show future land use maps for Martin County and several of its municipalities.

**Figure 3-11 – Martin County Future Land Use Map**



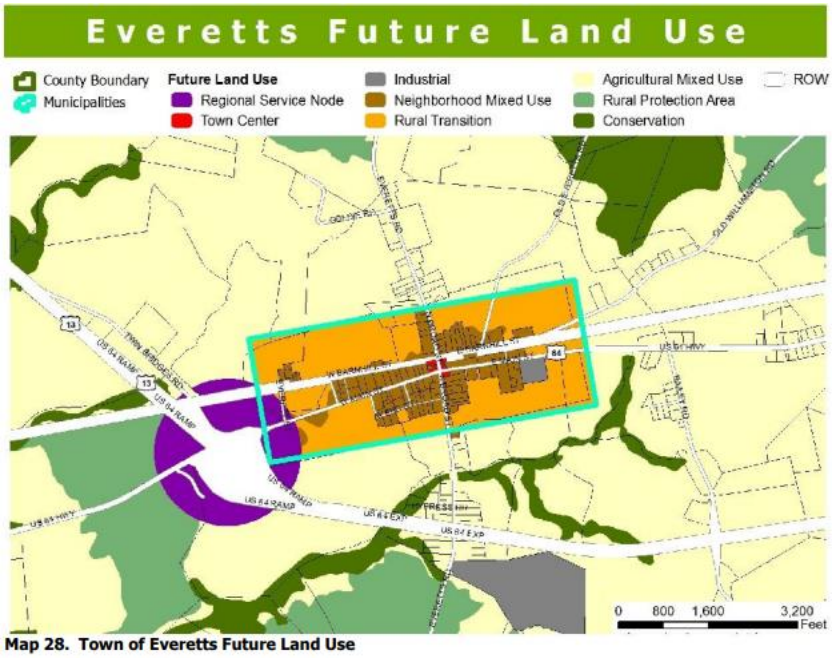

Source: Martin County Comprehensive Plan with a Health & Wellness Component, 2013

**Figure 3-12 – Bear Grass Future Land Use Map**



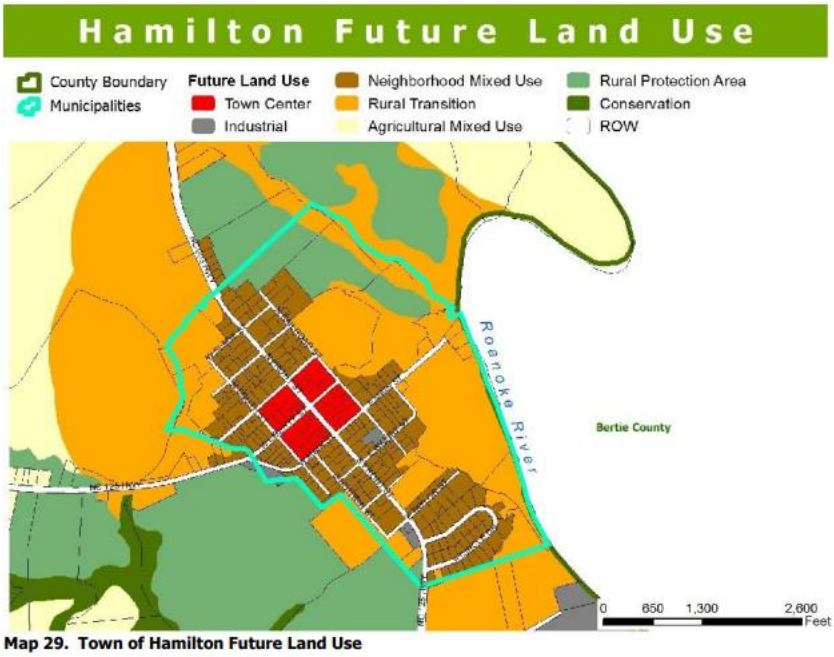

**Map 27. Town of Bear Grass Future Land Use**

## Figure 3-13 – Everetts Future Land Use Map



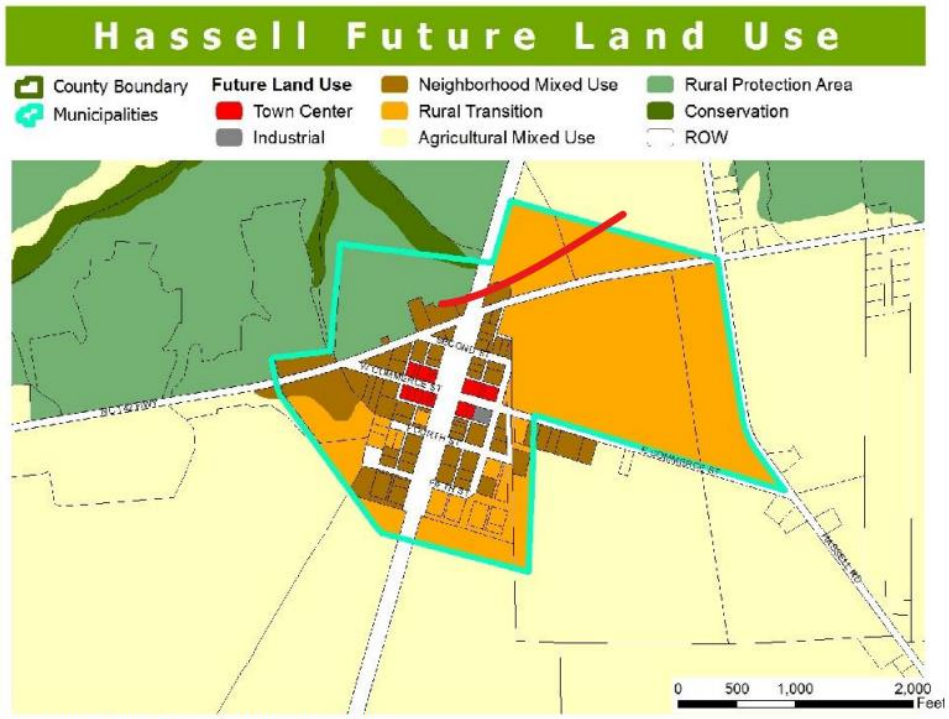

**Map 28. Town of Everetts Future Land Use**

## Figure 3-14 – Hamilton Future Land Use Map



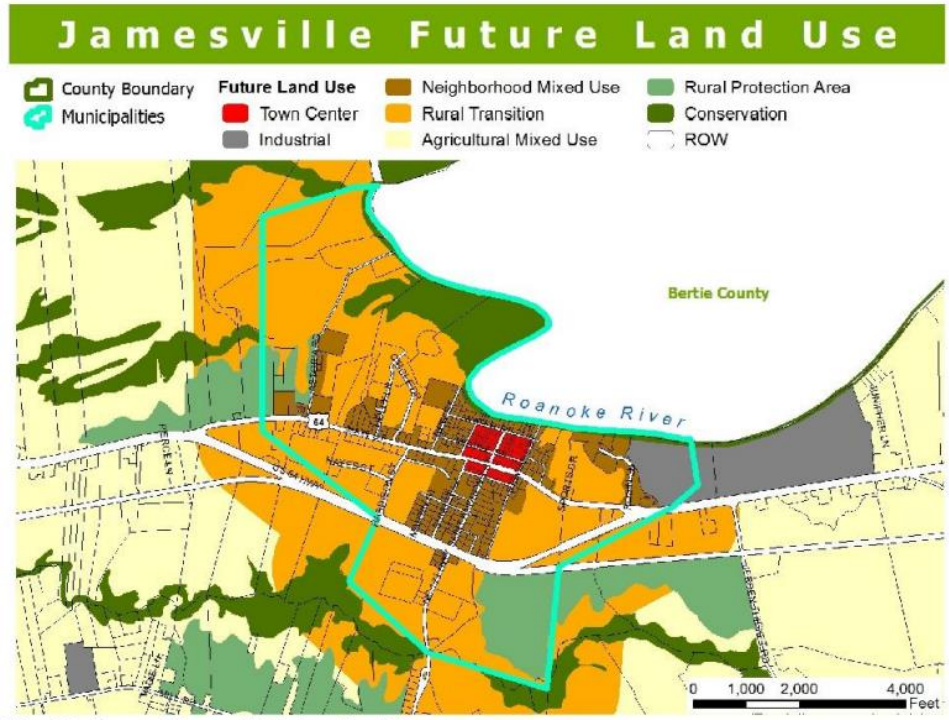

**Map 29. Town of Hamilton Future Land Use**

## Figure 3-15 – Hassell Future Land Use Map



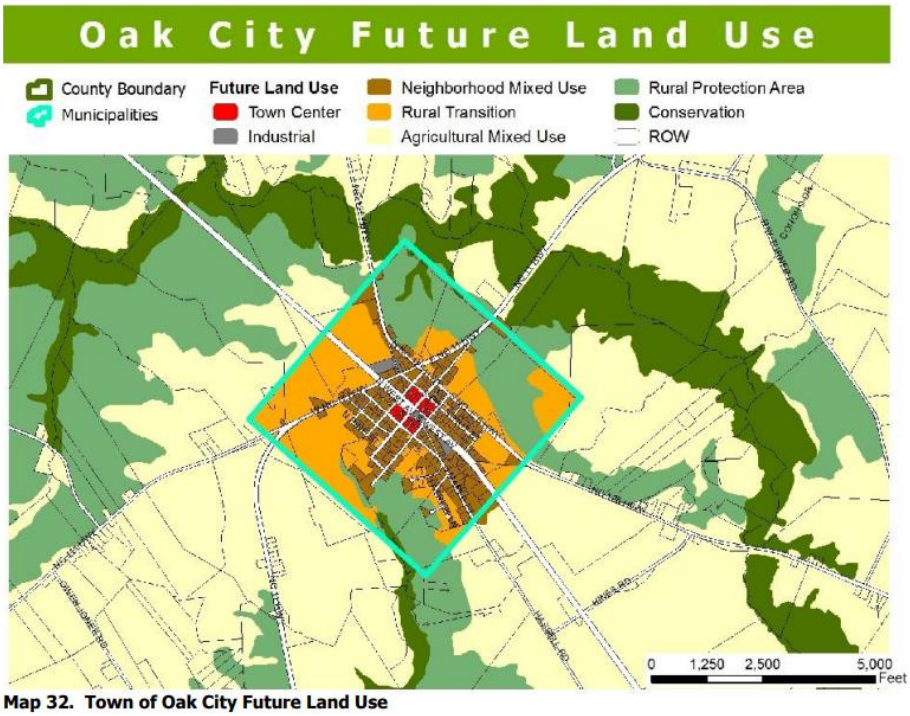

**Map 30. Town of Hassell Future Land Use**

## Figure 3-16 – Jamesville Future Land Use Map



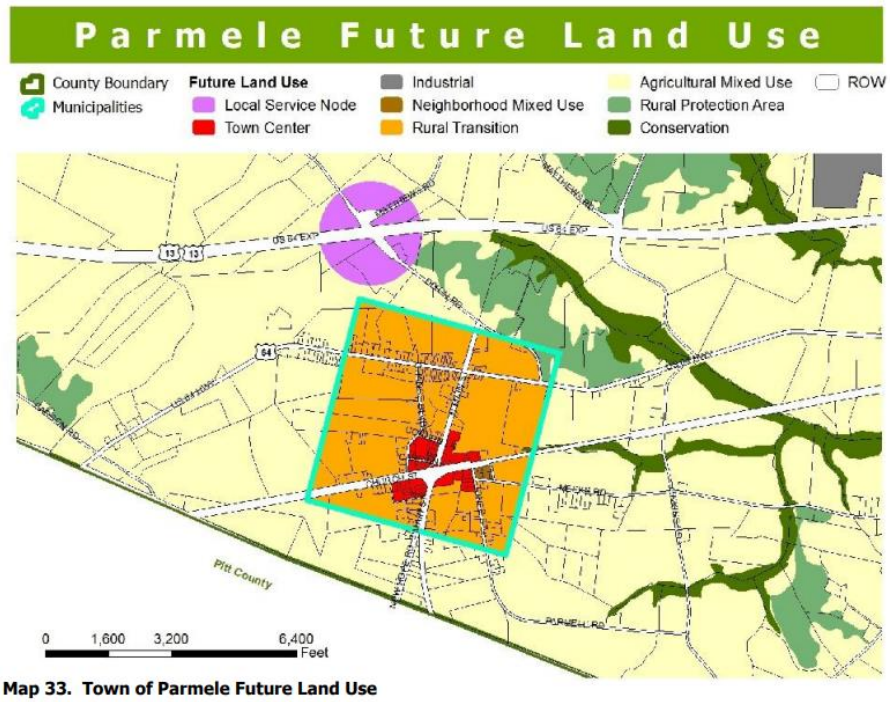

**Map 31. Town of Jamesville Future Land Use**

## Figure 3-17 – Oak City Future Land Use Map



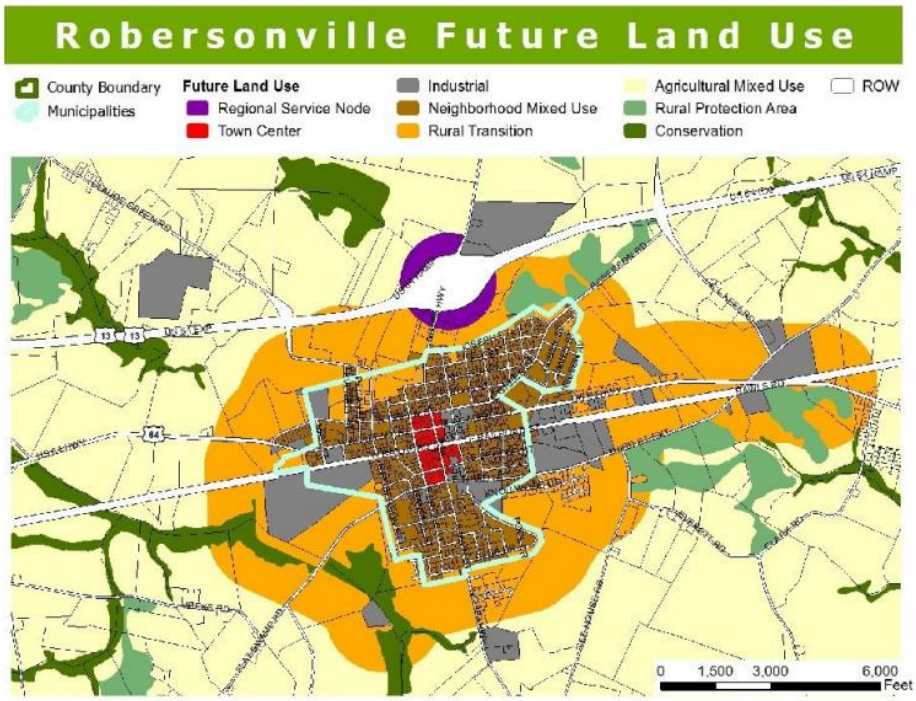

**Map 32. Town of Oak City Future Land Use**

## Figure 3-18 – Parmele Future Land Use Map




**Map 33. Town of Parmele Future Land Use**

**Figure 3-19 – Robersonville Future Land Use Map**




**Map 34. Town of Robersonville Future Land Use**

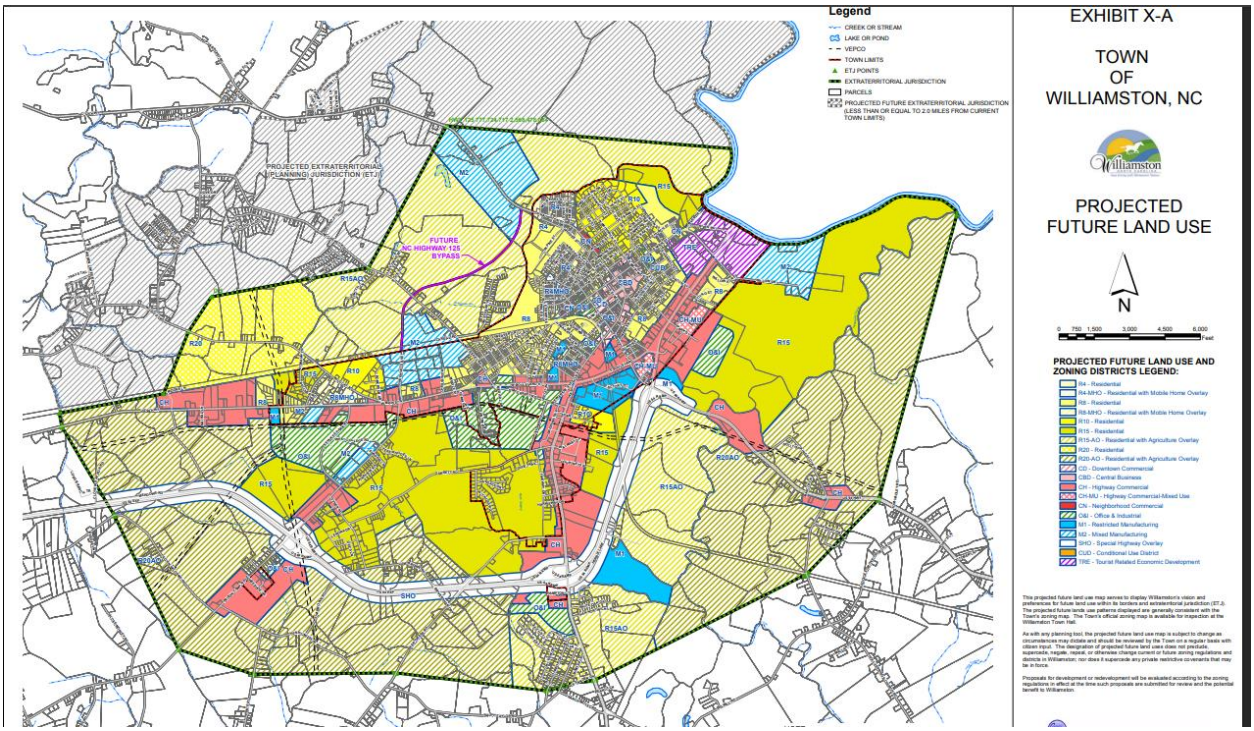
## TOWN OF WILLIAMSTON

The Town of Williamston's Planning Department oversees zoning, subdivision regulation, and land use. The town adopted a new comprehensive plan in 2012.

## FUTURE LAND USE

The Town of Williamston's land use plan seeks to encourage sustainable development concepts while maintaining its small-town character and reinvigorating its downtown. Figure 3-20 shows Williamston's future land use map.

**Figure 3-20 – Town of Williamston, NC Projected Future Land Use Map**




Source: Town of Williamston Comprehensive Plan, 2012

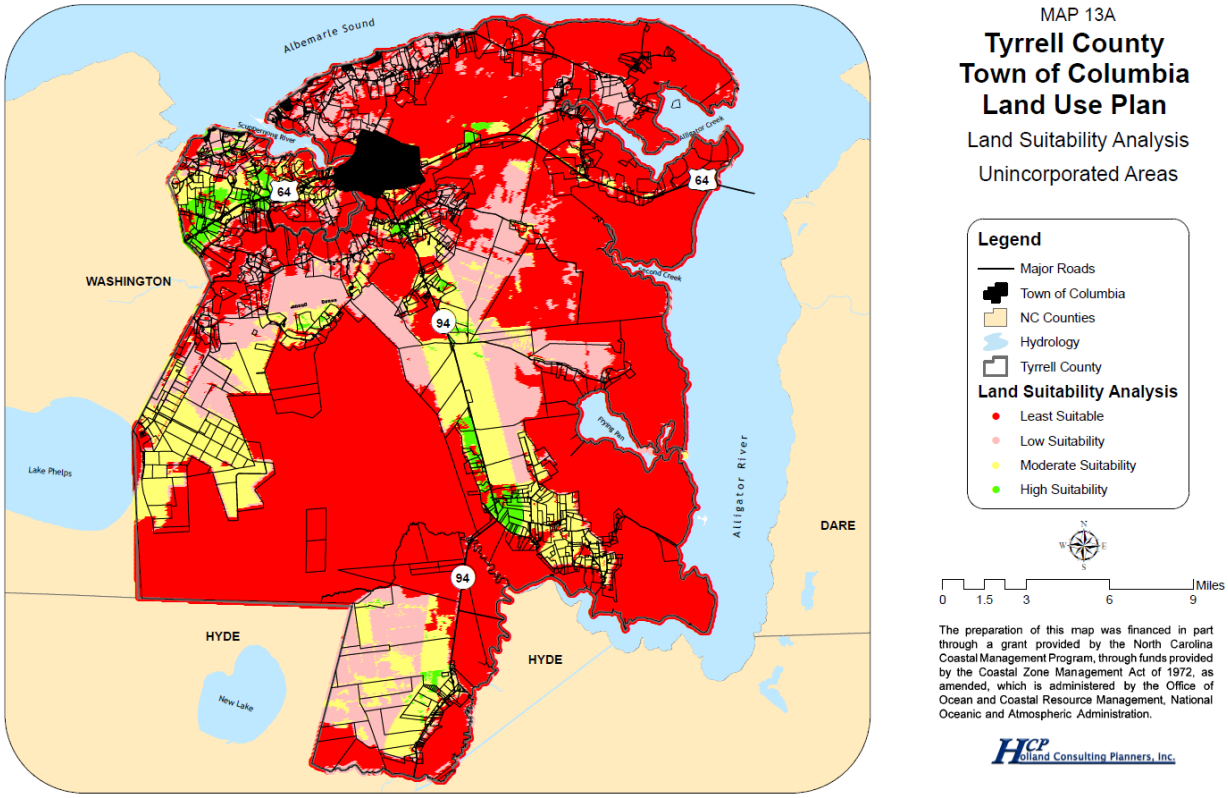
### *TYRRELL COUNTY*

Tyrrell County's Building Inspections Department handles development regulations. Tyrell County adopted its comprehensive plan, which includes the Town of Columbia, in December 2009.

#### FUTURE LAND USE

Tyrell County's comprehensive plan envisions a community that maintains its rural character while focusing on the preservation of agriculture, affordable housing, and the protection of environmental resources.

**Figure 3-21 – Tyrell County and Town of Columbia's Future Land Use Map**




Source: Tyrrell County CAMA Core Land Use Plan

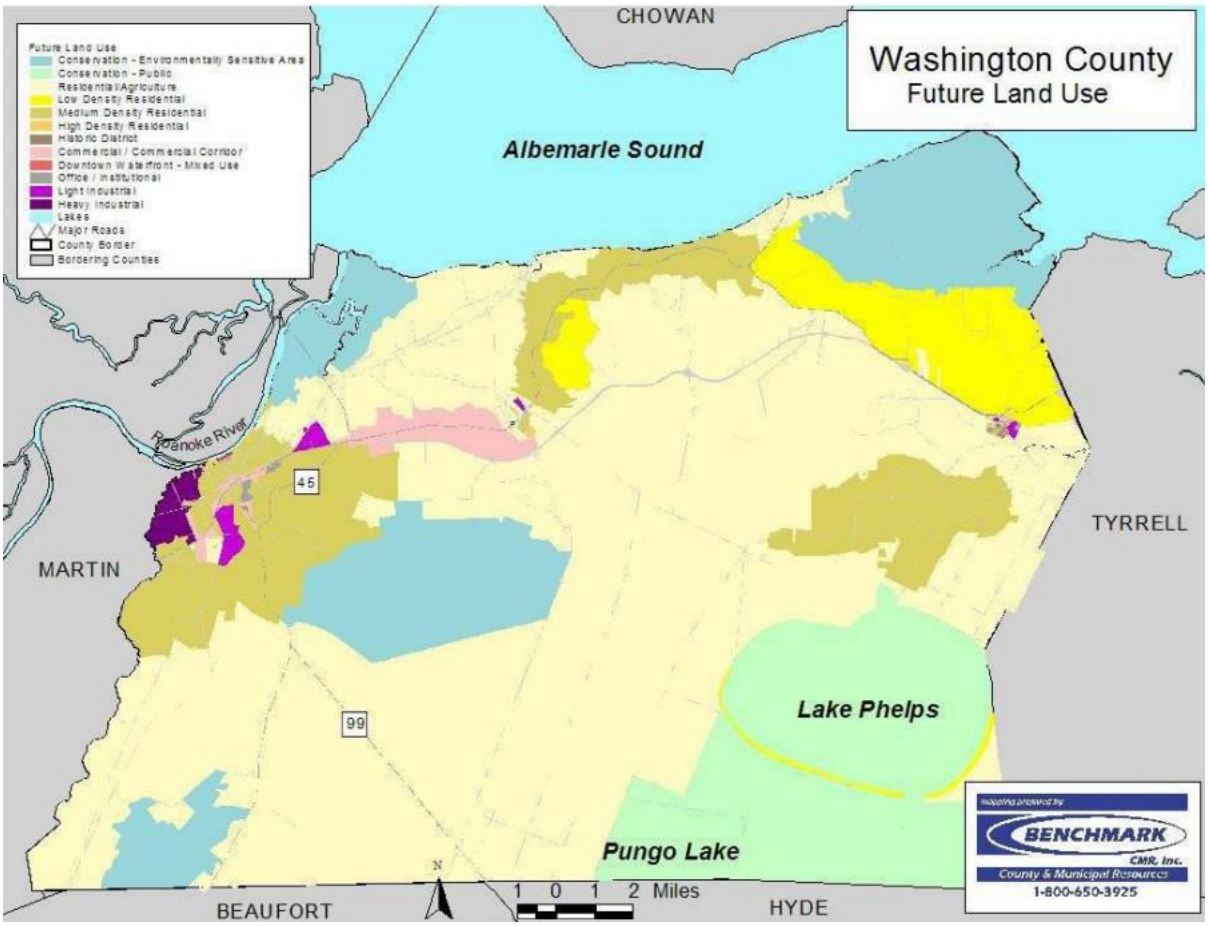
### *WASHINGTON COUNTY*

In Washington County, land use, environment, and development regulations are the responsibility of the Washington County Planning & Inspections Department. Washington County adopted its most recent comprehensive plan in 2009.

### FUTURE LAND USE

Washington County features predominantly agriculture and forestry uses. The 2009 plan states that the area most likely to experience development is the interchanges along the Highway 64 corridor and recognizes the potential for residential development along Highway 32 N. Figure 3-22 shows the future land use map from the 2009 plan.

**Figure 3-22 – Washington County Future Land Use Map**




Source: Washington County Land Use Plan, 2009

## TOWN OF PLYMOUTH

The Town of Plymouth's Planning, Zoning and Building Inspections Department handles zoning, subdivision regulations, and land use. Plymouth adopted its own comprehensive plan, independent of Washington County, in 2024. This land use plan also includes Plymouth's extra-territorial jurisdiction.

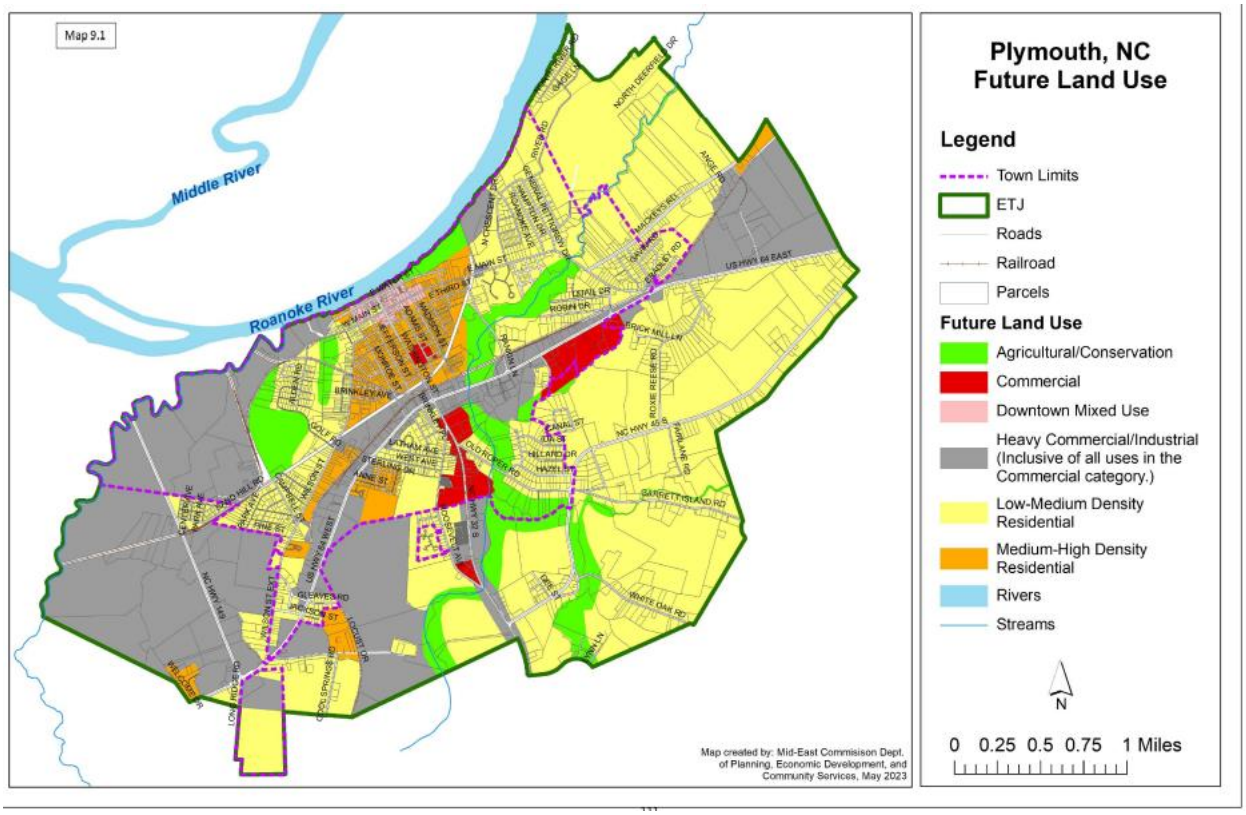
## FUTURE LAND USE

The Town of Plymouth identifies the following future land use categories:

- Low-medium density residential: single and two-family dwellings with very limited commercial, office, recreational, or public/institutional uses
- Medium-high density residential: single-family and two-family dwellings, multifamily structures, and limited commercial, office, recreational or public uses
- Commercial: light commercial uses
- Downtown Mixed Use: light commercial uses, public uses, tourism, and limited residential uses
- Heavy Commercial/Industrial: all commercial and industrial uses
- Agricultural/Conservation: agriculture forestry, open space, conservation

Figure 3-23 shows Plymouth's future land use map.

**Figure 3-23 – Town of Plymouth Future Land Use Map**




Source: Town of Plymouth CAMA Comprehensive Plan/Strategic Plan, 2024

## 3.7 EMPLOYMENT AND INDUSTRY

Per the 2019-2023 American Community Survey 5-Year Estimates, the median household income for the Northeastern Region ranges from $41,750 in Washington County to $47,338 in Hyde County. This range is significantly lower than the median household income of $69,904 in North Carolina during this same time period. However, approximately, 12.8% of the population is considered to be living below the poverty level, which is slightly lower than the rate of poverty for the state of North Carolina, 13.2%.

Table 3-11 shows employment statistics for all participating jurisdictions. Table 3-11 shows occupation statistics for all participating jurisdictions.

**Table 3-11 – Employment Statistics for Northeastern Region, 2023**

| Jurisdiction | Population in Labor Force | Percent Employed*(%) | Percent Not in Labor Force*(%) | Unemployment Rate (%) |
|---|---|---|---|---|
| Bertie County | 6,502 | 39.7% | 56.7% | 8.4% |
| Hyde County | 1,683 | 40.0% | 58.8% | 3.0% |
| Martin County | 9,965 | 51.8% | 44.2% | 7.0% |
| Tyrrell County | 1,231 | 41.2% | 56.5% | 5.1% |
| Washington County | 4,486 | 42.7% | 51.3% | 11.2% |

Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates
Note: This table reports only the civilian labor force. Population employed, population unemployed, and population not in labor force are reported as a percent of the total population aged 16 years and older.

**Table 3-12 – Percent of Employed Population by Occupation for Northeastern Region, 2023**

| Occupation | Management, business, science and arts (%) | Service (%) | Sales and Office (%) | Natural Resources, Construction, and Maintenance (%) | Production, transportation, and material moving (%) |
|---|---|---|---|---|---|
| Bertie County | 31.6% | 17.8% | 16.4% | 12.4% | 21.8% |
| Hyde County | 43.0% | 15.9% | 20.9% | 6.6% | 13.5% |
| Martin County | 31.7% | 24.4% | 18.5% | 8.2% | 17.1% |
| Tyrrell County | 36.6% | 23.9% | 13.6% | 19.5% | 6.3% |
| Washington County | 23.5% | 21.5% | 24.3% | 16.8% | 13.9% |

Source: U.S. Census Bureau, 2019-2023 American Community Survey 5-Year Estimates

Management, business, science, and arts make up the largest share of employment for Bertie, Hyde, Martin, and Tyrell counties. Service is also a significant occupation type in Martin, Tyrrell, and Washington Counties. Tyrrell and Washington Counties experience a higher percentage of natural resources, construction, and maintenance than the rest of the region, which is likely due to the wildlife refuges located in these counties.

Table 3-13 summarizes the major employers for each County in the Albemarle Region from AccessNC as of the 4th quarter of 2024.

**Table 3-13 – Major Employers in 2024, Northeastern Region**

| Employer | Industry Type | Estimated Employees |
|---|---|---|
| **Bertie County** | | |
| Perdue Farms Incorporated | Manufacturing | 1000+ |
| Bertie County Board of Education | Educational Services | 250-499 |
| NC Department of Adult Corrections | Public Administration | 100-249 |
| County of Bertie | Public Administration | 100-249 |
| Packers Sanitation Services Inc | Administrative and Support and Waste Management and Remediation Services | 100-249 |
| Pitt County Memorial Hospital | Health Care and Social Assistance | 100-249 |
| OSI LLC | Administrative and Support and Waste Management and Remediation Services | 100-249 |
| Home Life Care Inc | Health Care and Social Assistance | 50-99 |
| Liberty Healthcare Group LLC | Health Care and Social Assistance | 50-99 |
| Republic Services Inc | Administrative and Support and Waste Management and Remediation Services | 50-99 |
| Avoca Inc | Manufacturing | 50-99 |
| **Hyde County** | | |
| County of Hyde | Public Administration | 100-249 |
| Hyde County Board of Education | Educational Services | 100-249 |
| Illinois Tool Works Inc | Manufacturing | 100-249 |
| NC Department of Adult Corrections | Public Administration | 100-249 |
| NC Department of Transportation | Public Administration | 50-99 |
| Soulshine Music Corporation | Accommodation and Food Services | 50-99 |
| Williams Seafood Inc | Wholesale Trade | 50-99 |
| Heron Hospitality LLC | Accommodation and Food Services | 50-99 |

| Employer | Industry Type | Estimated Employees |
|---|---|---|
| **Martin County** | | |
| Flagstone Foods LLC | Manufacturing | 500-999 |
| Martin County Board of Education | Educational Services | 250-499 |
| Wal-Mart Associates Inc | Retail Trade | 100-249 |
| County of Martin | Public Administration | 100-249 |
| Martin Community College | Educational Services | 100-249 |
| Town of Williamston | Public Administration | 100-249 |
| Industrial Manufacturing Co LLC | Manufacturing | 100-249 |
| Food Lion LLC | Retail Trade | 100-249 |
| Home Life Care Inc | Health Care and Social Assistance | 100-249 |
| Jackson Foods Inc | Retail Trade | 50-99 |
| Martin County Residential Services | Health Care and Social Assistance | 50-99 |
| State of NC Dept of Health & Human | Public Administration | 50-99 |
| Williamston Nursing Facility Op | Health Care and Social Assistance | 50-99 |
| Quality Home Staffing Inc | Health Care and Social Assistance | 50-99 |
| Williams Fire Sprinkler Co Inc | Construction | 50-99 |
| Tands Inc | Accommodation and Food Services | 50-99 |
| Bear Grass Charter School Inc | Educational Services | 50-99 |
| State of NC Dept of Agriculture | Public Administration | 50-99 |
| NC Department of Transportation | Public Administration | 50-99 |
| Deadwood Inc | Accommodation and Food Services | 50-99 |
| S & J Foods Inc | Accommodation and Food Services | 50-99 |
| **Tyrrell County** | | |
| Tyrrell County Board of Education | Educational Services | 100-249 |
| Capt Charlies Seafood Inc | Manufacturing | 50-99 |
| County of Tyrrell | Public Administration | 50-99 |
| NC Department of Adult Corrections | Public Administration | 50-99 |
| Food Lion LLC | Retail Trade | 50-99 |
| Ask Staffing Inc | Administrative and Support and Waste Management and Remediation Services | 50-99 |
| **Washington County** | | |
| Domtar Paper Company LLC | Manufacturing | 250-499 |
| Washington County Bd of Education | Educational Services | 100-249 |
| County of Washington | Public Administration | 100-249 |
| Weyerhaeuser Nr | Manufacturing | 100-249 |
| Affinity Health Partners LLC | Health Care and Social Assistance | 100-249 |
| Home Life Care Inc | Health Care and Social Assistance | 50-99 |
| The Carrolton of Plymouth | Health Care and Social Assistance | 50-99 |
| Food Lion LLC | Retail Trade | 50-99 |
| District Health Dept Martin- Tyrrel | Public Administration | 50-99 |
| Taylor Enterprises Inc | Accommodation and Food Services | 50-99 |

Source: ACCESSNC Employer Profile, 2024 Quarter 4

# 4 RISK ASSESSMENT

**Requirement §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.**
**Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the type…of all natural hazards that can affect the jurisdiction.**

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

**44 CFR Subsection D §201.6(c)(2)(ii): [The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. Plans approved after October 1, 2008 must also address NFIP insured structures that have been repetitively damaged by floods. The plan should describe vulnerability in terms of:**
A) The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;
(B): An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate; and
(C): Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

## 4.1 OVERVIEW

This section describes the Hazard Identification and Risk Assessment process for the development of the Northeastern NC Regional Hazard Mitigation Plan. It describes how the Region met the requirements of Planning Step 4: Assess the Hazard and Planning Step 5: Assess the Problem from the 10-step planning process.

As defined by FEMA, risk is a combination of hazard, vulnerability, and exposure. "It is the impact that a hazard would have on people, services, facilities, and structures in a community and refers to the likelihood of a hazard event resulting in an adverse condition that causes injury or damage." This hazard risk assessment covers all of unincorporated Bertie, Martin, Hyde, Tyrrell, and Washington Counties and all incorporated jurisdictions participating in this plan.

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



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

- **Section 4.2**: **Hazard Identification** identifies the natural and human-caused hazards that affect the region.
- **Section 4.3: Risk Assessment Methodology and Assumptions** describes how the risk and vulnerability assessment was conducted and presented.
- **Section 4.4: Asset Inventory** details population, buildings, and critical facilities at risk in the region.
- **Section 4.5**: **Hazard Profiles, Analysis, and Vulnerability** discusses the threat to the region, describes previous occurrences of hazard events and the likelihood of future occurrences, and assesses the region's exposure to each hazard profiled, considering assets at risk, critical facilities, and future development trends.
- **Section 4.6: Conclusions on Hazard Risk** summarizes the results of the Priority Risk Index and defines each hazard as a Low, Medium, or High Risk hazard.

## 4.2 HAZARD IDENTIFICATION

To identify the full range of hazards relevant to the planning area, the HMPC began with a review of the list of hazards identified in the 2023 State Hazard Mitigation Plan and the 2021 Northeastern NC Regional Hazard Mitigation Plan. This review of hazards is summarized in Table 4.1. The HMPC used this process to ensure consistency across hazard mitigation planning efforts. All hazards on the list below were evaluated for inclusion in this plan update and, where appropriate, the hazard list in this plan was updated to be consistent with the State Hazard Mitigation Plan.

**Table 4.1 – Full Range of Hazards Evaluated**

| Hazard | Included in 2023 State HMP? | Included in 2021 Northeastern NC Regional HMP? |
|---|---|---|
| Flooding | Yes | Yes |
| Hurricanes and Coastal Hazards | Yes | Yes (evaluated separately) |
| Severe Winter Weather | Yes | Yes |
| Excessive Heat | Yes | Yes |
| Earthquake | Yes | Yes |
| Wildfire | Yes | Yes |
| Dam Failure | Yes | Yes |
| Levee Failure | No | Yes (evaluated with Dam Failure) |
| Drought | Yes | Yes |
| Tornadoes and Thunderstorms | Yes | Yes (evaluated separately) |
| Landslide | Yes | No |
| Sinkholes | Yes | Yes |
| Hazardous Substances | Yes | No |
| Radiological Emergency | Yes | No |
| Terrorism | Yes | No |
| Infectious Disease | Yes | No |
| Cyber Security | Yes | No |
| Electromagnetic Pulse | Yes | No |

The HMPC evaluated the above list of hazards using existing hazard data, past disaster declarations, local knowledge, and information from the 2023 State Plan and the 2021 Northeastern NC Regional Plan to determine 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.

One significant resource in this effort was the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information (NCEI) Storm Events Database, which contains an archive by county of storms and other significant weather phenomena having sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce. The database also provides a partial record of other significant meteorological events, such as record maximum or minimum temperatures or precipitation that occurs in connection with another event. The database contains records of tornado events since 1950, thunderstorm wind and hail events since 1955, and all other tracked event types since 1996. NCEI receives storm data from the National Weather Service (NWS), which receives their information from a variety of sources, which include but are not limited to county, state and federal emergency management officials, local law enforcement officials, SkyWarn spotters, NWS damage surveys, newspaper clipping services, the insurance industry and the general public, among others.

The NCEI database contains 891 records of severe weather events that occurred in Bertie, Hyde, Martin, Tyrrell, and Washington Counties in the 26-year period from January 1999 through December 2024. Table 4.2 summarizes these events.

**Table 4.2 – NCEI Severe Weather Reports for the Northeastern NC Region Counties, Jan 1999 – Dec 2024**

| Type | # of Events | Property Damage | Crop Damage | Deaths | Injuries |
|---|---|---|---|---|---|
| Blizzard | 0 | $0 | $0 | 0 | 0 |
| Coastal Flood | 8 | $0 | $0 | 0 | 0 |
| Cold/Wind Chill | 0 | $0 | $0 | 0 | 0 |
| Drought | 17 | $0 | $0 | 0 | 0 |
| Excessive Heat | 14 | $0 | $0 | 0 | 0 |
| Extreme Cold/Wind Chill | 0 | $0 | $0 | 0 | 0 |
| Flash Flood | 61 | $215,000 | $0 | 1 | 0 |
| Flood | 14 | $10,010,000 | $2,000,000 | 5 | 0 |
| Frost/Freeze | 8 | $0 | $0 | 0 | 0 |
| Hail | 132 | $95,000 | $251,000 | 0 | 0 |
| Heat | 1 | $0 | $0 | 0 | 0 |
| Heavy Rain | 27 | $0 | $0 | 0 | 0 |
| Heavy Snow | 23 | $0 | $0 | 0 | 0 |
| High Wind | 33 | $55,000 | $0 | 0 | 0 |
| Hurricane | 41 | $53,557,000 | $85,650,000 | 0 | 0 |
| Ice Storm | 2 | $0 | $0 | 0 | 0 |
| Lightning | 0 | $0 | $0 | 0 | 0 |
| Storm Surge | 7 | $61,100,000 | $0 | 0 | 0 |
| Strong Wind | 6 | $2,000 | $0 | 0 | 0 |
| Thunderstorm Wind | 272 | $578,800 | $0 | 0 | 4 |
| Tornado | 53 | $6,464,500 | $1,400,000 | 14 | 81 |
| Tropical Storm | 61 | $18,988,200 | $51,000,000 | 0 | 0 |
| Wildfire | 0 | $0 | $0 | 0 | 0 |
| Winter Storm | 68 | $25,000 | $0 | 0 | 0 |
| Winter Weather | 43 | $0 | $0 | 0 | 0 |
| **Total:** | **891** | **$151,090,500** | **$140,301,000** | **20** | **85** |

Source: National Center for Environmental Information Events Database, accessed July 2025

Note: Losses reflect totals for all impacted areas for each event.

The HMPC also researched past events that resulted in a federal and/or state emergency or disaster declaration for Bertie, Hyde, Martin, Tyrrell, and Washington Counties in order to identify significant hazards. Federal and/or state disaster declarations may be granted when the Governor certifies that the combined local, county and state resources are insufficient and that the situation is beyond their recovery capabilities. When the local government's capacity has been surpassed, a state disaster declaration may be issued, allowing for the provision of state assistance. If the disaster is so severe that both the local and state government capacities are exceeded, a federal emergency or disaster declaration may be issued allowing for the provision of federal assistance.

Records of designated counties for FEMA major disaster declarations start in 1964. Since then, Bertie, Hyde, Martin, Tyrrell, and Washington Counties have been designated in 20 different major disaster declarations. Table 4.3 summarizes the count of declarations per county, and Table 4.4 provides details for these declarations.

**Table 4.3 – Summary of Disaster Declarations by County**

| County | Major Declarations Received |
|---|---|
| Bertie | 14 |
| Hyde | 15 |
| Martin | 9 |
| Tyrrell | 10 |
| Washington | 9 |

Source: FEMA Disaster Declarations Summary, updated July 9, 2025

**Table 4.4 – FEMA Major Disaster Declarations for Northeastern NC Region Counties**

| County* | Disaster # | Date | Incident Type | Event Title |
|---|---|---|---|---|
| **B, H** | 4568 | 10/14/2020 | Hurricane | Hurricane Isaias |
| **B, H, M, T, W** | 4487 | 3/25/2020 | Biological | COVID-19 Pandemic |
| **H, T, W** | 4465 | 10/4/2019 | Hurricane | Hurricane Dorian |
| **H** | 4412 | 1/31/2019 | Hurricane | Tropical Storm Michael |
| **B, H, T** | 4393 | 9/14/2018 | Hurricane | Hurricane Florence |
| **B, H, M, T, W** | 4285 | 10/10/2016 | Hurricane | Hurricane Matthew |
| **B, H, M, T, W** | 4019 | 8/31/2011 | Hurricane | Hurricane Irene |
| **B, T** | 1969 | 4/19/2011 | Severe Storm(s) | Severe Storms, Tornadoes, And Flooding |
| **B, M, T, W** | 1942 | 10/14/2010 | Severe Storm(s) | Severe Storms, Flooding, And Straight-Line Winds |
| **H** | 1608 | 10/7/2005 | Hurricane | Hurricane Ophelia |
| **B, H, M, T, W** | 1490 | 9/18/2003 | Hurricane | Hurricane Isabel |
| **B, H, M, T, W** | 1292 | 9/16/1999 | Hurricane | Hurricane Floyd Major Disaster Declarations |
| **H** | 1291 | 9/9/1999 | Hurricane | Hurricane Dennis |
| **B, H, M, T, W** | 1240 | 8/27/1998 | Hurricane | Hurricane Bonnie |
| **B, H, M** | 1134 | 9/6/1996 | Hurricane | Hurricane Fran |
| **H** | 1127 | 7/18/1996 | Hurricane | Hurricane Bertha |
| **B** | 1087 | 1/13/1996 | Snow | Blizzard of 96 |
| **H** | 818 | 12/12/1988 | Tornado | Severe Storms & Tornadoes |
| **B** | 699 | 3/30/1984 | Tornado | Severe Storms & Tornadoes |
| **B, M, W** | 234 | 2/10/1968 | Severe Ice Storm | Severe Ice Storm |

Source: FEMA Disaster Declarations Summary, updated July 9, 2025

*County code: B = Bertie, H = Hyde, M = Martin, T= Tyrrell, W = Washington

Using the above information and additional discussion, the HMPC evaluated each hazard's significance to the planning area in order to decide which hazards to include in this plan update. Some hazard titles have been updated either to better encompass the full scope of a hazard or to assess closely related hazards together. Table 4.5 summarizes the determination made for each hazard.

**Table 4.5 – Hazard Evaluation Results**

| Hazard | Included in this plan update? | Explanation for Decision |
|---|---|---|
| Flooding | Yes | The 2021 Northeastern NC plan and 2023 State plan addressed this hazard. Multiple disaster declarations for the region are related to flooding. NCEI reports 110 flood-related events over the past 26 years. |
| Hurricane and Coastal Hazards | Yes | The 2021 Northeastern NC plan identified hurricanes and tropical storms, which the 2023 State plan groups with coastal hazards. Past disaster declarations and NCEI storm reports indicate hurricanes are a significant hazard for the region. Past hurricane activity and part of the region's coastal location indicate coastal erosion as a significant hazard. |
| Severe Winter Weather | Yes | The 2021 Northeastern NC plan and 2023 State plan addressed this hazard. The region has received several past disaster declarations related to this hazard. NCEI reports 144 severe winter weather related events. |
| Excessive Heat | Yes | The 2021 Northeastern NC plan and 2023 State plan addressed this hazard. NCEI reports 15 heat events for the region. |
| Earthquake | Yes | The 2021 Northeastern NC plan and 2023 State plan addressed this hazard. The region could face minimal impacts from the Eastern Tennessee Seismic zone and the Charleston fault. |
| Wildfire | Yes | The 2021 Northeastern NC plan and 2023 State plan addressed this hazard. Most of the planning area is within the Wildland Urban Interface. |
| Dam & Levee Failure | Yes | The 2023 State plan addressed dam failure and there are multiple dams in the region. The 2021 Northeastern NC plan addressed dam and levee failure. The USACE's National Levee Database identifies several levees in the region. |
| Drought | Yes | The 2021 Northeastern NC plan and 2023 State plan addressed this hazard. There have been multiple past instances of severe drought. NCEI reports 17 drought events in the past 26 years. |
| Tornadoes & Thunderstorms | Yes | The 2021 Northeastern NC plan addressed these hazards, which are combined in the 2023 State plan. NCEI reports 53 tornado events, 311 wind events, and 132 hail events in the past 26 years. |
| Landslide | No | The 2023 State plan addressed this hazard but did not find significant risk in the eastern portion of the state. The 2021 Northeastern NC plan did not address this hazard. |
| Sinkholes | Yes | The 2021 Northeastern NC plan addressed this hazard. USGS data shows there is geological basis for sinkhole risk in parts of the region despite it being an unlikely occurrence. |

| Hazard | Included in this plan update? | Explanation for Decision |
|---|---|---|
| Hazardous Substances | Yes | The 2023 State plan addressed this hazard, but the 2021 Northeastern NC did not. The HMPC decided to evaluate this hazard due to transportation of hazardous materials through the region. |
| Radiological Emergency | No | The 2023 State plan addressed this hazard, but the 2021 Northeastern NC did not. No part of the region falls within the EPZ or IPZ of a nuclear facility. |
| Terrorism | No | The 2023 State plan addressed this hazard, but the 2021 Northeastern NC did not. The region considers this hazard more appropriately addressed at the State level. |
| Infectious Disease | No | The 2023 State plan addressed this hazard, but the 2021 Northeastern NC did not. The State HMP reports the entire State is equally at risk, but vulnerability is low across all but one impact category. Infectious disease risk is managed by state and county health departments. |
| Cyber Security | No | The 2023 State plan addressed this hazard, but the 2021 Northeastern NC did not. The region considers this hazard more appropriately addressed by emergency operations planning and local staff training. |
| Electromagnetic Pulse | No | The 2023 State plan addressed this hazard, but the 2021 Northeastern NC did not. The region considers this hazard more appropriately addressed at the State level. |

The final list of hazards included in this plan are as follows:

- Dam & Levee Failure
- Drought
- Earthquake
- Excessive Heat
- Flooding
- Hurricanes & Coastal Hazards
- Tornadoes & Thunderstorms
- Severe Winter Weather
- Sinkhole
- Wildfire
- Hazardous Substances

## 4.3 RISK ASSESSMENT METHODOLOGY AND ASSUMPTIONS

The Disaster Mitigation Act of 2000 requires that the HMPC evaluate the risks associated with each of the hazards identified in the planning process. Each hazard was evaluated to determine its probability of future occurrence and potential impact. A vulnerability assessment was conducted for each hazard using either quantitative or qualitative methods depending on the available data, to determine its potential to cause significant human and/or monetary losses. A consequence analysis was also completed for each hazard. Each hazard is profiled in the following format:

## HAZARD DESCRIPTION

This section provides a description of the hazard, including discussion of its speed of onset and duration, as well as any secondary effects followed by details specific to the Northeastern NC Region.

## LOCATION

This section includes information on the hazard's physical extent, with mapped boundaries where applicable. This section informs the spatial extent assessment category in the Priority Risk Index rating of each hazard.

## EXTENT

This section includes information on the hazard magnitude and describes how the severity of the hazard can be measured. Where available, the most severe event on record is used as a frame of reference. This section informs the impact assessment category in the Priority Risk Index rating of each hazard.

## HISTORICAL OCCURRENCES

This section contains information on historical events, including the location and consequences of all past events on record within or near the Northeastern NC Region.

## PROBABILITY OF FUTURE OCCURRENCE

This section gauges the likelihood of future occurrences based on past events and existing data. The frequency is generally determined by dividing the number of events observed by the number of years on record. This provides the percent chance of the event happening in any given year according to historical occurrence (e.g. 10 winter storm events over a 30-year period equates to a 33 percent chance of experiencing a severe winter storm in any given year). This section informs the probability assessment category in the Priority Risk Index rating of each hazard.

## CLIMATE CHANGE

Where applicable, this section discusses how climate change may or may not influence the risk posed by the hazard on the planning area in the future. Resources on climate change projections and potential impacts include the Fourth National Climate Assessment, the Fifth National Climate Assessment, and the North Carolina State Climate Office.

## VULNERABILITY ASSESSMENT

This section quantifies, to the extent feasible using best available data, assets at risk to natural hazards and potential loss estimates. People, properties and critical facilities, and environmental assets that are vulnerable to the hazard are identified. Future development is also discussed in this section, including how exposure to the hazard may change in the future or how development may affect hazard risk.

The vulnerability assessments followed the methodology described in the FEMA publication Understanding Your Risks—Identifying Hazards and Estimating Losses (FEMA 386-2, 2002). The vulnerability assessment first describes the total vulnerability and values at risk and then discusses vulnerability by hazard. Data used to support this assessment included the following:

- Geographic Information System (GIS) datasets, including building footprints, topography, aerial photography, and transportation layers
- Hazard layer GIS datasets from state and federal agencies
- Written descriptions of inventory and risks provided by the State Hazard Mitigation Plan
- Written descriptions of inventory and risks provided by the previous Northeastern NC Regional Hazard Mitigation Plan

- Exposure and vulnerability estimates provided by the North Carolina Emergency Management (NCEM) IRISK database via the NCEM Risk Management Tool
- Crop insurance claims by cause from USDA's Risk Management Agency

Two distinct risk assessment methodologies were used in the formation of the vulnerability assessment: a quantitative analysis that relies upon best available data and technology and a qualitative analysis that relies on local knowledge and rational decision making.

Vulnerability can be quantified in those instances where there is a known, identified hazard area, such as a mapped floodplain. In these instances, the numbers and types of buildings subject to the identified hazard can be counted and their values tabulated. Where hazard risk cannot be distinctly quantified and modeled, other information can be collected in regard to the hazard area, such as the location of critical facilities, historic structures, and valued natural resources (e.g., an identified wetland or endangered species habitat). Together, this information conveys the vulnerability of that area to that hazard.

NCEM's IRISK database incorporates county building footprint and parcel data. Footprints with an area less than 500 square feet were excluded from the analysis. To determine if a building is in a hazard area, the building footprints were intersected with each of the mapped hazard areas. If a building intersects two or more hazard areas (such as the 1-percent-annual-chance flood zone and the 0.2-percent-annual-chance flood zone), it is counted as being in the hazard area of highest risk. The parcel data provided building value and year built. Building value was used to determine the value of buildings at risk. Year built was used to determine if the building was constructed prior to or after the community had joined the NFIP and had an effective FIRM and building codes enforced.

Census blocks and 2020 Census data were used to determine population at risk. This included the total population, as well as the vulnerable elderly and children age groups. To determine population at risk, the census blocks were intersected with the hazard area. To better determine the actual number of people at risk, the intersecting area of the census block was calculated and divided by the total area of the census block to determine a ratio of area at risk. This ratio was applied to the population of the census block. For example, a census block has a population of 400 people. Five percent of the census block intersects the 1-percent-annual-chance flood hazard area. The ratio estimates that 20 people are then at risk within the 1-percent-annual-chance flood hazard area (5% of the total population for that census block).

Certain assumptions are inherent in any risk assessment. For the Northeastern NC Regional HMP, three primary assumptions were discussed by the HMPC from the beginning of the risk assessment process: (1) that the best readily available data would be used, (2) that the hazard data selected for use is reasonably accurate for mitigation planning purposes, and (3) that the risk assessment will be regional in nature with local, municipal-level data provided where appropriate and practical.

Key methodologies and assumptions made for specific hazards analysis are described in their respective profiles.

## PRIORITY RISK INDEX

The conclusions drawn from the hazard profiling and vulnerability assessment process can be used to prioritize all potential hazards to the Northeastern NC Region. The Priority Risk Index (PRI) was applied for this purpose because it provides a standardized numerical value so that hazards can be compared against one another (the higher the PRI value, the greater the hazard risk). PRI values are obtained by assigning varying degrees of risk to five categories for each hazard (probability, impact, spatial extent, warning time, and duration). Each degree of risk was assigned a value (1 to 4) and a weighting factor as summarized in Table 4.6.

The sum of all five risk assessment categories equals the final PRI value, demonstrated in the equation below (the highest possible PRI value is 4.0).

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

The purpose of the PRI is to categorize and prioritize all potential hazards for the Mecklenburg County planning area as high, moderate, or low risk. The summary hazard classifications generated through the use of the PRI allows for the prioritization of those high and moderate hazard risks for mitigation planning purposes.

The results of the risk assessment and PRI scoring are provided in Section 4.6 Conclusions on Hazard Risk.

## Table 4.6 – Priority Risk Index

| RISK ASSESSMENT | LEVEL | DEGREE OF RISK CRITERIA | INDEX | WEIGHT |
|---|---|---|---|---|
| **PROBABILITY** What is the likelihood of a hazard event occurring in a given year? | **UNLIKELY** | LESS THAN 1% ANNUAL PROBABILITY | **1** | **30%** |
| | **POSSIBLE** | BETWEEN 1 & 10% ANNUAL PROBABILITY | **2** | |
| | **LIKELY** | BETWEEN 10 &100% ANNUAL PROBABILITY | **3** | |
| | **HIGHLY LIKELY** | 100% ANNUAL PROBABILTY | **4** | |
| **IMPACT** In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs? | **MINOR** | VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES. | **1** | **30%** |
| | **LIMITED** | MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR > 1 DAY | **2** | |
| | **CRITICAL** | MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR > 1 WEEK. | **3** | |
| | **CATASTROPHIC** | HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES > 30 DAYS. | **4** | |
| **SPATIAL EXTENT** How large of an area could be impacted by a hazard event? Are impacts localized or regional? | **NEGLIGIBLE** | LESS THAN 1% OF AREA AFFECTED | **1** | **20%** |
| | **SMALL** | BETWEEN 1 & 10% OF AREA AFFECTED | **2** | |
| | **MODERATE** | BETWEEN 10 & 50% OF AREA AFFECTED | **3** | |
| | **LARGE** | BETWEEN 50 & 100% OF AREA AFFECTED | **4** | |
| **WARNING TIME** Is there usually some lead time associated with the hazard event? Have warning measures been implemented? | **MORE THAN 24 HRS** | SELF DEFINED | **1** | **10%** |
| | **12 TO 24 HRS** | SELF DEFINED | **2** | |
| | **6 TO 12 HRS** | SELF DEFINED | **3** | |
| | **LESS THAN 6 HRS** | SELF DEFINED | **4** | |
| **DURATION** How long does the hazard event usually last? | **LESS THAN 6 HRS** | SELF DEFINED | **1** | **10%** |
| | **LESS THAN 24 HRS** | SELF DEFINED | **2** | |
| | **LESS THAN 1 WEEK** | SELF DEFINED | **3** | |
| | **MORE THAN 1 WEEK** | SELF DEFINED | **4** | |

# 4.4 ASSET INVENTORY

## 4.4.1 POPULATION

Population data is pulled from the American Community Survey (ACS) 2019-2023 ACS 5-year estimates and includes a breakdown of population into two subpopulations considered to be a greater risk than the general population, the elderly and children. Table 4.7 details the population counts and average household size by jurisdiction used for the vulnerability assessment.

**Table 4.7 – Population Counts by Jurisdiction, 2023**

| Jurisdiction | Total Population | Elderly (Age 65 and Over) | Children (Age 5 and Under) | Average Household Size* |
|---|---|---|---|---|
| **Bertie** | | | | |
| Bertie County (Unincorporated Area) | 11,675 | 2,855 | 417 | 2.26 |
| Town of Askewville | 152 | 45 | 12 | 2.12 |
| Town of Aulander | 748 | 208 | 117 | 1.91 |
| Town of Colerain | 291 | 49 | 9 | 2.72 |
| Town of Kelford | 245 | 69 | 15 | 2.42 |
| Town of Lewiston-Woodville | 466 | 137 | 24 | 2.38 |
| Town of Powellsville | 141 | 113 | 0 | 1.75 |
| Town of Roxobel | 347 | 66 | 24 | 2.38 |
| Town of Windsor | 3,417 | 703 | 94 | 2.27 |
| **Subtotal Bertie** | **17,482** | **4,245** | **712** | **2.26** |
| **Hyde** | | | | |
| Hyde County (Unincorporated Area) | **4,625** | **1,054** | **124** | **1.86** |
| **Martin** | | | | |
| Martin County (Unincorporated Area) | 13,680 | 3,396 | 753 | 2.30 |
| Town of Bear Grass | 94 | 12 | 22 | 2.00 |
| Town of Everetts | 158 | 18 | 9 | 2.87 |
| Town of Hamilton | 183 | 84 | 2 | 2.27 |
| Town of Hassell | 49 | 30 | 0 | 1.81 |
| Town of Jamesville | 373 | 118 | 8 | 1.80 |
| Town of Oak City | 472 | 145 | 30 | 2.51 |
| Town of Parmele | 288 | 85 | 0 | 2.15 |
| Town of Robersonville | 1,319 | 374 | 52 | 2.05 |
| Town of Williamston | 5,157 | 1,182 | 194 | 2.08 |
| **Subtotal Martin** | **21,773** | **5,444** | **1,070** | **2.30** |
| **Tyrrell** | | | | |
| Tyrrell County (Unincorporated Area) | 2,702 | 695 | 146 | **2.07** |
| Town of Columbia | 674 | 167 | 24 | 2.31 |
| **Subtotal Tyrrell** | **3,376** | **862** | **170** | **2.07** |

| Jurisdiction | Total Population | Elderly (Age 65 and Over) | Children (Age 5 and Under) | Average Household Size* |
|---|---|---|---|---|
| **Washington** | | | | |
| Washington County (Unincorporated Area) | 6,850 | 1,841 | 64 | 2.25 |
| Town of Creswell | 205 | 58 | 15 | 2.20 |
| Town of Plymouth | 3,264 | 923 | 140 | 2.09 |
| Town of Roper | 586 | 162 | 22 | 2.06 |
| **Subtotal Washington** | **10,905** | **2,984** | **241** | **2.25** |
| **Region Total** | **58,161** | **14,589** | **2,317** | **-** |

Source: U.S. Census Bureau ACS 2019-2023 5-Year Estimates

*Average of renter and owner-occupied average household size. Unincorporated County uses same value as County statistic

## 4.4.2 PROPERTY

NCEM's IRISK database provided the asset inventory used for this vulnerability assessment. Building counts are detailed in Table 4.8. These values were generated using locally provided building footprint and parcel data as well as data generated by NCEM. The methodology for generating the building asset inventory is described in greater detail in Section 4.3. The IRISK building inventory reflects a more than 12% increase in total building count and in total exposed building value since the development of the 2021 plan. The Planning Area Profile in Section 3 describes recent growth and development and provides context for understanding the degree to which exposure and vulnerability may have increased.

**Table 4.8 – Building Counts and Values by Jurisdiction**

| Jurisdiction | Building Count | Building Value |
|---|---|---|
| **Bertie** | | |
| Bertie County (Unincorporated Area) | 11,175 | $621,243,510 |
| Town of Askewville | 502 | $21,005,753 |
| Town of Aulander | 744 | $31,108,163 |
| Town of Colerain | 428 | $23,056,564 |
| Town of Kelford | 173 | $4,989,047 |
| Town of Lewiston-Woodville | 719 | $24,826,480 |
| Town of Powellsville | 171 | $7,040,608 |
| Town of Roxobel | 205 | $7,046,776 |
| Town of Windsor | 1,815 | $176,378,019 |
| **Subtotal Bertie** | **15,932** | **$916,694,920** |
| **Hyde** | | |
| Hyde County (Unincorporated Area) | **5,596** | **$620,329,729** |
| **Martin** | | |
| Martin County (Unincorporated Area) | 12,188 | $1,022,040,265 |
| Town of Bear Grass | 81 | $8,400,441 |
| Town of Everetts | 159 | $6,612,251 |
| Town of Hamilton | 292 | $75,407,651 |
| Town of Hassell | 70 | $2,608,170 |

| Jurisdiction | Building Count | Building Value |
|---|---|---|
| Town of Jamesville | 297 | $87,942,269 |
| Town of Oak City | 313 | $19,640,671 |
| Town of Parmele | 149 | $7,136,637 |
| Town of Robersonville | 901 | $59,034,216 |
| Town of Williamston | 4,238 | $1,107,061,602 |
| **Subtotal Martin** | **18,688** | **$2,395,884,173** |
| **Tyrrell** | | |
| Tyrrell County (Unincorporated Area) | 2,794 | $197,982,233 |
| Town of Columbia | 519 | $44,879,759 |
| **Subtotal Tyrrell** | **3,313** | **$242,861,992** |
| **Washington** | | |
| Washington County (Unincorporated Area) | 5,482 | $201,225,974 |
| Town of Creswell | 366 | $21,025,348 |
| Town of Plymouth | 2,779 | $145,668,064 |
| Town of Roper | 611 | $25,251,219 |
| **Subtotal Washington** | **9,238** | **$393,170,605** |
| **Region Total** | **52,767** | **$4,568,941,419** |

Source: NCEM IRISK Database

## 4.4.3 CRITICAL FACILITIES & INFRASTRUCTURE

The IRISK database also identifies Critical Infrastructure and Key Resources (CIKR) buildings as well as High Potential Loss Properties. These properties are detailed in Table 4.9 and Table 4.10, respectively.

**Table 4.9 – Critical Infrastructure and Key Resources by Type and Jurisdiction**

| Jurisdiction | Food and Agriculture | Banking and Finance | Chemical & Hazardous | Commercial | Communications | Critical Manufacturing | EM | Healthcare | Government Facilities | Defense Industrial Base | National Monuments and Icons | Nuclear Reactors, Materials and Waste | Postal and Shipping | Transportation Systems | Energy | Emergency Services | Water | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Bertie County** | | | | | | | | | | | | | | | | | | |
| Bertie County (Unincorporated Area) | 1,719 | 1 | 0 | 443 | 1 | 150 | 0 | 27 | 45 | 0 | 0 | 0 | 0 | 57 | 0 | 3 | 6 | **2,452** |
| Town of Askewville | 78 | 2 | 0 | 19 | 0 | 9 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | **119** |
| Town of Aulander | 19 | 2 | 0 | 50 | 0 | 23 | 0 | 2 | 7 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | **104** |
| Town of Colerain | 23 | 2 | 0 | 32 | 0 | 19 | 0 | 2 | 9 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | **89** |
| Town of Kelford | 5 | 0 | 0 | 10 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | **19** |

| Jurisdiction | Food and Agriculture | Banking and Finance | Chemical & Hazardous | Commercial | Communications | Critical Manufacturing | EM | Healthcare | Government Facilities | Defense Industrial Base | National Monuments and Icons | Nuclear Reactors, Materials and Waste | Postal and Shipping | Transportation Systems | Energy | Emergency Services | Water | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Town of Lewiston-Woodville | 28 | 1 | 0 | 61 | 0 | 22 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 0 | **122** |
| Town of Powellsville | 2 | 0 | 0 | 14 | 0 | 2 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | **23** |
| Town of Roxobel | 10 | 1 | 0 | 30 | 0 | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | **52** |
| Town of Windsor | 45 | 7 | 0 | 166 | 1 | 69 | 0 | 28 | 37 | 1 | 0 | 0 | 0 | 13 | 1 | 6 | 0 | **374** |
| **Bertie Subtotal** | **1,929** | **16** | **0** | **825** | **2** | **302** | **0** | **64** | **110** | **1** | **0** | **0** | **0** | **83** | **1** | **15** | **6** | **3,354** |
| **Hyde County** | | | | | | | | | | | | | | | | | | |
| Hyde County (Unincorporated Area) | **502** | **53** | **0** | **260** | **0** | **50** | **0** | **5** | **33** | **0** | **0** | **0** | **0** | **0** | **3** | **7** | **18** | **931** |
| **Martin County** | | | | | | | | | | | | | | | | | | |
| Martin County (Unincorporated Area) | 2,728 | 1 | 0 | 438 | 0 | 274 | 0 | 12 | 72 | 0 | 0 | 0 | 0 | 92 | 0 | 0 | 7 | **3,624** |
| Town of Bear Grass | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | **26** |
| Town of Everetts | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **8** |
| Town of Hamilton | 0 | 1 | 0 | 31 | 0 | 2 | 0 | 1 | 10 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 1 | **49** |
| Town of Hassell | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **11** |
| Town of Jamesville | 3 | 1 | 0 | 27 | 0 | 8 | 0 | 1 | 18 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 4 | **70** |
| Town of Oak City | 2 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | **11** |
| Town of Parmele | 5 | 0 | 0 | 11 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **17** |
| Town of Robersonville | 5 | 2 | 0 | 59 | 0 | 29 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 20 | 0 | 0 | 0 | **119** |
| Town of Williamston | 206 | 11 | 0 | 499 | 0 | 116 | 0 | 58 | 139 | 0 | 0 | 0 | 0 | 84 | 1 | 0 | 6 | **1,120** |
| **Martin Subtotal** | **2,963** | **16** | **0** | **1,076** | **0** | **429** | **0** | **77** | **262** | **0** | **0** | **0** | **0** | **213** | **1** | **0** | **18** | **5,055** |
| **Tyrrell County** | | | | | | | | | | | | | | | | | | |
| Tyrrell County (Unincorporated Area) | 528 | 0 | 0 | 73 | 0 | 2 | 0 | 1 | 23 | 0 | 0 | 0 | 0 | 5 | 0 | 3 | 0 | **635** |
| Town of Columbia | 21 | 2 | 0 | 51 | 0 | 1 | 0 | 3 | 14 | 0 | 0 | 0 | 0 | 4 | 1 | 4 | 0 | **101** |
| **Tyrrell Subtotal** | **549** | **2** | **0** | **124** | **0** | **3** | **0** | **4** | **37** | **0** | **0** | **0** | **0** | **9** | **1** | **7** | **0** | **736** |
| **Washington County** | | | | | | | | | | | | | | | | | | |
| Washington County (Unincorporated Area) | 1,269 | 0 | 0 | 107 | 0 | 37 | 0 | 4 | 34 | 0 | 0 | 1 | 0 | 6 | 0 | 2 | 8 | **1,468** |
| Town of Creswell | 30 | 1 | 0 | 41 | 0 | 5 | 0 | 1 | 11 | 0 | 0 | 1 | 1 | 2 | 0 | 1 | 0 | **94** |
| Town of Plymouth | 87 | 8 | 0 | 244 | 2 | 31 | 0 | 17 | 42 | 0 | 0 | 0 | 1 | 14 | 0 | 4 | 0 | **450** |
| Town of Roper | 48 | 3 | 0 | 38 | 0 | 1 | 0 | 2 | 8 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 3 | **106** |

| Jurisdiction | Food and Agriculture | Banking and Finance | Chemical & Hazardous | Commercial | Communications | Critical Manufacturing | EM | Healthcare | Government Facilities | Defense Industrial Base | National Monuments and Icons | Nuclear Reactors, Materials and Waste | Postal and Shipping | Transportation Systems | Energy | Emergency Services | Water | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Washington Subtotal** | **1,434** | **12** | **0** | **430** | **2** | **74** | **0** | **24** | **95** | **0** | **0** | **2** | **4** | **22** | **0** | **8** | **11** | **2,118** |
| **Region Total** | **7,377** | **99** | **0** | **2,715** | **4** | **858** | **0** | **174** | **537** | **1** | **0** | **2** | **4** | **327** | **6** | **37** | **53** | **12,194** |

Source: NCEM Risk Management Tool

### Table 4.10 – High Potential Loss Properties by Use and Jurisdiction

| Jurisdiction | Residential | Commercial | Industrial | Government | Agricultural | Religious | Utilities | Total |
|---|---|---|---|---|---|---|---|---|
| **Bertie County** | | | | | | | | |
| Bertie County (Unincorporated Area) | 3 | 8 | 2 | 6 | 0 | 3 | 0 | **22** |
| Town of Askewville | 0 | 0 | 0 | 1 | 0 | 0 | 0 | **1** |
| Town of Aulander | 0 | 0 | 0 | 1 | 0 | 0 | 0 | **1** |
| Town of Colerain | 1 | 0 | 0 | 1 | 0 | 0 | 0 | **2** |
| Town of Kelford | - | - | - | - | - | - | - | **-** |
| Town of Lewiston-Woodville | - | - | - | - | - | - | - | **-** |
| Town of Powellsville | - | - | - | - | - | - | - | **-** |
| Town of Roxobel | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |
| Town of Windsor | 0 | 4 | 0 | 6 | 0 | 0 | 0 | **10** |
| **Subtotal** | **4** | **12** | **2** | **15** | **0** | **3** | **0** | **36** |
| **Hyde County** | | | | | | | | |
| Hyde County (Unincorporated Area) | **5** | **4** | **1** | **1** | **14** | **0** | **14** | **39** |
| **Martin County** | | | | | | | | |
| Martin County (Unincorporated Area) | 9 | 9 | 5 | 8 | 3 | 3 | 7 | **44** |
| Town of Bear Grass | - | - | - | - | - | - | - | **-** |
| Town of Everetts | - | - | - | - | - | - | - | **-** |
| Town of Hamilton | 0 | 0 | 0 | 0 | 0 | 0 | 1 | **1** |
| Town of Hassell | - | - | - | - | - | - | - | **-** |
| Town of Jamesville | 0 | 0 | 1 | 3 | 0 | 0 | 4 | **8** |
| Town of Oak City | - | - | - | - | - | - | - | **-** |
| Town of Parmele | - | - | - | - | - | - | - | **-** |
| Town of Robersonville | 0 | 0 | 1 | 0 | 0 | 0 | 0 | **1** |

| Jurisdiction | Residential | Commercial | Industrial | Government | Agricultural | Religious | Utilities | Total |
|---|---|---|---|---|---|---|---|---|
| Town of Williamston | 3 | 20 | 3 | 17 | 1 | 0 | 3 | **47** |
| **Martin Subtotal** | **12** | **29** | **10** | **28** | **4** | **3** | **15** | **101** |
| **Tyrrell County** | | | | | | | | |
| Tyrrell County (Unincorporated Area) | 2 | 2 | 0 | 4 | 4 | 0 | 0 | **12** |
| Town of Columbia | 0 | 2 | 0 | 3 | 0 | 0 | 0 | **5** |
| **Tyrrell Subtotal** | **2** | **4** | **0** | **7** | **4** | **0** | **0** | **17** |
| **Washington County** | | | | | | | | |
| Washington County (Unincorporated Area) | 0 | 0 | 1 | 2 | 0 | 0 | 0 | **3** |
| Town of Creswell | 0 | 0 | 0 | 3 | 0 | 0 | 0 | **3** |
| Town of Plymouth | 0 | 4 | 0 | 4 | 0 | 1 | 0 | **9** |
| Town of Roper | 0 | 0 | 0 | 1 | 0 | 0 | 0 | **1** |
| **Washington Subtotal** | **0** | **4** | **1** | **10** | **0** | **1** | **0** | **16** |
| **Region Total** | **23** | **53** | **14** | **61** | **22** | **7** | **29** | **209** |

Source: NCEM Risk Management Tool

Using the existing CIKR inventory and local data, the HMPC and community staff refined and supplemented the IRISK asset inventory to create the current list of critical facilities, shown in the table below. These assets are considered community lifelines, which are defined by FEMA as the buildings and infrastructure that enable the continuous operation of critical business and government functions and are essential to human health and safety or economic security. Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. These critical facilities are a priority for mitigation planning and were examined against known hazard areas, where possible, in this risk assessment.

Critical facilities are summarized in Table 4.11 and shown by county in Figure 4.1 through Figure 4.5. In total, there are 476 buildings in the region identified as critical facilities. These facilities and infrastructure have a total estimated structure value of $333,292,324.

### Table 4.11 – Critical Facilities, Northeastern NC Region

| Jurisdiction | FEMA Lifeline Type | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | Safety and Security | Food, Hydration, Shelter | Health and Medical | Energy | Hazardous Materials | Water Systems | Communications | Transportation | |
| Bertie County (Unincorporated Area) | 4 | 85 | 2 | 0 | 4 | 23 | 0 | 0 | **118** |
| Town of Askewville | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | **3** |
| Town of Aulander | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | **4** |
| Town of Colerain | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | **4** |
| Town of Kelford | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** |
| Town of Lewiston-Woodville | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **3** |
| Town of Powellsville | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | **3** |
| Town of Roxobel | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** |
| Town of Windsor | 6 | 6 | 4 | 0 | 0 | 4 | 0 | 0 | **20** |
| **Bertie County Total** | **19** | **94** | **11** | **0** | **4** | **29** | **0** | **0** | **157** |
| Hyde County (Unincorporated Area) | 12 | 40 | 4 | 3 | 1 | 12 | 0 | 0 | **72** |
| **Hyde County Total** | **12** | **40** | **4** | **3** | **1** | **12** | **0** | **0** | **72** |
| Martin County (Unincorporated Area) | 3 | 8 | 2 | 0 | 2 | 18 | 0 | 0 | **33** |
| Town of Bear Grass | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Town of Everetts | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Town of Hamilton | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | **4** |
| Town of Hassell | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Town of Jamesville | 1 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | **4** |
| Town of Oak City | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | **2** |
| Town of Parmele | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **0** |
| Town of Robersonville | 2 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | **6** |
| Town of Williamston | 4 | 1 | 4 | 0 | 1 | 4 | 0 | 0 | **14** |
| **Martin County Total** | **12** | **9** | **11** | **0** | **4** | **27** | **0** | **0** | **63** |
| Tyrrell County (Unincorporated Area) | 5 | 23 | 0 | 0 | 0 | 6 | 0 | 0 | **34** |
| Town of Columbia | 5 | 12 | 2 | 0 | 0 | 2 | 0 | 0 | **21** |
| **Tyrrell County Total** | **10** | **35** | **2** | **0** | **0** | **8** | **0** | **0** | **55** |
| Washington County (Unincorporated Area) | 5 | 74 | 2 | 0 | 3 | 18 | 0 | 0 | **102** |
| Town of Creswell | 1 | 7 | 1 | 0 | 0 | 2 | 0 | 0 | **11** |
| Town of Plymouth | 3 | 2 | 3 | 0 | 0 | 2 | 0 | 0 | **10** |
| Town of Roper | 2 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | **6** |
| **Washington County Total** | **11** | **83** | **7** | **0** | **3** | **25** | **0** | **0** | **129** |
| **Northeastern NC Region Total** | **64** | **261** | **35** | **3** | **12** | **101** | **0** | **0** | **476** |

**Figure 4.1 – Bertie County Critical Facilities**

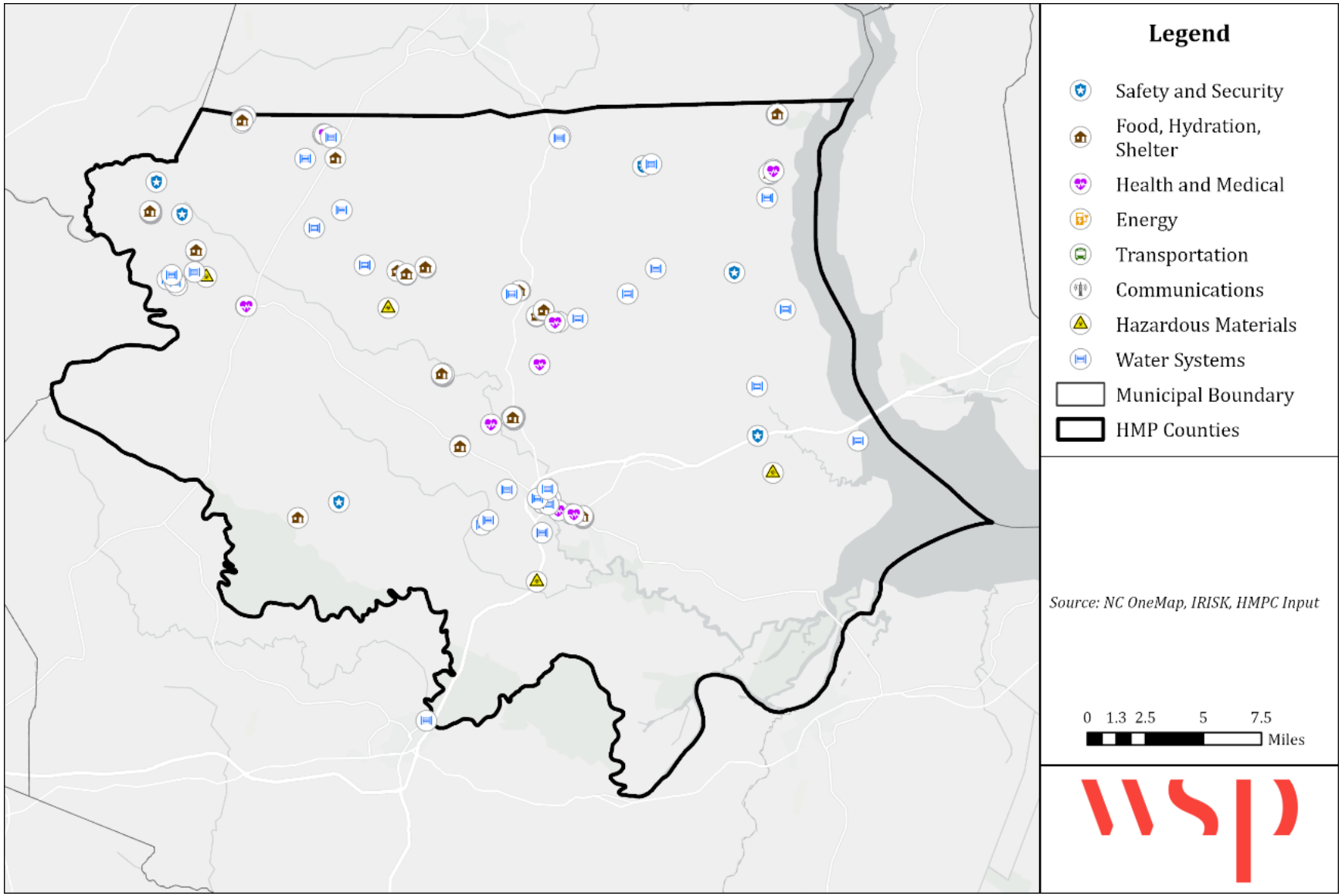


**Figure 4.2 – Hyde County Critical Facilities**

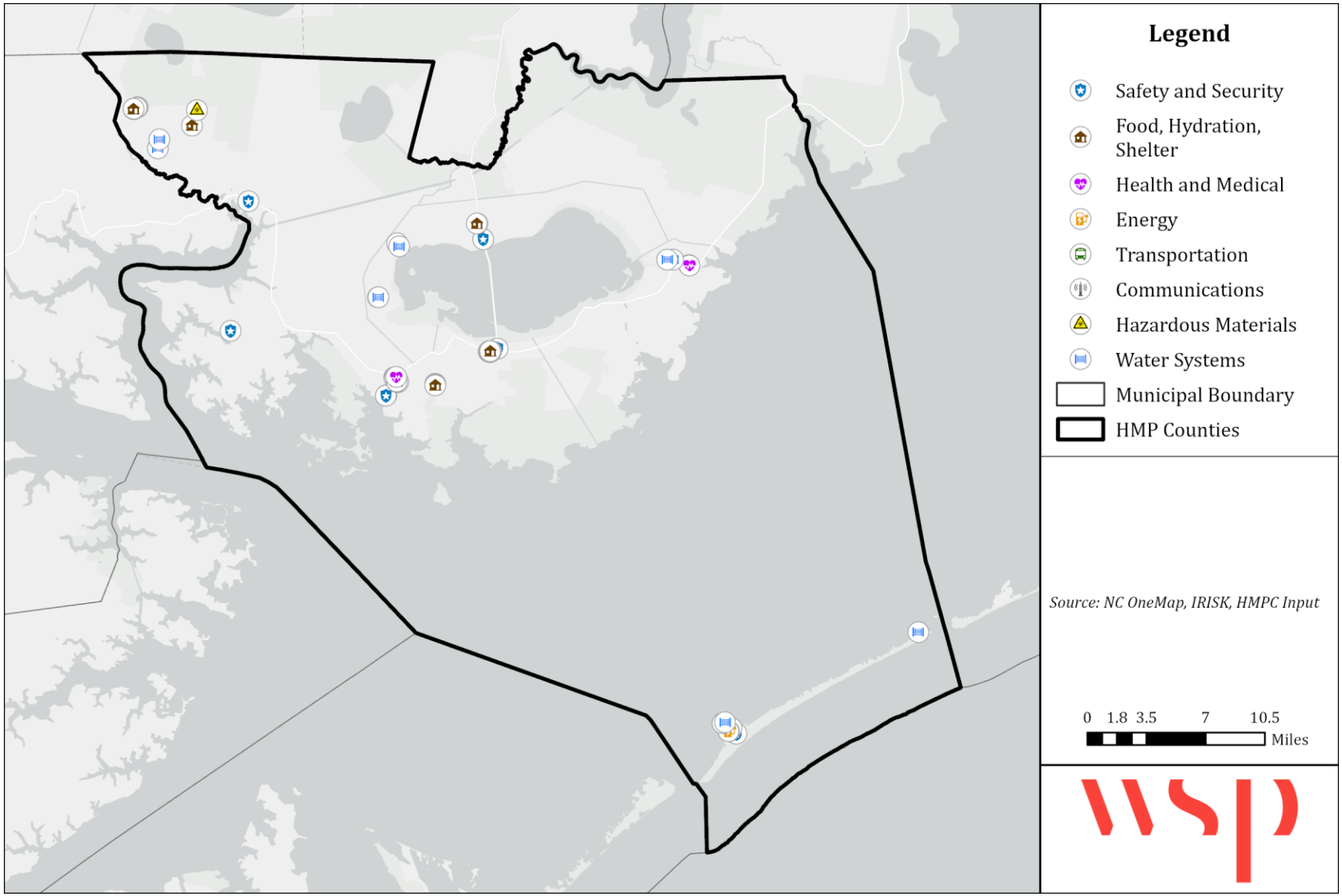
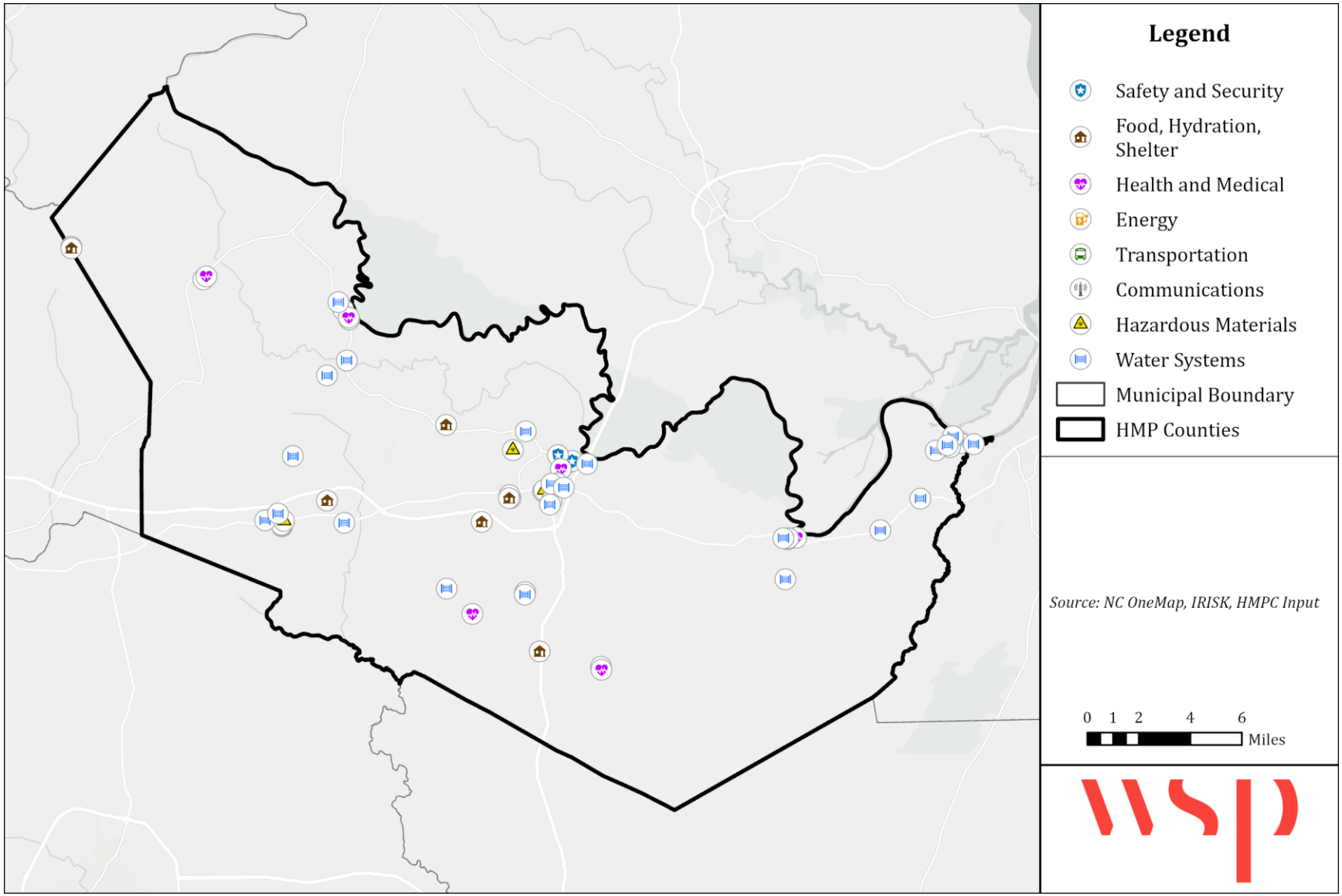
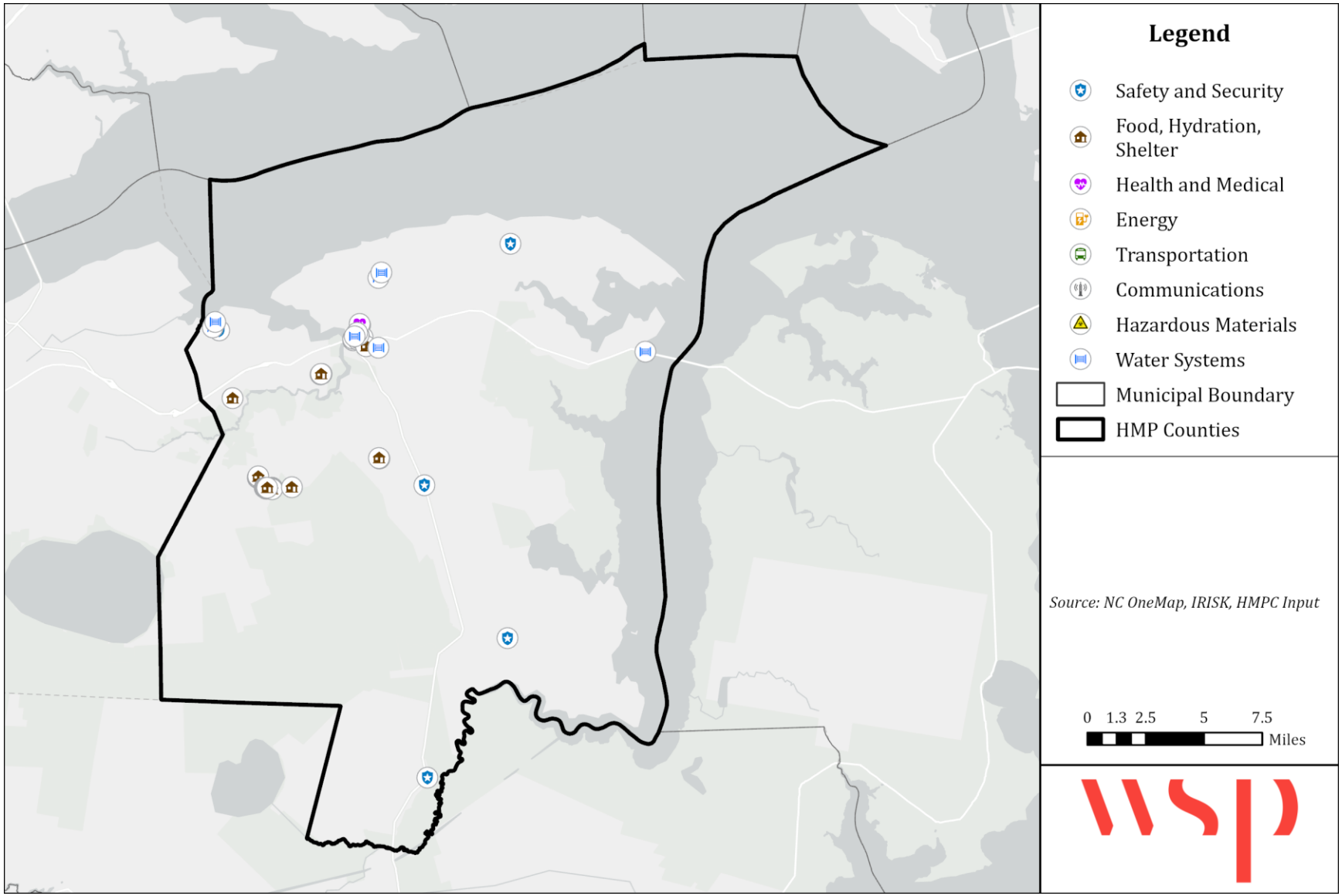


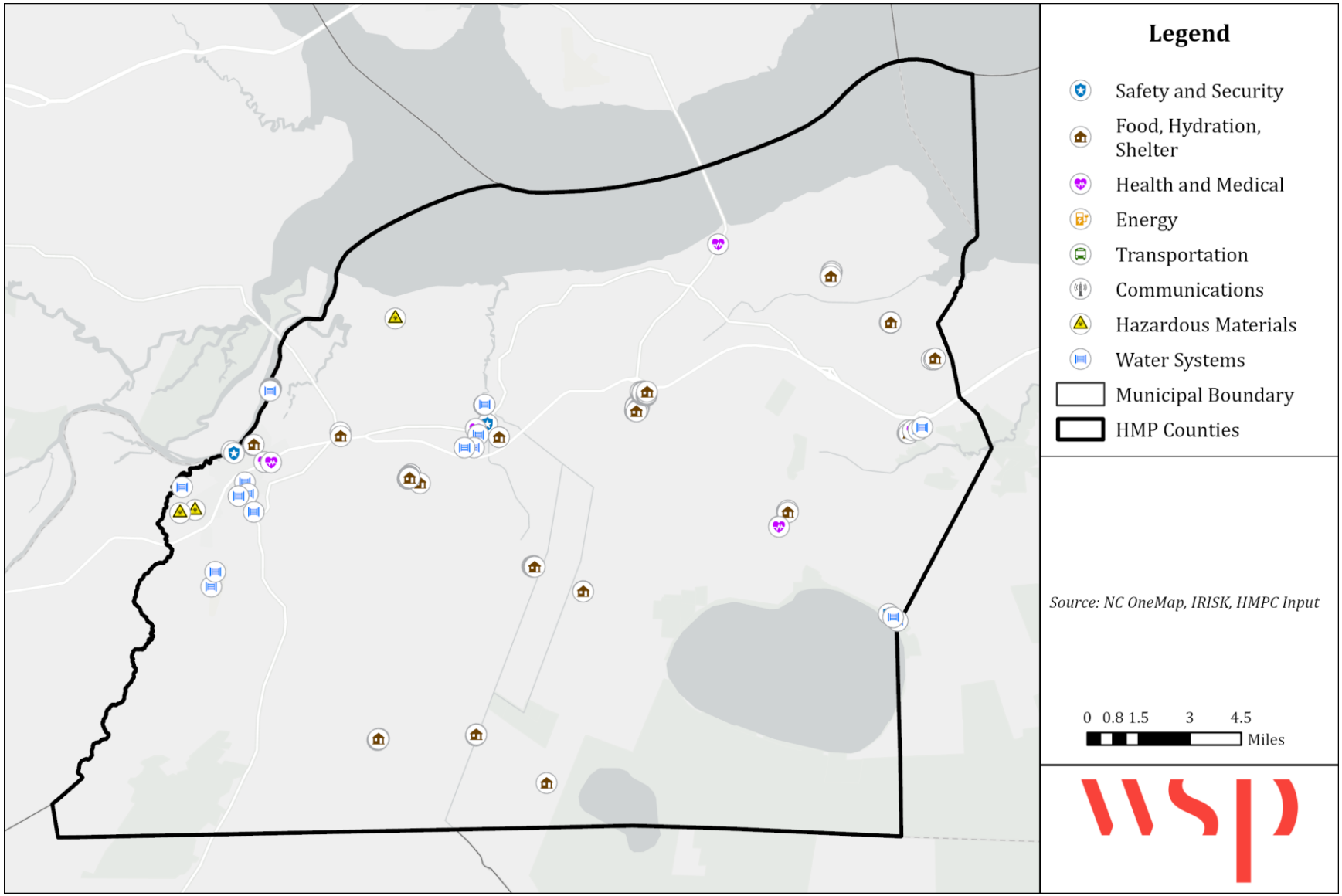
**Figure 4.3 – Martin County Critical Facilities**



## Figure 4.4 – Tyrrell County Critical Facilities



## Figure 4.5 – Washington County Critical Facilities



### 4.4.4 AGRICULTURE

The agricultural industry is also highly vulnerable to natural hazards, which can cause both crop and livestock losses. The exposure of agriculture in the region was measured using the USDA's 2022 Census of Agriculture, which is the most recent data available as of July 2025. Table 4.12 below summarizes the agricultural exposure in the Northeastern NC Region by county.

**Table 4.12 – Summary of Agriculture Exposure by County**

| County | Number of Farms | Acreage in Farms | Proportion of Total Land Area in Farms | Acreage with Crop Insurance | Estimated Market Value of Land & Buildings |
|---|---|---|---|---|---|
| Bertie County | 288 | 161,862 | 36.2% | 92,012 (56.8%) | $659,041,000 |
| Hyde County | 123 | 112,445 | 28.7% | 85,884 (76.3%) | $428,871,000 |
| Martin County | 286 | 143,806 | 49.2% | 92,944 (64.6%) | $432,993,000 |
| Tyrrell County | 73 | 63,761 | 25.5% | 51,794 (81.2%) | $244,563,000 |
| Washington County | 110 | 76,554 | 34.5% | 67,731 (88.4%) | $317,833,000 |

Source: USDA 2022 Census of Agriculture

# 4.5 HAZARD PROFILES, ANALYSIS, AND VULNERABILITY

## 4.5.1 DAM & LEVEE FAILURE

### HAZARD BACKGROUND

#### *DAM FAILURE*

A dam is a barrier constructed across a watercourse that stores, controls, or diverts water. Dams are usually constructed of earth, rock, concrete, or mine tailings. The water impounded behind a dam is referred to as the reservoir and is measured in acre-feet. One acre-foot is the volume of water that covers one acre of land to a depth of one foot. Dams can benefit farmland, provide recreation areas, generate electrical power, and help control erosion and flooding issues. A dam failure is the collapse or breach of a dam that causes downstream flooding. Dam failures may be caused by natural events, manmade events, or a combination. Due to the lack of advance warning, failures resulting from natural events, such as earthquakes or landslides, may be particularly severe. Prolonged rainfall and subsequent flooding are the most common cause of dam failure.

Dam failures usually occur when the spillway capacity is inadequate, and water overtops the dam or when internal erosion in dam foundation occurs (also known as piping). If internal erosion or overtopping 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 also 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; or
- High winds, which can cause significant wave action and result in substantial erosion.

Water released by a failed dam generates tremendous energy and can cause a flood that is catastrophic to life and property. Dam failures are generally catastrophic if the structure is breached or significantly damaged. A catastrophic dam failure could challenge local response capabilities and require evacuations to save lives. Impacts to life safety will depend on the warning time and the resources available to notify and evacuate the public. Major casualties and loss of life could result, as well as water quality and health issues. Potentially catastrophic effects to roads, bridges, and homes are also of major concern. Associated water quality and health concerns could also be issues. Dam failures also have the potential to create a water shortage for nearby communities when the impounded lake is lost, which can affect drinking water supply, power generation, or result in crop losses due to lack of water for irrigation. Factors that influence the potential severity of a full or partial dam failure are the amount of water

impounded; the density, type, and value of development and infrastructure located downstream; and the speed of failure.

Dam failure can occur with little warning. Intense storms may produce a flood in a few hours or even minutes for upstream locations. Flash floods occur within six hours of the beginning of heavy rainfall, and dam failure may occur within hours of the first signs of breaching. Other failures and breaches can take much longer to occur, from days to weeks, as a result of debris jams or the accumulation of melting snow.

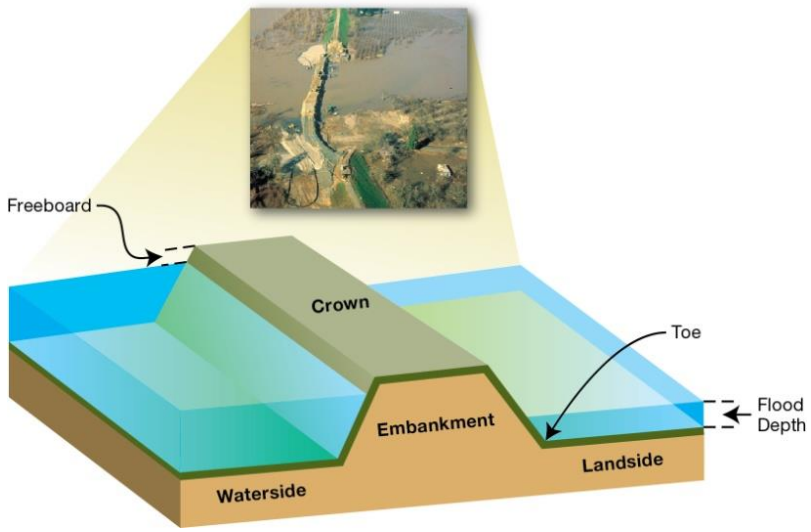
Dam failures are of particular concern because the failure of a large dam has the potential to cause more death and destruction than the failure of any other manmade structure. This is because of the destructive power of the flood wave that would be released by the sudden collapse of a large dam. Dams are innately hazardous structures. Failure or poor operation can result in the release of the reservoir contents—this can include water, mine wastes, or agricultural refuse–causing negative impacts upstream or downstream or at locations far from the dam. Negative impacts of primary concern are loss of human life, property damage, lifeline disruption, and environmental damage.

### *LEVEE FAILURE*

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

Levees and floodwalls are constructed from the earth, compacted soil or artificial materials, such as concrete or steel. To protect against erosion and scouring, earthen levees can be covered with grass and gravel or hard surfaces like stone, asphalt, or concrete. Levees and floodwalls are typically built parallel to a waterway, most often a river, in order to reduce the risk of flooding to the area behind it. Figure 4.6 shows the components of a typical levee.

**Figure 4.6 – Components of a Typical Levee**




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

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

For both dam and levee failure events, there is generally very little warning time. A failure may result from heavy rains and flash flooding and occur within hours of the first signs of breaching. The duration of the flood will vary but may last as long as a week.

*Warning Time: 4 – Less than six hours*

*Duration: 3 – Less than one week*

## LOCATION

### *DAM FAILURE*

The North Carolina Dam Inventory, maintained by North Carolina Department of Environmental Quality, provides a detailed inventory of all dams in the state. As of July 2025, there are 15 dams in the Northeastern NC Region, all of which are rated low hazard. Of the 15 dams, four are located in Bertie County, one is in Hyde County, and ten are in Martin County. There are no dams in Tyrrell or Washington Counties. Table 4.13 details all dams in the Region by county and Figure 4.7 through Figure 4.9 show the location of all dams.

**Table 4.13 – Dams in the Northeastern NC Region**

| Dam Name | NID ID | Condition as of Last Inspection | Max Capacity (Ac-Ft) | Nearest Downstream Location |
|---|---|---|---|---|
| **Bertie County** | | | | |
| Beasley Pond Dam | NC01880 | - | 16 | Colerain |
| Taylor-Brown Pond Dam | NC01881 | - | 100 | - |
| Beasley Farm Dam | NC07760 | - | - | - |
| Second Log Dam | NC07761 | - | - | - |
| **Hyde County** | | | | |
| COOP Plan Dam | NC05893 | Not Rated | - | - |
| **Martin County** | | | | |
| Rainbow Pond Dam | NC01059 | - | 120 | Williamston |
| Leggett Pond Dam | NC01409 | - | 55 | Williamston |
| Lilleys Pond Dam Upper | NC03370 | - | 20 | Jamesville |
| Lilleys Pond Dam Lower | NC03371 | - | 28 | Jamesville |
| Copeland Pond Dam | NC03372 | Poor | 91 | Williamston |
| Old Peel Farm Dam | NC03373 | - | 110 | Hamilton |
| J. E. Griffin Dam | NC03374 | - | 19 | Williamston |
| Davenport Pond Dam | NC03375 | - | 76 | Plymouth |
| Knowles Pond Dam | NC03376 | - | 19 | Plymouth |
| Modlin Pond Dam | NC03377 | - | 32 | - |

Source: North Carolina Dam Inventory

**Figure 4.7 – Dam Locations in Bertie County**

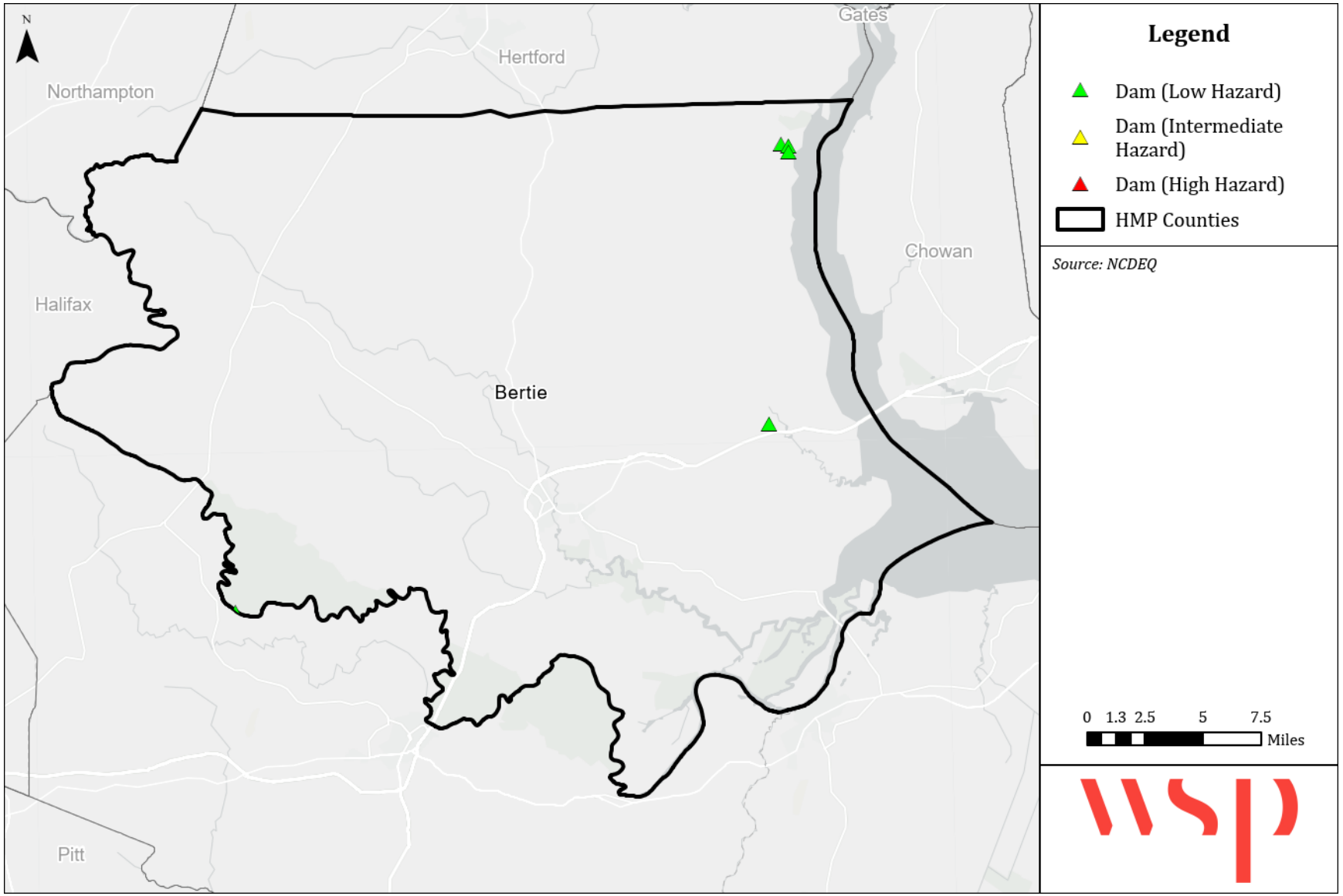


**Figure 4.8 – Dam Location in Hyde County**

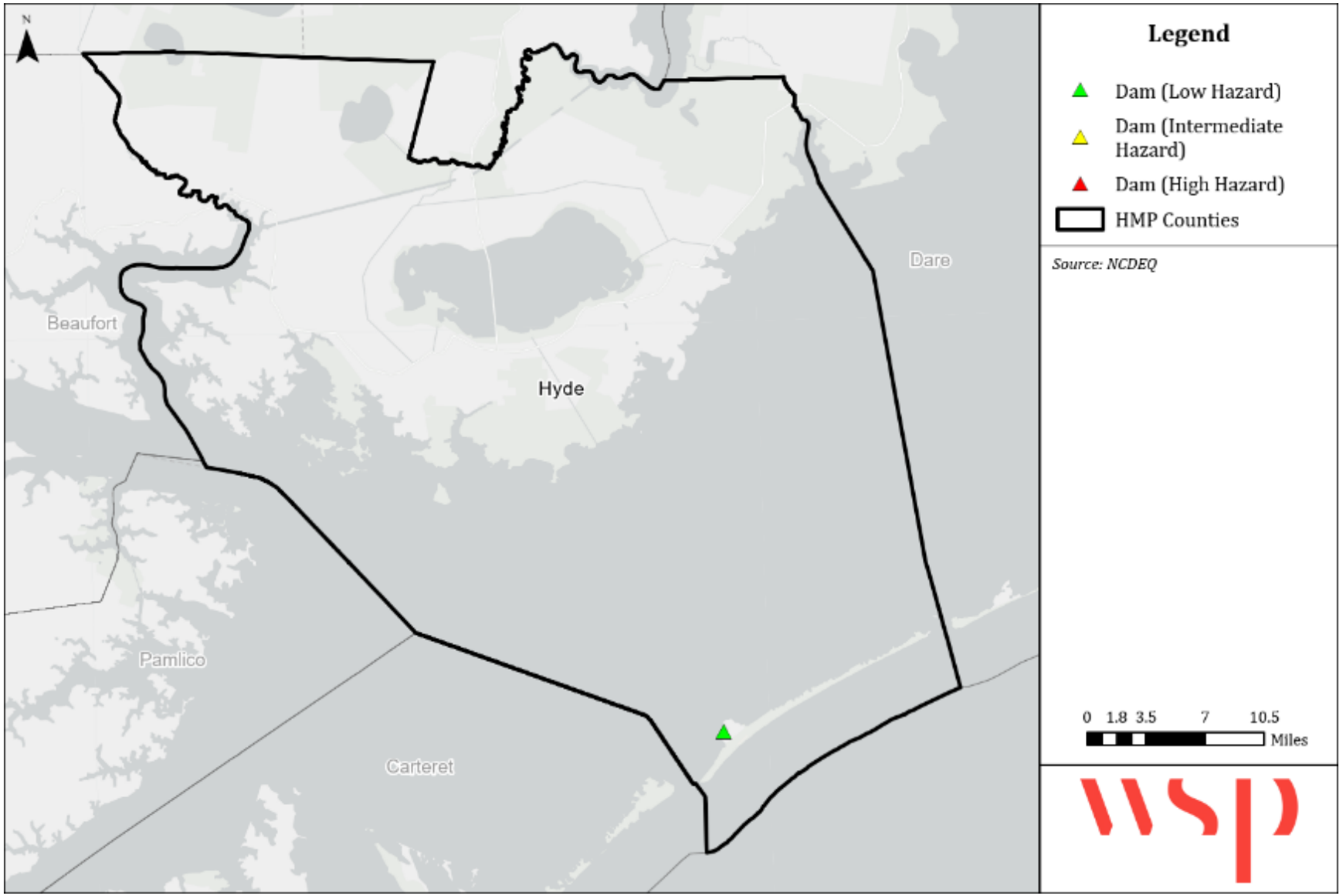
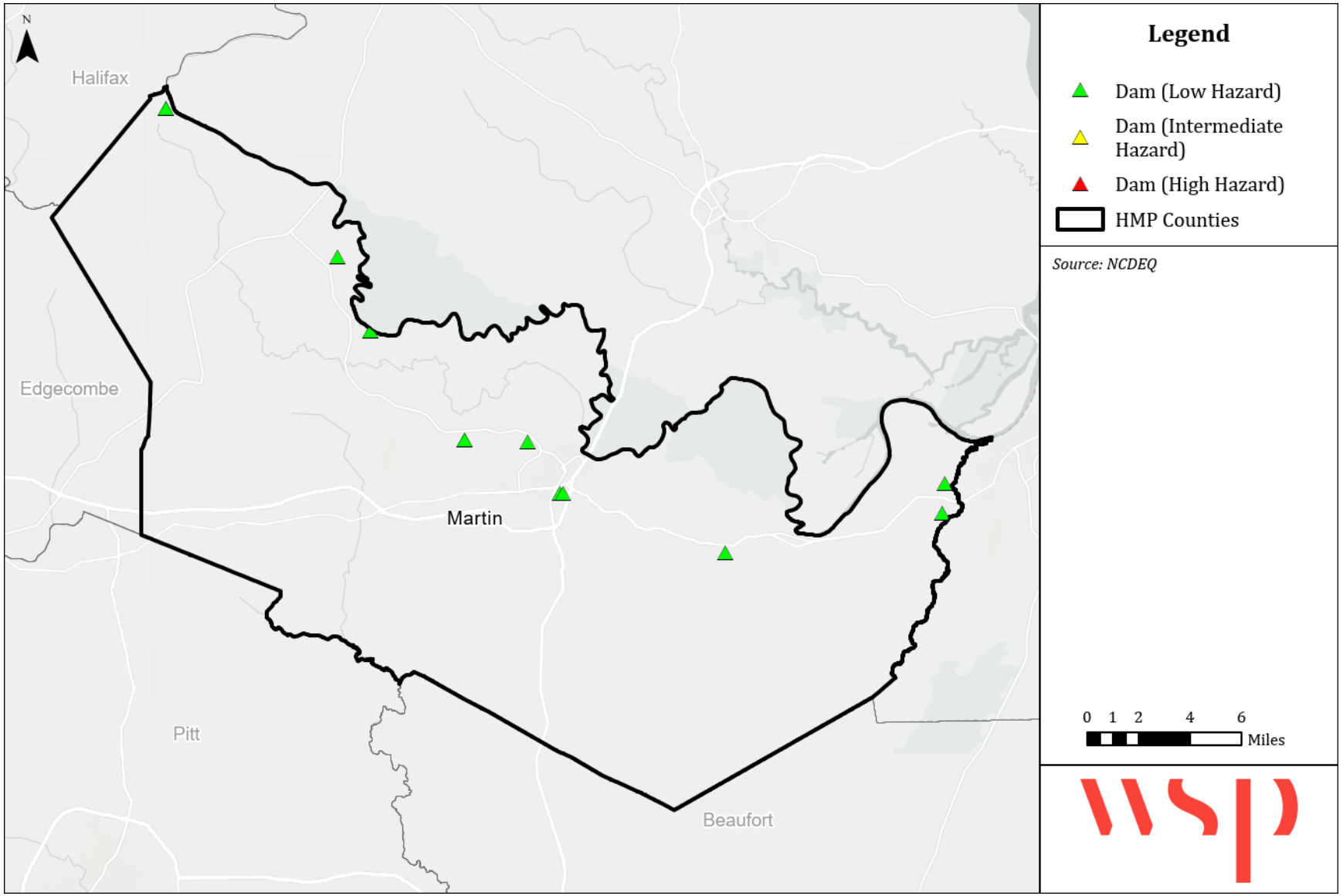


**Figure 4.9 – Dam Locations in Martin County**

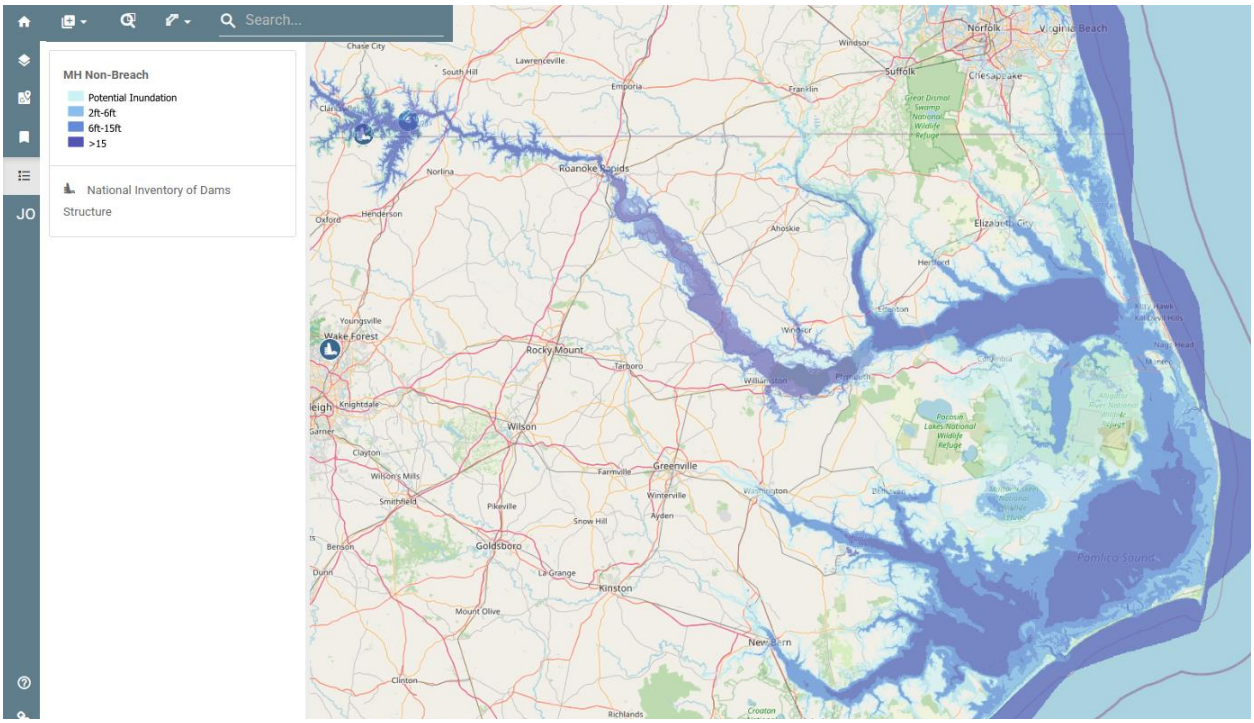


Although there are no high hazard dams within the Northeastern NC region, the region is vulnerable to dam failure flooding from the upstream John H. Kerr Dam. John H. Kerr Dam is located on the Roanoke River in Mecklenburg County, Virginia 18 miles upstream from the Virginia-North Carolina line. A 2001 U.S. Army Corps of Engineers (USACE) Reconnaissance Report notes that "flood releases greater than 8,000 cfs halt forestry operations and adversely affect hunting and fishing and also affect the riparian ecosystem including the vegetative and wildlife communities in the lower Roanoke River Basin. Flood releases greater than 20,000 cfs encroach on farmland and flood some state-maintained farm access roads. Flood releases greater than 35,000 cfs cause minor damage to urban and industrial areas of the cities of Roanoke Rapids and Weldon in addition to increased impacts to crop lands, timber, animal habitat and roadways."

USACE's Flood Inundation Mapping Viewer visualizes inundation and modeling data for dams, including breach and non-breach scenarios.

Figure 4.10 shows the downstream flooding from the maximum high without breach scenario. This reflects the maximum high pool in the reservoir, which is a pool level near the top of the dam resulting from heavy rainfall or another significant high-water event. This scenario reflects the dam operating as intended with a maximum high pool, resulting in maximum releases that can cause significant to catastrophic flooding downstream.

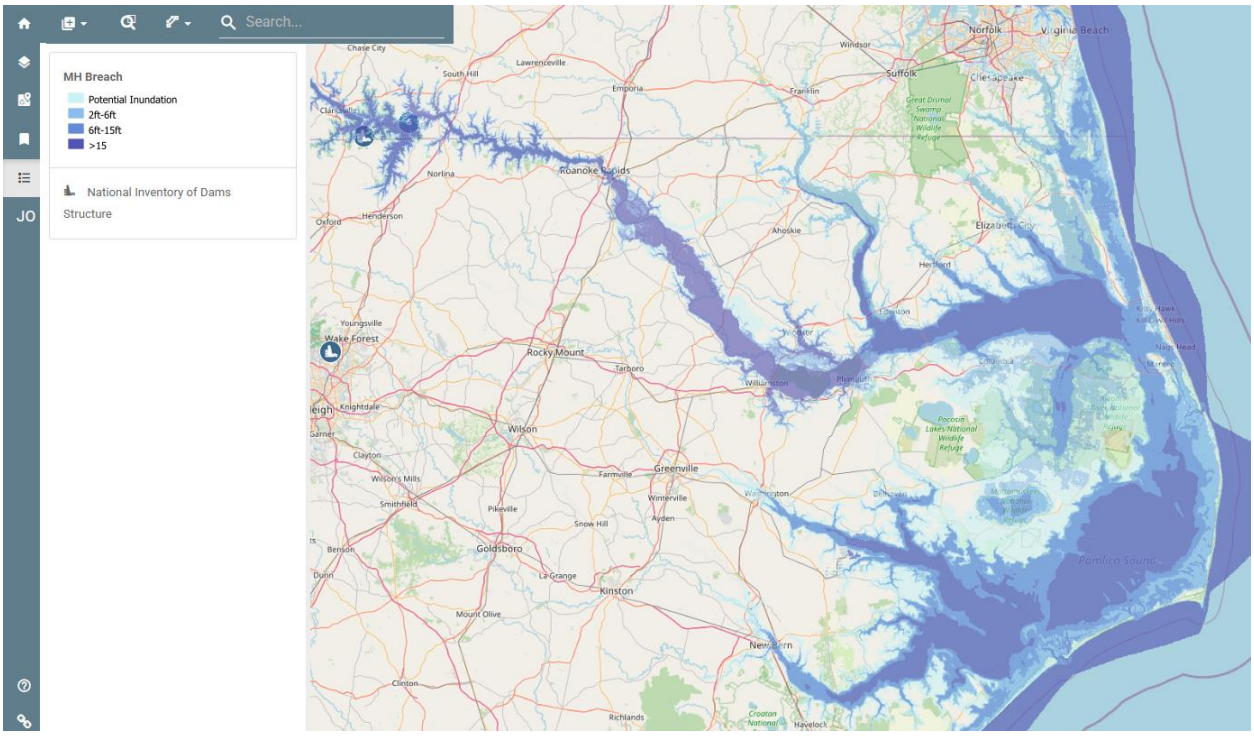
**Figure 4.10 – Maximum High Non-Breach Scenario Inundation**




Source: USACE Flood Inundation Mapping Viewer

Figure 4.11 shows the downstream flooding from the maximum high breach scenario. This reflects the maximum high pool in the reservoir and a breach of the dam, which results in the greatest flooded area, depth of downstream flood waters, and life safety and economic consequences. This scenario reflects the worst case for dam failure inundation for the region.

**Figure 4.11 – Maximum High Breach Scenario Inundation**




Source: USACE Flood Inundation Mapping Viewer

## *LEVEE FAILURE*

According to the US Army Corps of Engineers' (USACE) National Levee Database (NLD), there are four recognized levees in the Northeastern NC Region, two in Tyrrell County, one in Washington County, and one in Hyde County. These levees are detailed in Table 4.14 and their locations are shown in Figure 4.12.

**Table 4.14 – Levees in the Northeastern NC Region**

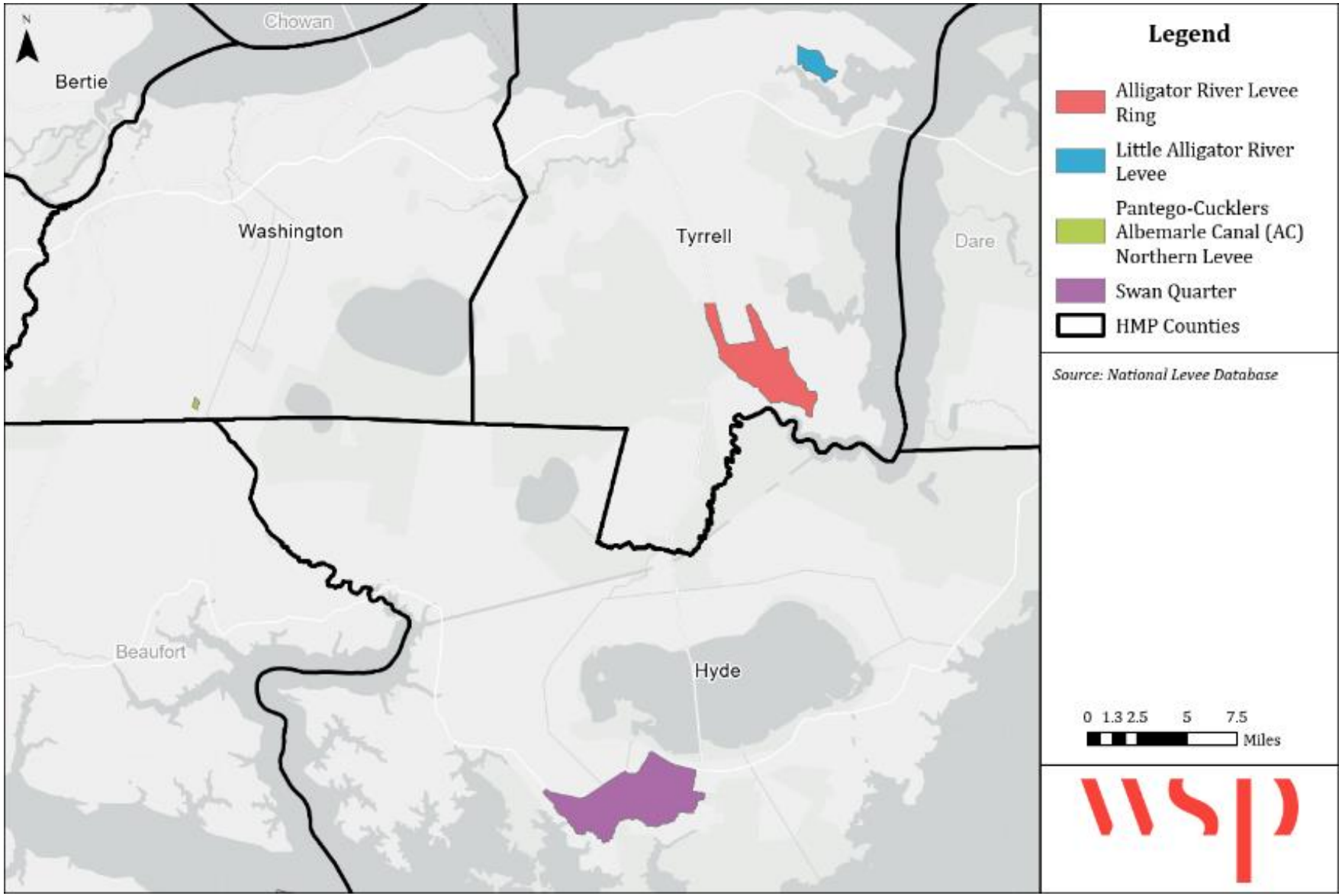
| Levee Name | Year Built | Flood Source | Levee Length | People at Risk | Structures at Risk | Property Value |
|---|---|---|---|---|---|---|
| **Tyrrell County** | | | | | | |
| Alligator River Levee Ring | -- | Alligator River | 22.6 Miles | 256 | 217 | $94M |
| Little Alligator River Levee 1 | -- | Little Alligator River | 6.6 Miles | 2 | 7 | $4.5M |
| **Washington County** | | | | | | |
| Pantego-Cuckler Albemarle Canal (AC) Northern Levee | 1962 | Pantego Creek | 0.41 Miles | 0 | 0 | $12,700 |
| **Hyde County** | | | | | | |
| Swan Quarter | -- | -- | 14.6 Miles | 1,089 | 383 | $175.5M |

Source: National Levee Database

For the region overall, the spatial extent of dam and levee failure is less than 1% of the planning area.

*Spatial Extent: 1 – Negligible*

**Figure 4.12 – Overview of Levee Locations in the Northeastern NC Region**



## EXTENT

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

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

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

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

Source: NCDENR

The risk classifications for the levees in the region are unknown, however there are approximately 1,347 people and 607 structures worth over $274 million at risk in the leveed areas. Though the risk of failure is unknown, the exposure within leveed areas suggests failure could have critical impacts. Overall, failure of a dam or levee would affect only a negligible area but could cause death or property damage within the affected area.

*Impact: 3 – Critical*

## HISTORICAL OCCURRENCES

There are no records of damages, deaths, or injuries associated with dam or levee failure in the Northeastern NC Region.

## PROBABILITY OF FUTURE OCCURRENCE

Given the limited presence of levees and lack of intermediate or high hazard dams in the Region as well as the absence of any prior incidents, it can be concluded that dam or levee failure is unlikely. However, it is possible that with heavy rain events becoming more frequent and intense, conditions conducive to failures may occur more frequently in the future.

*Probability: 1 – Unlikely*

## CLIMATE CHANGE

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

## VULNERABILITY ASSESSMENT

### *METHODOLOGIES AND ASSUMPTIONS*

Dam inundation areas were not available for the identified dams; therefore, a quantitative vulnerability assessment could not be completed. Vulnerability to dam failure discussed below is based on anecdotal evidence and theoretical understanding of potential risks. Levee failure risk is based on risk assessment information provided by the USACE's NLD, where available.

### *PEOPLE*

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

People are also vulnerable to the loss of the uses of the lake upstream of a dam following failure. Several uses are minor, such as aesthetics or recreational use. However, some lakes serve as drinking water supplies and their loss could disrupt the drinking water supply and present a public health problem.

The NLD estimates that 1,347 people are at risk to levee failure in the Northeastern NC Region, all located in Tyrrell County and Hyde County.

### *PROPERTY*

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

upstream of the dam, such as docks/piers, floating structures or water intake structures, may be damaged by the rapid reduction in water level during the failure.

Similarly, levee failures can result in inundation and damages to buildings, personal property, and infrastructure. If a levee fails or is overtopped, the resulting flooding may be severe, as the levee then acts as a barrier, preventing drainage of the flood waters. According to NLD, there are 607 buildings at risk in leveed areas in the Northeastern NC Region, worth an estimated $274 million.

### *ENVIRONMENT*

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

### *CONSEQUENCE ANALYSIS*

Table 4.16 summarizes the potential negative consequences of dam and levee failure.

**Table 4.16 – Consequence Analysis – Dam and Levee Failure**

| Category | Consequences |
|---|---|
| Public | Localized impact expected to be severe for inundation area and moderate to light for other adversely affected areas. |
| Responders | Localized impact expected to limit damage to personnel in the inundation area at the time of the incident. |
| Continuity of Operations (including Continued Delivery of Services) | Damage to facilities/personnel in the area of the incident may require temporary relocation of some operations. Localized disruption of roads and/or utilities may postpone delivery of some services. Regulatory waivers may be needed locally. Fulfillment of some contracts may be difficult. Impact may reduce deliveries. |
| Property, Facilities and Infrastructure | Localized impact to facilities and infrastructure in the inundation area of the incident. Some severe damage possible. |
| Environment | Localized impact expected to be severe for inundation area and moderate to light for other adversely affected areas. Consequences include erosion, water quality degradation, wildlife displacement or destruction, and habitat destruction. |
| Economic Condition of the Jurisdiction | Local economy and finances adversely affected, possibly for an extended period of time, depending on damage and length of investigation. |
| Public Confidence in the Jurisdiction's Governance | Localized impact expected to primarily adversely affect only the dam owner and local entities. |

## HAZARD SUMMARY BY JURISDICTION

The following table summarizes dam and levee failure hazard risk by jurisdiction. Warning time and duration are inherent to the hazard and remain constant across jurisdictions. Spatial extent of any dam failure will be negligible relative to the planning area. There are no historical occurrences of dam or levee failure, so probability is low across all jurisdictions. There are no high or significant hazard dams within the planning area. Jurisdictions with vulnerability to levee failure as quantified by the NLD were assigned

an impact rating of critical; all other jurisdictions were assigned an impact rating of limited, as there may still be some secondary impacts.

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| Bertie County | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Askewville | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Aulander | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Colerain | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Kelford | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Lewiston-Woodville | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Powellsville | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Roxobel | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Windsor | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Hyde County | 1 | 3 | 1 | 4 | 3 | 2.1 | M |
| Martin County | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Bear Grass | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Everetts | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Hamilton | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Hassell | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Jamesville | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Oak City | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Parmele | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Robersonville | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Williamston | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Tyrrell County | 1 | 3 | 1 | 4 | 3 | 2.1 | M |
| Town of Columbia | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Washington County | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Creswell | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Plymouth | 1 | 2 | 1 | 4 | 3 | 1.8 | L |
| Town of Roper | 1 | 2 | 1 | 4 | 3 | 1.8 | L |

## 4.5.2 DROUGHT

### HAZARD BACKGROUND

Drought is a deficiency in precipitation over an extended period. It is a normal, recurrent feature of climate that occurs in virtually all climate zones. The duration of a drought varies widely. There are cases when drought develops relatively quickly and lasts a very short period of time, exacerbated by extreme heat and/or wind, and there are other cases when drought spans multiple years, or even decades. Studying the paleoclimate record is often helpful in identifying when long-lasting droughts have occurred. Common types of droughts are detailed below in Table 4.17.

**Table 4.17 – Types of Droughts**

| Type | Details |
|---|---|
| Meteorological Drought | Meteorological Drought is based on the degree of dryness (rainfall deficit) and the length of the dry period. |
| Agricultural Drought | Agricultural Drought is based on the impacts to agriculture by factors such as rainfall deficits, soil water deficits, reduced ground water, or reservoir levels needed for irrigation. |
| Hydrological Drought | Hydrological Drought is based on the impact of rainfall deficits on the water supply such as stream flow, reservoir and lake levels, and ground water table decline. |
| Socioeconomic Drought | Socioeconomic drought is based on the impact of drought conditions (meteorological, agricultural, or hydrological drought) on supply and demand of some economic goods. Socioeconomic drought occurs when the demand for an economic good exceeds supply as a result of a weather-related deficit in water supply. |
| Ecological Drought | Prolonged and widespread deficit in naturally available water supplies — including changes in natural and managed hydrology — that create multiple stresses across ecosystems |

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

The U.S. Drought Monitor provides a summary of drought conditions across the United States and Puerto Rico. Often described as a blend of art and science, the Drought Monitor 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 **Palmer Drought Severity Index** (PDSI) devised in 1965, was the first drought indicator to assess moisture status comprehensively. It uses temperature and precipitation data to calculate water supply and demand, incorporates soil moisture, and is considered most effective for unirrigated cropland. It primarily reflects long-term drought and has been used extensively to initiate drought relief. It is more complex than the Standardized Precipitation Index (SPI) and the Drought Monitor.

The **Standardized Precipitation Index** (SPI) is a way of measuring drought that is different from the Palmer Drought Severity Index (PDSI). Like the PDSI, this index is negative for drought, and positive for wet conditions. But the SPI is a probability index that considers only precipitation, while Palmer's indices

are water balance indices that consider water supply (precipitation), demand (evapotranspiration) and loss (runoff).

The State of North Carolina has a Drought Assessment and Response Plan as an Annex to its Emergency Operations Plan. This plan provides the framework to coordinate statewide response to a drought incident.

*Warning Time: 1 – More than 24 hours*

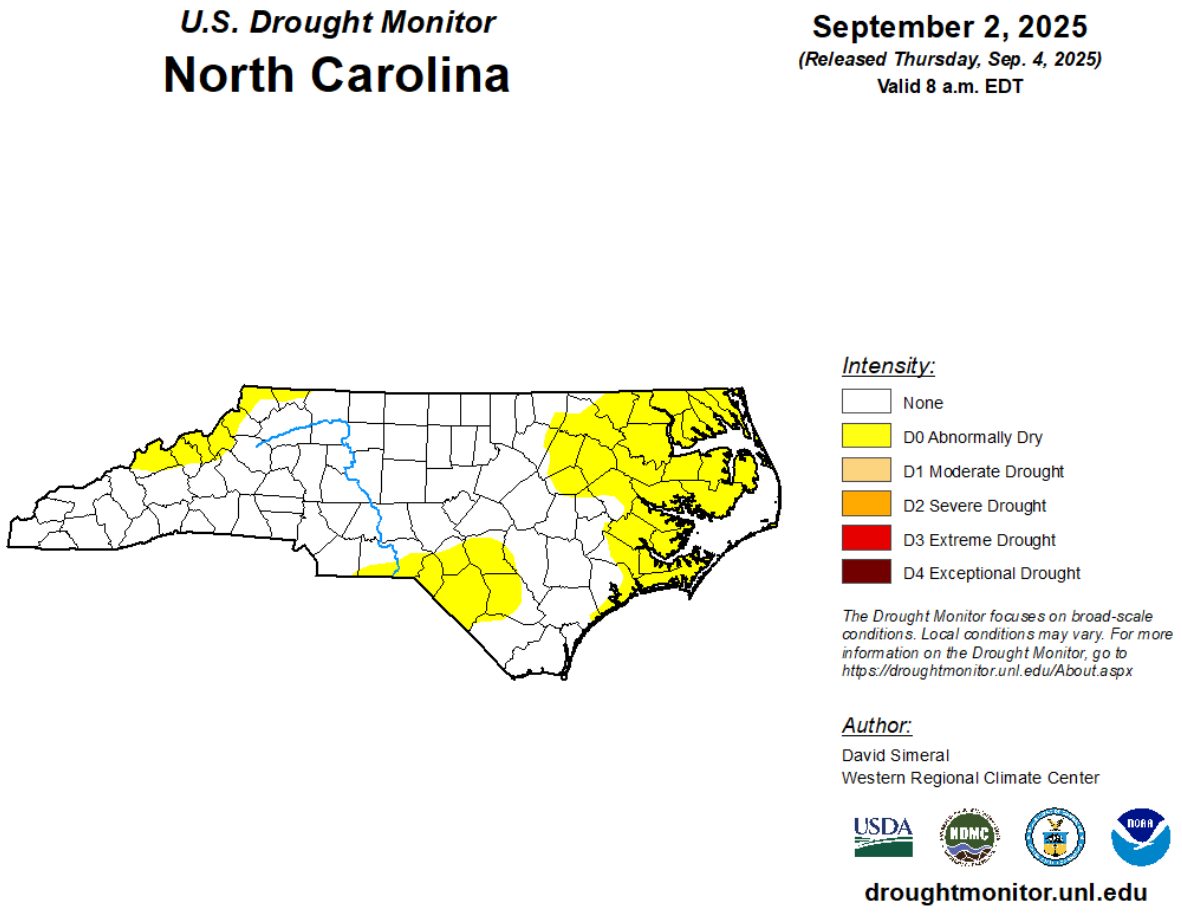
*Duration: 4 – More than one week*

## LOCATION

Drought is a regional hazard that can cover an entire the entire planning area, and in some cases the entire state. The figure below shows the U.S. Drought Monitor's drought ratings for North Carolina as of September 2, 2025. As of that date, the Northeastern Region was experiencing abnormally dry conditions, or D0 drought. While this map is not an indication of future drought potential, it does illustrate the regional nature of drought conditions.

*Spatial Extent: 4 – Large*

**Figure 4.13 – US Drought Monitor for Week of September 2, 2025**




Source: U.S. Drought Monitor

## EXTENT

Drought extent can be defined in terms of intensity, using the U.S. Drought Monitor scale. The Drought Monitor Scale measures drought episodes with input from the Palmer Drought Severity Index, the Standardized Precipitation Index, the Keetch-Byram Drought Index, soil moisture indicators, and other inputs as well as information on how drought is affecting people. Figure 4.14 details the classifications used by the U.S. Drought Monitor. A category of D2 (severe) or higher on the U.S. Drought Monitor Scale can typically result in crop or pasture losses, water shortages, and the need to institute water restrictions.

**Figure 4.14 – US Drought Monitor Classifications**

| | | | Ranges | | | | |
|---|---|---|---|---|---|---|---|
| Category | Description | Possible Impacts | Palmer Drought Severity Index (PDSI) | CPC Soil Moisture Model (Percentiles) | USGS Weekly Streamflow (Percentiles) | Standardized Precipitation Index (SPI) | Objective Drought Indicator Blends (Percentiles) |
| D0 | Abnormally Dry | Going into drought:<br>▪ short-term dryness slowing planting, growth of crops or pastures<br>Coming out of drought:<br>▪ some lingering water deficits<br>▪ pastures or crops not fully recovered | -1.0 to -1.9 | 21 to 30 | 21 to 30 | -0.5 to -0.7 | 21 to 30 |
| D1 | Moderate Drought | ▪ Some damage to crops, pastures<br>▪ Streams, reservoirs, or wells low, some water shortages developing or imminent<br>▪ Voluntary water-use restrictions requested | -2.0 to -2.9 | 11 to 20 | 11 to 20 | -0.8 to -1.2 | 11 to 20 |
| D2 | Severe Drought | ▪ Crop or pasture losses likely<br>▪ Water shortages common<br>▪ Water restrictions imposed | -3.0 to -3.9 | 6 to 10 | 6 to 10 | -1.3 to -1.5 | 6 to 10 |
| D3 | Extreme Drought | ▪ Major crop/pasture losses<br>▪ Widespread water shortages or restrictions | -4.0 to -4.9 | 3 to 5 | 3 to 5 | -1.6 to -1.9 | 3 to 5 |
| D4 | Exceptional Drought | ▪ Exceptional and widespread crop/pasture losses<br>▪ Shortages of water in reservoirs, streams, and wells creating water emergencies | -5.0 or less | 0 to 2 | 0 to 2 | -2.0 or less | 0 to 2 |

Source: US Drought Monitor

The most severe drought to impact the Northeastern NC Region within the past 20 years occurred between March 2007 and May 2008, during which time Bertie and Martin Counties experienced 50 consecutive weeks of drought conditions, and Hyde, Tyrell and Washington Counties experienced 47 consecutive weeks of drought. Conditions were most severe in Bertie and Martin Counties, where some areas experienced "exceptional" drought conditions. In general, drought is not likely to cause any direct injury or death, but economic impacts of drought can be severe, especially to the agricultural industry.

*Impact: 2 – Limited*

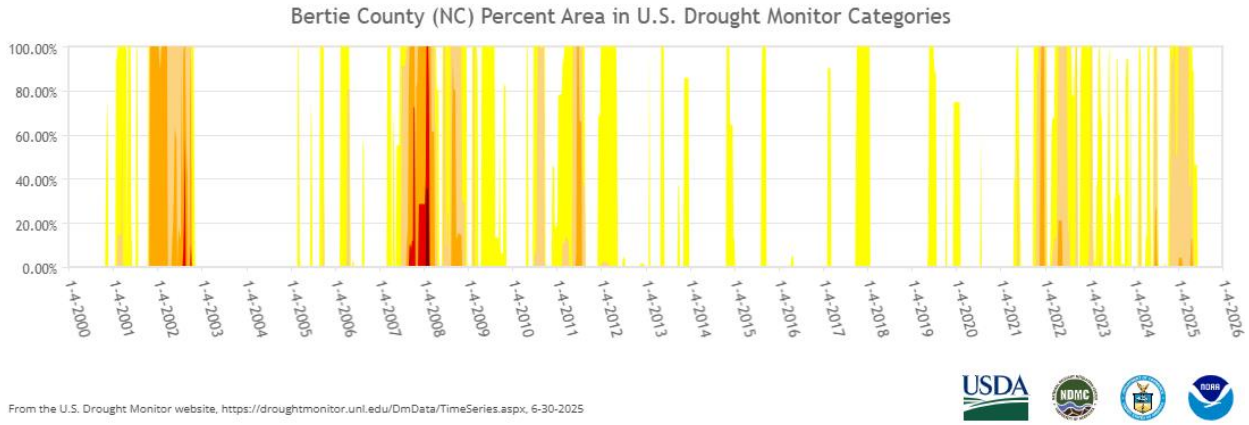
## HISTORICAL OCCURRENCES

Figure 4.15 through Figure 4.19 show historical periods where each county was considered in some level of drought condition. The color key shown in Figure 4.14 indicates the intensity of the drought.

### *BERTIE COUNTY*

Between 2000 and 2024, Bertie County was in some level of drought 40.6% of the time. The County recorded 112 weeks of in "severe" drought or worse during this timeframe, including 4 weeks in "exceptional" drought conditions.

**Figure 4.15 – US Drought Monitor Historical Trends – Bertie County 2000-2024**

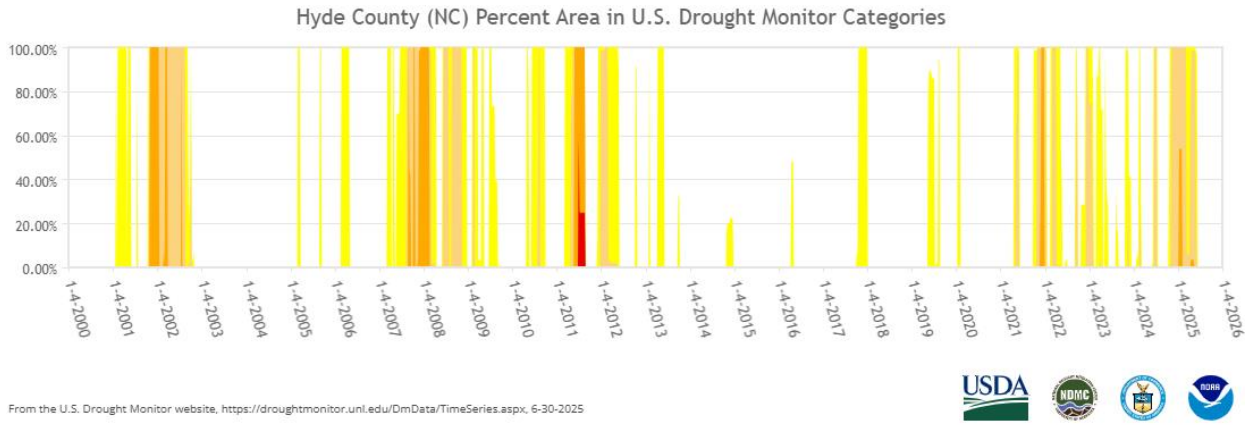



Source: U.S. Drought Monitor

## *HYDE COUNTY*

Between 2000 and 2024, Hyde County was in some level of drought 33.7% of the time. The County recorded 56 weeks in "severe" drought during this timeframe.

**Figure 4.16 – US Drought Monitor Historical Trends – Hyde County 2000-2024**

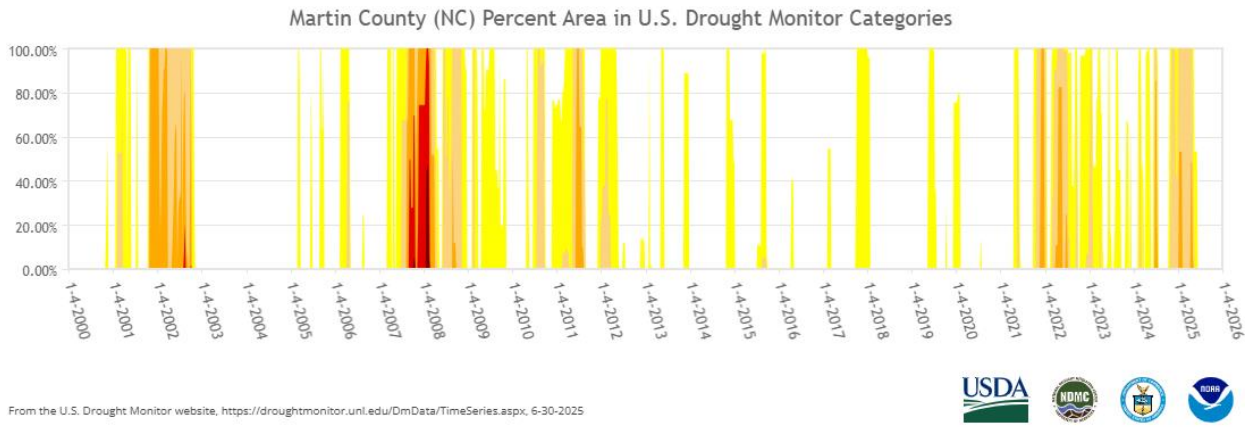



Source: U.S. Drought Monitor

## *MARTIN COUNTY*

Between 2000 and 2024, Martin County was in some level of drought 39.9% of the time. The County recorded 106 weeks in "severe" drought or worse during this timeframe, including 6 weeks with some areas in "exceptional" drought.

**Figure 4.17 – US Drought Monitor Historical Trends – Martin County 2000-2024**

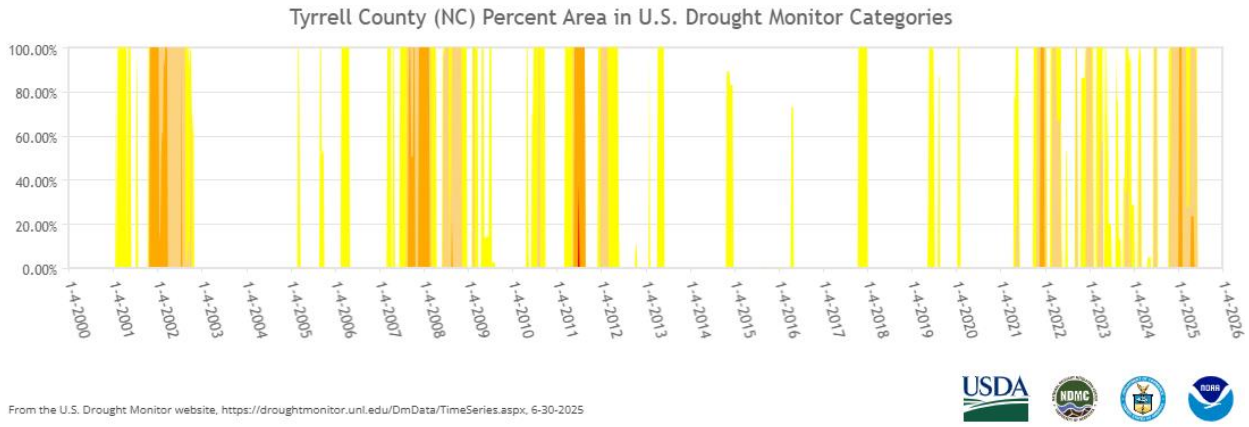



Source: U.S. Drought Monitor

## *TYRRELL COUNTY*

Between 2000 and 2024, Tyrrell County was in some level of drought 33.1% of the time. The County recorded 62 weeks in "severe" drought or worse during this timeframe.

**Figure 4.18 – US Drought Monitor Historical Trends – Tyrrell County 2000-2024**

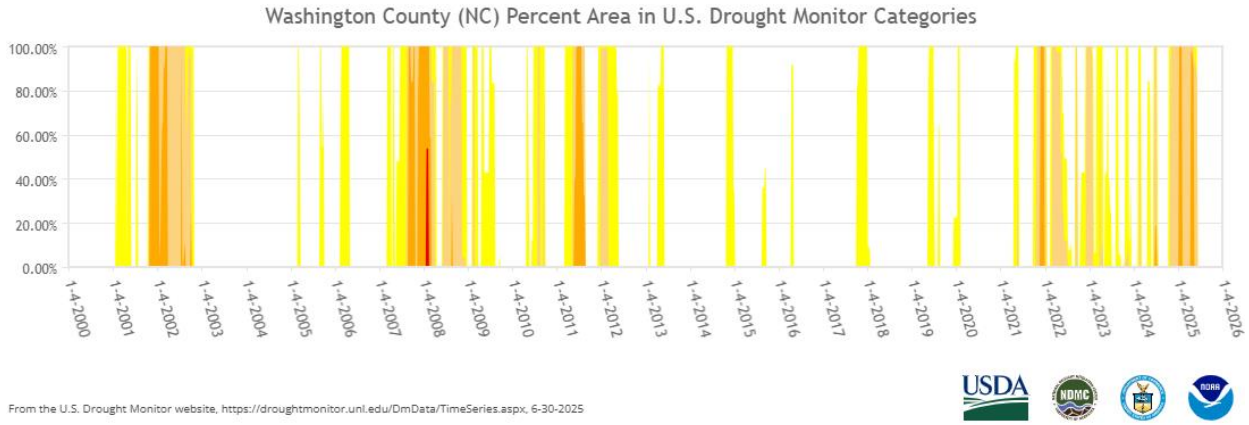



Source: U.S. Drought Monitor

## *WASHINGTON COUNTY*

Between 2000 and 2024, Washington County was in some level of drought 34.9% of the time. The County recorded 76 weeks of in "severe" drought or worse during this timeframe.

**Figure 4.19 – US Drought Monitor Historical Trends – Washington County 2000-2024**




Source: U.S. Drought Monitor

The National Drought Mitigation Center (NDMC), located at the University of Nebraska in Lincoln, provides a clearinghouse for information on the effects of drought, based on reports from media, observers, impact records, and other sources.

Table 4.18 summarizes the number of impacts reported by category and the years impacts were reported for each category. Note that the Drought Impact Reporter assigns multiple categories to each impact, and that the same impacts were listed for almost every county in the Region, which speaks to the regional nature of drought.

**Table 4.18 – Drought Impacts Reported in the Northeastern NC Region, 2009 - 2024**

| Category | Impacts | | | | | Years Reported |
|---|---|---|---|---|---|---|
| | Bertie | Hyde | Martin | Tyrrell | Washington | |
| Agriculture | 3 | 3 | 3 | 2 | 2 | 2010, 2012, 2024 |
| Fire | 6 | 9 | 6 | 7 | 7 | 2011, 2019, 2021, 2024 |
| Relief, Response & Restrictions | 8 | 11 | 9 | 8 | 9 | 2010, 2012, 2019, 2020, 2021, 2024 |
| Society & Public Health | 1 | 1 | 1 | 1 | 1 | 2011, 2024 |
| Water Supply & Quality | 1 | 1 | 2 | 1 | 2 | 2020, 2021 |

Source: Drought Impact Reporter, http://droughtreporter.unl.edu

## PROBABILITY OF FUTURE OCCURRENCE

Over the 1,305 weeks with data from 2000 through 2024, the Region spent an average of 476 weeks in some level of drought condition, ranging from abnormally dry to exceptional drought. This equates to a 36.4% chance of drought in any given week. Table 4.19 summarizes historical data by county. The probability of severe drought is lower, with the region averaging 6.3% of the time in severe drought conditions or worse.

**Table 4.19 – Historical Weeks in Drought by County, 2000-2024**

| County | Any Drought Conditions | | Severe Drought Conditions | |
|---|---|---|---|---|
| | Total Weeks | Percent of Time | Total Weeks | Percent of Time |
| Bertie | 530 | 40.6% | 112 | 8.5% |
| Hyde | 440 | 33.7% | 56 | 4.3% |
| Martin | 521 | 39.9% | 106 | 8.1% |
| Tyrrell | 432 | 33.1% | 62 | 4.7% |
| Washington | 456 | 34.9% | 76 | 5.8% |

Source: US Drought Monitor

*Probability: 2 – Possible*

## CLIMATE CHANGE

The Fourth National Climate Assessment reports that average and extreme temperatures are increasing across the country and average annual precipitation is decreasing in the Southeast. Heavy precipitation events are becoming more frequent, meaning that there will likely be an increase in the average number of consecutive dry days. As temperature is projected to continue rising, evaporation rates are expected to increase, resulting in decreased surface soil moisture levels. Together, these factors suggest that drought will increase in intensity and duration in the Southeast.

The Fifth National Climate Assessment upholds the climate trends reported in the Fourth Assessment and presents additional patterns in the Southeast that exacerbate climate risk and impacts. These patterns include population growth, high proportion of the population with health issues or underlying health conditions, and a large, climate-dependent agricultural sector.

## VULNERABILITY ASSESSMENT

### *METHODOLOGIES AND ASSUMPTIONS*

Vulnerability to drought in the Northeastern Region is based on historical occurrences of drought in the planning area and generalized concerns regarding potential drought consequences. Agricultural vulnerability was estimated using data from the USDA Risk Management Agency crop insurance claims, specifically past claims related to drought.

### *PEOPLE*

Drought can affect people's physical and mental health. For those economically dependent on a reliable water supply, drought may cause anxiety or depression about economic losses, reduced incomes, and other employment impacts. Conflicts may arise over water shortages. People may be forced to pay more for water, food, and utilities affected by increased water costs.

Drought may also cause health problems due to poorer water quality from lower water levels. If accompanied by extreme heat, drought can also result in higher incidents of heat stroke and even loss of human life.

### *PROPERTY*

Drought is unlikely to cause damages to the built environment. However, in areas with shrinking and expansive soils, drought may lead to structural damages.

Drought may also cause severe property loss for the agricultural industry in terms of crop and livestock losses. The USDA's Risk Management Agency (RMA) maintains a database of all paid crop insurance claims. Between 2007-2024, the sum of claims paid for crop damage as a result of drought in the Northeastern NC Region was $62,038,221, or an average of $3,446,567 in losses every year. Losses were greatest in Bertie County. Table 4.20 summarizes the regional crop losses due to drought in reported in the RMA system.

**Table 4.20 – Crop Losses Resulting from Drought in Northeastern NC Region, 2007-2024**

| Year | Indemnity Amount |
|---|---|
| 2007 | $3,636,669 |
| 2008 | $8,301,875 |
| 2009 | $714,906 |
| 2010 | $7,116,298 |
| 2011 | $17,618,400 |
| 2012 | $416,010 |
| 2013 | $31,775 |
| 2014 | $117,891 |
| 2015 | $5,939,106 |
| 2016 | $1,926,548 |
| 2017 | $18,433 |
| 2018 | $223,987 |
| 2019 | $2,835,431 |
| 2020 | $2,007,198 |
| 2021 | $1,143,115 |
| 2022 | $4,533,695 |
| 2023 | $4,144,020 |
| 2024 | $1,312,864 |
| **Total** | **$62,038,221** |

Source: USDA Risk Management Agency

Table 4.21 summarizes county-specific data on indemnity amounts, as well as average payout amounts per year. Bertie County suffered the greatest impacts agriculturally from drought, with over $17 million in payouts over the 18-year timespan.

**Table 4.21 – County-Specific Total Crop Losses Resulting from Drought, 2007-2024**

| County | Indemnity Amount | Average Annual Indemnity |
|---|---|---|
| Bertie | $17,880,668 | $993,370 |
| Hyde | $7,328,117 | $407,118 |
| Martin | $19,698,704 | $1,094,372 |
| Tyrrell | $3,032,608 | $168,478 |
| Washington | $14,098,084 | $783,227 |
| **Total** | **$62,038,180** | **$3,446,566** |

Source: USDA Risk Management Agency

### *ENVIRONMENT*

Drought can affect local wildlife by shrinking food supplies and damaging habitats. Sometimes this damage is only temporary, and other times it is irreversible. Wildlife may face increased disease rates due to limited access to food and water. Increased stress on endangered species could cause extinction.

Drought conditions can also provide a substantial increase in wildfire risk. As plants and trees die from a lack of precipitation, increased insect infestations, and diseases—all of which are associated with drought—they become fuel for wildfire. Long periods of drought can result in more intense wildfires, which bring additional consequences for the economy, the environment, and society. Drought may also increase likelihood of wind and water erosion of soils.

### *CONSEQUENCE ANALYSIS*

Table 4.22 summarizes the potential negative consequences of drought.

**Table 4.22 – Consequence Analysis – Drought**

| Category | Consequences |
|---|---|
| Public | Can cause anxiety or depression about economic losses, conflicts over water shortages, reduced incomes, fewer recreational activities, higher incidents of heat stroke, and fatality. |
| Responders | Impacts to responders are unlikely. Exceptional drought conditions may impact the amount of water immediately available to respond to wildfires. |
| Continuity of Operations (including Continued Delivery of Services) | Drought would have minimal impacts on continuity of operations due to the relatively long warning time that would allow for plans to be made to maintain continuity of operations. |
| Property, Facilities and Infrastructure | Drought has the potential to affect water supply for residential, commercial, institutional, industrial, and government-owned areas. Drought can reduce water supply in wells and reservoirs. Utilities may be forced to increase rates. |
| Environment | Environmental impacts include strain on local plant and wildlife; increased probability of erosion and wildfire. |
| Economic Condition of the Jurisdiction | Farmers may face crop losses or increased livestock costs. Businesses that depend on farming may experience secondary impacts. Extreme drought has the potential to impact local businesses in landscaping, recreation and tourism, and public utilities. |
| Public Confidence in the Jurisdiction's Governance | When drought conditions persist with no relief, local or State governments must often institute water restrictions, which may impact public confidence. |

## HAZARD SUMMARY BY JURISDICTION

The following table summarizes drought hazard risk by jurisdiction. Drought risk is uniform across the planning area. Warning time, duration and spatial extent are inherent to the hazard and remain constant across jurisdictions. The majority of damages that result from drought are to crops and other agriculture-related activities as well as water-dependent recreation industries. The magnitude of the impacts is typically greater in unincorporated areas; impacts are likely higher in Bertie, Martin, and Hyde, which have experienced the most crop losses due to drought. In developed areas, the magnitude of drought is

less severe, with lawns and local gardens affected and potential impacts on local water supplies during severe, prolonged drought.

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| Bertie County | 2 | 2 | 4 | 1 | 4 | 2.5 | M |
| Town of Askewville | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Aulander | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Colerain | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Kelford | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Lewiston-Woodville | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Powellsville | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Roxobel | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Windsor | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Hyde County | 2 | 2 | 4 | 1 | 4 | 2.5 | M |
| Martin County | 2 | 2 | 4 | 1 | 4 | 2.5 | M |
| Town of Bear Grass | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Everetts | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Hamilton | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Hassell | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Jamesville | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Oak City | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Parmele | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Robersonville | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Williamston | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Tyrrell County | 2 | 2 | 4 | 1 | 4 | 2.5 | M |
| Town of Columbia | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Washington County | 2 | 2 | 4 | 1 | 4 | 2.5 | M |
| Town of Creswell | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Plymouth | 2 | 1 | 4 | 1 | 4 | 2.2 | M |
| Town of Roper | 2 | 1 | 4 | 1 | 4 | 2.2 | M |

## 4.5.3 EARTHQUAKE

### HAZARD BACKGROUND

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

*Warning Time: 4 – Less than six hours*

*Duration: 1 – Less than six hours*

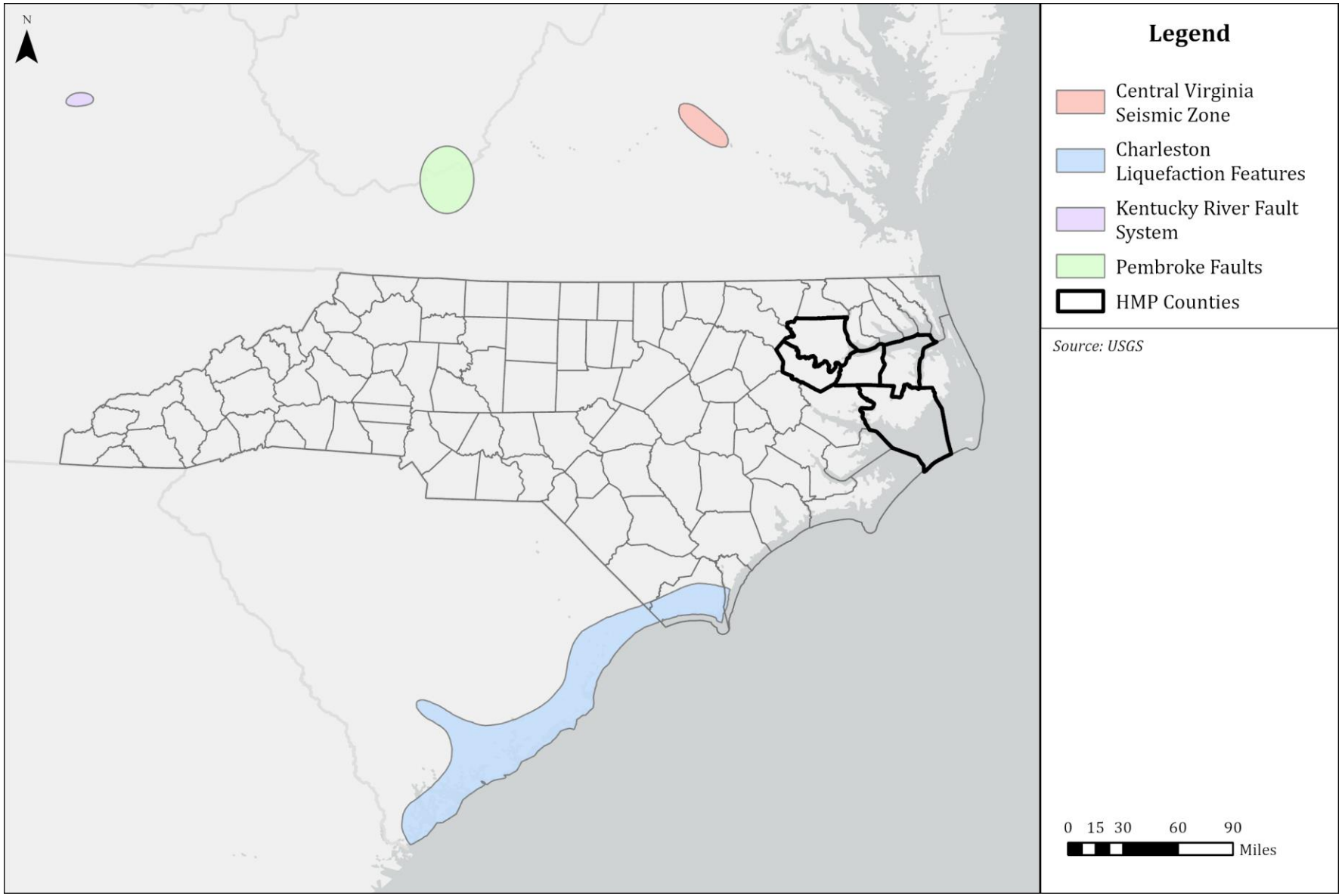
### LOCATION

Figure 4.20 reflects the Quaternary faults that present an earthquake hazard for the Northeastern NC Region based on data from the USGS Earthquake Hazards Program.

All of North Carolina is subject to earthquakes, with the western and southern region most vulnerable to a damaging earthquake. The Charleston Fault in South Carolina and New Madrid Fault in Tennessee affect the state. Both faults have generated earthquakes measuring greater than 8.0 on the Richter Scale during the last 200 years. In addition, there are several smaller fault lines in eastern Tennessee and throughout North Carolina that could produce less severe shaking.

*Spatial Extent: 4 – Large*

**Figure 4.20 – US Quaternary Faults**



## EXTENT

Earthquakes are measured in terms of their magnitude and intensity. The Richter Scale, an open-ended logarithmic scale that describes the energy release of an earthquake through a measure of shock wave amplitude is usually used by the news media when reporting the intensity of earthquakes and is the scale most familiar to the public. However, the USGS now uses moment magnitude, which is an extension of the Richter Scale and is based on physical properties of the earthquake derived from an analysis of all the waveforms recorded from the shaking. Earthquake magnitude is described in Figure 4.21.

A more meaningful measurement is an earthquake's intensity. The intensity scale used by the scientific community in the United States is called the Modified Mercalli Intensity (MMI) scale. The MMI scale is an arbitrary ranking based on observed effects. Table 4.23 shows descriptions for levels of earthquake intensity on the MMI scale compared to the Richter scale. Seismic shaking is typically the greatest cause of losses to structures during earthquakes.

**Figure 4.21 – Earthquake Magnitude and Energy Release**

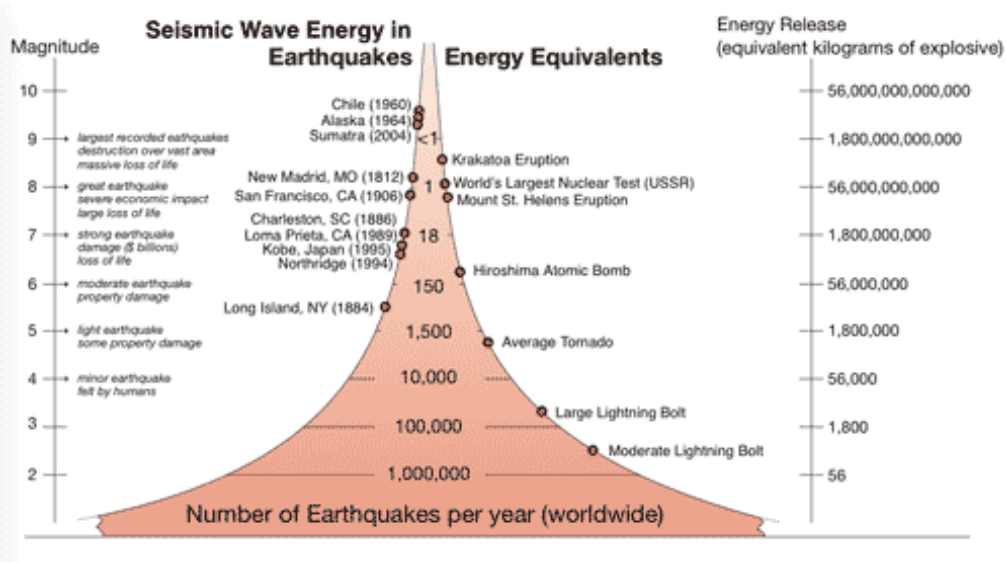



**Table 4.23 – Comparison of Richter Scale and Modified Mercalli Intensity (MMI) Scale**

| MMI | Richter Scale | Felt Intensity |
|---|---|---|
| I | 0 – 1.9 | Not felt. Marginal and long period effects of large earthquakes. |
| II | 2.0 – 2.9 | Felt by persons at rest, on upper floors, or favorably placed. |
| III | 3.0 – 3.9 | Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake. |
| IV | 4.0 – 4.3 | Hanging objects swing. Vibration like passing of heavy trucks. Standing motor cars rock. Windows, dishes, doors rattle. Glasses clink the upper range of IV, wooden walls and frame creak. |
| V | 4.4 – 4.8 | Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Pendulum clocks stop, start. |

| MMI | Richter Scale | Felt Intensity |
|---|---|---|
| VI | 4.9 – 5.4 | Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken. Books, etc., fall off shelves. Pictures fall off walls. Furniture moved. Weak plaster and masonry D cracked. Small bells ring. Trees, bushes shaken. |
| VII | 5.5 – 6.1 | Difficult to stand. Noticed by drivers of motor cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices. Some cracks in masonry C. Waves on ponds. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged. |
| VIII | 6.2 – 6.5 | Steering of motor cars is affected. Damage to masonry C; partial collapse. Some damage to masonry B. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes. |
| IX | 6.6 – 6.9 | General panic. Masonry D destroyed; masonry C heavily damaged, sometimes with complete collapse; masonry B seriously damaged. (General damage to foundations.) Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluvial areas sand and mud ejected, earthquake fountains, sand craters. |
| X | 7.0 – 7.3 | Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks of canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly. |
| XI | 7.4 – 8.1 | Rails bent greatly. Underground pipelines completely out of service. |
| XII | > 8.1 | Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown in the air. |

Source: USGS Earthquake Hazards Program

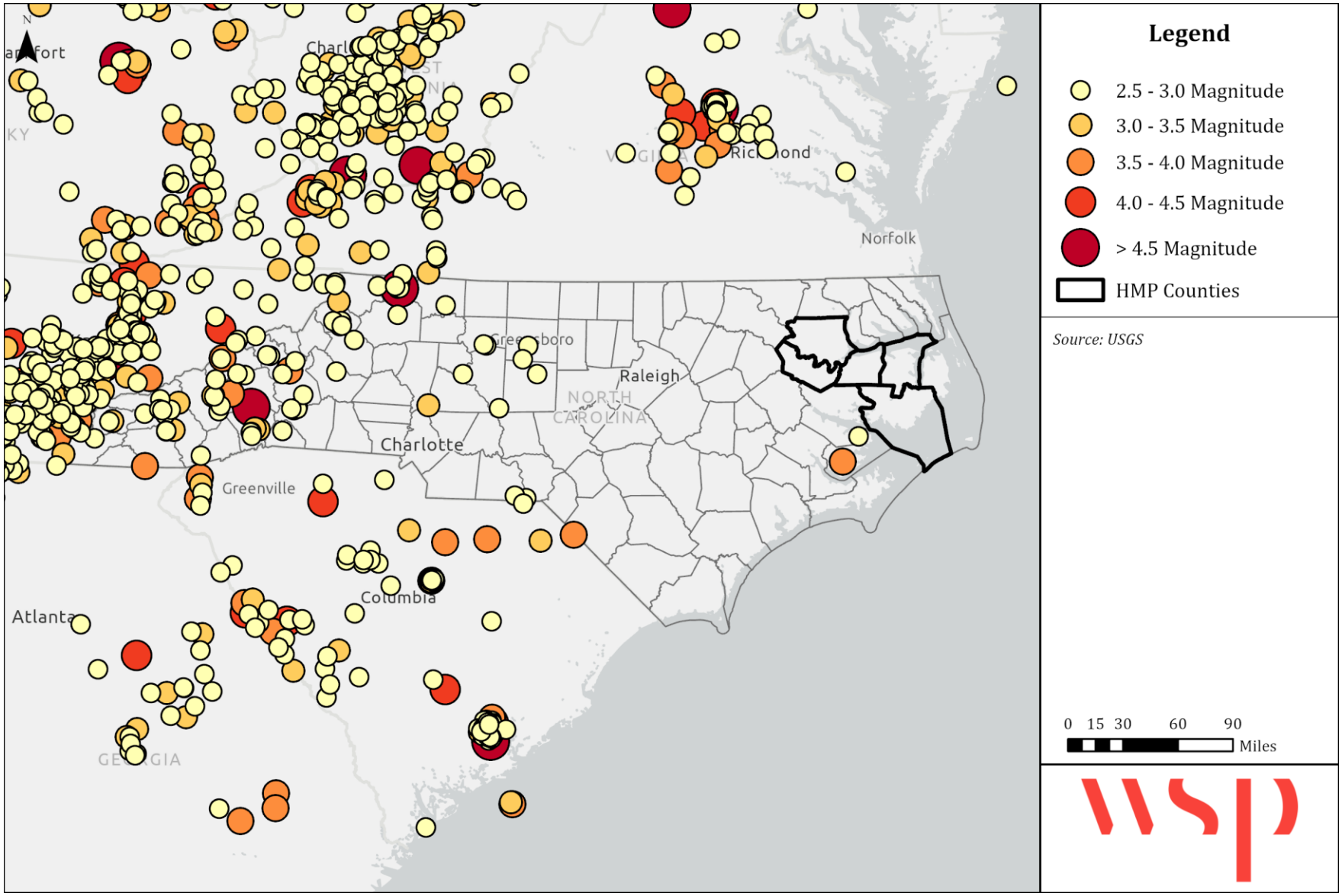
The most severe earthquakes to impact the Northeastern planning area occurred in December of 1875, March 1960, and November of 1969. These earthquakes were estimated to have been felt as a level 4 on the MMI Scale.

*Impact: 1 – Minor*

## HISTORICAL OCCURRENCES

The USGS Earthquake Hazards Program maintains a database of all historical earthquakes of a magnitude 2.5 and greater. Figure 4.22 shows historical earthquakes by magnitude in relation to North Carolina and the Quaternary Faults identified by USGS. This includes events from 1900 to 2024. Based on USGS records, there have not been any earthquakes with epicenters in the Northeastern NC Region during this period.

**Figure 4.22 – Historical Earthquakes by Magnitude, 1900-2024**



The above map documents all earthquakes that have occurred within North Carolina; however, given the long distances across which earthquake impacts can be felt, these events do not encompass all earthquakes that have affected North Carolina.

## PROBABILITY OF FUTURE OCCURRENCE

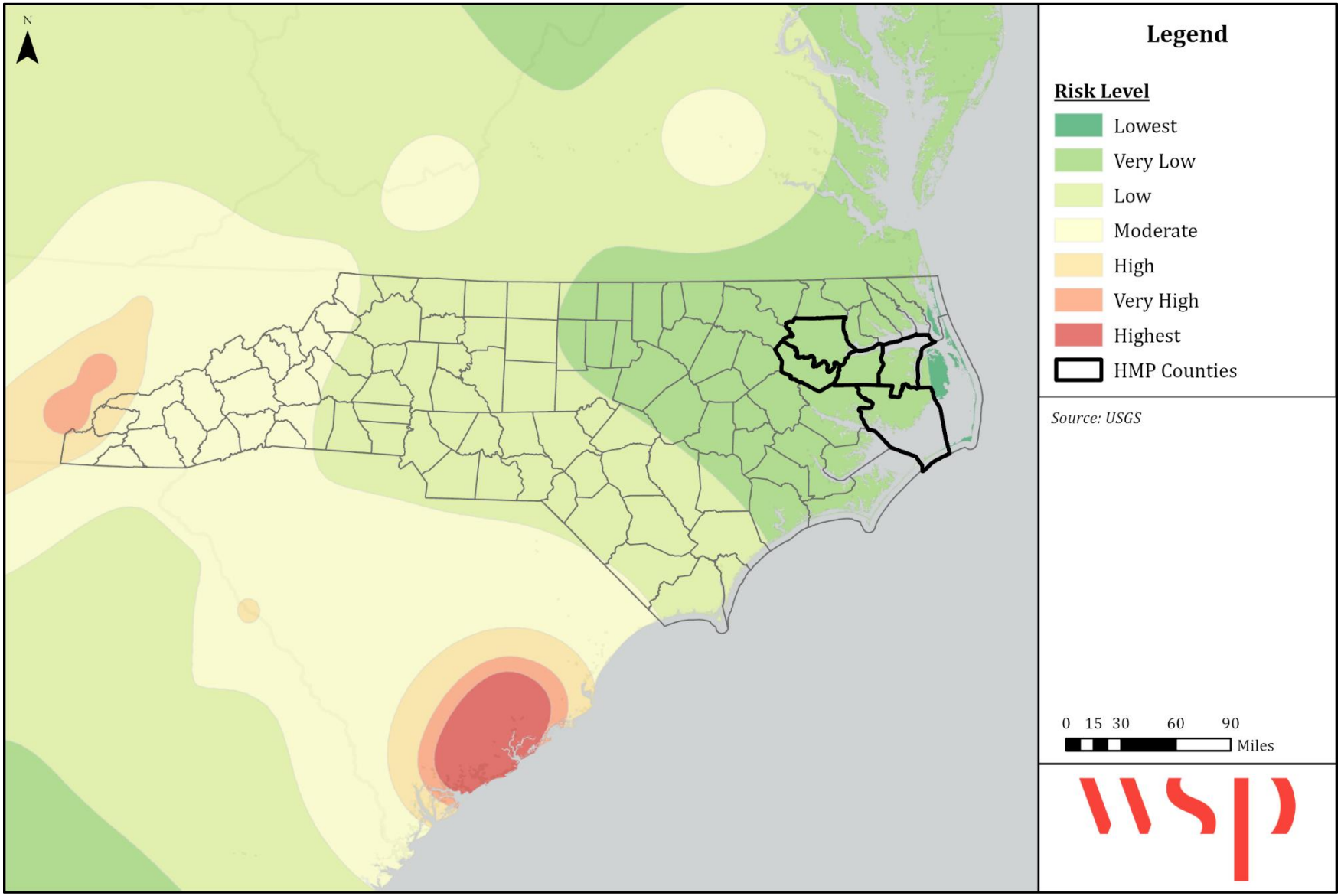
Ground motion is the movement of the earth's surface due to earthquakes or explosions. It is produced by waves generated by a sudden slip on a fault or sudden pressure at the explosive source and travels through the earth and along its surface. Ground motion is amplified when surface waves of unconsolidated materials bounce off of or are refracted by adjacent solid bedrock. The probability of ground motion is depicted in USGS earthquake hazard maps by showing, by contour values, the earthquake ground motions (of a particular frequency) that have a common given probability of being exceeded in 50 years.

Figure 4.23 reflects the seismic hazard for the Northeastern NC Region based on the national USGS map of peak acceleration with two percent probability of exceedance in 50 years, which USGS simplifies into risk ratings from "very low" to "highest". To produce these estimates, the ground motions being considered at a given location are those from all future possible earthquake magnitudes at all possible distances from that location. The ground motion coming from a particular magnitude and distance is assigned an annual probability equal to the annual probability of occurrence of the causative magnitude and distance. The method assumes a reasonable future catalog of earthquakes, based upon historical earthquake locations and geological information on the recurrence rate of fault ruptures. When all the possible earthquakes and magnitudes have been considered, a ground motion value is determined such that the annual rate of its being exceeded has a certain value. Therefore, for the given probability of exceedance, two percent, the locations shaken more frequently will have larger ground motions.

As shown in the map below, the majority of Northeastern NC Region is located within the medium green zone which represents "very low" seismic hazard risk. Based on this data, it can be reasonably assumed that an earthquake event affecting the planning region is unlikely.

*Probability: 1 – Unlikely*

**Figure 4.23 – Seismic Hazard Information for North Carolina**



## CLIMATE CHANGE

Scientists are beginning to believe there may be a connection between climate change and earthquakes. Changing ice caps and sea-level redistribute weight over fault lines, which could potentially have an influence on earthquake occurrences. However, currently no studies quantify the relationship to a high level of detail, so recent earthquakes should not be linked with climate change.

## VULNERABILITY ASSESSMENT

### *METHODOLOGIES AND ASSUMPTIONS*

Population and property at risk to earthquake impacts was estimated using data from the NCEM IRISK database, which was compiled in NCEM's Risk Management Tool.

### *PEOPLE*

Earthquake events in the Northeastern NC Region are unlikely to produce more than mild ground shaking; therefore, injury or death is unlikely. Objects falling from shelves generally pose the greatest threat to safety.

Table 4.24 and Table 4.25 detail the population estimated to be at risk from a 250-year earthquake and a 500-year earthquake, respectively, according to the NCEM IRISK database and ACS 2019-2023 5-Year Estimates data.

**Table 4.24 – Estimated Population Impacted by 250-Year Earthquake**

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| **Bertie** | | | | | | | | | |
| Unincorporated Bertie County | 11,675 | 4 | 0.04% | 2,855 | 1 | 0.03% | 417 | 0 | 0% |
| Town of Askewville | 152 | 0 | 0% | 45 | 0 | 0% | 12 | 0 | 0% |
| Town of Aulander | 748 | 0 | 0% | 208 | 0 | 0% | 117 | 0 | 0% |
| Town of Colerain | 291 | 0 | 0% | 49 | 0 | 0% | 9 | 0 | 0% |
| Town of Kelford | 245 | 0 | 0% | 69 | 0 | 0% | 15 | 0 | 0% |
| Town of Lewiston-Woodville | 466 | 0 | 0% | 137 | 0 | 0% | 24 | 0 | 0% |
| Town of Powellsville | 141 | 0 | 0% | 113 | 0 | 0% | 0 | 0 | 0% |
| Town of Roxobel | 347 | 0 | 0% | 66 | 0 | 0% | 24 | 0 | 0% |
| Town of Windsor | 3,417 | 0 | 0% | 703 | 0 | 0% | 94 | 0 | 0% |
| **Subtotal Bertie** | **17,482** | **4** | **0.04%** | **4,245** | **1** | **0.03%** | **712** | **0** | **0%** |
| **Hyde** | | | | | | | | | |
| Unincorporated Hyde County | 4,625 | 0 | 0% | 1,054 | 0 | 0% | 124 | 0 | 0% |
| **Martin** | | | | | | | | | |
| Unincorporated Martin County | 13,680 | 34 | 0.25% | 3,396 | 8 | 0.24% | 753 | 2 | 0.21% |
| Town of Bear Grass | 94 | 0 | 0% | 12 | 0 | 0% | 22 | 0 | 0% |
| Town of Everetts | 158 | 0 | 0% | 18 | 0 | 0% | 9 | 0 | 0% |

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| Town of Hamilton | 183 | 0 | 0% | 84 | 0 | 0% | 2 | 0 | 0% |
| Town of Hassell | 49 | 0 | 0% | 30 | 0 | 0% | 0 | 0 | 0% |
| Town of Jamesville | 373 | 0 | 0% | 118 | 0 | 0% | 8 | 0 | 0% |
| Town of Oak City | 472 | 0 | 0% | 145 | 0 | 0% | 30 | 0 | 0% |
| Town of Parmele | 288 | 0 | 0% | 85 | 0 | 0% | 0 | 0 | 0% |
| Town of Robersonville | 1,319 | 0 | 0% | 374 | 0 | 0% | 52 | 0 | 0% |
| Town of Williamston | 5,157 | 0 | 0% | 1,182 | 0 | 0% | 194 | 0 | 0% |
| **Subtotal Martin** | **21,773** | **34** | **0.25%** | **5,444** | **8** | **0.24%** | **1,070** | **2** | **0.21%** |
| **Tyrrell** | | | | | | | | | |
| Unincorporated Tyrrell County | 2,702 | 0 | 0% | 695 | 0 | 0% | 146 | 0 | 0% |
| Town of Columbia | 674 | 0 | 0% | 167 | 0 | 0% | 24 | 0 | 0% |
| **Subtotal Tyrrell** | **3,376** | **0** | **0%** | **862** | **0** | **0%** | **170** | **0** | **0%** |
| **Washington** | | | | | | | | | |
| Unincorporated Washington County | 6,850 | 0 | 0% | 1,841 | 0 | 0% | 64 | 0 | 0% |
| Town of Creswell | 205 | 0 | 0% | 58 | 0 | 0% | 15 | 0 | 0% |
| Town of Plymouth | 3,264 | 0 | 0% | 923 | 0 | 0% | 140 | 0 | 0% |
| Town of Roper | 586 | 0 | 0% | 162 | 0 | 0% | 22 | 0 | 0% |
| **Subtotal Washington** | **10,905** | **0** | **0%** | **2,984** | **0** | **0%** | **241** | **0** | **0%** |
| **Region Total** | **58,161** | **38** | **0.07%** | **14,589** | **9** | **0.06%** | **2,317** | **2** | **0.09%** |

Source: NCEM Risk Management Tool; ACS 2019-2023 5-Year Estimates

### Table 4.25 – Estimated Population Impacted by 500-Year Earthquake

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| **Bertie** | | | | | | | | | |
| Unincorporated Bertie County | 11,675 | 11,675 | 100% | 2,855 | 2,855 | 100% | 417 | 417 | 100% |
| Town of Askewville | 152 | 152 | 100% | 45 | 45 | 100% | 12 | 12 | 100% |
| Town of Aulander | 748 | 748 | 100% | 208 | 208 | 100% | 117 | 117 | 100% |
| Town of Colerain | 291 | 291 | 100% | 49 | 49 | 100% | 9 | 9 | 100% |
| Town of Kelford | 245 | 245 | 100% | 69 | 69 | 100% | 15 | 15 | 100% |
| Town of Lewiston-Woodville | 466 | 466 | 100% | 137 | 137 | 100% | 24 | 24 | 100% |
| Town of Powellsville | 141 | 141 | 100% | 113 | 113 | 100% | 0 | 0 | -- |
| Town of Roxobel | 347 | 347 | 100% | 66 | 66 | 100% | 24 | 24 | 100% |

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| Town of Windsor | 3,417 | 3,417 | 100% | 703 | 703 | 100% | 94 | 94 | 100% |
| **Subtotal Bertie** | **17,482** | **17,482** | **100%** | **4,245** | **4,245** | **100%** | **712** | **673** | **100%** |
| **Hyde** | | | | | | | | | |
| Unincorporated Hyde County | 4,625 | 971 | 21% | 1,054 | 221 | 21% | 124 | 26 | 21% |
| **Martin** | | | | | | | | | |
| Unincorporated Martin County | 13,680 | 13,680 | 100% | 3,396 | 3,396 | 100% | 753 | 753 | 100% |
| Town of Bear Grass | 94 | 94 | 100% | 12 | 12 | 100% | 22 | 22 | 100% |
| Town of Everetts | 158 | 158 | 100% | 18 | 18 | 100% | 9 | 9 | 100% |
| Town of Hamilton | 183 | 183 | 100% | 84 | 84 | 100% | 2 | 2 | 100% |
| Town of Hassell | 49 | 49 | 100% | 30 | 30 | 100% | 0 | 0 | -- |
| Town of Jamesville | 373 | 373 | 100% | 118 | 118 | 100% | 8 | 8 | 100% |
| Town of Oak City | 472 | 472 | 100% | 145 | 145 | 100% | 30 | 30 | 100% |
| Town of Parmele | 288 | 288 | 100% | 85 | 85 | 100% | 0 | 0 | -- |
| Town of Robersonville | 1,319 | 1,319 | 100% | 374 | 374 | 100% | 52 | 52 | 100% |
| Town of Williamston | 5,157 | 5,157 | 100% | 1,182 | 1,182 | 100% | 194 | 194 | 100% |
| **Subtotal Martin** | **21,773** | **21,773** | **100%** | **5,444** | **5,444** | **100%** | **1,070** | **1,070** | **100%** |
| **Tyrrell** | | | | | | | | | |
| Unincorporated Tyrrell County | 2,702 | 1,135 | 42% | 695 | 292 | 42% | 146 | 60 | 41% |
| Town of Columbia | 674 | 256 | 38% | 167 | 84 | 50% | 24 | 11 | 44% |
| **Subtotal Tyrrell** | **3,376** | **1,391** | **41%** | **862** | **375** | **44%** | **170** | **70** | **41%** |
| **Washington** | | | | | | | | | |
| Unincorporated Washington County | 6,850 | 3,905 | 57% | 1,841 | 1,049 | 57% | 64 | 37 | 58% |
| Town of Creswell | 205 | 76 | 37% | 58 | 21 | 36% | 15 | 4 | 25% |
| Town of Plymouth | 3,264 | 3,264 | 100% | 923 | 923 | 100% | 140 | 140 | 100% |
| Town of Roper | 586 | 135 | 23% | 162 | 39 | 24% | 22 | 4 | 20% |
| **Subtotal Washington** | **10,905** | **6,870** | **63%** | **2,984** | **1,850** | **62%** | **241** | **137** | **57%** |
| **Region Total** | **58,161** | **48,487** | **83%** | **14,589** | **12,135** | **83%** | **2,317** | **1,959** | **85%** |

Source: NCEM Risk Management Tool; ACS 2019-2023 5-Year Estimates

### *PROPERTY*

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

Certain building types are particularly vulnerable to earthquake damage: wood-frame multi-unit buildings, single-family homes, mobile homes, and unreinforced masonry buildings. The most susceptible structures are wood-frame, multi-story, mixed-use buildings that have large openings on the first floor for garages or commercial space and housing on the upper floors. During an earthquake, these types of structures could sway or even collapse.

Earthquakes can also cause damages to infrastructure, resulting in secondary hazards. Damages to dams or levees could cause failures and subsequent flooding. Fires can be started by broken gas lines and power lines. Fires can be a serious problem, especially if the water lines that feed the fire hydrants have been damaged as well.

The Northeastern NC Region has not been impacted by an earthquake with more than a moderate intensity, so damage to the built environment is unlikely.

Table 4.26 and Table 4.27 detail the estimated buildings impacted from 250-year and 500-year earthquake events.

### Table 4.26 – Estimated Buildings Impacted by 250-Year Earthquake Event

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 3 | 0% | $2 | 53 | 0% | $319 | 2 | 0% | $9 | 58 | 1% | $329 |
| Town of Askewville | 502 | 0 | 0% | $0 | 4 | 1% | $15 | 1 | 0% | $5 | 5 | 1% | $19 |
| Town of Aulander | 744 | 0 | 0% | $0 | 7 | 1% | $179 | 0 | 0% | $0 | 7 | 1% | $179 |
| Town of Colerain | 428 | 0 | 0% | $0 | 7 | 2% | $62 | 0 | 0% | $0 | 7 | 2% | $62 |
| Town of Kelford | 173 | 0 | 0% | $0 | 1 | 1% | $6 | 0 | 0% | $0 | 1 | 1% | $6 |
| Town of Lewiston-Woodville | 719 | 0 | 0% | $0 | 8 | 1% | $310 | 0 | 0% | $0 | 8 | 1% | $310 |
| Town of Powellsville | 171 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 |
| Town of Roxobel | 205 | 0 | 0% | $0 | 11 | 5% | $59 | 1 | 0% | $3 | 12 | 6% | $62 |
| Town of Windsor | 1,815 | 0 | 0% | $0 | 26 | 1% | $283 | 0 | 0% | $0 | 26 | 1% | $283 |
| **Subtotal Bertie** | **15,932** | **3** | **0%** | **$2** | **117** | **1%** | **$1,233** | **4** | **0%** | **$17** | **124** | **1%** | **$1,250** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 0 | 0% | $0 | 6 | 0 | $7 | 0 | 0% | $0 | 6 | 0% | $7 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 20 | 0% | $1 | 143 | 1% | $3,352 | 2 | 0% | $6 | 165 | 1% | $3,360 |
| Town of Bear Grass | 81 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 |
| Town of Everetts | 159 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 |
| Town of Hamilton | 292 | 0 | 0% | $0 | 1 | 0% | $15 | 1 | 0% | $17 | 2 | 1% | $31 |
| Town of Hassell | 70 | 0 | 0% | $0 | 2 | 3% | $20 | 0 | 0% | $0 | 2 | 3% | $20 |
| Town of Jamesville | 297 | 0 | 0% | $0 | 2 | 1% | $17 | 0 | 0% | $0 | 2 | 1% | $17 |
| Town of Oak City | 313 | 0 | 0% | $0 | 3 | 1% | $6 | 0 | 0% | $0 | 3 | 1% | $6 |
| Town of Parmele | 149 | 0 | 0% | $0 | 2 | 1% | $2 | 0 | 0% | $0 | 2 | 1% | $2 |
| Town of Robersonville | 901 | 0 | 0% | $0 | 16 | 2% | $142 | 0 | 0% | $0 | 16 | 2% | $142 |
| Town of Williamston | 4,238 | 0 | 0% | $0 | 46 | 1% | $1,760 | 1 | 0% | $11 | 47 | 1% | $1,771 |
| **Subtotal Martin** | **18,688** | **20** | **0%** | **$1** | **215** | **1%** | **$5,314** | **4** | **0%** | **$34** | **239** | **1%** | **$5,349** |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 |
| Town of Columbia | 519 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 |
| **Subtotal Tyrrell** | **3,313** | **0** | **0%** | **$0** | **0** | **0%** | **$0** | **0** | **0%** | **$0** | **0** | **0%** | **$0** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 0 | 0% | $0 | 9 | 0% | $46 | 0 | 0% | $0 | 9 | 0% | $46 |
| Town of Creswell | 366 | 0 | 0% | $0 | 1 | 0% | $1 | 0 | 0% | $0 | 1 | 0% | $1 |
| Town of Plymouth | 2,779 | 0 | 0% | $0 | 10 | 0% | $74 | 0 | 0% | $0 | 10 | 0% | $74 |
| Town of Roper | 611 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 |
| **Subtotal Washington** | **9,238** | **0** | **0%** | **$0** | **20** | **0%** | **$121** | **0** | **0%** | **$0** | **20** | **0%** | **$121** |
| **Region Total** | **52,767** | **23** | **0%** | **$3** | **358** | **1%** | **$6,675** | **8** | **0%** | **$51** | **389** | **1%** | **$6,727** |

Source: NCEM Risk Management Tool

### Table 4.27 – Estimated Buildings Impacted by 500-Year Earthquake Event

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,732 | 78% | $51,618 | 2,275 | 20% | $57,672 | 158 | 1% | $17,407 | 11,165 | 100% | $126,698 |
| Town of Askewville | 502 | 383 | 76% | $2,479 | 107 | 21% | $2,272 | 12 | 2% | $1,249 | 502 | 100% | $6,000 |
| Town of Aulander | 744 | 640 | 86% | $6,145 | 90 | 12% | $9,019 | 14 | 2% | $2,065 | 744 | 100% | $17,230 |
| Town of Colerain | 428 | 340 | 79% | $1,522 | 74 | 17% | $2,963 | 14 | 3% | $980 | 428 | 100% | $5,465 |
| Town of Kelford | 173 | 155 | 90% | $1,143 | 14 | 8% | $369 | 4 | 2% | $286 | 173 | 100% | $1,799 |
| Town of Lewiston-Woodville | 719 | 597 | 83% | $5,438 | 106 | 15% | $9,156 | 16 | 2% | $1,008 | 719 | 100% | $15,601 |
| Town of Powellsville | 171 | 148 | 87% | $1,103 | 16 | 9% | $562 | 7 | 4% | $344 | 171 | 100% | $2,009 |
| Town of Roxobel | 205 | 153 | 75% | $1,566 | 48 | 23% | $2,817 | 4 | 2% | $188 | 205 | 100% | $4,570 |
| Town of Windsor | 1,815 | 1,442 | 79% | $10,146 | 307 | 17% | $23,190 | 64 | 4% | $18,680 | 1,813 | 100% | $52,016 |
| **Subtotal Bertie** | **15,932** | **12,590** | **79%** | **$81,160** | **3,037** | **19%** | **$108,020** | **293** | **2%** | **$42,207** | **15,920** | **100%** | **$231,388** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 985 | 18% | $2,716 | 736 | 13% | $8,862 | 70 | 1% | $3,457 | 1,791 | 32% | $15,034 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70% | $94,198 | 3,413 | 28% | $169,676 | 208 | 2% | $42,407 | 12,180 | 100% | $306,281 |
| Town of Bear Grass | 81 | 55 | 68% | $537 | 7 | 9% | $858 | 19 | 23% | $2,810 | 81 | 100% | $4,205 |
| Town of Everetts | 159 | 151 | 95% | $1,454 | 8 | 5% | $992 | 0 | 0% | $0 | 159 | 100% | $2,446 |
| Town of Hamilton | 292 | 233 | 80% | $2,334 | 26 | 9% | $2,247 | 32 | 11% | $3,393 | 291 | 100% | $7,973 |
| Town of Hassell | 70 | 59 | 84% | $601 | 11 | 16% | $749 | 0 | 0% | $0 | 70 | 100% | $1,350 |
| Town of Jamesville | 297 | 228 | 77% | $1,691 | 43 | 14% | $6,676 | 22 | 7% | $2,463 | 293 | 99% | $10,830 |
| Town of Oak City | 313 | 302 | 96% | $3,608 | 10 | 3% | $777 | 1 | 0% | $501 | 313 | 100% | $4,887 |
| Town of Parmele | 149 | 132 | 89% | $1,668 | 16 | 11% | $1,731 | 1 | 1% | $36 | 149 | 100% | $3,435 |
| Town of Robersonville | 901 | 783 | 87% | $13,526 | 107 | 12% | $21,749 | 11 | 1% | $2,031 | 901 | 100% | $37,306 |
| Town of Williamston | 4,238 | 3,104 | 73% | $32,246 | 879 | 21% | $158,119 | 247 | 6% | $55,758 | 4,230 | 100% | $246,123 |
| **Subtotal Martin** | **18,688** | **13,606** | **73%** | **$151,863** | **4,520** | **24%** | **$363,574** | **541** | **3%** | **$109,399** | **18,667** | **100%** | **$624,836** |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 899 | 32% | $4,117 | 506 | 18% | $4,746 | 33 | 1% | $3,611 | 1,438 | 51% | $12,474 |
| Town of Columbia | 519 | 151 | 29% | $642 | 61 | 12% | $2,108 | 26 | 5% | $1,585 | 238 | 46% | $4,336 |
| **Subtotal Tyrrell** | **3,313** | **1,050** | **32%** | **$4,759** | **567** | **17%** | **$6,854** | **59** | **2%** | **$5,196** | **1,676** | **51%** | **$16,810** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 2,310 | 42% | $7,251 | 1,360 | 25% | $11,028 | 76 | 1% | $3,352 | 3,746 | 68% | $21,631 |
| Town of Creswell | 366 | 102 | 28% | $417 | 66 | 18% | $1,057 | 19 | 5% | $1,666 | 187 | 51% | $3,141 |
| Town of Plymouth | 2,779 | 2,338 | 84% | $5,886 | 330 | 12% | $15,742 | 105 | 4% | $5,854 | 2,773 | 100% | $27,482 |
| Town of Roper | 611 | 119 | 19% | $685 | 79 | 13% | $1,544 | 17 | 3% | $1,163 | 215 | 35% | $3,392 |
| **Subtotal Washington** | **9,238** | **4,869** | **53%** | **$14,239** | **1,835** | **20%** | **$29,371** | **217** | **2%** | **$12,035** | **6,921** | **75%** | **$55,646** |
| **Region Total** | **52,767** | **33,100** | **63%** | **$254,737** | **10,695** | **20%** | **$516,681** | **1,180** | **2%** | **$172,294** | **44,975** | **85%** | **$943,714** |

Source: NCEM Risk Management Tool

### *ENVIRONMENT*

An earthquake is unlikely to cause substantial impacts to the natural environment in the Northeastern NC 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.

### *CONSEQUENCE ANALYSIS*

Table 4.28 summarizes the potential negative consequences of earthquake.

**Table 4.28 – Consequence Analysis – Earthquake**

| Category | Consequences |
|---|---|
| Public | Impact expected to be severe for people who are unprotected or unable to take shelter; moderate to light impacts are expected for those who are protected. |
| Responders | Responders may be required to enter unstable structures or compromised infrastructure. Adverse impacts are expected to be severe for unprotected personnel and moderate to light for protected personnel. |
| Continuity of Operations (including Continued Delivery of Services) | Damage to facilities/personnel in the area of the incident may require relocation of operations and lines of succession execution. Disruption of lines of communication and destruction of facilities may extensively postpone delivery of services. |
| Property, Facilities and Infrastructure | Damage to facilities and infrastructure in the area of the incident may be extensive for facilities, people, infrastructure, and HazMat. |
| Environment | May cause extensive damage, creating denial or delays in the use of some areas. Remediation may be needed. |
| Economic Condition of the Jurisdiction | Local economy and finances expected to be adversely affected, possibly for an extended period of time. |
| Public Confidence in the Jurisdiction's Governance | Ability to respond and recover may be questioned and challenged if planning, response, and recovery are not timely and effective. |

## HAZARD SUMMARY BY JURISDICTION

The following table summarizes earthquake hazard risk by jurisdiction. Earthquake risk is uniform across the planning area.

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| *All Jurisdictions* | 1 | 1 | 4 | 4 | 1 | 1.9 | L |

## 4.5.4 EXCESSIVE HEAT

### HAZARD BACKGROUND

Per information provided by Ready.gov, in most of the United States extreme heat is defined as a long period (2 to 3 days) of high heat and humidity with temperatures above 90 degrees. As temperatures rise, our bodies naturally cool down by sweating. In extreme heat, the body must work extra hard to maintain a normal temperature and sweating might not be enough to cool down. When this happens, a person's body temperature rises faster than it can cool itself. Additionally, when the humidity is high, as is common during extreme heat events in North Carolina, evaporative cooling through sweating becomes less effective. Heat-related illnesses occur when the body overheats from exposure to high temperatures and in severe cases can cause damage to the brain and other vital organs[1]. Heat-related illnesses can also arise from moderate to vigorous physical activity in hot situations.

Extreme heat often results in the highest annual number of deaths among all weather-related disasters. On average, the number of extreme heat days has been increasing each year, putting residents at higher risk of heat-related illnesses. In 2023, more people in the United States died of heat-related illness than any year on record[2]. Per Ready.gov, older adults, children, and people with certain illnesses and chronic conditions are at greater risk from extreme heat; and humidity increases the feeling of heat.

The National Weather Service (NWS) uses the heat index, also known as apparent temperature, to determine when to issue health alerts. The heat index is a measure of how hot it really feels when the relative humidity is considered along with the actual air temperature. In most areas of the country, the NWS generally issues alerts "when the heat index is expected to exceed 105°F -110°F for at least two consecutive days," but they also work with local partners to determine the most appropriate conditions for a specific geography[3,4].

In North Carolina, the Department of Health and Human Services (DHHS) uses regional temperature thresholds to activate its Heat Health Alert System. The regional thresholds recognize that an area's typical climate conditions and relevant local factors, such as the proportion of the population engaged in outdoor work, can impact how heat affects the local population. DHHS sends heat alerts to county health departments and Heat Health Alert System subscribers when the daily maximum heat index is forecasted to meet or exceed the heat index threshold for their region. In the Northeastern NC Region, the heat index threshold is 101°F, as shown in Figure 4.24.

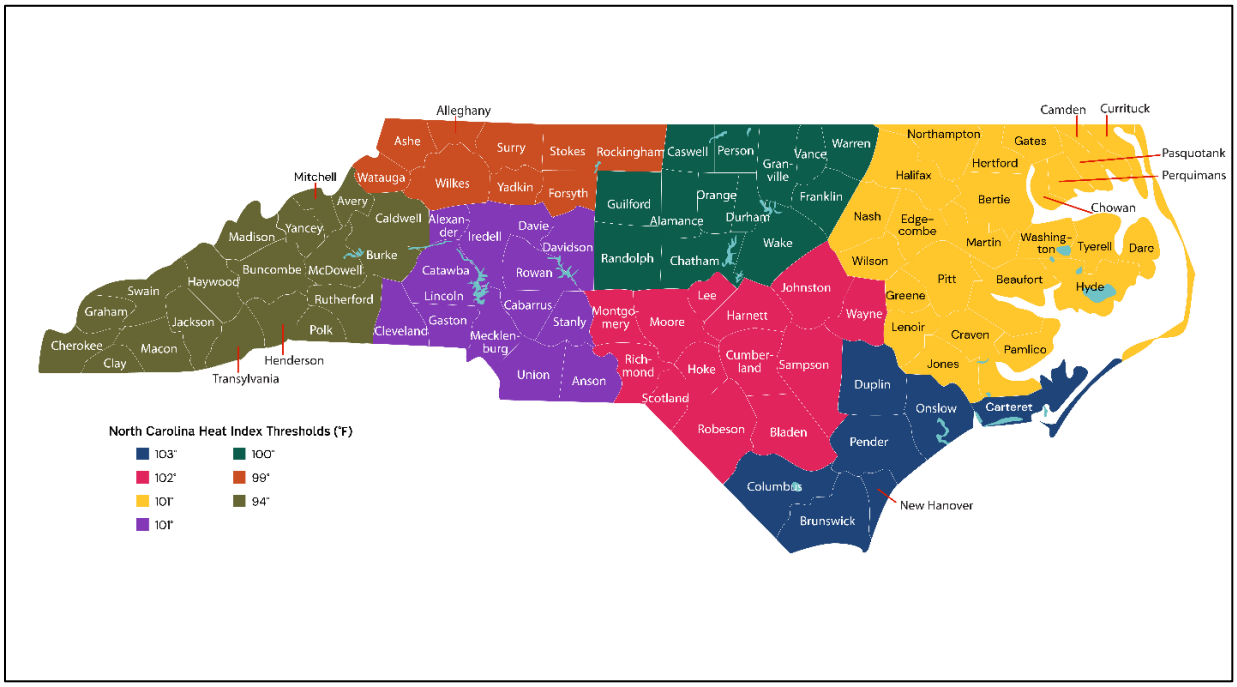
[1] www.cdc.gov/disasters/extremeheat/heat_guide.html.

[2] https://apnews.com/article/record-heat-deadly-climate-change-humidity-south-11de21a526e1cbe7e306c47c2f12438d

[3] https://www.weather.gov/safety/heat-index

[4] https://www.weather.gov/safety/heat-ww

**Figure 4.24 – North Carolina Heat Index Thresholds**




Source: https://climate.ncsu.edu/heat_toolkit/thresholds/

The most dangerous place to be during an extreme heat incident is in a permanent home, with little or no air conditioning. Those at greatest risk for heat-related illness include people 65 years of age and older, young children, people with chronic health problems such as heart disease, people who are obese, people who are socially isolated, and people who are on certain medications, such as tranquilizers, antidepressants, sleeping pills, or drugs for Parkinson's disease. However, even young and healthy individuals are susceptible if they participate in strenuous physical activities during hot weather or are not acclimated to hot weather. Table 4.29 lists typical symptoms and health impacts of exposure to extreme heat.

**Table 4.29 – Typical Health Impacts of Extreme Heat**

| Heat Index (HI) | Disorder |
|---|---|
| 80-90° F (HI) | Fatigue possible with prolonged exposure and/or physical activity |
| 90-105° F (HI) | Heatstroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity |
| 105-130° F (HI) | Heat cramps or heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity |

Source: National Weather Service Heat Index Program, www.weather.gov/os/heat/index.shtml

The National Weather Service has a system in place to initiate alert procedures (advisories or warnings) when the Heat Index is expected to have a significant impact on public safety. The expected severity of the heat determines whether advisories or warnings are issued. A common guideline for issuing excessive heat alerts is when the maximum daytime Heat Index is expected to equal or exceed 105 degrees Fahrenheit (°F) and the nighttime minimum Heat Index is 80°F or above for two or more consecutive days. A heat advisory is issued when temperatures reach 105°F and a warning is issued at 115°F.

Impacts of extreme heat are not only focused on human health, as prolonged heat exposure can have devastating impacts on infrastructure as well. Prolonged high heat exposure increases the risk of

pavement deterioration, as well as railroad warping or buckling. High heat also puts a strain on energy systems and consumption, as air conditioners are run at a higher rate and for longer; extreme heat can also reduce transmission capacity over electric systems.

*Warning Time: 1 – More than 24 hours*

*Duration: 3 – Less than one week*

## LOCATION

The entire planning area is susceptible to high temperatures and incidents of extreme heat.

*Spatial Extent: 4 – Large*

## EXTENT

The extent of extreme heat can be defined by the maximum apparent temperature reached. Apparent temperature is a function of ambient air temperature and relative humidity and is reported as the heat index. The National Weather Service Forecast Office in Raleigh sets the following criteria for heat advisory and excessive heat warning:

- **Heat Advisory** – Heat Index of 105°F to 109°F for 3 hours or more. Can also be issued for lower values 100ºF to 104ºF for heat lasting several consecutive days
- **Excessive Heat Watch** – Potential for heat index values of 110°F or hotter within 24 to 48 hours. Also issued during prolonged heat waves when the heat index is near 110°F
- **Excessive Heat Warning** – Heat Index of 110°F or greater for any duration

The extent of extreme heat can be defined by the maximum temperature reached. The highest temperature recorded in the Northeastern NC Region is 107°F.

| County | Temperature | Location | Date |
|---|---|---|---|
| Bertie | 107˚F | Lewiston | 8/09/2007 |
| Hyde | 99˚F | Ocracoke | 8/18/1975 |
| Martin | 101˚F | Williamston | 6/09/2008 |
| Tyrrell | No weather stations with data in this county | | |
| Washington | 103˚F | Plymouth 5 E | 08/22/1983 |

Source: North Carolina Climate Office

*Impact: 3 – Critical*

## HISTORICAL OCCURRENCES

According to NOAA, 2019 was North Carolina's hottest year on record; that record stretches back 123 years to 1895.

The following heat-related incidents were reported by NCEI in the Northeastern Region; these incidents caused no injuries, fatalities, property damage, or crop damage:

**July 21, 2011 (Bertie County):** An extended period of excessive heat and humidity occurred across most of northeast North Carolina from July 21st to July 23rd. High temperatures ranged from 96 to 103 degrees during the afternoons, with heat index values ranging from 110 to 119. Overnight lows only fell into the lower 70s to lower 80s.

**July 5, 2012 (Bertie County):** High Pressure centered just to the west of the Middle Atlantic Region produced hot and humid weather over northeast North Carolina from July 5th through July 8th. High temperatures ranged from the mid-90s to lower 100s, and low temperatures ranged from the mid-70s to lower 80s across the area.

**July 21, 2019 (Hyde County):** An extended heat wave came to an end when heat index values reached as high as 110 to 115 degrees on July 21.

**September 3, 2020 (Hyde County):** Intense heat and humidity combined to produce heat index values of 110 degrees or higher during the afternoon hours of September 2nd and 3rd.

**August 15, 2023 (Hyde, Martin, Washington, and Tyrrell Counties):** A three-day heatwave ended with excessive heat being observed across Eastern NC. The heatwave began on Sunday, August 13th, with heat indices of 105 to 100 degrees. This pattern continued on Monday, August 14th with similar values. The heat and humidity intensified on Tuesday, August 15th ahead of a cold front that would move into Eastern NC. Widespread heat indices of 110 to 115 degrees were recorded, with some places even higher that 115 for a short time. The heatwave broke with the cold front moving in and producing widespread showers and thunderstorms during the evening hours.

**July 15-16, 2024 (Hyde, Martin, Washington, and Tyrell Counties):** A very hot airmass with temperatures well into the 90s combined with extremely high dewpoints in the upper 70s to low 80s to produce excessively high heat indices generally between 110 and 115 degrees during the daytime hours. The excessive heat affected all of Eastern NC except for the Outer Banks.

The extent of extreme heat can be defined by the maximum temperature reached. Heat index records maintained by the North Carolina Climate Office indicate that the Region regularly experiences heat index temperatures above 100°F. Table 4.30 provides counts of heat index values by threshold recorded from 1999-2024 at the Peanut Belt Research Station in Lewiston, North Carolina, used as an indicator for the Northeastern Region overall. Counts are provided as the number of hours in a given year where the heat index reached or exceeded 100°F. Based on this data, the Northeastern Region experiences an average of 35 hours per year with heat index values above 100°F.

**Table 4.30 – Daily Max Temperature, Northeast NC Region, 1999-2024**

| Year | Heat Index Value | | | | Total |
|---|---|---|---|---|---|
| | 100-104˚F | 105-109˚F | 110-114˚F | ≥115˚F | |
| 1999 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 0 | 0 | 0 |
| 2001 | 16 | 18 | 0 | 0 | 34 |
| 2002 | 38 | 4 | 0 | 0 | 42 |
| 2003 | 22 | 7 | 0 | 0 | 29 |
| 2004 | 43 | 4 | 0 | 0 | 47 |
| 2005 | 81 | 37 | 12 | 2 | 132 |
| 2006 | 78 | 31 | 22 | 9 | 140 |
| 2007 | 71 | 32 | 11 | 9 | 123 |
| 2008 | 85 | 27 | 1 | 0 | 113 |
| 2009 | 61 | 18 | 3 | 0 | 82 |
| 2010 | 108 | 28 | 15 | 1 | 152 |
| 2011 | 51 | 22 | 1 | 0 | 74 |
| 2012 | 62 | 38 | 7 | 0 | 107 |
| 2013 | 16 | 0 | 0 | 0 | 16 |
| 2014 | 16 | 0 | 0 | 0 | 16 |
| 2015 | 57 | 8 | 0 | 0 | 65 |
| 2016 | 87 | 22 | 1 | 0 | 110 |
| 2017 | 26 | 3 | 0 | 0 | 29 |
| 2018 | 54 | 3 | 0 | 0 | 57 |
| 2019 | 61 | 8 | 0 | 0 | 69 |
| 2020 | 61 | 2 | 0 | 0 | 63 |

| Year | Heat Index Value | | | | Total |
|---|---|---|---|---|---|
| | 100-104˚F | 105-109˚F | 110-114˚F | ≥115˚F | |
| 2021 | 47 | 3 | 0 | 0 | 50 |
| 2022 | 68 | 21 | 1 | 0 | 90 |
| 2023 | 63 | 9 | 2 | 0 | 74 |
| 2024 | 87 | 38 | 11 | 0 | 136 |
| **Sum** | **1,376** | **401** | **94** | **23** | **1,894** |
| **Average** | **25** | **7** | **2** | **0** | **35** |

Source: North Carolina Climate Office, Heat Index Climatology Tool

## PROBABILITY OF FUTURE OCCURRENCE

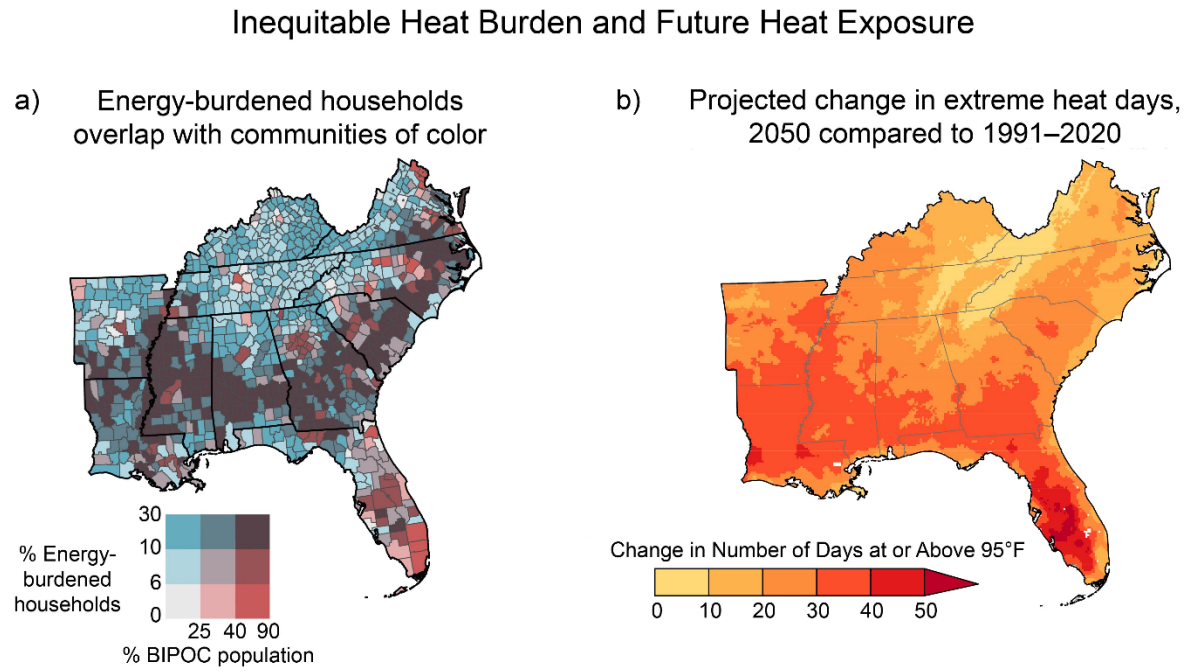
Data was gathered from the North Carolina State Climate Office's Climate Thresholds Tool using the Peanut Belt Research Station in Lewiston, North Carolina weather station as an approximation for the Northeastern Region. Between 1999 and 2024, the Northeastern NC Region averaged 17 days per year with heat index temperatures above 100°F.

*Probability: 4 – Highly Likely*

## CLIMATE CHANGE

Research shows that average temperatures will continue to rise in the Southeast United States and globally, directly affecting the Northeastern Region in North Carolina. Per the Fifth National Climate Assessment, "The number of extreme warm days (above 95°F) is expected to continue increasing with every increment of global warming" and that "heatwaves in the Southeast are happening more frequently and are occurring during a longer heat season, with some cities also showing increasing trends in their duration and intensity." Additional heat stresses can be attributed to the urban heat island effect which can increase the temperature of those living in urban environments compared to rural areas. Projected changes in extreme heat days are shown in Figure 4.25.

**Figure 4.25 – Projected Change in Number of Days Over 95˚F**




Source: USGCRP, 2023: Fifth National Climate Assessment

The State Climate Office of North Carolina's County-specific climate projections, which are based on the Fifth National Climate Assessment. The Fifth National Climate Assessment also notes that warm nights (minimum temperatures at or above 70°F) in the southeast have increased the most compared to all other continental U.S. regions.

The State Climate Office of North Carolina's County-specific climate projections, which are based on the Fifth National Climate Assessment, are summarized in Table 4.31 and Table 4.32.

**Table 4.31 – Extreme Heat Projections, Days per Year with Maximum Temperatures over 95˚F**

| County | Historical | Best Case Scenario | Worst Case Scenario |
|---|---|---|---|
| Bertie | 8 | 28 | 39 |
| Hyde | 2 | 9 | 14 |
| Martin | 9 | 29 | 40 |
| Tyrrell | 4 | 17 | 26 |
| Washington | 6 | 24 | 34 |

Source: North Carolina Resilience Exchange Climate Projections and Observations

**Table 4.32 – Extreme Heat Projections, Nights per Year with Minimum Temperature over 70˚F**

| County | Historical | Best Case Scenario | Worst Case Scenario |
|---|---|---|---|
| Bertie | 8 | 28 | 39 |
| Hyde | 67 | 96 | 108 |
| Martin | 34 | 69 | 83 |
| Tyrrell | 50 | 82 | 95 |
| Washington | 44 | 77 | 90 |

Source: North Carolina Resilience Exchange Climate Projections and Observations

## VULNERABILITY ASSESSMENT

### *METHODOLOGIES AND ASSUMPTIONS*

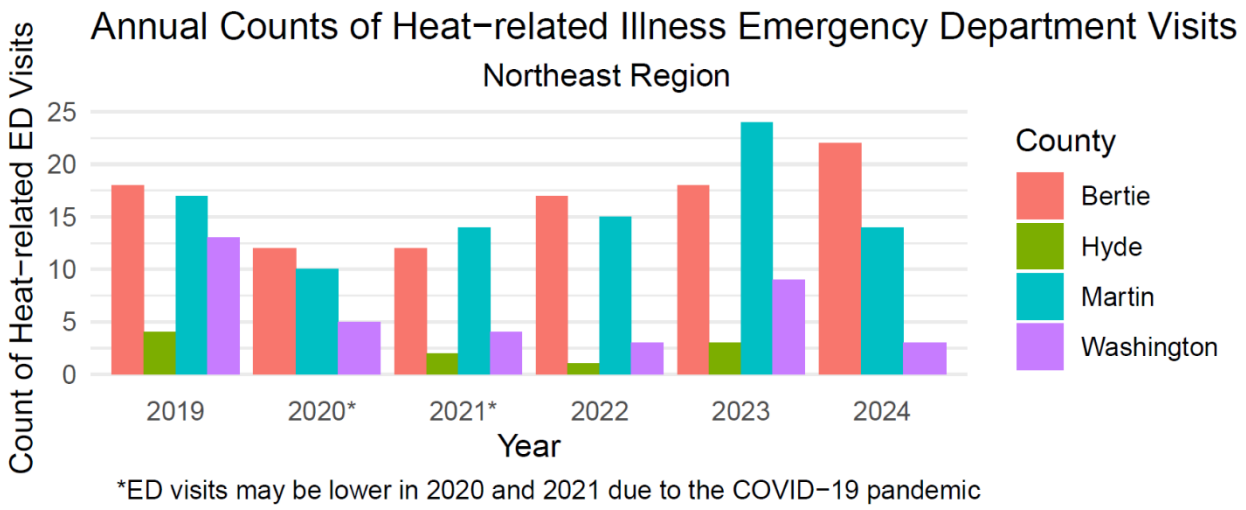
No data is available to assess the vulnerability of people or property in the planning area to extreme heat.

### *PEOPLE*

Extreme heat can cause heat stroke and even loss of human life. The elderly and the very young are most at risk to the effects of heat. People who are isolated, people who work outdoors and/or do strenuous labor, people with chronic health problems such as heart disease or asthma, people who are obese, and people who are on certain medications, such as tranquilizers, antidepressants, sleeping pills, or drugs for Parkinson's disease are also more vulnerable to extreme heat.

Using public health syndromic surveillance system data from NC DETECT, Figure 4.26 shows the annual count of emergency department visits for heat-related illness in the Northeastern Region, using public health syndromic surveillance system data from NC DETECT. The annual count of emergency department visits for heat-related illness in Bertie County ranged from 12 visits in 2020 and 2021 to 22 visits in 2024. The annual count of emergency department visits for heat-related illness in Hyde County ranged from 0 visits in 2020 and 2024 to 4 in 2019. The annual count of emergency department visits for heat related illness in Martin County ranged from 10 in 2020, to 24 in 2023. The annual count of emergency department visits for heat related illness in Washington County ranged from 3 in 2024 to 9 in 2023.

**Figure 4.26 – Annual Heat-Related Illness Emergency Department Visits, Northeastern Region**




Source: North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC Detect)

*PROPERTY*

Extreme heat is unlikely to cause significant damages to the built environment. However, road surfaces can be damaged as asphalt softens, and concrete sections may buckle under expansion caused by heat. Train rails may also distort or buckle under the stress of head induced expansion. Power transmission lines may sag from expansion and if contact is made with vegetation the line may short out causing power outages. Additional power demand for cooling also increases power line temperature adding to heat impacts.

Extreme heat can also cause significant agricultural losses. Between 2014-2024, the sum of claims paid for crop damage due to heat in the Northeastern NC Region was $2,681,485, or an average of $243,771 in losses every year. Table 4.33 summarizes the crop losses due to drought in reported in the RMA system.

**Table 4.33 – Crop Losses Resulting from Heat, 2014-2024**

| Year | Bertie | Hyde | Martin | Tyrrell | Washington |
|---|---|---|---|---|---|
| 2014 | - | - | - | $45,336 | $137,505 |
| 2015 | $110,972 | $54,862 | $12,445 | $80,127 | $1,290 |
| 2016 | $243,805 | - | $15,460 | - | $10,324 |
| 2017 | $37,449 | - | $13,475 | - | $35,749 |
| 2018 | $18,425 | - | $90,109 | - | $31,779 |
| 2019 | $48,037 | $118,509 | $192,198 | $29,921 | $72,403 |
| 2020 | $120,393 | - | $26,235 | $24,385 | $31,919 |
| 2021 | $18,357 | - | $31,667 | - | $1,248 |
| 2022 | $84,521 | $151,574 | $351,959 | - | $13,840 |
| 2023 | $147,570 | - | $153,458 | $6,011 | - |
| 2024 | $42,001 | - | $74,343 | - | $1,824 |
| **Total** | **$871,530** | **$324,945** | **$961,349** | **$185,780** | **$337,881** |

Source: USDA Risk Management Agency

### *ENVIRONMENT*

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

### *CONSEQUENCE ANALYSIS*

Table 4.34 summarizes the potential negative consequences of extreme heat.

**Table 4.34 – Consequence Analysis – Extreme Heat**

| Category | Consequences |
|---|---|
| Public | Extreme heat may cause illness and/or death. |
| Responders | Consequences may be greater for responders if their work requires exertion and/or wearing heavy protective gear. |
| Continuity of Operations (including Continued Delivery of Services) | Continuity of operations is not expected to be impacted by extreme heat because warning time for these events is long. |
| Property, Facilities and Infrastructure | Minor impacts may occur, including possible damages to road surfaces and power lines. |
| Environment | Environmental impacts include strain on local plant and wildlife, including potential for illness or death. |
| Economic Condition of the Jurisdiction | Farmers may face crop losses or increased livestock costs. |
| Public Confidence in the Jurisdiction's Governance | Extreme heat is unlikely to impact public confidence. |

## HAZARD SUMMARY BY JURISDICTION

The following table summarizes extreme heat hazard risk by jurisdiction. Extreme heat risk does not vary significantly by jurisdiction.

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| *All jurisdictions* | 4 | 3 | 4 | 1 | 3 | 3.3 | H |

## 4.5.5 FLOODING

### HAZARD BACKGROUND

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

Flooding is the most frequent and costly of all natural hazards in the United States and has caused more than 10,000 death(s) since 1900. Approximately 90 percent of presidentially declared disasters result from flood-related natural hazard events. Taken as a whole, more frequent, localized flooding problems that do not meet federal disaster declaration thresholds ultimately cause the majority of damages across the United States.

#### *SOURCES AND TYPES OF FLOODING*

Flooding within the Northeastern NC Region can be attributed to three main sources as noted below.

**Riverine Flooding:** During heavy rainfall events, the primary riverine flooding sources in the Northeastern NC Region are as follows, per each county's effective Flood Insurance Study (FIS):

- **Bertie County:** Cashie River and its tributaries, Cashie Swamp, Chiska Creek, Cricket Swamp, Eastmost Swamp and its tributaries, Jacks Branch, and Salmon Creek and its tributaries.
- **Hyde County:** Pungo River Canal
- **Martin County:** Roanoke River and tributaries, Conoho Creek and tributaries, Ross Swamp, Huskanaw Swamp, Hardison Mill Creek and tributaries, Smithwick Creek, Sweetwater Creek, and other small streams
- **Tyrrell County:** coastal flood sources only
- **Washington County:** Welch Creek, Conaby Creek and its tributary, Kendrick Creek, Beaver Dam Branch and its tributary, and Welch Creek Tributary.

The above-listed rivers and their tributaries are susceptible to overflowing their banks during and following excessive precipitation events. Though less common, riverine flood events (such as the "1%-annual-chance flood") will cause significantly more damage and economic disruption for the area than incidences of localized stormwater flooding.

Although only coastal flood sources are evaluated for Tyrrell County's Flood Insurance Study, the county is also vulnerable to flooding as a result of heavy rainfall over land. Riverine flooding can affect all of the Northeastern NC Region. For example, riverine flooding was present in all counties in the Region, except Tyrrell County, following Hurricane Matthew, per each county's unique Resilient Redevelopment Plan. In Martin County, for example, the Roanoke River reached an elevation of 11.61 feet at Williamston. Hurricane Matthew brought with it a significant amount of rainfall, which caused or contributed to flood levels in the Region.

**Coastal Flooding:** All lands bordering the coast along the Atlantic Ocean and in low-lying coastal plains are susceptible to tidal effects and flooding. Coastal lands such as sand bars, barrier islands, and deltas provide a buffer zone to help protect human life and real property relative to the sea much as flood plains provide a buffer zone along rivers and other bodies of water. Coastal floods usually occur because of abnormally high tides or tidal waves, storm surge and heavy rains in combination with high tides, and tropical storms and hurricanes.

Wind-driven surge generated in the Atlantic Ocean and pushed into the Pamlico Sount, Albemarle Sound, and other waters is the primary source of flooding in the Region. The areas susceptible to surge flooding are summarized from each county's FIS as follows:

- **Bertie County:** Surge propagates into the Albemarle Sound, which further propagates into the Batchelor Bay, Black Walnut Swamp, the Chowan River, Salmon Creek, and the Roanoke River.
- **Hyde County:** Surge propagates into the Pamlico Sound and further propagates into the Pamlico River, Lake Mattamuskeet, and a multitude of small watercourses where high winds associated with tropical storms can produce high waves.
- **Tyrrell County:** Surge propagates into the Albemarle Sound and propagates further into the coastal waterways.
- **Washington County:** Surge propagates into Pamlico Sound and Albemarle Sound, which further propagates into Maw Creek, Roanoke River, Scuppernong River, and Welch Creek.

**Flash Flooding:** A flash flood occurs when water levels rise at an extremely fast rate as a result of intense rainfall over a brief period, possibly from slow-moving intense thunderstorms and sometimes combined with rapid snowmelt, ice jam release, frozen ground, saturated soil, or impermeable surfaces. Ice jam flooding is a form of flash flooding that occurs when ice breaks up in moving waterways and then stacks on itself where channels narrow. This creates a natural dam, often causing flooding within minutes of the dam formation. Flash flooding can happen in Special Flood Hazard Areas (SFHAs) as delineated by the National Flood Insurance Program (NFIP) and can also happen in areas not associated with floodplains. Flash flood hazards caused by surface water runoff are most common in urbanized areas, where greater population density generally equates to more impervious surface (e.g., pavement and buildings) which increases the amount of surface water generated.

Flash flooding is a dangerous form of flooding which can reach full peak in only a few minutes. Rapid onset allows little or no time for protective measures. Flash flood waters move at very fast speeds and can move boulders, tear out trees, scour channels, destroy buildings, and obliterate bridges. Flash flooding can result in higher loss of life, both human and animal, than slower developing river and stream flooding.

In certain areas, aging storm sewer systems are not designed to carry the capacity currently needed to handle the increased storm runoff. Typically, the result is water backing into basements, which damages mechanical systems and can create serious public health and safety concerns.

Localized flooding may be caused by the following issues:

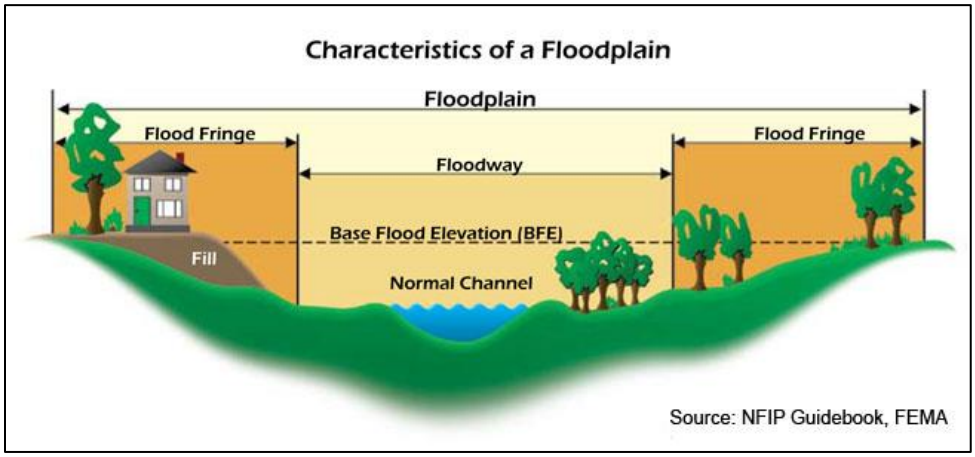
- **Inadequate Capacity –** An undersized/under capacity pipe system can cause water to back-up behind a structure which can lead to areas of ponded water and/or overtopping of banks.
- **Clogged Inlets** – Debris covering the asphalt apron and the top of grate at catch basin inlets may contribute to an inadequate flow of stormwater into the system. Debris within the basin itself may also reduce the efficiency of the system by reducing the carrying capacity.
- **Blocked Drainage Outfalls** – Debris blockage or structural damage at drainage outfalls may prevent the system from discharging runoff, which may lead to a back-up of stormwater within the system.
- **Improper Grade** – Poorly graded asphalt around catch basin inlets may prevent stormwater from entering the catch basin as designed. Areas of settled asphalt may create low spots within the roadway that allow for areas of ponded water.

## *FLOODING AND FLOODPLAINS*

In the case of riverine flooding, the area adjacent to a channel is the floodplain, as shown in Figure 4.27. A floodplain is flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic

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

**Figure 4.27 – Characteristics of a Floodplain**




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

The 1%-annual-chance flood, which is the minimum standard used by most federal and state agencies, is used by the National Flood Insurance Program (NFIP) as the standard for floodplain management and to determine the need for flood insurance. Participation in the NFIP requires adoption and enforcement of a local floodplain management ordinance which is intended to prevent unsafe development in the floodplain, thereby reducing future flood damages. Participation in the NFIP allows for the federal government to make flood insurance available within the community as a financial protection against flood losses. Since floods have an annual probability of occurrence, have a known magnitude, depth and velocity for each event, and in most cases, have a map indicating where they will likely occur, they are in many ways often the most predictable and manageable hazard.

*Warning Time: 3 – 6 to 12 hours*

*Duration: 3 – Less than one week*

## LOCATION

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-percent chance of flooding during the life of a standard 30-year mortgage. Flood prone areas were identified within the Northeastern Region using the Effective FIRMs retrieved from NC Flood Risk Information System (FRIS). The current effective FIS reports for Bertie, Martin, Tyrrell, and Washington counties were

revised in 2025. Hyde County's FIS was revised in 2022. Figure 4.28 to Figure 4.32 reflect the effective mapped flood insurance zones by county for the Northeastern NC Region.

Flooding can also occur outside the defined SFHA on smaller tributaries that were not studied by FEMA but that nonetheless may be vulnerable to the 1-percent-annual-chance flood. Additionally, localized stormwater flooding can occur anywhere along stormwater system pipes, channels, culverts, and other infrastructure where inadequate capacity, blocked inlets or outfalls, or improper grade prevent sufficient drainage. This type of flooding is more common in the urbanized areas of the county and extends well beyond the limits of the SFHA.

*Spatial Extent: 3 – Moderate*

**Figure 4.28 – FEMA Flood Hazard Areas in Bertie County**

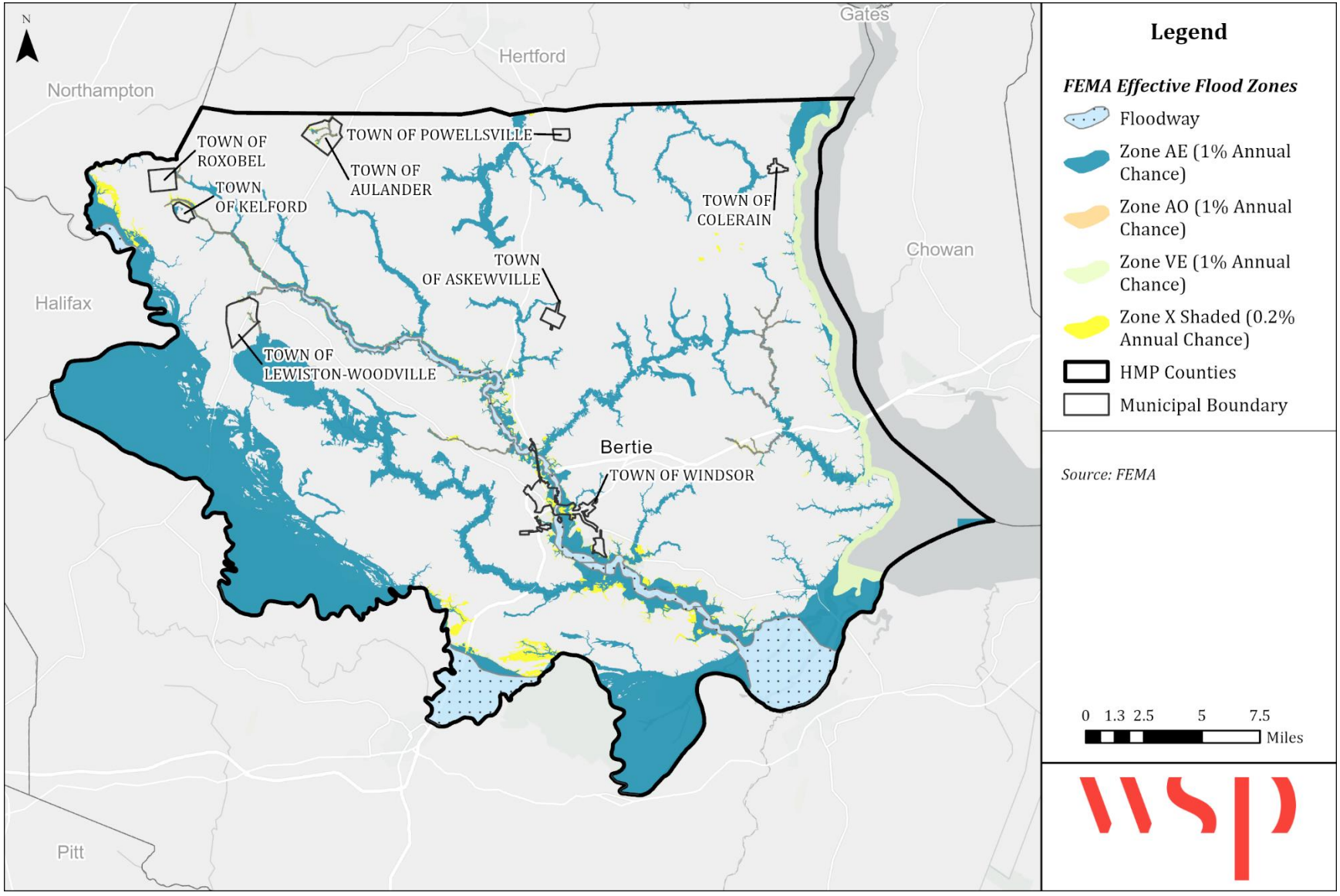


**Figure 4.29 – FEMA Flood Hazard Areas in Hyde County**

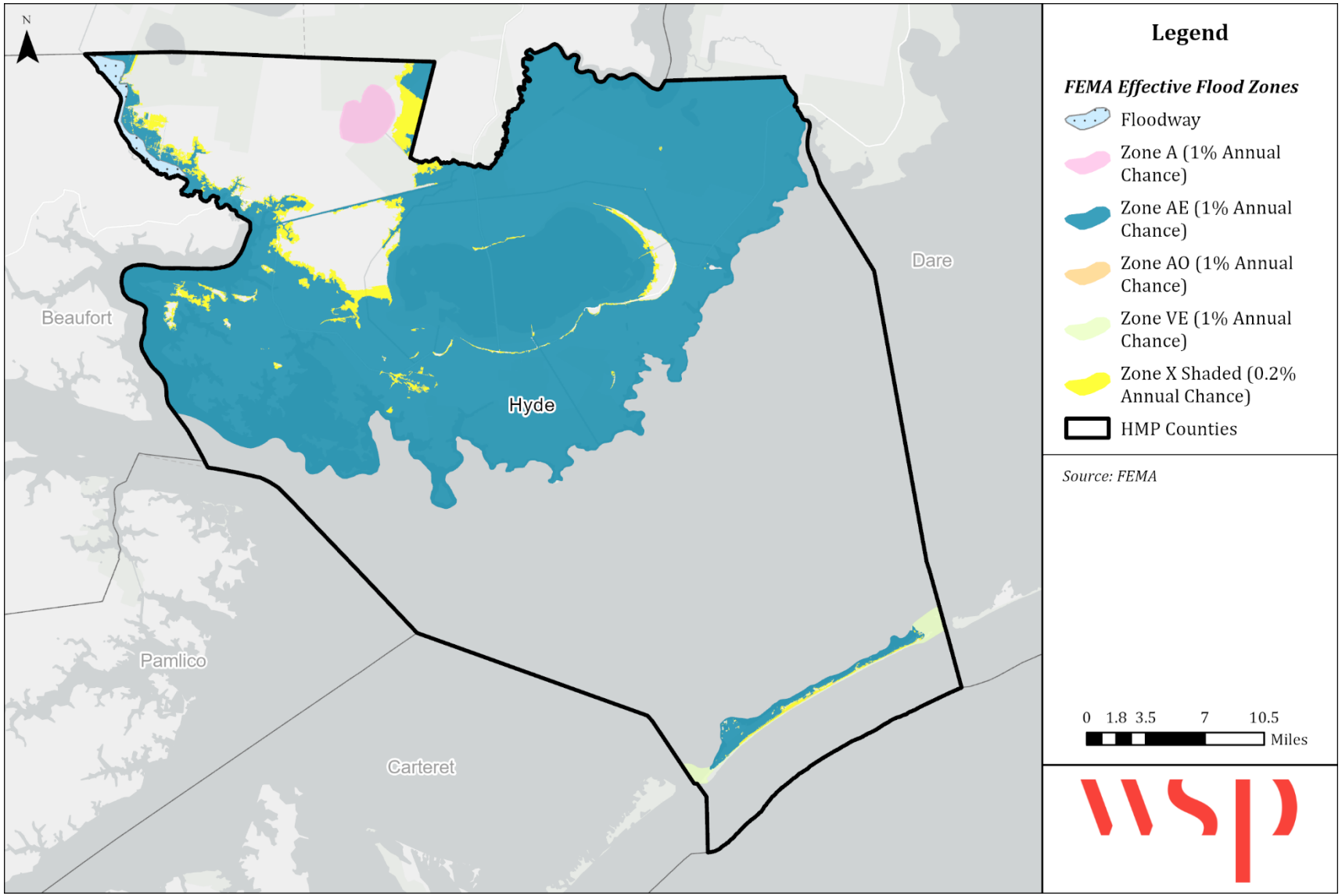


**Figure 4.30 – FEMA Flood Hazard Areas in Martin County**

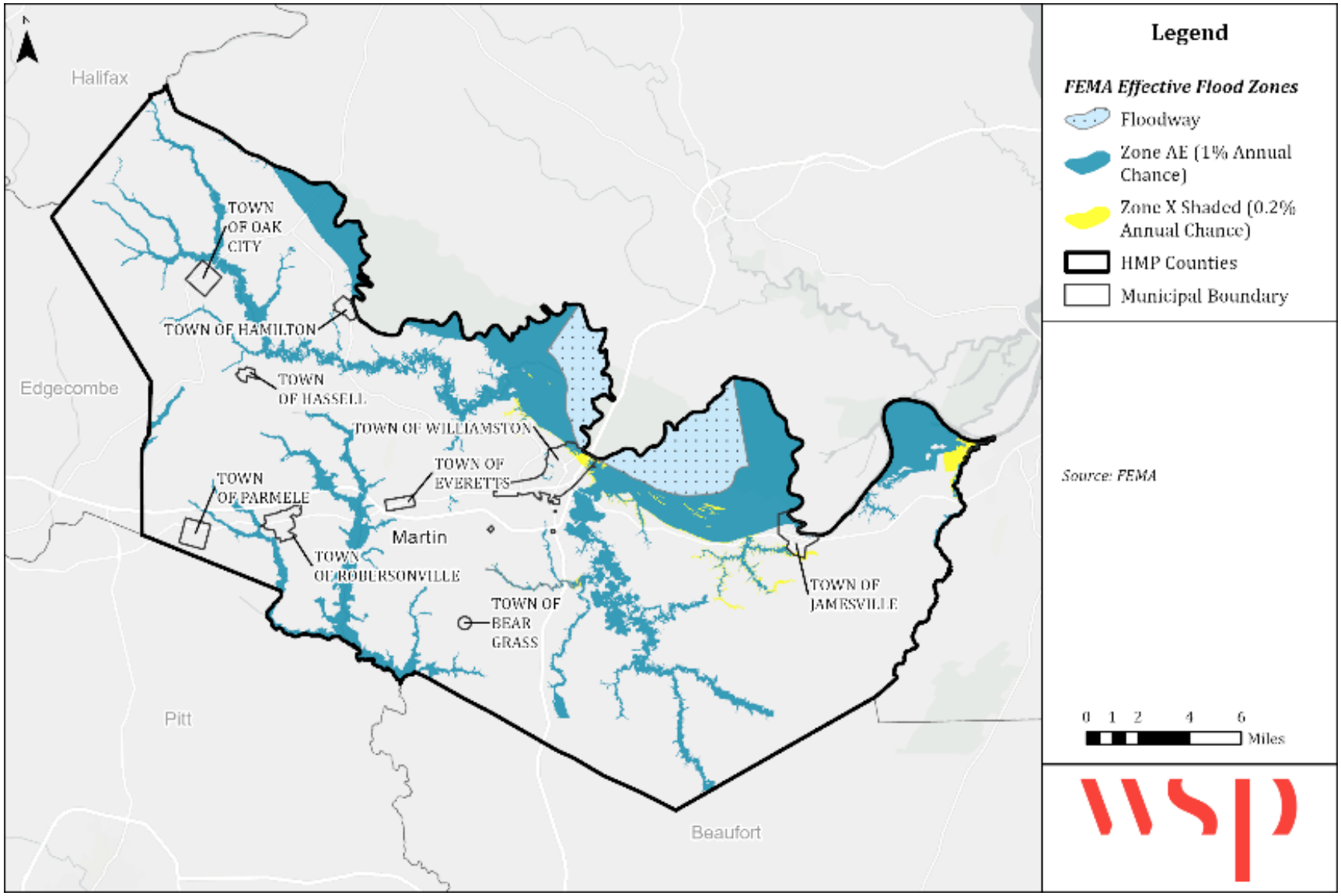


**Figure 4.31 – FEMA Flood Hazard Areas in Tyrrell County**

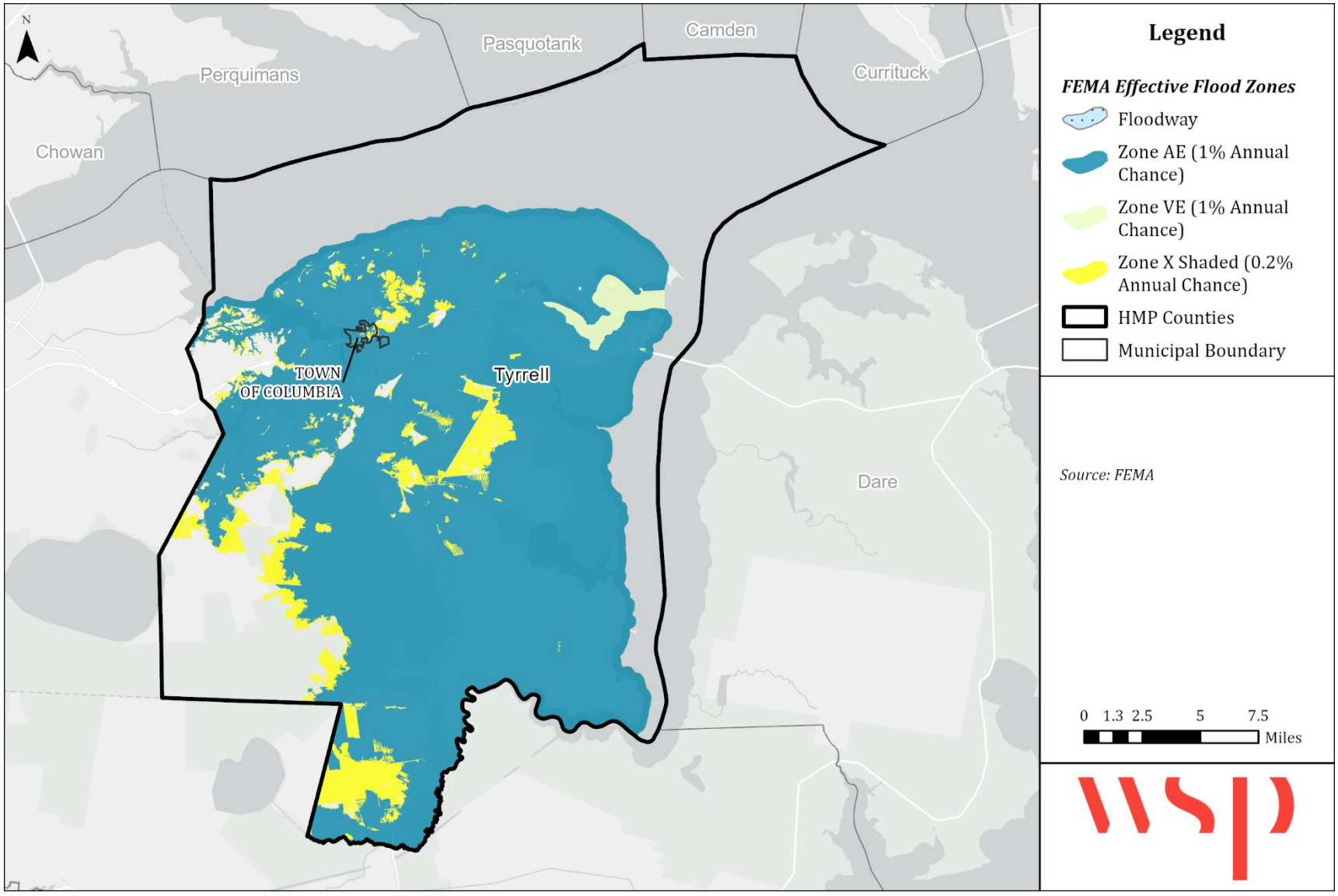
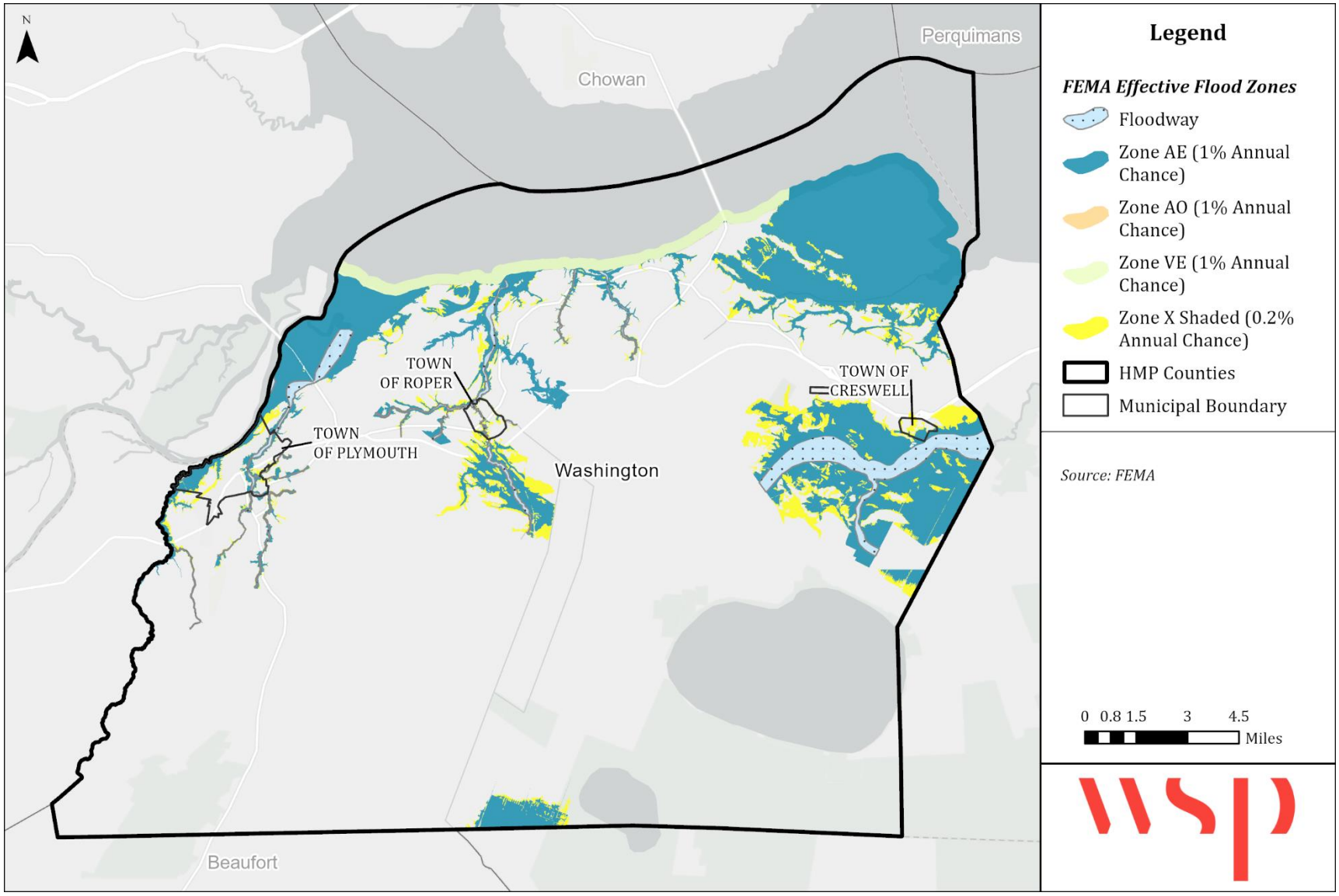


**Figure 4.32 – FEMA Flood Hazard Areas in Washington County**



## EXTENT

Flood extent can be defined by the amount of land in the floodplain and the potential magnitude of flooding as measured by flood height and velocity.

Flood extent for riverine flooding can be defined by the amount of land in the floodplain and the potential magnitude of flooding as measured by flood depth and velocity.

The FIS defines the probability of flooding as flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 100-year period (recurrence intervals). Or considered another way, properties within a 100-year flood zone have a one percent probability of being equaled or exceeded during any given year. Mortgage lenders require that owners of properties with federally backed mortgages located within SFHAs purchase and maintain flood insurance policies on their properties. Consequently, newer and recently purchased properties in the community are typically insured against flooding.

Table 4.35 summarizes the flood insurance zones identified by the Digital FIRM (DFIRM).

**Table 4.35 – Mapped Flood Insurance Zones within Northeastern NC Region**

| Zone | Description |
|---|---|
| A | Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these zones. |
| AE | AE Zones, also within the 100-year flood limits, are defined with BFEs that reflect the combined influence of stillwater flood elevations and wave effects less than 3 feet. The AE Zone generally extends from the landward VE zone limit to the limits of the 100-year flood from coastal sources, or until it reaches the confluence with riverine flood sources. The AE Zones also depict the SFHA due to riverine flood sources, but instead of being subdivided into separate zones of differing BFEs with possible wave effects added, they represent the flood profile determined by hydrologic and hydraulic investigations and have no wave effects. The Coastal AE Zone is differentiated from the AE Zone by the Limit of Moderate Wave Action (LiMWA) and includes areas susceptible to wave action between 1.5 to 3 feet. |
| VE | Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Whole-foot Base Flood Elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone. |
| 0.2% Annual Chance (Shaded Zone X) | Moderate risk areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by a levee. No BFEs or base flood depths are shown within these zones. (Zone X (shaded) is used on new and revised maps in place of Zone B.) |
| Zone X (Unshaded) | Minimal risk areas outside the 1-percent and 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. |

Approximately 35.9% of the Northeastern NC Region within the SFHA. Table 4.36 below summarizes acreage of each county's total area by flood zone on the effective DFIRM.

### Table 4.36 – Flood Zone Acreage in Northeastern NC Region County

| Flood Zone | Acreage | Percent of Total (%) |
|---|---|---|
| **Bertie County** | | |
| Zone AE | 102,537.7 | 21.6 |
| Zone AE (Floodway) | 18,432.1 | 3.9 |
| Zone AO | 0.3 | 0.0 |
| Zone VE | 6,031.3 | 1.3 |
| Zone X (500-year) | 4,749.2 | 1.0 |
| Zone X Unshaded | 327,537.0 | 69.0 |
| Open Water | 15,129.2 | 3.1 |
| **Subtotal** | **474,416.8** | -- |
| **Hyde County** | | |
| Zone A | 5,362.0 | 0.6 |
| Zone AO | 73.5 | 0.0 |
| Zone AE | 368,300.0 | 41.7 |
| Zone AE (Floodway) | 3,995.2 | 0.5 |
| Zone VE | 2,837.5 | 0.3 |
| Zone X (500-year) | 15,848.5 | 1.8 |
| Zone X Unshaded | 90,762.2 | 10.3 |
| Open Water | 396,083.0 | 44.8 |
| **Subtotal** | **883,262.0** | -- |
| **Martin County** | | |
| Zone AE | 50,848.9 | 17.4 |
| Zone AE (Floodway) | 12,575.7 | 4.3 |
| Zone X (500-year) | 1,901.8 | 0.7 |
| Zone X Unshaded | 226,968.4 | 77.7 |
| **Subtotal** | **292,294.8** | -- |
| **Tyrrell County** | | |
| Zone AE | 209,301.6 | 54.8 |
| Zone VE | 3,517.3 | 0.9 |
| Zone X (500-year) | 20,836.0 | 5.5 |
| Zone X Unshaded | 37,299.9 | 9.7 |
| Open Water | 110,827.1 | 29.0 |
| **Subtotal** | **381,781.8** | -- |
| **Washington County** | | |
| Zone AE | 34,336.8 | 12.7 |
| Zone AE (Floodway) | 4,600.9 | 1.7 |
| Zone AO | 13.4 | 0.0 |
| Zone VE | 2,917.1 | 1.1 |
| Zone X (500-year) | 7,005.2 | 2.6 |
| Zone X Unshaded | 195,401.7 | 72.4 |
| Open Water | 25,745.3 | 9.5 |
| **Subtotal** | **270,020.3** | -- |

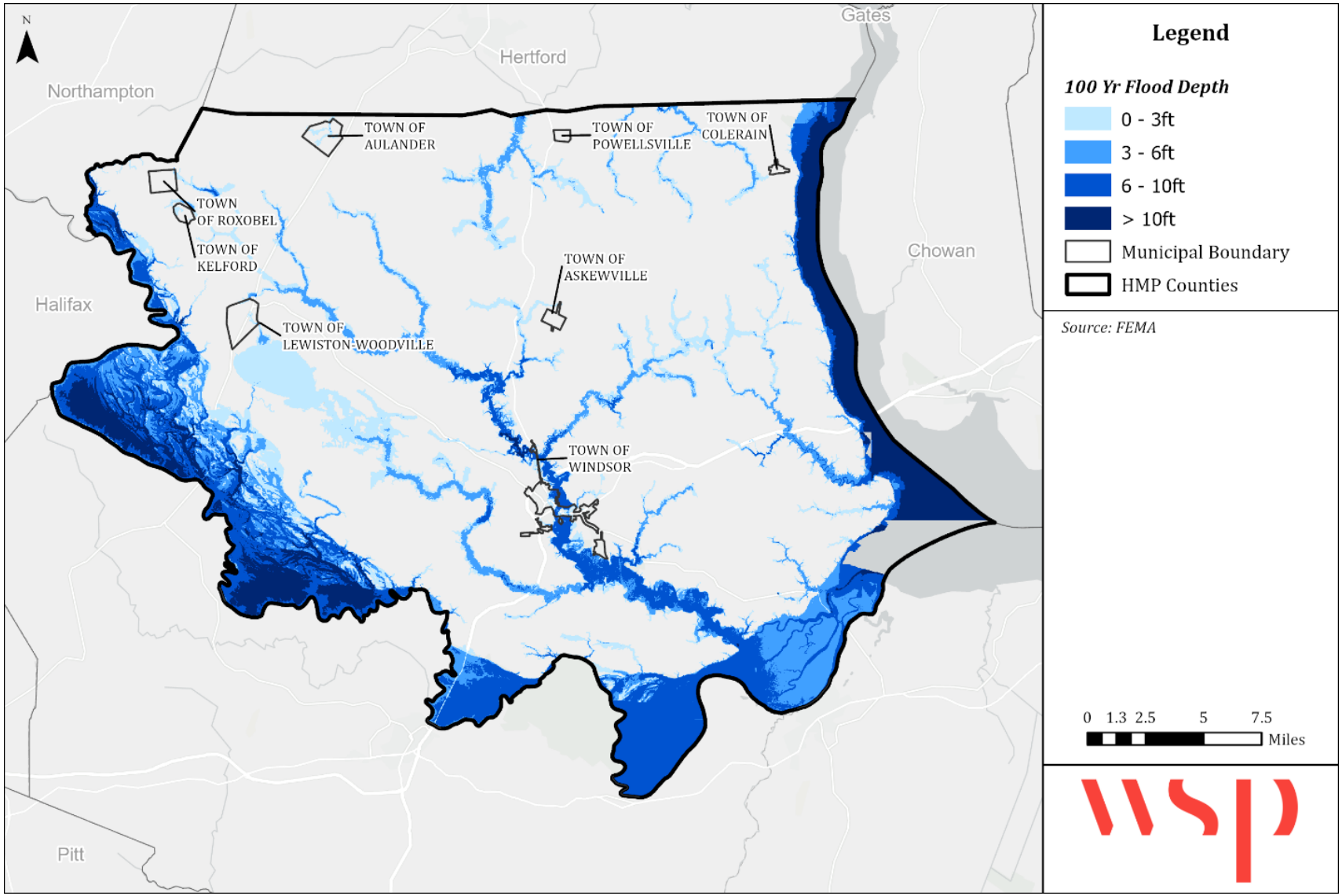
| Flood Zone | Acreage | Percent of Total (%) |
|---|---|---|
| **Northeastern NC Region** | | |
| Zone A | 5,362.0 | 0.2 |
| Zone AE | 765,325.0 | 33.2 |
| Zone AE (Floodway) | 39,603.9 | 1.7 |
| Zone VE | 15,303.20 | 0.7 |
| Zone AO | 87.2 | 0.0 |
| Zone X (500-year) | 50,340.70 | 2.2 |
| Zone X Unshaded | 877,969.20 | 38.1 |
| Open Water | 547,784.60 | 23.8 |
| **Total** | **2,301,775.6** | -- |

Source: FEMA Effective DFIRM

Property damages correlate to the depth of flooding that impacts a property. Data is not available to measure flood depth beyond the SFHA, but it is important to note that damaging floods can and do occur outside the SFHA. Figure 4.33 through Figure 4.37 show the depth of flooding predicted to result from a 1% annual chance flood within the Northeastern Region.

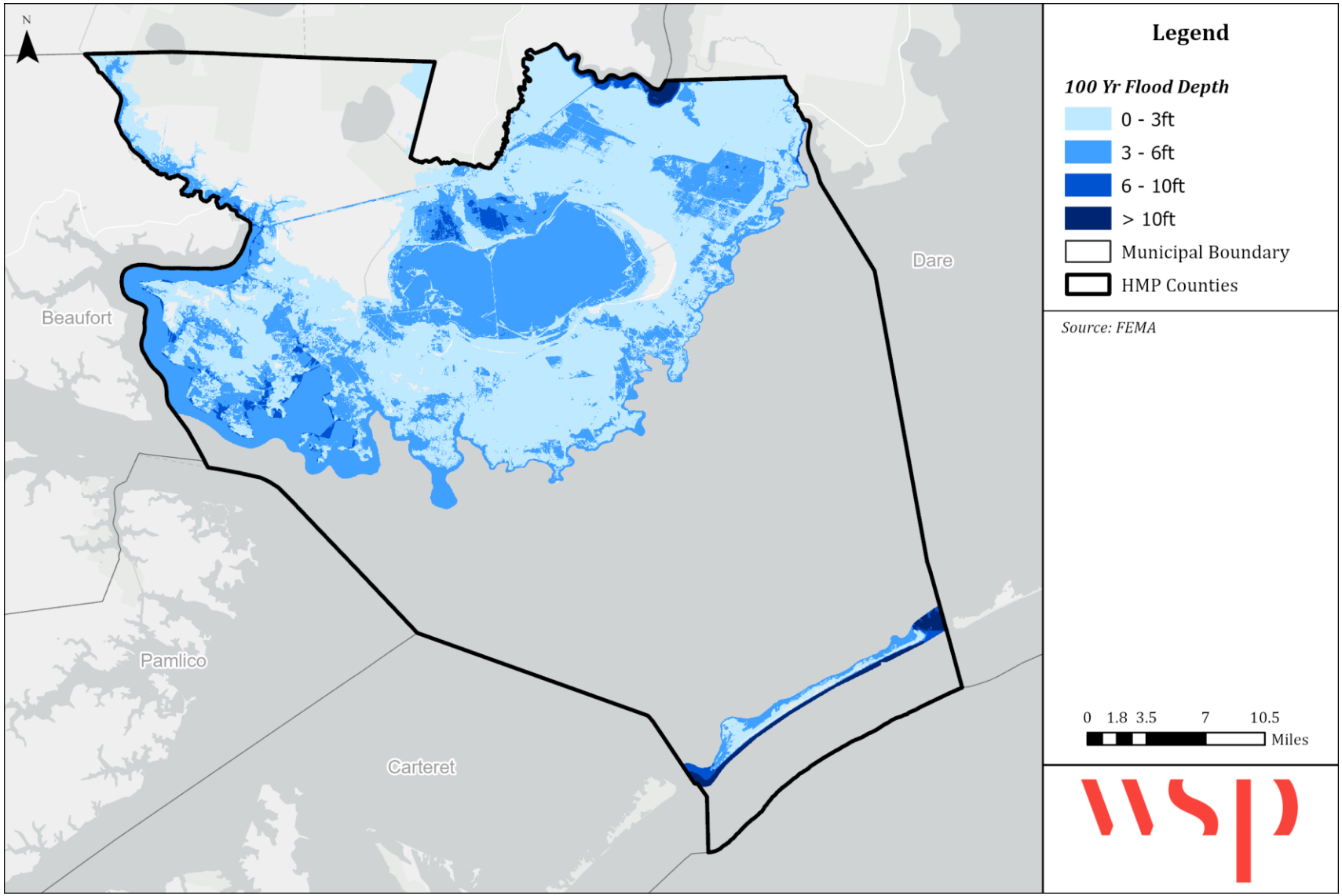
*Impact: 3 – Critical*

**Figure 4.33 – Flood Depth, 100-Year Floodplain, Bertie County**



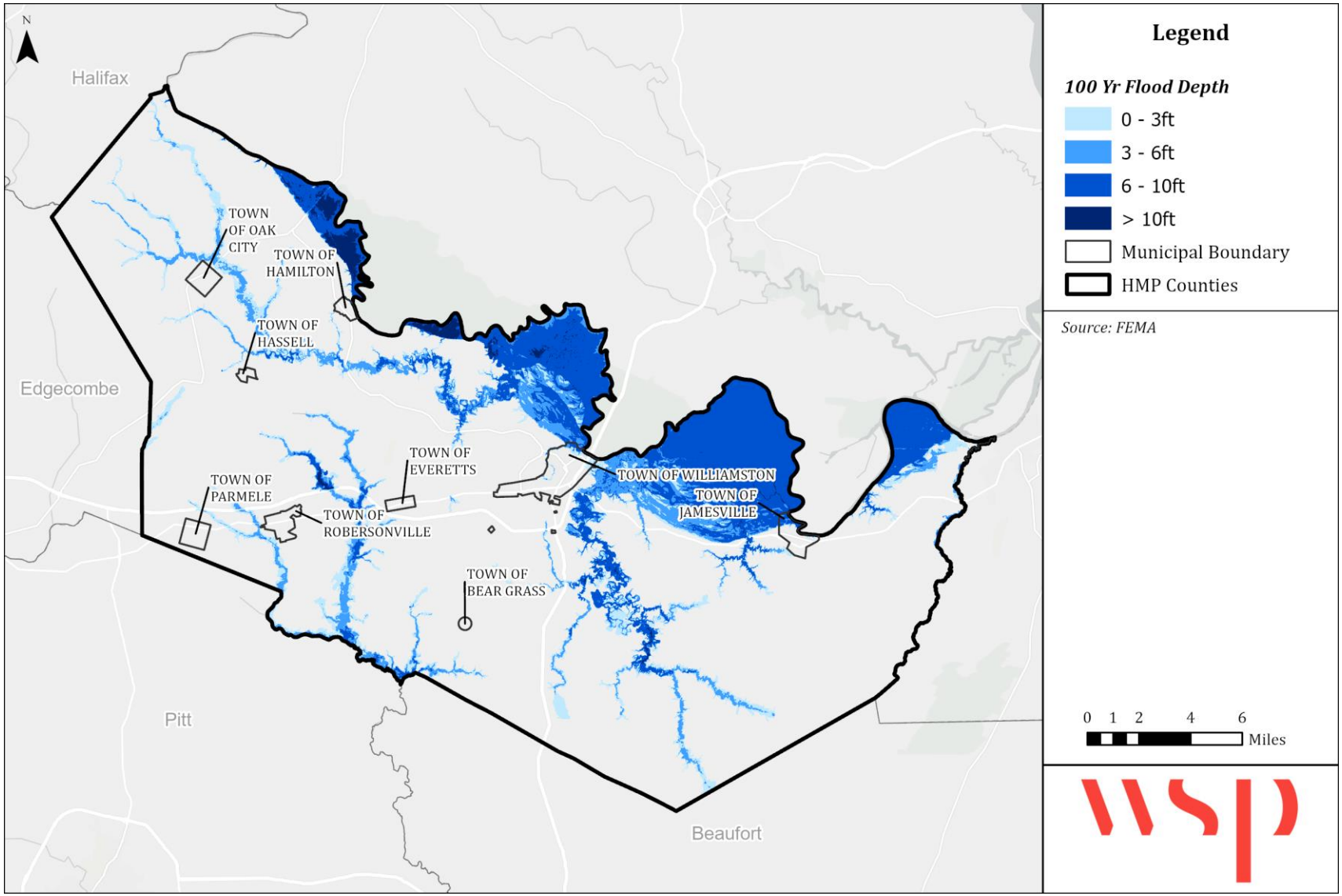

Source: FEMA Effective DFIRM

**Figure 4.34 – Flood Depth, 100-Year Floodplain, Hyde County**



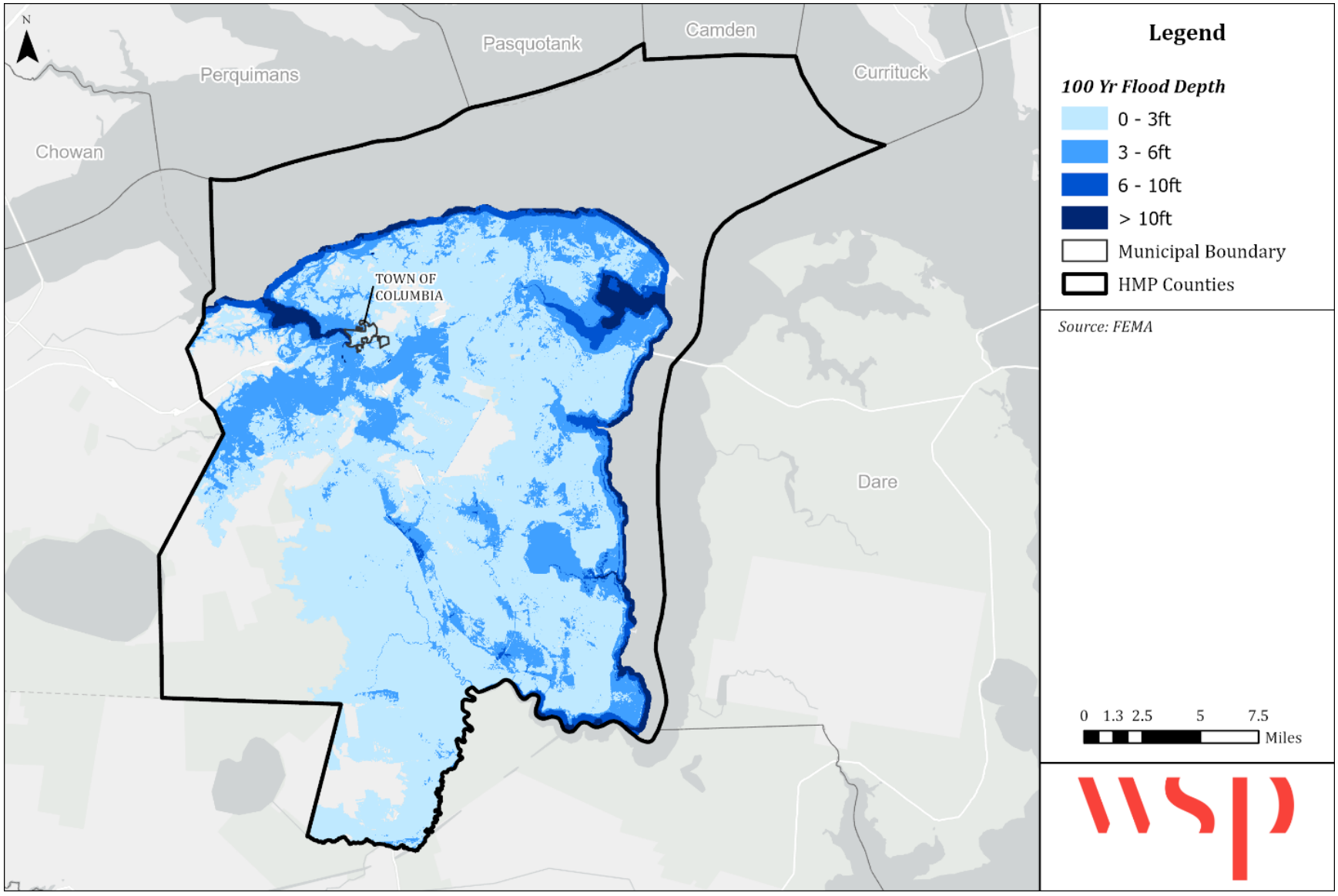

Source: FEMA Effective DFIRM

**Figure 4.35 – Flood Depth, 100-Year Floodplain, Martin County**



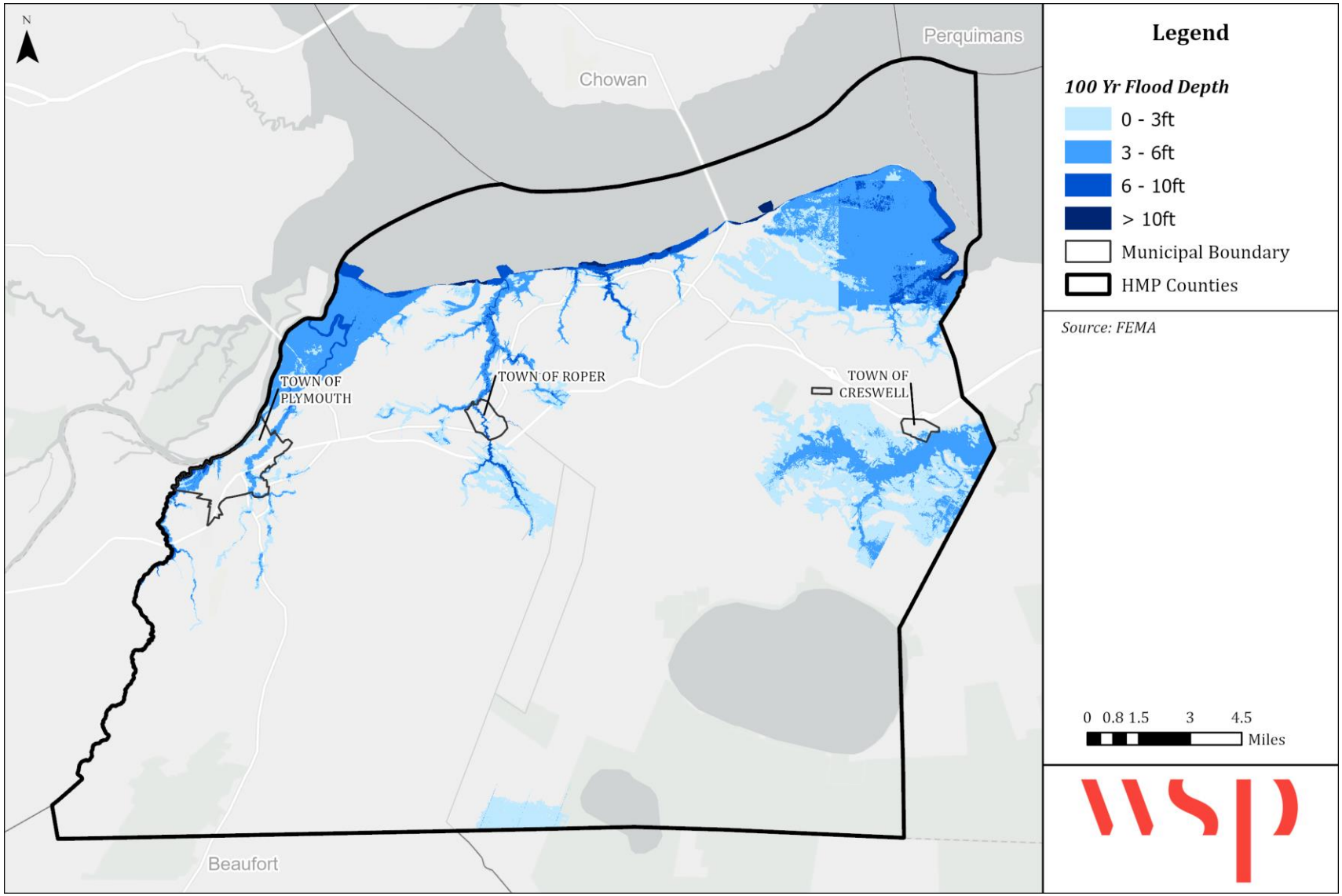

Source: FEMA Effective DFIRM

**Figure 4.36 – Flood Depth, 100-Year Floodplain, Tyrrell County**




Source: FEMA Effective DFIRM

**Figure 4.37 – Flood Depth, 100-Year Floodplain, Washington County**




Source: FEMA Effective DFIRM

## HISTORICAL OCCURRENCES

According to NCEI, 80 recorded flood events affected the planning area from 1999 to 2024 causing an estimated $10,225,000 in property damage, $2,000,000 in crop damage, and 6 deaths. Table 4.37 summarizes these historical occurrences of flooding by county and event type identified from 1999 through 2018 by NCEI Storm Events database. It should be noted that only those historical occurrences listed in the NCEI database are shown here and that other, unrecorded or unreported events may have occurred within the planning area during this timeframe. Further, only reported damages are shown here and further damages may have occurred but gone unreported. Incidents of storm surge are reported under the Hurricane and Tropical Storm profile in Section 4.5.7.

**Table 4.37 – NCEI Records of Flooding, 1999-2024**

| Type | Event Count | Deaths/ Injuries | Property Damage | Crop Damage |
|---|---|---|---|---|
| **Bertie** | | | | |
| Flash Flood | 22 | 1/0 | $5,000 | $0 |
| Flood | 7 | 0/0 | $10,000,000 | $1,000,000 |
| Heavy Rain | 22 | 0/0 | $0 | $0 |
| **Hyde** | | | | |
| Coastal Flood | 7 | 0/0 | $0 | $0 |
| Flash Flood | 8 | 0/0 | $0 | $0 |
| Flood | 2 | 0/0 | $0 | $0 |
| Heavy Rain | 2 | 0/0 | $0 | $0 |
| **Martin** | | | | |
| Flash Flood | 21 | 0/0 | $210,000 | $0 |
| Flood | 2 | 0/0 | $0 | $0 |
| Heavy Rain | 1 | 0/0 | $0 | $0 |
| **Tyrrell** | | | | |
| Coastal Flood | 1 | 0/0 | $0 | $0 |
| Flash Flood | 2 | 0/0 | $0 | $0 |
| **Washington** | | | | |
| Flash Flood | 7 | 0/0 | $0 | $0 |
| Flood | 2 | 5/0 | $10,000 | $1,000,000 |
| **Region Total** | | | | |
| Coastal Flood | 8 | 0/0 | $0 | $0 |
| Flash Flood | 60 | 1/0 | $215,000 | $0 |
| Flood | 13 | 5/0 | $10,010,000 | $2,000,000 |
| Heavy Rain | 25 | 0/0 | $0 | $0 |
| **Total** | **106** | **6/0** | **$10,225,000** | **$2,000,000** |

Source: NCEI

Table 4.38 provides a summary of this historical information by location. Many of the events attributed to the region are countywide or cover large portions of a given county. Similarly, though some events have associated starting locations identified, the event may have covered a larger area including multiple jurisdictions. Still, this list provides an indication of areas that may be particularly flood prone.

**Table 4.38 – Summary of Historical Flood Occurrences by Location, 1999-2024**

| Location | Event Count | Deaths/Injuries | Property Damage | Crop Damage |
|---|---|---|---|---|
| **Bertie** | | | | |
| Askewville | 3 | 0/0 | $0 | $0 |
| Aulander | 4 | 0/0 | $0 | $0 |
| Bertie | 2 | 0/0 | $5,000 | $0 |
| Burden | 2 | 0/0 | $0 | $0 |
| Colerain | 1 | 0/0 | $0 | $0 |
| Countywide | 3 | 1/0 | $0 | $0 |
| Drew | 3 | 0/0 | $4,000,000 | $1,000,000 |
| Ellis Store | 3 | 0/0 | $0 | $0 |
| Grabtown | 1 | 0/0 | $0 | $0 |
| Kelford | 1 | 0/0 | $0 | $0 |
| Lewiston | 3 | 0/0 | $0 | $0 |
| Merry Hill | 1 | 0/0 | $0 | $0 |
| Perrytown | 1 | 0/0 | $0 | $0 |
| Powellsville | 1 | 0/0 | $0 | $0 |
| Quitsna | 1 | 0/0 | $1,000,000 | $0 |
| Republican | 1 | 0/0 | $0 | $0 |
| Roxobel | 1 | 0/0 | $0 | $0 |
| Windsor | 19 | 0/0 | $5,000,000 | $0 |
| Woodard | 1 | 0/0 | $0 | $0 |
| **Subtotal Bertie** | **52** | **1/0** | **$10,005,000** | **$1,000,000** |
| **Hyde** | | | | |
| Engelhard | 1 | 0/0 | | |
| Hyde (Zone) | 5 | 0/0 | $0 | $0 |
| Ocracoke | 4 | 0/0 | $0 | $0 |
| Ocracoke Is Arpt | 3 | 0/0 | $0 | $0 |
| Ocracoke Island | 2 | 0/0 | $0 | $0 |
| Sladesville | 2 | 0/0 | $0 | $0 |
| Swanquarter | 1 | 0/0 | $0 | $0 |
| **Subtotal Hyde** | **18** | **0/0** | **$0** | **$0** |
| **Martin** | | | | |
| Martin (Zone) | 1 | 0/0 | $51,000 | $0 |
| Bear Grass | 1 | 0/0 | $0 | $0 |
| Countywide | 8 | 0/0 | $200,000 | $0 |
| Jamesville | 2 | 0/0 | $0 | $0 |
| Oak City | 1 | 0/0 | $0 | $0 |
| Robersonville | 1 | 0/0 | $0 | $0 |
| Swain | 1 | 0/0 | $0 | $0 |
| Williamston | 7 | 0/0 | $10,000 | $0 |
| Williamston Arpt | 2 | 0/0 | $0 | $0 |
| Williamston Hrrs Arp | 1 | 0/0 | $0 | $0 |
| **Subtotal Martin** | **24** | **0/0** | **$210,000** | **$0** |
| **Tyrrell** | | | | |
| Tyrrell (Zone) | 1 | 0/0 | $0 | $0 |

| Location | Event Count | Deaths/Injuries | Property Damage | Crop Damage |
|---|---|---|---|---|
| Columbia | 1 | 0/0 | $0 | $0 |
| Kilkenny | 1 | 0/0 | $0 | $0 |
| **Subtotal Tyrrell** | **3** | **0/0** | **$0** | **$0** |
| **Washington** | | | | |
| Countywide | 3 | 0/0 | $0 | $0 |
| Creswell | 1 | 0/0 | $0 | $0 |
| Plymouth | 2 | 0/0 | $0 | $0 |
| Roper | 1 | 0/0 | $0 | $0 |
| Scuppernong | 1 | 5/0 | $10,000 | $1,000,000 |
| Wenona | 1 | 0/0 | $0 | $0 |
| **Subtotal Washington** | **9** | **5/0** | **$10,000** | **$1,000,000** |
| **Region Total** | **106** | **6/0** | **$10,225,000** | **$2,000,000** |

Source: NCEI

The following event narratives are provided in the NCEI Storm Events Database and illustrate the impacts of flood events on the Region:

**September 14-16, 1999 –** Rainfall associated with Hurricane Floyd caused flash flooding as it fell on soils already saturated by 3 weeks of rain across the region. Rivers, creeks, and streams were still swollen and near flood stage from Tropical Storm Dennis which impacted the region less than two weeks prior. In Martin County, rainfall totals ranged from 6 inches to nearly 11 inches. Southwest Bertie County saw as much as 18 inches of rain. The additional runoff from Floyd produced some of the worst flooding the state had seen. Many rivers rose to over 15 feet above flood stage. Many roads were flooded or washed out. A number of high-water rescues had to be conducted. One person perished due to flash flooding in Bertie County. There was also enormous structural, housing, and crop losses due to the flooding, although none was reported in NCEI in the Northeastern NC Region.

**June 15, 2011 –** The remnants of Tropical Storm Allison dropped 12 to 16 inches of rain across Martin County causing widespread, dangerous flooding. Nearly all primary and secondary roads were closed and flooding reached up to 25 homes causing $200,000 in damage. The worst of the flooding occurred during the early evening hours. Askewville in Bertie County reported 8.5 inches of water. Many roads across the Region were closed and several homes were evacuated due to high water.

**September 29-30, 2010 –** The combination of a deep flow of tropical moisture spreading northward along the east coast, and a near stationary frontal boundary over the region resulted in heavy rain across much of northeast North Carolina from Wednesday morning, September 29th, into Thursday night September 30th. Rainfall amounts ranged from four to thirteen inches over the area. The rain fell on already saturated ground leaving to flash flooding across the region especially in low lying areas. Several roads were flooded and impassable with minor damage to a few homes. In Washington County, many acres of crops were damaged. High water did minor damage to a few homes along Highway 64 from near Plymouth to Scuppernong. Five deaths were directly attributed to the flooding in Washington County when a vehicle hydroplaned on the highway, went off the right side of the road, ran down a small hill, hit an embankment and flipped over into a flooded canal where the occupants drowned. Total damages from flooding across the region were reported in NCEI at $20,000 with agricultural losses of $1 million.

**September 19-21, 2016 –** The combination of a stalled frontal boundary and the remnant low pressure area that was Tropical Storm Julia produced heavy rain across much of northeast North Carolina from Monday, September 19th into Thursday, September 22nd. Rainfall totals generally ranged from 6 to 17 inches across the county. Windsor reported 17 inches of rain and widespread flooding. The Cashie River exceeded major flood stage. Numerous homes and businesses were flooded and damaged and numerous

roads were flooded and closed. The event caused $4,000,000 in property damages and $1,000,000 in crop damages in Bertie County.

**October 8, 2016 –** The combination of a cold front moving through the Mid-Atlantic and Hurricane Matthew tracking northeast just off the North Carolina and Virginia coasts, produced heavy rain across northeast North Carolina from Saturday, October 8th into Sunday, October 9th. Rainfall totals generally ranged from 6 to 12 inches. This rain led to significant flash flooding over much of the Northeastern NC Region. Many roads were washed out and impassable for days from the serious flash flooding. The Cashie River exceeded major flood stage, and flooding continued through October 13th. In the Northeastern NC Region, this event caused $6 million in damage, as reported by NCEI.

**January 9, 2024** - Late on the evening of January 9, 2024, a strong cold front moved east across the Carolinas and was accompanied by a line of severe thunderstorms. A period of strong southerly winds (not associated with thunderstorms) developed ahead of the cold front, followed by widespread strong to damaging winds associated with the line of thunderstorms. The strong onshore winds also led to coastal flooding, especially across the Outer Banks from Ocracoke north. The NC DOT reported Highway 12 was closed on Ocracoke Island between the Pony Pens and the Ferry Terminal.

## PROBABILITY OF FUTURE OCCURRENCE

By definition of the 100-year flood event, SFHAs are defined as those areas that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. Properties located in these areas have a 26 percent chance of flooding over the life of a 30-year mortgage. The 500-year flood area is defined as those areas that will be inundated by the flood event having a 0.2-percent chance of being equaled or exceeded in any given year; it is not the flood that will occur once every 500 years.

The Region is also at risk to other magnitudes of flooding and other types of flooding, such as stormwater floods, storm surge, and other tidal flooding, which have varying probabilities. According to past records, annual probability of flooding varies across the participating counties from 15% to 100% likelihood of flooding in any given year. For the Region as a whole, future flooding is considered likely. However, exposure to flood hazards varies across jurisdictions, and probability of flooding is lower in those jurisdictions without any land in the SFHA, which includes Bear Grass, Colerain, Everetts, Hassell, Powellsville, Oak City, Parmele, and Robersonville.

*Probability: 3 – Likely*

## CLIMATE CHANGE

Per the 2023 North Carolina Hazard Mitigation Plan, changing climate and weather patterns, environmental conditions, and urban and rural development may affect the frequency and intensity of flooding. Historical data and climate projections provided by the State Climate Office of North Carolina on the North Carolina Resilience Exchange website indicate that the region is expected to experience more days with extreme precipitation (2 inches or more of precipitation) shown in Table 4.39.

**Table 4.39 – Number of Days with Extreme Precipitation (2+ inches)**

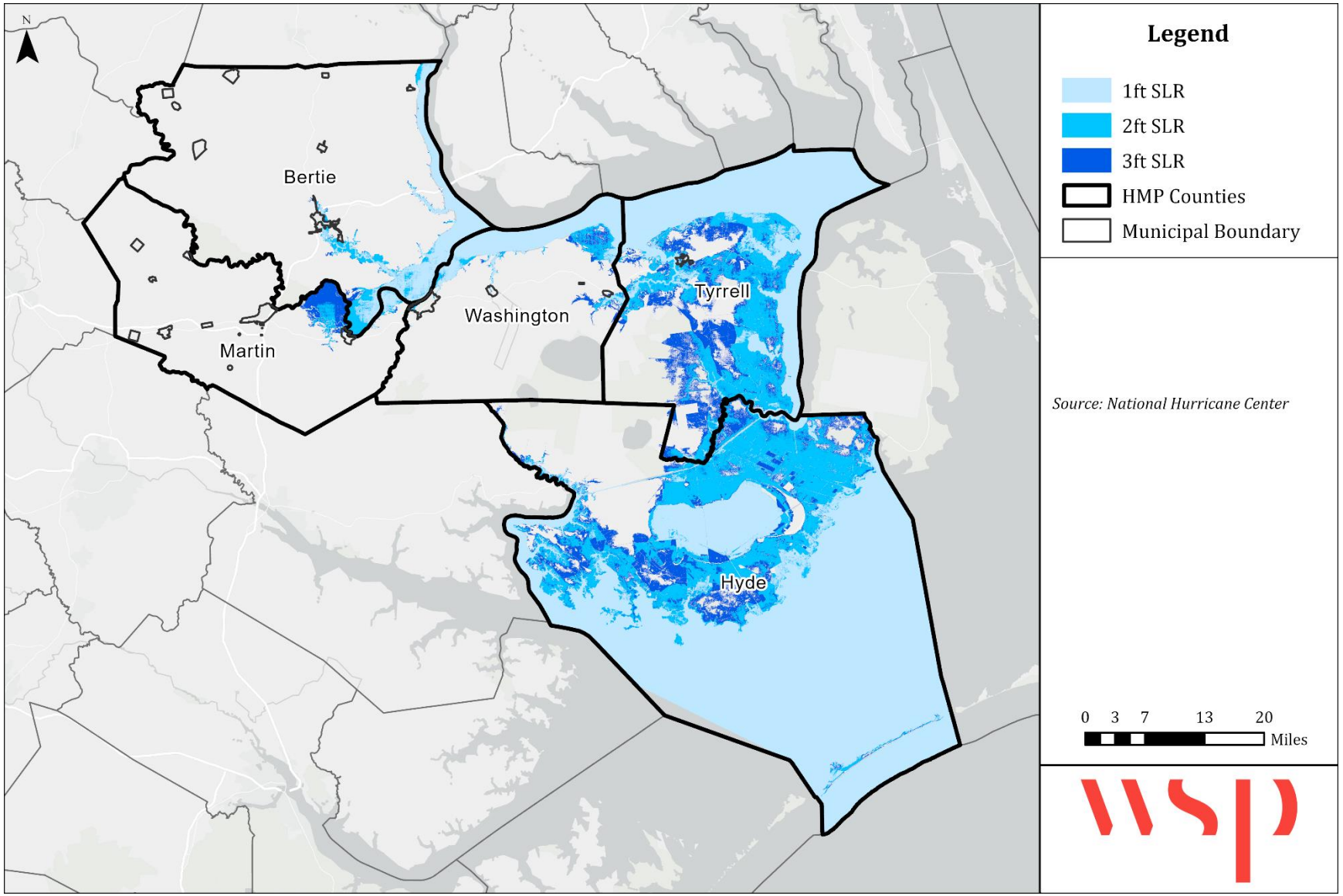
| County | Historical[1] | Best Case Scenario[2] | Worst Case Scenario[3] |
|---|---|---|---|
| Bertie County | 12 | 15 | 17 |
| Hyde County | 28 | 32 | 33 |
| Martin County | 15 | 18 | 19 |
| Tyrrell County | 17 | 21 | 22 |
| Washington County | 15 | 18 | 20 |

1. Days with 2 or more inches of precipitation on average between 1983-2014
2. Projected days with 2 or more inches of precipitation between 2045-2074 under a low emissions scenario
3. Projected days with 2 or more inches of precipitation between 2045-2074 under a high emissions scenario

This increased likelihood of extreme precipitation events due to climate change will result in greater risks of flash flooding and coastal flooding.

Additionally, sea level rise will inundate low-lying coastal areas and exacerbate other flood risks, especially storm surge and coastal flooding. Based on data from NOAA and the North Carolina Resilience Exchange, the Northeastern NC region will experience 1.1 – 1.3 ft of sea level rise from 2020-2060. Areas projected to experience inundation due to sea level rise are shown in Figure 4.38.

**Figure 4.38 – Sea Level Rise Projected Impacts**



## VULNERABILITY ASSESSMENT

This section provides an assessment of vulnerability to flooding by jurisdiction and flood return period.

### *METHODOLOGIES AND ASSUMPTIONS*

Population and property at risk to flooding was estimated using data from the NCEM IRISK database, which was compiled in NCEM's Risk Management Tool.

As a subset of the building vulnerability analysis, exposure of pre-FIRM structures was also estimated. Table 4.40 below provides the NFIP entry date for each participating jurisdiction, which was used to determine which buildings were constructed pre-FIRM. Pre-FIRM structures were built prior to the adoption of flood protection building standards and are therefore assumed to be at greater risk to the flood hazard.

**Table 4.40 – NFIP Initial FIRM Dates**

| NFIP Entry Date | Jurisdiction |
|---|---|
| 09/29/78 | Bertie County (Unincorporated Area) |
| 02/04/09 | Town of Askewville |
| 02/04/09 | Town of Aulander |
| 02/04/09 | Town of Colerain |
| 02/04/09 | Town of Kelford |
| 02/04/09 | Town of Lewiston-Woodville |
| 02/04/09 | Town of Powellsville |
| 09/20/74 | Town of Roxobel |
| 09/20/74 | Town of Windsor |
| 12/27/74 | Hyde County (Unincorporated Area) |
| 11/29/74 | Martin County (Unincorporated Area) |
| 09/19/07 | Town of Bear Grass |
| 09/19/07 | Town of Everetts |
| 05/05/78 | Town of Hamilton |
| 09/19/07 | Town of Hassell |
| 09/19/07 | Town of Jamesville |
| 09/19/07 | Town of Oak City |
| 09/19/07 | Town of Parmele |
| 06/07/74 | Town of Robersonville |
| 12/28/74 | Town of Williamston |
| 02/08/74 | Town of Columbia |
| 01/10/75 | Tyrrell County (Unincorporated Area) |
| 06/09/78 | Town of Creswell |
| 05/20/77 | Town of Plymouth |
| 06/09/78 | Town of Roper |
| 06/14/74 | Washington County (Unincorporated Area) |

Source: Federal Emergency Management Agency Community Status Book Report: Communities Participating in the National Flood Program, July 2025

Note: The Towns of Askewville, Lewiston Woodville, Powellsville, Everetts, and Parmele do not participate in the NFIP. Askewville and Lewiston Woodville have less than 5% of their land in high-risk flood zones. Powellsville, Everetts, and Parmele are located entirely in the low-risk unshaded Zone X flood zone.

If the NFIP entry date for a given community is between January and June, buildings constructed the same year as the entry date are considered to be post-FIRM (e.g., if the NFIP entry date is 02/01/1991, buildings constructed in 1990 and before are pre-FIRM. Buildings constructed from 1991 to the present are post-FIRM.). If the NFIP entry date is between July and December, then the following year applies for the year-built cut-off (e.g., if the NFIP entry date is 12/18/2007, buildings constructed in the year 2007 and before are pre-FIRM, 2008 and newer are post-FIRM).

*PEOPLE*

Flood events pose many threats to public health and safety. While such problems are often not reported, three general types of health hazards accompany floods: physical hazards from the water itself, environmental hazards in the aftermath of the flood, and long-term psychological hazards. These common health and safety hazards are detailed below:

- **Contaminated water**: Floodwaters carry anything that was on the ground that the upstream runoff picked up, including dirt, oil, animal waste, and lawn, farm and industrial chemicals. Pastures and areas where farm animals are kept or where their waste is stored can contribute polluted waters to the receiving streams. Floodwater also saturates the ground, which leads to infiltration into sanitary sewer lines, or wastewater treatment plants may be flooded or overloaded. When wastewater treatment plants are flooded, there is nowhere for the sewage to flow. Infiltration and lack of treatment can lead to overloaded sewer lines that can back up into low-lying areas and homes. Even when it is diluted by flood waters, raw sewage can be a breeding ground for bacteria such as E. coli and other disease-causing agents. Private sewer and septic systems may also introduce pollutants into floodwaters. Private wells may become contaminated through infiltration of polluted water. Given the many potential sources of contamination, direct or indirect contact with floodwaters poses a significant health risk for contraction of infectious disease.
- **Debris**: During a flood, debris carried by floodwater can cause physical injury from impact. During the recovery process, people may often need to clear debris out of their properties but may encounter dangers such as sharp materials or rusty nails that pose a risk of tetanus.
- **Unsafe food**: If floodwaters come into contact with food items, that food may no longer be safe for consumption due to the potential contaminants in the floodwaters. Foods stored in cardboard, plastic bags, jars, bottles, and paper packaging may all be subject to contamination. Even if foods don't come into direct contact with floodwater, the introduction of mold and mildew from flooding may cause foods to spoil faster. Additionally, power outages may cause refrigerated and frozen foods to spoil.
- **Mosquitos and animals**: After most of the water has receded, stagnant pools can become breeding grounds for mosquitoes, which may carry infectious diseases such as West Nile virus or St. Louis encephalitis. Wild animals such as snakes or rodents may be carried by floodwater or lose their habitat and seek shelter in buildings. Snakes may also be swimming in floodwaters seeking higher ground. People may be at risk of bites or disease if they come in contact with these animals or animal carcasses.
- **Mold and mildew**: Areas of a building that were exposed to excessive moisture can breed mold and mildew. Molds can start to grow in only 24 to 48 hours and will continue to grow without steps to dry out and disinfect the affected surface. Some molds are allergens, while others can produce harmful mycotoxins. Exposure to mold can cause respiratory problems; nasal and sinus congestion; eye, nose, and throat irritation; aches and pains; and effects on the nervous system. Infants, children, immunocompromised individuals, elderly adults, pregnant women, and individuals with respiratory conditions are all at higher risk.
- **Reentering a flooded building**: Health hazards may occur when heating ducts in a forced air system are not properly cleaned after inundation. When the furnace or air conditioner is turned on, the

sediments left in the ducts are circulated throughout the building and breathed in by the occupants. If the public water systems lose pressure, public water supplies may be contaminated, and a boil order may be issued to protect people and animals from contaminated water.

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

Floods can also result in injuries and fatalities. Individuals face particularly high risk when driving through flooded streets, or from being washed away by floodwaters on foot. NCEI reports six fatalities in the Northeastern Region caused by flood events.

Table 4.41 through Table 4.45 details the population at risk from various flood events, according to data from the NCEM IRISK database and ACS 2019-2023 5-Year Estimate. Note that development and population growth have occurred since the original analysis for the IRISK dataset was performed, therefore actual population at risk is likely higher.

**Table 4.41 – Population Impacted by the 10 Year Flood Event**

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| **Bertie** | | | | | | | | | |
| Unincorporated Bertie County | 11,675 | 234 | 2% | 2,855 | 57 | 2% | 417 | 4 | 1% |
| Town of Askewville | 152 | 5 | 3% | 45 | 1 | 3% | 12 | 0 | 0% |
| Town of Aulander | 748 | 52 | 7% | 208 | 13 | 6% | 117 | 9 | 8% |
| Town of Colerain | 291 | 0 | 0% | 49 | 0 | 0% | 9 | 0 | 0% |
| Town of Kelford | 245 | 34 | 14% | 69 | 0 | 0% | 15 | 0 | 0% |
| Town of Lewiston-Woodville | 466 | 5 | 1% | 137 | 0 | 0% | 24 | 0 | 0% |
| Town of Powellsville | 141 | 0 | 0% | 113 | 0 | 0% | 0 | 0 | 0% |
| Town of Roxobel | 347 | 0 | 0% | 66 | 0 | 0% | 24 | 0 | 0% |
| Town of Windsor | 3,417 | 34 | 1% | 703 | 7 | 1% | 94 | 0 | 0% |
| **Subtotal Bertie** | **17,482** | **364** | **2%** | **4,245** | **78** | **2%** | **712** | **14** | **2%** |
| **Hyde** | | | | | | | | | |
| Unincorporated Hyde County | 4,625 | 2,174 | 47% | 1,054 | 495 | 47% | 124 | 58 | 47% |
| **Martin** | | | | | | | | | |
| Unincorporated Martin County | 13,680 | 137 | 1% | 3,396 | 34 | 1% | 753 | 8 | 1% |
| Town of Bear Grass | 94 | 0 | 0% | 12 | 0 | 0% | 22 | 0 | 0% |
| Town of Everetts | 158 | 0 | 0% | 18 | 0 | 0% | 9 | 0 | 0% |
| Town of Hamilton | 183 | 0 | 0% | 84 | 0 | 0% | 2 | 0 | 0% |
| Town of Hassell | 49 | 0 | 0% | 30 | 0 | 0% | 0 | 0 | 0% |

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| Town of Jamesville | 373 | 0 | 0% | 118 | 0 | 0% | 8 | 0 | 0% |
| Town of Oak City | 472 | 0 | 0% | 145 | 0 | 0% | 30 | 0 | 0% |
| Town of Parmele | 288 | 0 | 0% | 85 | 0 | 0% | 0 | 0 | 0% |
| Town of Robersonville | 1,319 | 0 | 0% | 374 | 0 | 0% | 52 | 0 | 0% |
| Town of Williamston | 5,157 | 103 | 2% | 1,182 | 24 | 2% | 194 | 4 | 2% |
| **Subtotal Martin** | **21,773** | **240** | **1%** | **5,444** | **58** | **1%** | **1,070** | **12** | **1%** |
| **Tyrrell** | | | | | | | | | |
| Unincorporated Tyrrell County | 2,702 | 1,054 | 39% | 695 | 271 | 39% | 146 | 58 | 40% |
| Town of Columbia | 674 | 425 | 63% | 167 | 84 | 50% | 24 | 0 | 0% |
| **Subtotal Tyrrell** | **3,376** | **1,479** | **44%** | **862** | **355** | **41%** | **170** | **58** | **34%** |
| **Washington** | | | | | | | | | |
| Unincorporated Washington County | 6,850 | 617 | 9% | 1,841 | 167 | 9% | 64 | 6 | 9% |
| Town of Creswell | 205 | 64 | 31% | 58 | 17 | 30% | 15 | 4 | 25% |
| Town of Plymouth | 3,264 | 65 | 2% | 923 | 19 | 2% | 140 | 0 | 0% |
| Town of Roper | 586 | 12 | 2% | 162 | 3 | 2% | 22 | 0 | 0% |
| **Subtotal Washington** | **10,905** | **758** | **7%** | **2,984** | **205** | **7%** | **241** | **10** | **4%** |
| **Region Total** | **58,161** | **5,015** | **9%** | **14,589** | **1,191** | **8%** | **2,317** | **152** | **7%** |

Source: NCEM Risk Management Tool

### Table 4.42 – Population Impacted by the 25 Year Flooding Event

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| **Bertie** | | | | | | | | | |
| Unincorporated Bertie County | 11,675 | 234 | 2% | 2,855 | 57 | 2% | 417 | 8 | 2% |
| Town of Askewville | 152 | 8 | 5% | 45 | 2 | 5% | 12 | 0 | 0% |
| Town of Aulander | 748 | 75 | 10% | 208 | 21 | 10% | 117 | 9 | 8% |
| Town of Colerain | 291 | 0 | 0% | 49 | 0 | 0% | 9 | 0 | 0% |
| Town of Kelford | 245 | 34 | 14% | 69 | 0 | 0% | 15 | 0 | 0% |
| Town of Lewiston-Woodville | 466 | 5 | 1% | 137 | 0 | 0% | 24 | 0 | 0% |
| Town of Powellsville | 141 | 0 | 0% | 113 | 0 | 0% | 0 | 0 | 0% |
| Town of Roxobel | 347 | 0 | 0% | 66 | 0 | 0% | 24 | 0 | 0% |
| Town of Windsor | 3,417 | 103 | 3% | 703 | 21 | 3% | 94 | 6 | 6% |

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| **Subtotal Bertie** | **17,482** | **459** | **3%** | **4,245** | **101** | **2%** | **712** | **23** | **3%** |
| **Hyde** | | | | | | | | | |
| Unincorporated Hyde County | 4,625 | 2,590 | 56% | 1,054 | 590 | 56% | 124 | 69 | 56% |
| **Martin** | | | | | | | | | |
| Unincorporated Martin County | 13,680 | 137 | 1% | 3,396 | 34 | 1% | 753 | 8 | 1% |
| Town of Bear Grass | 94 | 0 | 0% | 12 | 0 | 0% | 22 | 0 | 0% |
| Town of Everetts | 158 | 0 | 0% | 18 | 0 | 0% | 9 | 0 | 0% |
| Town of Hamilton | 183 | 0 | 0% | 84 | 0 | 0% | 2 | 0 | 0% |
| Town of Hassell | 49 | 0 | 0% | 30 | 0 | 0% | 0 | 0 | 0% |
| Town of Jamesville | 373 | 0 | 0% | 118 | 0 | 0% | 8 | 0 | 0% |
| Town of Oak City | 472 | 0 | 0% | 145 | 0 | 0% | 30 | 0 | 0% |
| Town of Parmele | 288 | 0 | 0% | 85 | 0 | 0% | 0 | 0 | 0% |
| Town of Robersonville | 1,319 | 0 | 0% | 374 | 0 | 0% | 52 | 0 | 0% |
| Town of Williamston | 5,157 | 155 | 3% | 1,182 | 35 | 3% | 194 | 6 | 3% |
| **Subtotal Martin** | **21,773** | **292** | **1%** | **5,444** | **69** | **1%** | **1,070** | **14** | **1%** |
| **Tyrrell** | | | | | | | | | |
| Unincorporated Tyrrell County | 2,702 | 1,648 | 61% | 695 | 424 | 61% | 146 | 91 | 62% |
| Town of Columbia | 674 | 593 | 88% | 167 | 167 | 100% | 24 | 23 | 94% |
| **Subtotal Tyrrell** | **3,376** | **2,241** | **66%** | **862** | **591** | **69%** | **170** | **114** | **67%** |
| **Washington** | | | | | | | | | |
| Unincorporated Washington County | 6,850 | 959 | 14% | 1,841 | 258 | 14% | 64 | 9 | 14% |
| Town of Creswell | 205 | 74 | 36% | 58 | 21 | 36% | 15 | 4 | 25% |
| Town of Plymouth | 3,264 | 98 | 3% | 923 | 28 | 3% | 140 | 0 | 0% |
| Town of Roper | 586 | 12 | 2% | 162 | 3 | 2% | 22 | 0 | 0% |
| **Subtotal Washington** | **10,905** | **1,143** | **11%** | **2,984** | **310** | **10%** | 241 | **13** | **5%** |
| **Region Total** | **58,161** | **6,725** | **12%** | **14,589** | **1,661** | **11%** | **2,317** | **233** | **10%** |

Source: NCEM Risk Management Tool; ACS 2019-2023 5-Year Estimate

### Table 4.43 – Population Impacted by a 50-Year Flood Event

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| **Bertie** | | | | | | | | | |
| Unincorporated Bertie County | 11,675 | 350 | 3% | 2,855 | 86 | 3% | 417 | 13 | 3% |

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| Town of Askewville | 152 | 8 | 5% | 45 | 2 | 5% | 12 | 0 | 0% |
| Town of Aulander | 748 | 82 | 11% | 208 | 27 | 13% | 117 | 9 | 8% |
| Town of Colerain | 291 | 0 | 0% | 49 | 0 | 0% | 9 | 0 | 0% |
| Town of Kelford | 245 | 34 | 14% | 69 | 0 | 0% | 15 | 0 | 0% |
| Town of Lewiston-Woodville | 466 | 5 | 1% | 137 | 0 | 0% | 24 | 0 | 0% |
| Town of Powellsville | 141 | 0 | 0% | 113 | 0 | 0% | 0 | 0 | 0% |
| Town of Roxobel | 347 | 0 | 0% | 66 | 0 | 0% | 24 | 0 | 0% |
| Town of Windsor | 3,417 | 171 | 5% | 703 | 35 | 5% | 94 | 6 | 6% |
| **Subtotal Bertie** | **17,482** | **650** | **4%** | **4,245** | **150** | **4%** | **712** | **28** | **4%** |
| **Hyde** | | | | | | | | | |
| Unincorporated Hyde County | 4,625 | 2,729 | 59% | 1,054 | 622 | 59% | 124 | 73 | 59% |
| **Martin** | | | | | | | | | |
| Unincorporated Martin County | 13,680 | 137 | 1% | 3,396 | 34 | 1% | 753 | 8 | 1% |
| Town of Bear Grass | 94 | 0 | 0% | 12 | 0 | 0% | 22 | 0 | 0% |
| Town of Everetts | 158 | 0 | 0% | 18 | 0 | 0% | 9 | 0 | 0% |
| Town of Hamilton | 183 | 0 | 0% | 84 | 0 | 0% | 2 | 0 | 0% |
| Town of Hassell | 49 | 0 | 0% | 30 | 0 | 0% | 0 | 0 | 0% |
| Town of Jamesville | 373 | 0 | 0% | 118 | 0 | 0% | 8 | 0 | 0% |
| Town of Oak City | 472 | 0 | 0% | 145 | 0 | 0% | 30 | 0 | 0% |
| Town of Parmele | 288 | 0 | 0% | 85 | 0 | 0% | 0 | 0 | 0% |
| Town of Robersonville | 1,319 | 0 | 0% | 374 | 0 | 0% | 52 | 0 | 0% |
| Town of Williamston | 5,157 | 155 | 3% | 1,182 | 35 | 3% | 194 | 6 | 3% |
| **Subtotal Martin** | **21,773** | **292** | **1%** | **5,444** | **69** | **1%** | **1,070** | **13** | **1%** |
| **Tyrrell** | | | | | | | | | |
| Unincorporated Tyrrell County | 2,702 | 1,891 | 70% | 695 | 487 | 70% | 146 | 101 | 69% |
| Town of Columbia | 674 | 593 | 88% | 167 | 167 | 100% | 24 | 0 | 0% |
| **Subtotal Tyrrell** | **3,376** | **2,485** | **74%** | **862** | **654** | **76%** | **170** | **101** | **59%** |
| **Washington** | | | | | | | | | |
| Unincorporated Washington County | 6,850 | 1233 | 18% | 1,841 | 331 | 18% | 64 | 12 | 18% |
| Town of Creswell | 205 | 82 | 40% | 58 | 23 | 40% | 15 | 8 | 50% |
| Town of Plymouth | 3,264 | 131 | 4% | 923 | 37 | 4% | 140 | 0 | 0% |
| Town of Roper | 586 | 29 | 5% | 162 | 6 | 4% | 22 | 0 | 0% |
| **Subtotal Washington** | **10,905** | **1,475** | **14%** | **2,984** | **398** | **13%** | **241** | **19** | **8%** |
| **Region Total** | **58,161** | **7,631** | **13%** | **14,589** | **1,893** | **13%** | **2,317** | **234** | **10%** |

Source: NCEM Risk Management Tool; ACS 2019-2023 5-Year Estimate

### Table 4.44 – Population Impacted by 100-Year Flood Event

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| **Bertie** | | | | | | | | | |
| Unincorporated Bertie County | 11,675 | 467 | 4% | 2,855 | 114 | 4% | 417 | 17 | 4% |
| Town of Askewville | 152 | 11 | 7% | 45 | 3 | 7% | 12 | 2 | 13% |
| Town of Aulander | 748 | 112 | 15% | 208 | 33 | 16% | 117 | 20 | 17% |
| Town of Colerain | 291 | 0 | 0% | 49 | 0 | 0% | 9 | 0 | 0% |
| Town of Kelford | 245 | 34 | 14% | 69 | 0 | 0% | 15 | 0 | 0% |
| Town of Lewiston-Woodville | 466 | 5 | 1% | 137 | 0 | 0% | 24 | 0 | 0% |
| Town of Powellsville | 141 | 0 | 0% | 113 | 0 | 0% | 0 | 0 | 0% |
| Town of Roxobel | 347 | 0 | 0% | 66 | 0 | 0% | 24 | 0 | 0% |
| Town of Windsor | 3,417 | 239 | 7% | 703 | 49 | 7% | 94 | 6 | 6% |
| **Subtotal Bertie** | **17,482** | **868** | **5%** | **4,245** | **200** | **5%** | **712** | **44** | **6%** |
| **Hyde** | | | | | | | | | |
| Unincorporated Hyde County | 4,625 | 2,868 | 62% | 1,054 | 653 | 62% | 124 | 77 | 62% |
| **Martin** | | | | | | | | | |
| Unincorporated Martin County | 13,680 | 274 | 2% | 3,396 | 68 | 2% | 753 | 15 | 2% |
| Town of Bear Grass | 94 | 0 | 0% | 12 | 0 | 0% | 22 | 0 | 0% |
| Town of Everetts | 158 | 0 | 0% | 18 | 0 | 0% | 9 | 0 | 0% |
| Town of Hamilton | 183 | 0 | 0% | 84 | 0 | 0% | 2 | 0 | 0% |
| Town of Hassell | 49 | 0 | 0% | 30 | 0 | 0% | 0 | 0 | 0% |
| Town of Jamesville | 373 | 0 | 0% | 118 | 0 | 0% | 8 | 0 | 0% |
| Town of Oak City | 472 | 0 | 0% | 145 | 0 | 0% | 30 | 0 | 0% |
| Town of Parmele | 288 | 0 | 0% | 85 | 0 | 0% | 0 | 0 | 0% |
| Town of Robersonville | 1,319 | 0 | 0% | 374 | 0 | 0% | 52 | 0 | 0% |
| Town of Williamston | 5,157 | 206 | 4% | 1,182 | 47 | 4% | 194 | 8 | 4% |
| **Subtotal Martin** | **21,773** | **480** | **2%** | **5,444** | **115** | **2%** | **1,070** | **23** | **2%** |
| **Tyrrell** | | | | | | | | | |
| Unincorporated Tyrrell County | 2,702 | 2054 | 76% | 695 | 528 | 76% | 146 | 111 | 76% |
| Town of Columbia | 674 | 674 | 100% | 167 | 167 | 100% | 24 | 24 | 100% |
| **Subtotal Tyrrell** | **3,376** | **2,728** | **81%** | **862** | **695** | **81%** | **170** | **135** | **79%** |
| **Washington** | | | | | | | | | |
| Unincorporated Washington County | 6,850 | 1,713 | 25% | 1,841 | 460 | 25% | 64 | 16 | 25% |
| Town of Creswell | 205 | 90 | 44% | 58 | 26 | 45% | 15 | 8 | 50% |

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| Town of Plymouth | 3,264 | 196 | 6% | 923 | 55 | 6% | 140 | 0 | 0% |
| Town of Roper | 586 | 47 | 8% | 162 | 11 | 7% | 22 | 0 | 0% |
| **Subtotal Washington** | **10,905** | **2,045** | **19%** | **2,984** | **553** | **19%** | **241** | **24** | **10%** |
| **Region Total** | **58,161** | **8,989** | **15%** | **14,589** | **2,216** | **15%** | **2,317** | **303** | **13%** |

Source: NCEM Risk Management Tool; ACS 2019-2023 5-Year Estimate

**Table 4.45 – Population Impacted by the 500 Year River Flooding**

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| **Bertie** | | | | | | | | | |
| Unincorporated Bertie County | 11,675 | 584 | 5% | 2,855 | 143 | 5% | 417 | 21 | 5% |
| Town of Askewville | 152 | 11 | 7% | 45 | 3 | 7% | 12 | 2 | 13% |
| Town of Aulander | 748 | 135 | 18% | 208 | 40 | 19% | 117 | 20 | 17% |
| Town of Colerain | 291 | 3 | 1% | 49 | 0 | 0% | 9 | 0 | 0% |
| Town of Kelford | 245 | 34 | 14% | 69 | 0 | 0% | 15 | 0 | 0% |
| Town of Lewiston-Woodville | 466 | 14 | 3% | 137 | 5 | 4% | 24 | 0 | 0% |
| Town of Powellsville | 141 | 0 | 0% | 113 | 0 | 0% | 0 | 0 | 0% |
| Town of Roxobel | 347 | 0 | 0% | 66 | 0 | 0% | 24 | 0 | 0% |
| Town of Windsor | 3,417 | 718 | 21% | 703 | 148 | 21% | 94 | 23 | 24% |
| **Subtotal Bertie** | **17,482** | **1,498** | **9%** | **4,245** | **339** | **8%** | **712** | **65** | **9%** |
| **Hyde** | | | | | | | | | |
| Unincorporated Hyde County | 4,625 | 2,960 | 64% | 1,054 | 675 | 64% | 124 | 78 | 63% |
| **Martin** | | | | | | | | | |
| Unincorporated Martin County | 13,680 | 410 | 3% | 3,396 | 102 | 3% | 753 | 23 | 3% |
| Town of Bear Grass | 94 | 0 | 0% | 12 | 0 | 0% | 22 | 0 | 0% |
| Town of Everetts | 158 | 0 | 0% | 18 | 0 | 0% | 9 | 0 | 0% |
| Town of Hamilton | 183 | 0 | 0% | 84 | 0 | 0% | 2 | 0 | 0% |
| Town of Hassell | 49 | 0 | 0% | 30 | 0 | 0% | 0 | 0 | 0% |
| Town of Jamesville | 373 | 0 | 0% | 118 | 0 | 0% | 8 | 0 | 0% |
| Town of Oak City | 472 | 0 | 0% | 145 | 0 | 0% | 30 | 0 | 0% |
| Town of Parmele | 288 | 0 | 0% | 85 | 0 | 0% | 0 | 0 | 0% |
| Town of Robersonville | 1,319 | 0 | 0% | 374 | 0 | 0% | 52 | 0 | 0% |

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| Town of Williamston | 5,157 | 309 | 6% | 1,182 | 71 | 6% | 194 | 12 | 6% |
| **Subtotal Martin** | **21,773** | **720** | **3%** | **5,444** | **173** | **3%** | **1,070** | **34** | **3%** |
| **Tyrrell** | | | | | | | | | |
| Unincorporated Tyrrell County | 2,702 | 2,135 | 79% | 695 | 549 | 79% | 146 | 114 | 78% |
| Town of Columbia | 674 | 674 | 100% | 167 | 167 | 100% | 24 | 0 | 0% |
| **Subtotal Tyrrell** | **3,376** | **2,809** | **83%** | **862** | **716** | **83%** | **170** | **114** | **67%** |
| **Washington** | | | | | | | | | |
| Unincorporated Washington County | 6,850 | 6,165 | 90% | 1,841 | 1,638 | 89% | 64 | 64 | 100% |
| Town of Creswell | 205 | 37 | 18% | 58 | 10 | 18% | 15 | 5 | 33% |
| Town of Plymouth | 3,264 | 1,240 | 38% | 923 | 351 | 38% | 140 | 56 | 40% |
| Town of Roper | 586 | 223 | 38% | 162 | 62 | 38% | 22 | 9 | 40% |
| **Subtotal Washington** | **10,905** | **7,665** | **70%** | **2,984** | **2,061** | **69%** | **241** | **134** | **55%** |
| **Region Total** | **58,161** | **15,652** | **27%** | **14,589** | **3,964** | **27%** | **2,317** | **425** | **18%** |

Source: NCEM Risk Management Tool; ACS 2019-2023 5-Year Estimate

### *PROPERTY*

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. The increased number of flood days will likely cause additional flood-related property damage, although it is unclear exactly what this will look like. Homes, businesses, and vehicles will be susceptible to increased water damage.

Properties within the SFHA are estimated to have a one percent probability of being exposed to flooding equaling or exceeding the base flood during any given year. Mortgage lenders require that owners of properties with federally backed mortgages located within SFHAs purchase and maintain flood insurance policies on their properties. Consequently, newer and recently purchased properties in the community are typically insured against flooding. Regardless of insurance status, pre-FIRM properties, those built before the community's first FIRM, may be more vulnerable to flood damage because they were built prior to the enforcement of flood damage prevention regulations. These properties may be a priority for mitigation.

Table 4.42 through Table 4.51 detail the property at risk and loss estimates from various flood events, according to data from the NCEM IRISK database. Actual property at risk is likely higher due to the amount of development that has occurred since the original analysis for the IRISK dataset was performed.

The damage estimates for the 1% annual chance flood event total $60,424,600, which equates to a loss ratio of less than 1 percent. The loss ratio is the damage estimate divided by the total potential exposure (i.e., total value of all buildings in the planning area), displayed as a percentage of value at risk. FEMA considers loss ratios greater than 10% to be significant and an indicator a community may have more difficulties recovering from an event.

Critical facility exposure to the 1% annual chance flood was also evaluated. Based on a comparison of critical facility locations to the FEMA flood hazard areas, 87 critical facilities are exposed to the 1% annual chance flood, and 52 facilities are exposed to the 0.2% annual chance flood. All other identified critical facilities are located in the unshaded X, which reflects low flood risk. Table 4.46 summarizes critical facility exposure to the 1% annual chance flood event by county and FEMA lifeline. Details on critical facility exposure are provided in the community annexes.

**Table 4.46 – Critical Facility Exposure in the SFHA by County**

| FEMA Lifeline | Number of Facilities at Risk | | | | | Total |
|---|---|---|---|---|---|---|
| | Bertie | Hyde | Martin | Tyrrell | Washington | |
| Safety & Security | 0 | 10 | 0 | 8 | 0 | **18** |
| Food, Hydration, Shelter | 0 | 14 | 0 | 17 | 4 | **35** |
| Health & Medical | 2 | 3 | 0 | 2 | 0 | **7** |
| Water Systems | 2 | 4 | 4 | 5 | 9 | **24** |
| Energy | 0 | 3 | 0 | 0 | 0 | **3** |
| **Total** | **4** | **34** | **4** | **32** | **13** | **87** |

### Table 4.47 – Buildings Impacted by the 10-Year Flood Event

| Jurisdiction | All Buildings | Number of Pre-FIRM Buildings at Risk | | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 14 | 0 | 131 | 1 | $351,600 | 5 | 0 | $442,348 | 1 | 0 | $102,242 | 137 | 1 | $896,190 |
| Town of Askewville | 502 | 14 | 3 | 13 | 3 | $83,032 | 1 | 0 | $463 | 0 | 0 | $0 | 14 | 3 | $83,495 |
| Town of Aulander | 744 | 47 | 6 | 47 | 6 | $61,291 | 0 | 0 | $0 | 0 | 0 | $0 | 47 | 6 | $61,291 |
| Town of Colerain | 428 | 1 | 0 | 0 | 0 | $0 | 1 | 0 | $3 | 0 | 0 | $0 | 1 | 0 | $3 |
| Town of Kelford | 173 | 18 | 10 | 22 | 13 | $18,058 | 0 | 0 | $0 | 0 | 0 | $0 | 22 | 13 | $18,058 |
| Town of Lewiston-Woodville | 719 | 3 | 0 | 3 | 0 | $2,972 | 0 | 0 | $0 | 0 | 0 | $0 | 3 | 0 | $2,972 |
| Town of Powellsville | 171 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Roxobel | 205 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Windsor | 1,815 | 0 | 0 | 10 | 1 | $9,036 | 1 | 0 | $13 | 0 | 0 | $0 | 11 | 1 | $9,049 |
| **Subtotal Bertie** | **15,932** | **97** | **1** | **226** | **1** | **$525,989** | **8** | **0** | **$442,827** | **1** | **0** | **$102,242** | **235** | **1** | **$1,071,058** |
| **Hyde** | | | | | | | | | | | | | | | |
| Hyde County (Unincorporated Area) | 5,596 | 1,577 | 28 | 2,217 | 40 | $16,085,231 | 147 | 3 | $1,434,679 | 19 | 0 | $507,546 | 2,383 | 43 | $18,027,456 |
| **Martin** | | | | | | | | | | | | | | | |
| Martin County (Unincorporated Area) | 12,188 | 45 | 0 | 45 | 0 | $77,479 | 0 | 0 | $0 | 0 | 0 | $0 | 45 | 0 | $77,479 |
| Town of Bear Grass | 81 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Everetts | 159 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Hamilton | 292 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Hassell | 70 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |

| Jurisdiction | All Buildings | Number of Pre-FIRM Buildings at Risk | | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Jamesville | 297 | 1 | 0 | 1 | 0 | $5,194 | 0 | 0 | $0 | 0 | 0 | $0 | 1 | 0 | $5,194 |
| Town of Oak City | 313 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Parmele | 149 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Robersonville | 901 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Williamston | 4,238 | 68 | 2 | 68 | 2 | $543,719 | 0 | 0 | $0 | 0 | 0 | $0 | 68 | 2 | $543,719 |
| **Subtotal Martin** | **18,688** | **114** | **1** | **114** | **1** | **$626,392** | **0** | **0** | **$0** | **0** | **0** | **$0** | **114** | **1** | **$626,392** |
| **Tyrrell** | | | | | | | | | | | | | | | |
| Tyrrell County (Unincorporated Area) | 519 | 207 | 40 | 256 | 49 | $211,215 | 0 | 0 | $0 | 0 | 0 | $0 | 256 | 49 | $211,215 |
| Town of Columbia | 2,794 | 599 | 21 | 853 | 31 | $761,385 | 0 | 0 | $0 | 0 | 0 | $0 | 853 | 31 | $761,385 |
| **Subtotal Tyrrell** | **3,313** | **806** | **24** | **1,109** | **33** | **$972,600** | **0** | **0** | **$0** | **0** | **0** | **$0** | **1,109** | **33** | **$972,600** |
| **Washington** | | | | | | | | | | | | | | | |
| Washington County (Unincorporated Area) | 5,482 | 198 | 4 | 367 | 7 | $2,825,521 | 65 | 1 | $1,371,316 | 3 | 0 | $45,531 | 435 | 8 | $4,242,369 |
| Town of Creswell | 366 | 48 | 13 | 84 | 23 | $62,897 | 0 | 0 | $0 | 0 | 0 | $0 | 84 | 23 | $62,897 |
| Town of Plymouth | 2,779 | 29 | 1 | 39 | 1 | $89,187 | 3 | 0 | $2,662 | 0 | 0 | $0 | 42 | 2 | $91,849 |
| Town of Roper | 611 | 7 | 1 | 8 | 1 | $4,045 | 1 | 0 | $24 | 0 | 0 | $0 | 9 | 1 | $4,069 |
| **Subtotal Washington** | **9,238** | **282** | **3** | **498** | **5** | **$2,981,650** | **69** | **1** | **$1,374,002** | **3** | **0** | **$45,531** | **570** | **6** | **$4,401,184** |
| **Region Total** | **52,767** | **2,876** | **5** | **4,164** | **8** | **$21,191,862** | **224** | **0** | **$3,251,508** | **23** | **0** | **$655,319** | **4,411** | **8** | **$25,098,690** |

Source: NCEM Risk Management Tool

### Table 4.48 – Buildings Impacted by the 25 Year River Flooding

| Jurisdiction | All Buildings | Number of Pre-FIRM Buildings at Risk | | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 15 | 0 | 203 | 2 | $542,954 | 6 | 0 | $469,871 | 1 | 0 | $102,242 | 210 | 2 | $1,115,066 |
| Town of Askewville | 502 | 18 | 4 | 17 | 3 | $105,375 | 1 | 0 | $1,147 | 0 | 0 | $0 | 18 | 4 | $106,522 |
| Town of Aulander | 744 | 62 | 8 | 62 | 8 | $83,925 | 0 | 0 | $0 | 0 | 0 | $0 | 62 | 8 | $83,925 |
| Town of Colerain | 428 | 1 | 0 | 0 | 0 | $0 | 1 | 0 | $71 | 0 | 0 | $0 | 1 | 0 | $71 |
| Town of Kelford | 173 | 21 | 12 | 25 | 14 | $22,188 | 0 | 0 | $0 | 0 | 0 | $0 | 25 | 14 | $22,188 |
| Town of Lewiston-Woodville | 719 | 5 | 1 | 5 | 1 | $5,788 | 0 | 0 | $0 | 0 | 0 | $0 | 5 | 1 | $5,788 |
| Town of Powellsville | 171 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Roxobel | 205 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Windsor | 1,815 | 6 | 0 | 44 | 2 | $84,536 | 6 | 0 | $6,245 | 0 | 0 | $0 | 50 | 3 | $90,781 |
| **Subtotal Bertie** | **15,932** | **128** | **1** | **356** | **2** | **$844,766** | **14** | **0** | **$477,334** | **1** | **0** | **$102,242** | **371** | **2** | **$1,424,341** |
| **Hyde** | | | | | | | | | | | | | | | |
| Hyde County (Unincorporated Area) | 5,596 | 1,859 | 33 | 2,626 | 47 | $22,450,430 | 174 | 3 | $1,972,868 | 23 | 0 | $633,652 | 2,823 | 50 | $25,056,951 |
| **Martin** | | | | | | | | | | | | | | | |
| Martin County (Unincorporated Area) | 12,188 | 64 | 1 | 61 | 1 | $108,281 | 3 | 0 | $2,441 | 0 | 0 | $0 | 64 | 1 | $110,722 |
| Town of Bear Grass | 81 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Everetts | 159 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Hamilton | 292 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Hassell | 70 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |

| Jurisdiction | All Buildings | Number of Pre-FIRM Buildings at Risk | | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Jamesville | 297 | 1 | 0 | 1 | 0 | $7,567 | 0 | 0 | $0 | 0 | 0 | $0 | 1 | 0 | $7,567 |
| Town of Oak City | 313 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Parmele | 149 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Robersonville | 901 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Williamston | 4,238 | 90 | 2 | 90 | 2 | $704,993 | 0 | 0 | $0 | 0 | 0 | $0 | 90 | 2 | $704,993 |
| **Subtotal Martin** | **18,688** | **155** | **1** | **152** | **1** | **$820,841** | **3** | **0** | **$2,441** | **0** | **0** | **$0** | **155** | **1** | **$823,282** |
| **Tyrrell** | | | | | | | | | | | | | | | |
| Tyrrell County (Unincorporated Area) | 519 | 933 | 33 | 1,326 | 47 | $1,583,430 | 3 | 0 | $8,812 | 0 | 0 | $0 | 1,329 | 48 | $1,592,242 |
| Town of Columbia | 2,794 | 292 | 56 | 347 | 67 | $385,854 | 0 | 0 | $0 | 0 | 0 | $0 | 347 | 67 | $385,854 |
| **Subtotal Tyrrell** | **3,313** | **1,225** | **37** | **1,673** | **50** | **$1,969,284** | **3** | **0** | **$8,812** | **0** | **0** | **$0** | **1,676** | **51** | **$1,978,096** |
| **Washington** | | | | | | | | | | | | | | | |
| Washington County (Unincorporated Area) | 5,482 | 296 | 5 | 551 | 10 | $3,316,067 | 69 | 1 | $1,468,379 | 3 | 0 | $75,373 | 623 | 11 | $4,859,819 |
| Town of Creswell | 366 | 58 | 16 | 98 | 27 | $118,537 | 0 | 0 | $0 | 0 | 0 | $0 | 98 | 27 | $118,537 |
| Town of Plymouth | 2,779 | 49 | 2 | 68 | 2 | $183,644 | 3 | 0 | $5,385 | 0 | 0 | $0 | 71 | 3 | $189,029 |
| Town of Roper | 611 | 13 | 2 | 13 | 2 | $8,068 | 2 | 0 | $229 | 0 | 0 | $0 | 15 | 2 | $8,297 |
| **Subtotal Washington** | **9,238** | **416** | **5** | **730** | **8** | **$3,626,316** | **74** | **1** | **$1,473,993** | **3** | **0** | **$75,373** | **807** | **9** | **$5,175,682** |
| **Region Total** | **52,767** | **3,783** | **7** | **5,537** | **10** | **$29,711,637** | **268** | **1** | **$3,935,448** | **27** | **0** | **$811,267** | **5,832** | **11** | **$34,458,352** |

### Table 4.49 – Buildings Impacted by the 50 Year River Flooding

| Jurisdiction | All Buildings | Number of Pre-FIRM Buildings at Risk | | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 18 | 0 | 232 | 2 | $701,265 | 6 | 0 | $486,972 | 1 | 0 | $105,945 | 239 | 2 | $1,294,182 |
| Town of Askewville | 502 | 19 | 4 | 18 | 4 | $117,791 | 1 | 0 | $1,452 | 0 | 0 | $0 | 19 | 4 | $119,243 |
| Town of Aulander | 744 | 73 | 10 | 73 | 10 | $114,080 | 0 | 0 | $0 | 0 | 0 | $0 | 73 | 10 | $114,080 |
| Town of Colerain | 428 | 1 | 0 | 0 | 0 | $0 | 1 | 0 | $207 | 0 | 0 | $0 | 1 | 0 | $207 |
| Town of Kelford | 173 | 22 | 13 | 26 | 15 | $23,722 | 0 | 0 | $0 | 0 | 0 | $0 | 26 | 15 | $23,722 |
| Town of Lewiston-Woodville | 719 | 5 | 1 | 5 | 1 | $5,788 | 0 | 0 | $0 | 0 | 0 | $0 | 5 | 1 | $5,788 |
| Town of Powellsville | 171 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Roxobel | 205 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Windsor | 1,815 | 21 | 1 | 72 | 4 | $151,055 | 10 | 1 | $31,818 | 0 | 0 | $0 | 82 | 5 | $182,873 |
| **Subtotal Bertie** | **15,932** | **159** | **1** | **426** | **3** | **$1,113,701** | **18** | **0** | **$520,449** | **1** | **0** | **$105,945** | **445** | **3** | **$1,740,095** |
| **Hyde** | | | | | | | | | | | | | | | |
| Hyde County (Unincorporated Area) | 5,596 | 1,972 | 35 | 2,770 | 49 | $26,226,575 | 189 | 3 | $2,338,439 | 24 | 0 | $700,916 | 2,983 | 53 | $29,265,930 |
| **Martin** | | | | | | | | | | | | | | | |
| Martin County (Unincorporated Area) | 12,188 | 81 | 1 | 77 | 1 | $151,720 | 4 | 0 | $7,033 | 0 | 0 | $0 | 81 | 1 | $158,753 |
| Town of Bear Grass | 81 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Everetts | 159 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Hamilton | 292 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Hassell | 70 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |

| Jurisdiction | All Buildings | Number of Pre-FIRM Buildings at Risk | | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Jamesville | 297 | 1 | 0 | 1 | 0 | $9,471 | 0 | 0 | $0 | 0 | 0 | $0 | 1 | 0 | $9,471 |
| Town of Oak City | 313 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Parmele | 149 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Robersonville | 901 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Williamston | 4,238 | 98 | 2 | 96 | 2 | $763,903 | 2 | 0 | $1,242 | 0 | 0 | $0 | 98 | 2 | $765,144 |
| **Subtotal Martin** | **18,688** | **180** | **1** | **174** | **1** | **$925,094** | **6** | **0** | **$8,275** | **0** | **0** | **$0** | **180** | **1** | **$933,368** |
| **Tyrrell** | | | | | | | | | | | | | | | |
| Tyrrell County (Unincorporated Area) | 519 | 329 | 63 | 382 | 74 | $572,561 | 2 | 0 | $576 | 0 | 0 | $0 | 384 | 74 | $573,137 |
| Town of Columbia | 2,794 | 1,060 | 38 | 1,505 | 54 | $2,430,725 | 4 | 0 | $15,137 | 0 | 0 | $0 | 1,509 | 54 | $2,445,862 |
| **Subtotal Tyrrell** | **3,313** | **1,389** | **42** | **1,887** | **57** | **$3,003,286** | **6** | **0** | **$15,713** | **0** | **0** | **$0** | **1,893** | **57** | **$3,018,999** |
| **Washington** | | | | | | | | | | | | | | | |
| Washington County (Unincorporated Area) | 5,482 | 544 | 6 | 958 | 10 | $4,259,647 | 78 | 1 | $1,550,729 | 3 | 0 | $94,828 | 1,039 | 11 | $5,905,204 |
| Town of Creswell | 366 | 66 | 18 | 109 | 30 | $207,378 | 0 | 0 | $0 | 0 | 0 | $0 | 109 | 30 | $207,378 |
| Town of Plymouth | 2,779 | 65 | 2 | 90 | 3 | $245,506 | 3 | 0 | $6,039 | 0 | 0 | $0 | 93 | 3 | $251,545 |
| Town of Roper | 611 | 21 | 3 | 23 | 4 | $20,165 | 2 | 0 | $448 | 0 | 0 | $0 | 25 | 4 | $20,613 |
| **Subtotal Washington** | **9,238** | 392 | 7 | 736 | 13 | $3,786,598 | 73 | 1 | $1,544,242 | 3 | 0 | $94,828 | 812 | 15 | $5,425,668 |
| **Region Total** | **52,767** | **4,244** | **8** | **6,215** | **12** | **$35,528,303** | **297** | **1** | **$4,433,605** | **28** | **0** | **$901,689** | **6,540** | **12** | **$40,863,596** |

### Table 4.50 – Buildings Impacted by the 100 Year River Flooding

| Jurisdiction | All Buildings | Number of Pre-FIRM Buildings at Risk | | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 51 | 0 | 364 | 3 | $2,238,277 | 28 | 0 | $689,224 | 1 | 0 | $109,663 | 393 | 4 | $3,037,165 |
| Town of Askewville | 502 | 28 | 6 | 27 | 5 | $136,030 | 1 | 0 | $1,679 | 0 | 0 | $0 | 28 | 6 | $137,709 |
| Town of Aulander | 744 | 93 | 13 | 93 | 13 | $153,115 | 0 | 0 | $0 | 0 | 0 | $0 | 93 | 13 | $153,115 |
| Town of Colerain | 428 | 3 | 1 | 1 | 0 | $176 | 2 | 0 | $800 | 0 | 0 | $0 | 3 | 1 | $976 |
| Town of Kelford | 173 | 22 | 13 | 26 | 15 | $24,521 | 0 | 0 | $0 | 0 | 0 | $0 | 26 | 15 | $24,521 |
| Town of Lewiston-Woodville | 719 | 5 | 1 | 5 | 1 | $5,788 | 0 | 0 | $0 | 0 | 0 | $0 | 5 | 1 | $5,788 |
| Town of Powellsville | 171 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Roxobel | 205 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Windsor | 1,815 | 34 | 2 | 103 | 6 | $276,511 | 15 | 1 | $92,190 | 1 | 0 | $5,046 | 119 | 7 | $373,747 |
| **Subtotal Bertie** | **15,932** | **236** | **1** | **619** | **4** | **$2,834,418** | **46** | **0** | **$783,893** | **2** | **0** | **$114,709** | **667** | **4** | **$3,733,021** |
| **Hyde** | | | | | | | | | | | | | | | |
| Hyde County (Unincorporated Area) | 5,596 | 2,108 | 38 | 2,906 | 52 | $36,048,602 | 250 | 4 | $3,485,070 | 36 | 1 | $971,060 | 3,192 | 57 | $40,504,732 |
| **Martin** | | | | | | | | | | | | | | | |
| Martin County (Unincorporated Area) | 12,188 | 203 | 2 | 186 | 2 | $629,269 | 17 | 0 | $121,038 | 0 | 0 | $0 | 203 | 2 | $750,308 |
| Town of Bear Grass | 81 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Everetts | 159 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Hamilton | 292 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Hassell | 70 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |

| Jurisdiction | All Buildings | Number of Pre-FIRM Buildings at Risk | | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Jamesville | 297 | 3 | 1 | 1 | 0 | $25,811 | 2 | 1 | $44,017 | 0 | 0 | $0 | 3 | 1 | $69,828 |
| Town of Oak City | 313 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Parmele | 149 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Robersonville | 901 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Williamston | 4,238 | 129 | 3 | 125 | 3 | $911,731 | 4 | 0 | $26,682 | 0 | 0 | $0 | 129 | 3 | $938,414 |
| **Subtotal Martin** | **18,688** | **335** | **2** | **312** | **2** | **$1,566,811** | **23** | **0** | **$191,737** | **0** | **0** | **$0** | **335** | **2** | **$1,758,550** |
| **Tyrrell** | | | | | | | | | | | | | | | |
| Tyrrell County (Unincorporated Area) | 519 | 365 | 70 | 409 | 79 | $1,441,220 | 10 | 2 | $70,480 | 2 | 0 | $3,716 | 421 | 81 | $1,515,416 |
| Town of Columbia | 2,794 | 1,145 | 41 | 1,633 | 58 | $5,383,581 | 21 | 1 | $124,222 | 2 | 0 | $5,012 | 1,656 | 59 | $5,512,816 |
| **Subtotal Tyrrell** | **3,313** | **1,510** | **46** | **2,042** | **62** | **$6,824,801** | **31** | **1** | **$194,702** | **4** | **0** | **$8,728** | **2,077** | **63** | **$7,028,232** |
| **Washington** | | | | | | | | | | | | | | | |
| Washington County (Unincorporated Area) | 5,482 | 530 | 10 | 1,019 | 19 | $4,785,087 | 84 | 2 | $1,636,861 | 3 | 0 | $97,488 | 1,106 | 20 | $6,519,436 |
| Town of Creswell | 366 | 78 | 21 | 120 | 33 | $367,275 | 3 | 1 | $1,080 | 0 | 0 | $0 | 123 | 34 | $368,355 |
| Town of Plymouth | 2,779 | 94 | 3 | 145 | 5 | $461,989 | 4 | 0 | $6,273 | 0 | 0 | $0 | 149 | 5 | $468,262 |
| Town of Roper | 611 | 34 | 6 | 38 | 6 | $39,723 | 3 | 0 | $4,289 | 0 | 0 | $0 | 41 | 7 | $44,012 |
| **Subtotal Washington** | **9,238** | **736** | **8** | **1,322** | **14** | **$5,654,074** | **94** | **1** | **$1,648,503** | **3** | **0** | **$97,488** | **1,419** | **15** | **$7,400,065** |
| **Region Total** | **52,767** | **4,925** | **9** | **7,201** | **14** | **$52,928,706** | **444** | **1** | **$6,303,905** | **45** | **0** | **$1,191,985** | **7,690** | **15** | **$60,424,600** |

### Table 4.51 – Buildings Impacted by the 500 Year River Flooding

| Jurisdiction | All Buildings | Number of Pre-FIRM Buildings at Risk | | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 52 | 0 | 472 | 4 | $6,726,797 | 54 | 0 | $1,666,411 | 1 | 0 | $111,536 | 527 | 5 | $8,504,744 |
| Town of Askewville | 502 | 28 | 6 | 27 | 5 | $161,788 | 1 | 0 | $2,045 | 0 | 0 | $0 | 28 | 6 | $163,833 |
| Town of Aulander | 744 | 117 | 16 | 116 | 16 | $229,101 | 1 | 0 | $836 | 0 | 0 | $0 | 117 | 16 | $229,937 |
| Town of Colerain | 428 | 5 | 1 | 3 | 1 | $2,502 | 2 | 0 | $1,459 | 0 | 0 | $0 | 5 | 1 | $3,961 |
| Town of Kelford | 173 | 22 | 13 | 26 | 15 | $27,344 | 0 | 0 | $0 | 0 | 0 | $0 | 26 | 15 | $27,344 |
| Town of Lewiston-Woodville | 719 | 15 | 2 | 16 | 2 | $12,202 | 0 | 0 | $0 | 0 | 0 | $0 | 16 | 2 | $12,202 |
| Town of Powellsville | 171 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Roxobel | 205 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Windsor | 1,815 | 43 | 2 | 300 | 17 | $2,727,892 | 79 | 4 | $2,300,908 | 11 | 1 | $306,770 | 390 | 21 | $5,335,570 |
| **Subtotal Bertie** | **15,932** | **282** | **2** | **960** | **6** | **$9,887,626** | **137** | **1** | **$3,971,659** | **12** | **0** | **$418,306** | **1,109** | **7** | **$14,277,591** |
| **Hyde** | | | | | | | | | | | | | | | |
| Hyde County (Unincorporated Area) | 5,596 | 2,266 | 40 | 2,978 | 53 | $55,329,209 | 385 | 7 | $6,573,018 | 54 | 1 | $1,656,226 | 3,417 | 61 | $63,558,453 |
| **Martin** | | | | | | | | | | | | | | | |
| Martin County (Unincorporated Area) | 12,188 | 333 | 3 | 255 | 2 | $8,103,405 | 79 | 1 | $5,611,225 | 0 | 0 | $0 | 334 | 3 | $13,714,631 |
| Town of Bear Grass | 81 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Everetts | 159 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Hamilton | 292 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Hassell | 70 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Jamesville | 297 | 3 | 1 | 1 | 0 | $59,741 | 2 | 1 | $129,697 | 0 | 0 | $0 | 3 | 1 | $189,438 |
| Town of Oak City | 313 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |

| Jurisdiction | All Buildings | Number of Pre-FIRM Buildings at Risk | | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Parmele | 149 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Robersonville | 901 | 0 | 0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 | 0 | 0 | $0 |
| Town of Williamston | 4,238 | 220 | 5 | 195 | 5 | $4,588,173 | 15 | 0 | $2,441,695 | 8 | 0 | $513,936 | 218 | 5 | $7,543,804 |
| **Subtotal Martin** | **18,688** | **556** | **3** | **451** | **2** | **$12,751,319** | **96** | **1** | **$8,182,617** | **8** | **0** | **$513,936** | **555** | **3** | **$21,447,873** |
| **Tyrrell** | | | | | | | | | | | | | | | |
| Tyrrell County (Unincorporated Area) | 519 | 1,378 | 49 | 1,702 | 61 | $28,741,727 | 306 | 11 | $1,978,122 | 21 | 1 | $409,763 | 2,029 | 73 | $31,129,612 |
| Town of Columbia | 2,794 | 446 | 86 | 417 | 80 | $8,310,551 | 65 | 13 | $2,618,328 | 34 | 7 | $1,883,678 | 516 | 99 | $12,812,557 |
| **Subtotal Tyrrell** | **3,313** | **1,824** | **55** | **2,119** | **64** | **$37,052,278** | **371** | **11** | **$4,596,450** | **55** | **2** | **$2,293,441** | **2,545** | **77** | **$43,942,169** |
| **Washington** | | | | | | | | | | | | | | | |
| Washington County (Unincorporated Area) | 5,482 | 817 | 15 | 1,476 | 27 | $8,155,613 | 162 | 3 | $2,018,098 | 5 | 0 | $155,269 | 1,643 | 30 | $10,328,979 |
| Town of Creswell | 366 | 177 | 48 | 245 | 67 | $1,420,748 | 10 | 3 | $79,817 | 3 | 1 | $9,766 | 258 | 70 | $1,510,332 |
| Town of Plymouth | 2,779 | 353 | 13 | 413 | 15 | $2,337,638 | 22 | 1 | $434,101 | 2 | 0 | $20,805 | 437 | 16 | $2,792,544 |
| Town of Roper | 611 | 165 | 27 | 195 | 32 | $374,702 | 4 | 1 | $2,674 | 0 | 0 | $0 | 199 | 33 | $377,376 |
| **Subtotal Washington** | **9,238** | **1,512** | **16** | **2,329** | **25** | **$12,288,701** | **198** | **2** | **$2,534,690** | **10** | **0** | **$185,840** | **2,537** | **27** | **$15,009,231** |
| **Region Total** | **52,767** | **6,440** | **12** | **8,837** | **17** | **$127,309,133** | **1,187** | **2** | **$25,858,434** | **139** | **0** | **$5,067,749** | **10,163** | **19** | **$158,235,317** |

## REPETITIVE LOSS ANALYSIS

A repetitive loss property is a property for which two or more flood insurance claims of more than $1,000 have been paid by the NFIP within any 10-year period since 1978. An analysis of repetitive loss was completed to examine repetitive losses within the region. Table 4.52 summarizes repetitive loss properties by jurisdiction as identified by FEMA through the NFIP.

According to February 2024 NFIP records, there are a total of 455 repetitive loss properties within the Northeastern NC Region, of which 50 percent are insured. There are 32 properties on the list classified as severe repetitive loss properties. A severe repetitive loss property is classified as such if it has four or more separate claim payments of more than $5,000 each (including building and contents payments) or two or more separate claim payments (building only) where the total of the payments exceeds the current value of the property. Additionally, the majority of repetitive loss properties (90.5%) are residential.

**Table 4.52 – Repetitive Loss Properties by Jurisdiction**

| Jurisdiction | Total Number of Properties | Residential Properties | Total Number of Insured Properties | Total Number of Losses | Severe Repetitive Loss Properties |
|---|---|---|---|---|---|
| Bertie County | 20 | 16 | 7 | 48 | 1 |
| Town of Aulander | 2 | 2 | 2 | 5 | 0 |
| Town of Windsor | 79 | 48 | 37 | 213 | 11 |
| Hyde County | 221 | 185 | 105 | 620 | 16 |
| Martin County | 6 | 4 | 3 | 12 | 0 |
| Town of Williamston | 1 | 0 | 0 | 2 | 0 |
| Tyrrell County | 61 | 97 | 39 | 148 | 1 |
| Town of Columbia | 43 | 39 | 22 | 107 | 2 |
| Washington County | 14 | 14 | 10 | 32 | 0 |
| Town of Creswell | 1 | 1 | 1 | 3 | 0 |
| Town of Plymouth | 7 | 6 | 3 | 17 | 1 |
| **Total** | **455** | **412** | **229** | **1207** | **32** |

Source: FEMA/ISO

Note: Communities in the planning area are not listed here if they do not have any repetitive losses.

### *ENVIRONMENT*

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

Floods can also cause significant erosion, which can alter streambanks and deposit sediment, changing the flow of streams and rivers and potentially reducing the drainage capacity of those waterbodies.

### *CONSEQUENCE ANALYSIS*

Table 4.53 summarizes the potential detrimental consequences of flooding.

**Table 4.53 – Consequence Analysis - Flooding**

| Category | Consequences |
|---|---|
| Public | Localized impact expected to be severe for incident areas and moderate to light for other adversely affected areas. |
| 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. Flood waters may prevent access to areas in need of response, or the flood may prevent access to the critical facilities themselves which may prolong response time. Damage to personnel will generally be localized to those in the flood areas at the time of the incident and is expected to be limited. |
| Continuity of Operations (including Continued Delivery of Services) | Floods can severely disrupt normal operations, especially when there is a loss of power. Damage to facilities in the affected area may require temporary relocation of some operations. Localized disruption of roads, facilities, and/or utilities caused by incident may postpone delivery of some services. |
| Property, Facilities and Infrastructure | Buildings and infrastructure, including transportation and utility infrastructure, may be damaged or destroyed. Impacts are expected to be localized to the area of the incident. Severe damage is possible. |
| Environment | Chemicals and other hazardous substances may contaminate local water bodies. Wildlife and livestock deaths possible. The localized impact is expected to be severe for incident areas and moderate to light for other areas affected by the flood or HazMat spills. Flood may also adversely affect water quality by increasing nutrient and sediment loads in waterbodies. |
| Economic Condition of the Jurisdiction | Local economy and finances will be adversely affected, possibly for an extended period of time. During floods (especially flash floods), roads, bridges, farms, houses and automobiles are destroyed. Additionally, the local government must deploy firemen, police and other emergency response personnel and equipment to help the affected area. It may take years for the affected communities to be re-built and business to return to normal. |
| Public Confidence in the Jurisdiction's Governance | Ability to respond and recover may be questioned and challenged if planning, response, and recovery are not timely and effective. |

## HAZARD SUMMARY BY JURISDICTION

The following table summarizes flood hazard risk by jurisdiction. Flood hazards associated with riverine flooding, coastal flooding and storm surge, high tide flooding, flash flooding, and stormwater flooding can impact the region. Spatial extent was assigned based on the percent of each jurisdiction's land area in the SFHA and thus exposed to a high risk of flooding, with additional consideration given to potential area at risk to other sources and magnitudes of flooding. Most communities were assigned a probability of likely; communities without any land area in the SFHA were assigned a probability of possible.

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| Bertie County | 3 | 3 | 3 | 3 | 3 | 3.0 | H |
| Town of Askewville | 3 | 3 | 2 | 3 | 3 | 2.8 | H |
| Town of Aulander | 3 | 3 | 3 | 3 | 3 | 3.0 | H |
| Town of Colerain | 2 | 3 | 1 | 3 | 3 | 2.3 | M |
| Town of Kelford | 3 | 3 | 3 | 3 | 3 | 3.0 | H |

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| Town of Lewiston-Woodville | 3 | 3 | 2 | 3 | 3 | 2.8 | H |
| Town of Powellsville | 2 | 3 | 1 | 3 | 3 | 2.3 | M |
| Town of Roxobel | 3 | 3 | 2 | 3 | 3 | 2.8 | H |
| Town of Windsor | 3 | 3 | 3 | 3 | 3 | 3.0 | H |
| Hyde County | 3 | 3 | 3 | 3 | 3 | 3.0 | H |
| Martin County | 3 | 3 | 3 | 3 | 3 | 3.0 | H |
| Town of Bear Grass | 2 | 3 | 1 | 3 | 3 | 2.3 | M |
| Town of Everetts | 2 | 3 | 1 | 3 | 3 | 2.3 | M |
| Town of Hamilton | 3 | 3 | 2 | 3 | 3 | 2.8 | H |
| Town of Hassell | 2 | 3 | 1 | 3 | 3 | 2.3 | M |
| Town of Jamesville | 3 | 3 | 3 | 3 | 3 | 3.0 | H |
| Town of Oak City | 2 | 3 | 1 | 3 | 3 | 2.3 | M |
| Town of Parmele | 2 | 3 | 1 | 3 | 3 | 2.3 | M |
| Town of Robersonville | 2 | 3 | 1 | 3 | 3 | 2.3 | M |
| Town of Williamston | 3 | 3 | 2 | 3 | 3 | 2.8 | H |
| Tyrrell County | 3 | 3 | 4 | 3 | 3 | 3.2 | H |
| Town of Columbia | 3 | 3 | 4 | 3 | 3 | 3.2 | H |
| Washington County | 3 | 3 | 3 | 3 | 3 | 3.0 | H |
| Town of Creswell | 3 | 3 | 3 | 3 | 3 | 3.0 | H |
| Town of Plymouth | 3 | 3 | 3 | 3 | 3 | 3.0 | H |
| Town of Roper | 3 | 3 | 3 | 3 | 3 | 3.0 | H |

## 4.5.6 HURRICANES & COASTAL HAZARDS

### HAZARD BACKGROUND

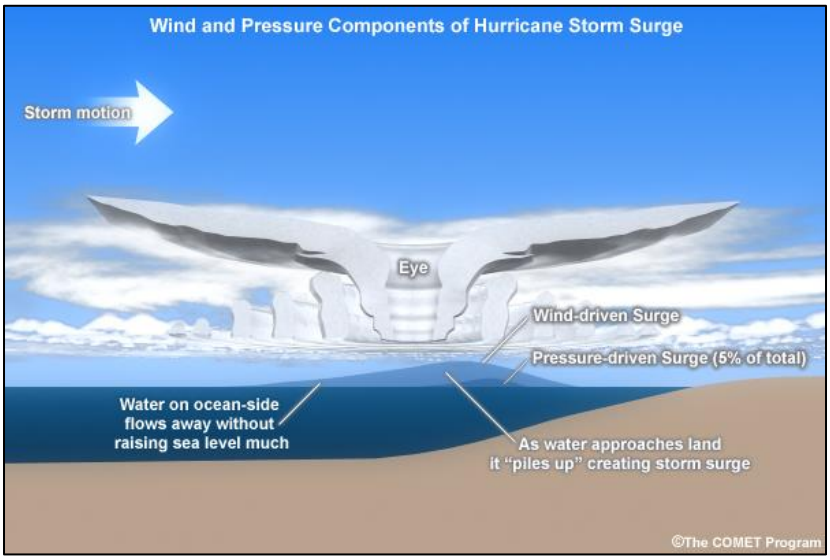
Hurricanes and tropical storms are classified as cyclones and defined as any closed circulation developing around a low-pressure center in which the winds rotate counterclockwise in the Northern Hemisphere (or clockwise in the Southern Hemisphere) and whose diameter averages 10 to 30 miles across. A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

The key energy source for a tropical cyclone is the release of latent heat from the condensation of warm water. Their formation requires a low-pressure disturbance, warm sea surface temperature, rotational force from the spinning of the earth, and the absence of wind shear in the lowest 50,000 feet of the atmosphere. The majority of hurricanes and tropical storms form in the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico during the official Atlantic hurricane season, which encompasses the months of June through November. The peak of the Atlantic hurricane season is in early to mid-September and the average number of storms that reach hurricane intensity per year in the Atlantic basin is about six.

The greatest potential for loss of life related to a hurricane is from the storm surge. Storm surge is water that is pushed toward the shore by the force of the winds swirling around the storm as shown in Figure 4.39. This advancing surge combines with the normal tides to create the hurricane storm tide, which can increase the mean water level to heights impacting roads, homes and other critical infrastructure. In addition, wind driven waves are superimposed on the storm tide. This rise in water level can cause severe flooding in coastal areas, particularly when the storm tide coincides with the normal high tides.

The maximum potential storm surge for a location depends on several different factors. Storm surge is a very complex phenomenon because it is sensitive to the slightest changes in storm intensity, forward speed, size (radius of maximum winds-RMW), angle of approach to the coast, central pressure (minimal contribution in comparison to the wind), and the shape and characteristics of coastal features such as bays and estuaries. Other factors which can impact storm surge are the width and slope of the continental shelf and the depth of the ocean bottom. A narrow shelf, or one that drops steeply from the shoreline and subsequently produces deep water close to the shoreline, tends to produce a lower surge but higher and more powerful storm waves. Much of the North Carolina coast has a narrow continental shelf, with mile-deep waters generally only 20-30 miles off the coast.

**Figure 4.39 – Components of Hurricane Storm Surge**




Source: NOAA/The COMET Program

Damage during hurricanes may also result from inland flooding from associated heavy rainfall. For example, Hurricane Floyd, which made landfall as a Category 2 storm, caused the worst inland flooding disaster in North Carolina's history. Rainfall amounts exceeded 20 inches in certain locales, and 67 counties sustained damages.

Similar to hurricanes, nor'easters are ocean storms capable of causing substantial damage to coastal areas in the Eastern United States due to their strong winds and heavy surf. Nor'easters are named for the winds that blow in from the northeast and drive the storm up the East Coast along the Gulf Stream, a band of warm water that lies off the Atlantic coast. They are caused by the interaction of the jet stream with horizontal temperature gradients and generally occur during the fall and winter months when moisture and cold air are plentiful.

Nor'easters are known for dumping heavy amounts of rain and snow, producing hurricane-force winds, and creating high surf that causes severe beach erosion and coastal flooding. There are two main components to a nor'easter: (1) a Gulf Stream low-pressure system (counter-clockwise winds) generated off the southeastern U.S. coast, gathering warm air and moisture from the Atlantic, and pulled up the East Coast by strong northeasterly winds at the leading edge of the storm; and (2) an Arctic high-pressure system (clockwise winds) which meets the low-pressure system with cold, arctic air blowing down from Canada. When the two systems collide, the moisture and cold air produce a mix of precipitation and can produce dangerously high winds and heavy seas. As the low-pressure system deepens, the intensity of the winds and waves increases and can cause serious damage to coastal areas as the storm moves northeast.

*Warning Time: 1 – More than 24 hours*

*Duration: 3 – Less than one week*

## *EROSION*

Due to its location with on estuarine and marine coastal areas, the Northeastern NC Region is exposed to coastal erosion. Coastal erosion is a process whereby large storms, flooding, strong wave action, sea level rise, and human activities, such as inappropriate land use, alterations, and shore protection structures, wear away the beaches and bluffs along the coast. Erosion undermines and often destroys homes,

businesses, and public infrastructure and can have long-term economic and social consequences. According to NOAA, coastal erosion is responsible for approximately $500 million per year in coastal property loss in the United States, including damage to structures and loss of land. To mitigate coastal erosion, the federal government spends an average of $150 million every year on beach nourishment and other shoreline erosion control measures.

Coastal erosion has both natural causes and causes related to human activities. Gradual coastal erosion/replenishment results naturally from the impacts of tidal longshore currents. Severe coastal erosion can occur over a very short period of time when the state is impacted by hurricanes, tropical storms and other weather systems. Sand is continually removed by longshore currents in some areas, but it is also continually replaced by sand carried in by the same type of currents. Structures such as piers or sea walls, jetties, and navigational inlets may interrupt the movement of sand. Sand can become "trapped" in one place by these types of structures. The currents will, of course, continue to flow, though depleted of sand trapped elsewhere. With significant amounts of sand trapped in the system, the continuing motion of currents (now deficient in sand) results in erosion. In this way, human construction activities that result in the unnatural trapping of sand have the potential to result in significant coastal erosion.

Erosion rates and potential impacts are highly localized. In undeveloped areas, these high erosion rates may not be likely to cause significant concern, but in some heavily populated locations, one or two feet of erosion may be considered catastrophic (NOAA, 2014).

Estuaries are partially enclosed, coastal water bodies where freshwater meats saltwater from the ocean. They are influenced by tides but still protected from the full force of ocean waves. Estuaries are often referred to as bays or sounds. Estuarine coastlines can experience erosion through short-term processes, such as tides, storms, wind, and boat wakes, as well as long-term processes, such as sea level rise. Many variables determine the rate of estuarine erosion including shoreline type, geographic location and size of the associated estuary, the type and abundance of vegetation, and the frequency and intensity of storms. Estuarine erosion is problematic as more development occurs along estuarine shorelines. Unfortunately, data on estuarine erosion rates is not available, which makes it difficult to identify and address problem areas.

*Warning Time: 1 – More than 24 hours*

*Duration: 1 – Less than 6 hours*

## LOCATION

### *HURRICANES AND TROPICAL STORMS*

Hurricanes and tropical storms can impact the entire Northeastern NC Region. Wind impacts can affect the region uniformly, while storm surge impacts are more limited, affecting areas along coastal and estuarine shorelines and reaching further inland depending on the height of the surge.

Figure 4.40 through Figure 4.44 show the estimated extent of surge by storm category according to NOAA SLOSH data. As shown in these maps, Hyde, Tyrrell, and Washington Counties are most vulnerable to storm surge impacts.

*Spatial Extent: 4 – Large*

### *EROSION*

Erosion can occur along any shoreline in the region. While erosion is likely to be more frequent and severe along the Atlantic coast, erosion of estuarine shorelines can also occur. In the Northeastern NC Region, Hyde County is the location facing the greatest exposure to erosion.

Figure 4.45 on the following page shows the locations where shoreline change data to measure erosion and accretion rates along the North Carolina coast has been compiled by the USGS. Long-term coastal erosion rates have been most severe along the northern portions of Hyde County's Atlantic coastline.

*Spatial Extent: 1 – Negligible*

**Figure 4.40 – Category 1 Storm Surge Inundation**

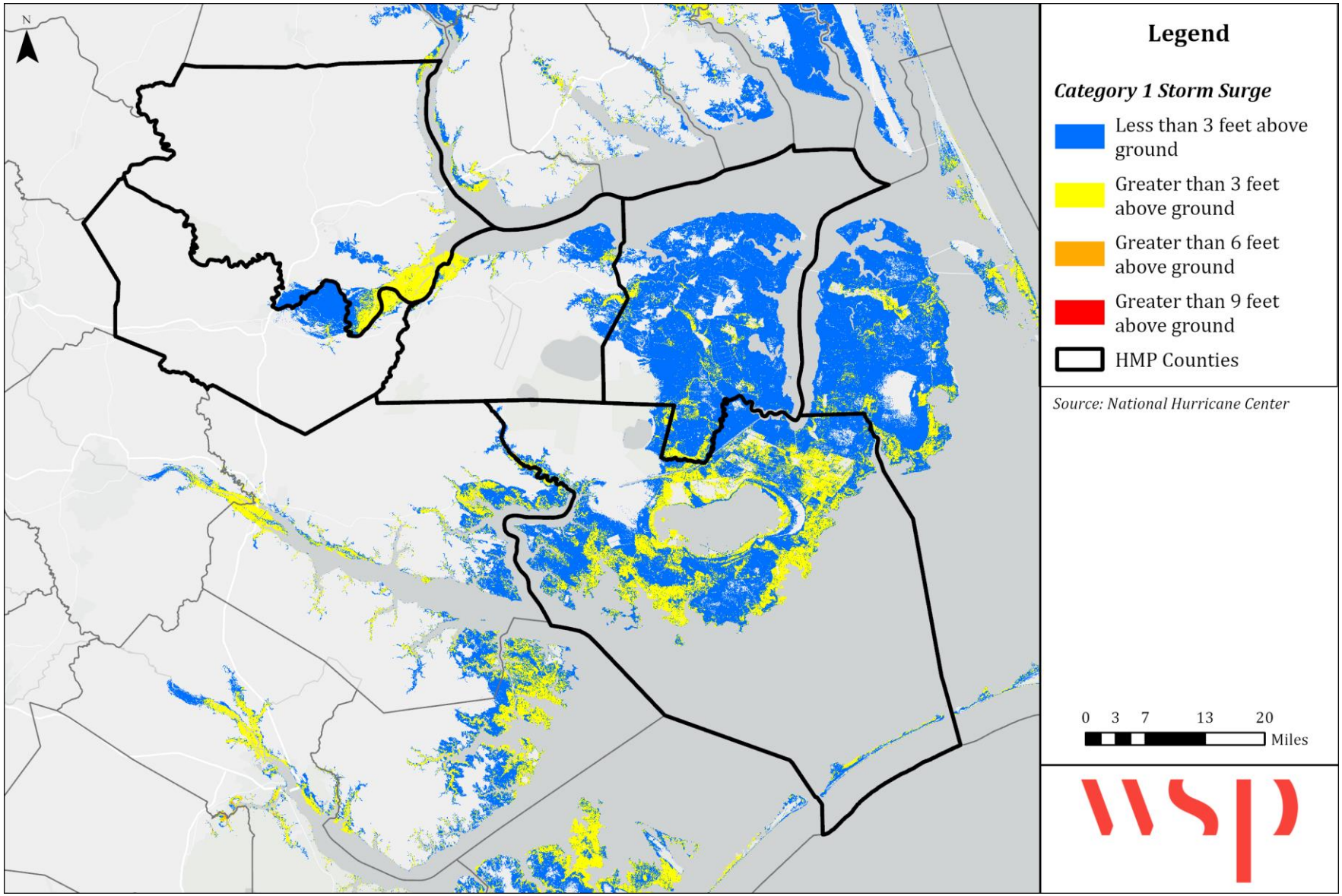


**Figure 4.41 – Category 2 Storm Surge Inundation**

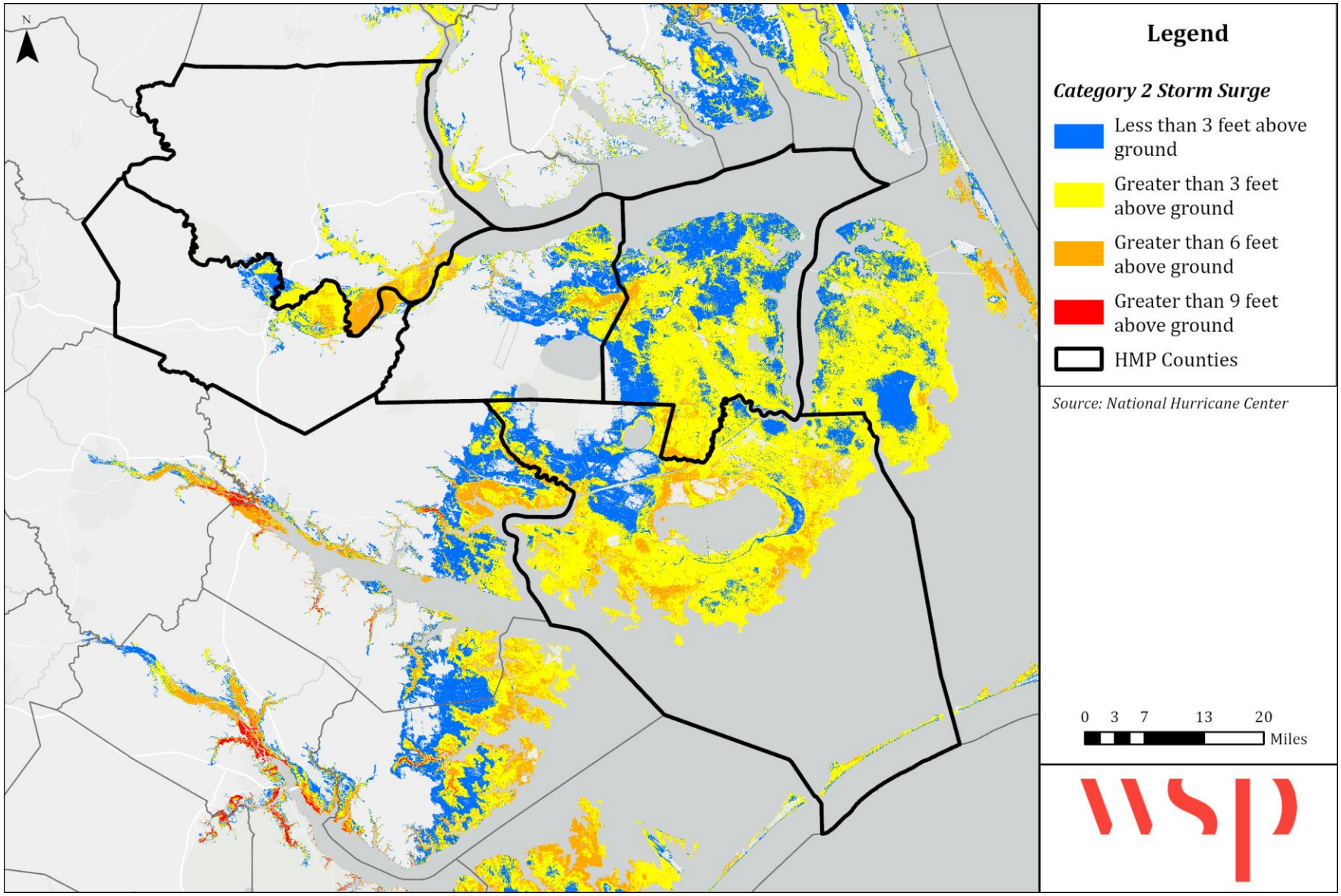


**Figure 4.42 – Category 3 Storm Surge Inundation**

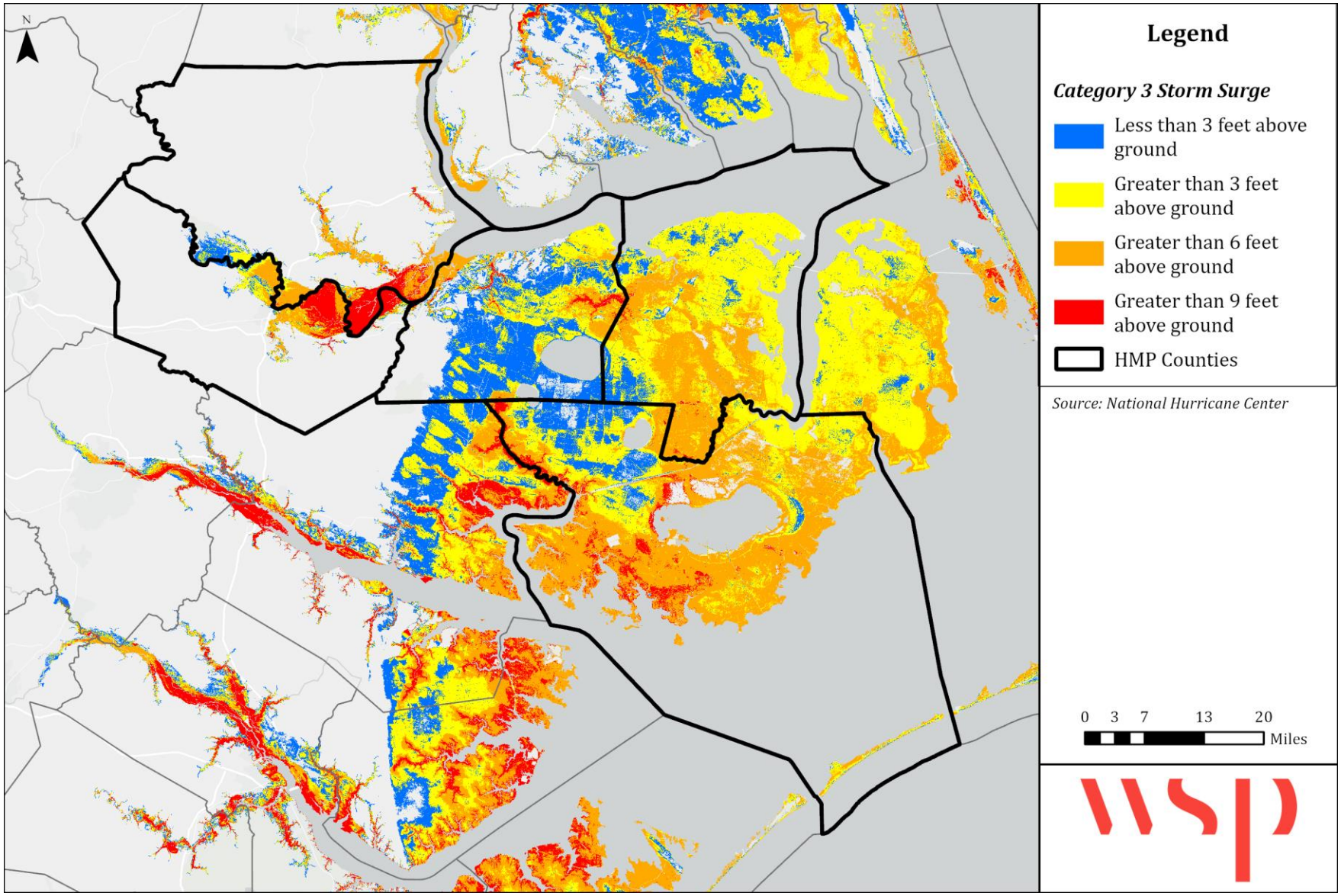


**Figure 4.43 – Category 4 Storm Surge Inundation**

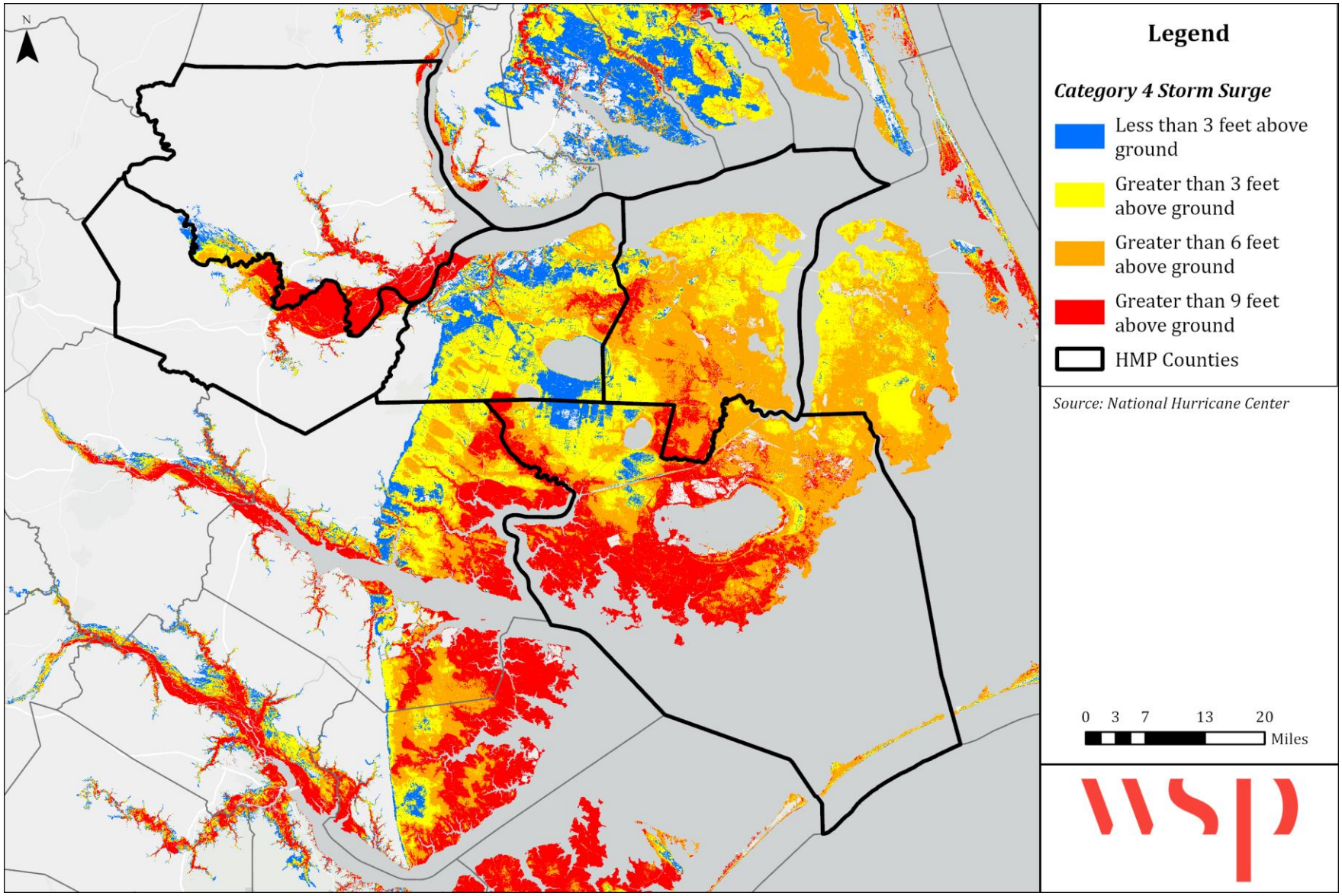


**Figure 4.44 – Category 5 Storm Surge Inundation**

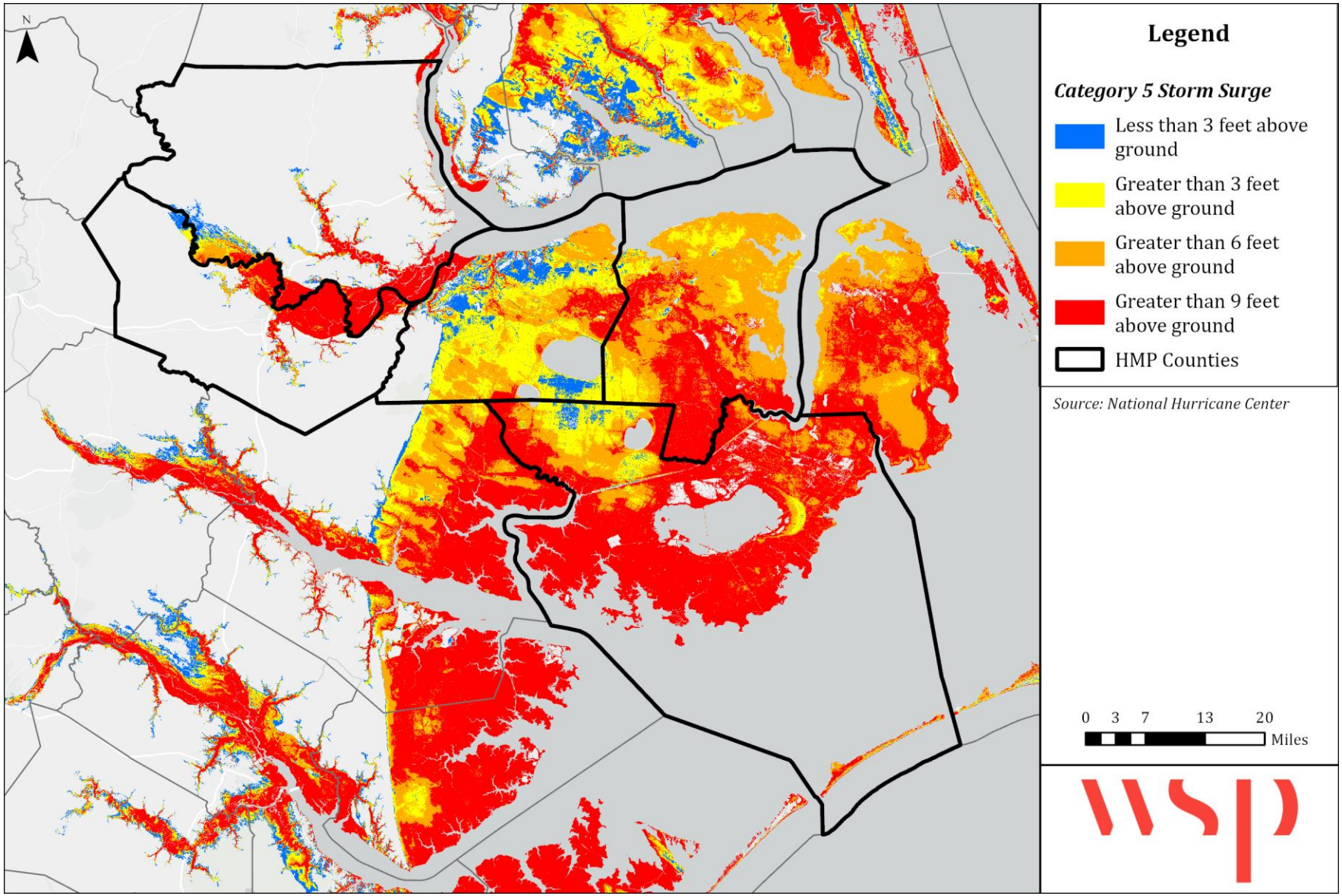
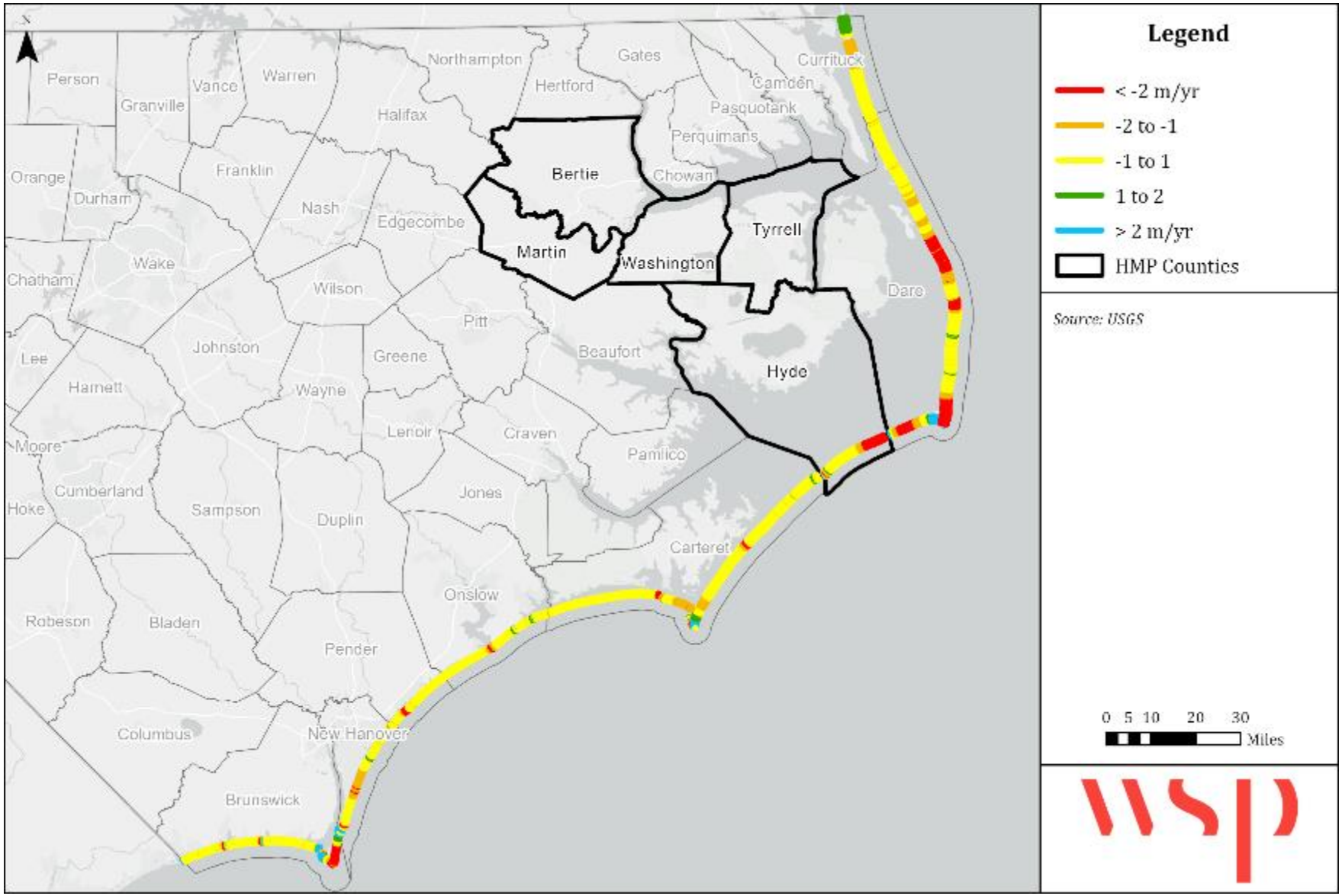


**Figure 4.45 – Shoreline Change Along the North Carolina Coast**



# EXTENT

## *HURRICANES & TROPICAL STORMS*

As an incipient hurricane develops, barometric pressure (measured in millibars or inches) at its center falls and winds increase. If the atmospheric and oceanic conditions are favorable, it can intensify into a tropical depression. When maximum sustained winds reach or exceed 39 miles per hour, the system is designated a tropical storm, given a name, and is closely monitored by the National Hurricane Center in Miami, Florida. When sustained winds reach or exceed 74 miles per hour the storm is deemed a hurricane. Hurricane intensity is further classified by the Saffir-Simpson Scale, detailed in Table 4.54, which rates hurricane intensity on a scale of 1 to 5, with 5 being the most intense.

**Table 4.54 – Saffir-Simpson Scale**

| Category | Maximum Sustained Wind Speed (MPH) | Types of Damage |
|---|---|---|
| 1 | 74–95 | Very dangerous winds will produce some damage; Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap, and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days. |
| 2 | 96–110 | Extremely dangerous winds will cause extensive damage; Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks. |
| 3 | 111–129 | Devastating damage will occur; Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes. |
| 4 | 130–156 | Catastrophic damage will occur; Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months. |
| 5 | 157 + | Catastrophic damage will occur; A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months. |

Source: National Hurricane Center

The Saffir-Simpson Scale categorizes hurricane intensity linearly based upon maximum sustained winds and barometric pressure, which are combined to estimate potential damage. Categories 3, 4, and 5 are classified as “major” hurricanes and, while hurricanes within this range comprise only 20 percent of total

tropical cyclone landfalls, they account for over 70 percent of the damage in the United States. Table 4.55 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 4.55 – Hurricane Damage Classifications**

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

Source: National Hurricane Center; Federal Emergency Management Agency

Located on the coast and along estuarine areas, the Northeastern NC Region is susceptible to every category of hurricane.

*Impact: 4 – Catastrophic*

### *EROSION*

Overall, coastal erosion has a limited impact on the Region. Erosion events may cause property damage when severe but are unlikely to cause injury or death. Erosion is limited to areas along the coastline and surf zone. The magnitude of erosion can be measured as a rate of change from a measured previous condition. As part of their Digital Shoreline Analysis System version 4.3, USGS has developed short and long-term linear regression rate calculations as a metric for shoreline change, measured in meters per year. However, this data is not available for estuarine shorelines. Despite data limitations, the HMPC recognized that erosion is a general hazard of concern for the Region's coastlines. Table 4.56 details

shoreline length as well as shoreline access structure and stabilization structures along the shoreline in each county in the Region per the North Carolina Division of Coastal Management.

**Table 4.56 – Shoreline Length and Shoreline Structures**

| County | Estuarine Shoreline (miles) | Count of Shoreline Access Structures | Count of Stabilization Structures |
|---|---|---|---|
| Bertie | 296.5 | 153 | 189 |
| Hyde | 785.9 | 478 | 374 |
| Martin | - | - | - |
| Tyrrell | 260.6 | 199 | 229 |
| Washington | 77.1 | 161 | 162 |

Source: NC Division of Coastal Management Estuarine Shoreline Mapping Project, 2012

Per this data, Hyde County has the greatest length of shoreline and has the most structures along the shoreline. Overall, the HMPC considered the impact erosion would have on these structures to be limited and the total area at risk negligible relative to the planning area as a whole.

*Impact: 2 – Limited*

## HISTORICAL OCCURRENCES

### *HURRICANES & TROPICAL STORMS*

According to the Office of Coastal Management's Tropical Cyclone Storm Segments data, which is a subset of the International Best Track Archive for Climate Stewardship (IBTrACS) dataset, 101 hurricanes and tropical storms have passed within 50 miles of the Northeastern NC Region since 1900. These storm tracks are shown in Figure 4.46. The date, storm name, storm category, and maximum wind speed of each event are detailed in Table 4.57.

**Figure 4.46 – Hurricane/Tropical Storm Tracks within 50 miles of Northeastern NC Region, 1900-2023**

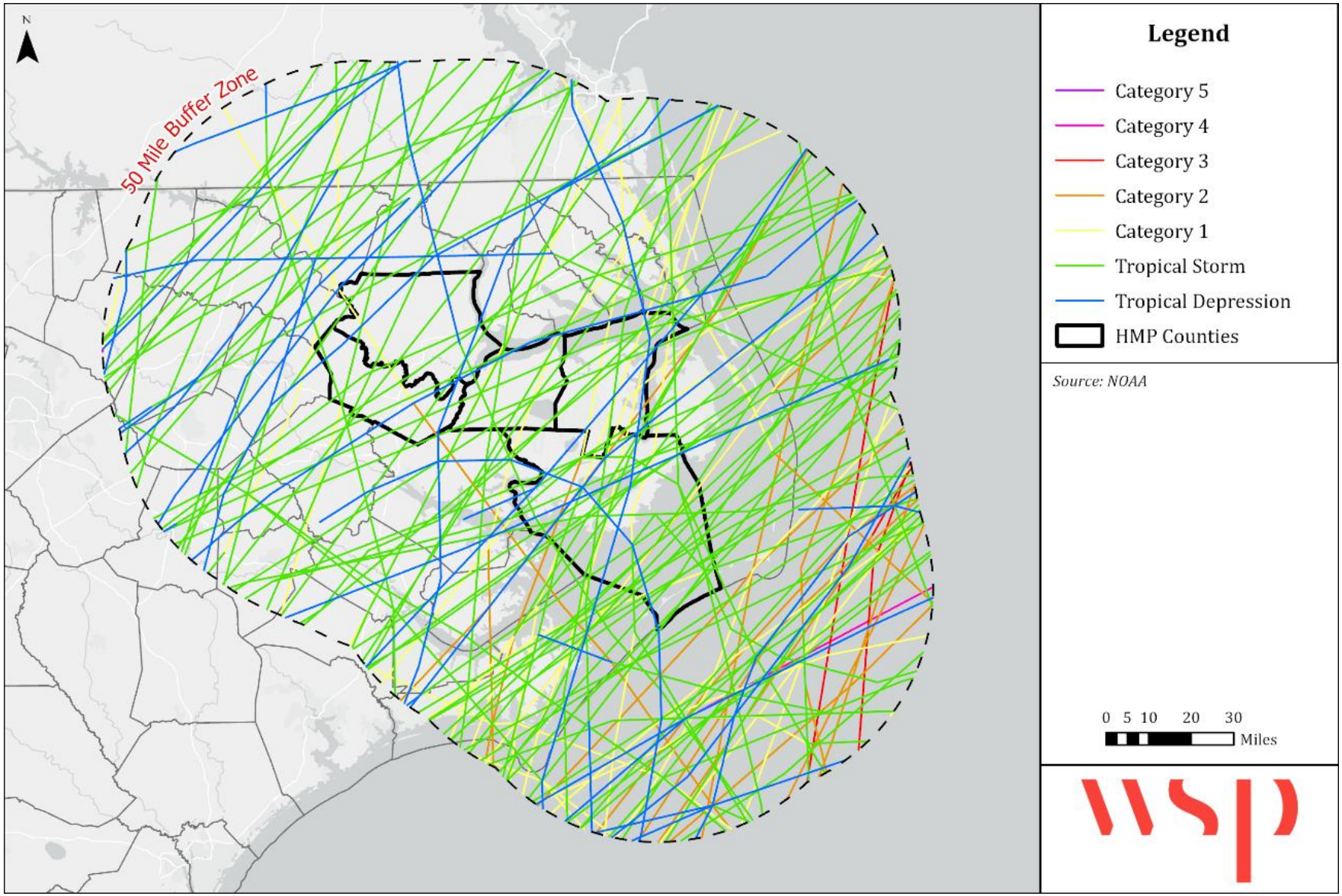


**Table 4.57 – Hurricane/Tropical Storm Tracks within 50 Miles of Northeastern NC Region, 1900-2023**

| Date | Storm Name | Max Storm Category* | Max Wind Speed (mph)* |
|---|---|---|---|
| 10/13/1900 | Unnamed | Extratropical Storm | 40 |
| 7/11/1901 | Unnamed | Category 1 | 81 |
| 9/18/1901 | Unnamed | Tropical Storm | 40 |
| 9/14/1904 | Unnamed | Tropical Storm | 69 |
| 6/29/1907 | Unnamed | Extratropical Storm | 58 |
| 5/29/1908 | Unnamed | Category 1 | 75 |
| 7/31/1908 | Unnamed | Category 1 | 81 |
| 9/1/1908 | Unnamed | Tropical Storm | 52 |
| 8/28/1910 | Unnamed | Extratropical Storm | 46 |
| 10/20/1910 | Unnamed | Tropical Storm | 63 |
| 6/15/1912 | Unnamed | Extratropical Storm | 46 |
| 9/3/1913 | Unnamed | Category 1 | 86 |
| 5/16/1916 | Unnamed | Tropical Storm | 40 |
| 9/6/1916 | Unnamed | Tropical Storm | 40 |
| 8/24/1918 | Unnamed | Category 1 | 75 |
| 8/26/1924 | Unnamed | Category 2 | 104 |
| 9/17/1924 | Unnamed | Extratropical Storm | 52 |
| 9/30/1924 | Unnamed | Extratropical Storm | 69 |
| 12/2/1925 | Unnamed | Extratropical Storm | 75 |
| 9/19/1928 | Unnamed | Extratropical Storm | 81 |
| 9/12/1930 | Unnamed | Category 1 | 92 |
| 9/16/1932 | Unnamed | Extratropical Storm | 58 |
| 8/23/1933 | Unnamed | Category 2 | 104 |
| 9/16/1933 | Unnamed | Category 2 | 109 |
| 9/3/1934 | Unnamed | Tropical Storm | 46 |
| 9/8/1934 | Unnamed | Category 1 | 92 |
| 9/6/1935 | Unnamed | Tropical Storm | 58 |
| 7/31/1937 | Unnamed | Tropical Storm | 63 |
| 10/11/1942 | Unnamed | Extratropical Storm | 52 |
| 8/2/1944 | Unnamed | Tropical Storm | 69 |
| 9/14/1944 | Unnamed | Category 3 | 121 |
| 10/20/1944 | Unnamed | Extratropical Storm | 52 |
| 6/25/1945 | Unnamed | Category 1 | 75 |
| 7/6/1946 | Unnamed | Tropical Storm | 52 |
| 7/7/1946 | Unnamed | Tropical Storm | 52 |
| 10/10/1946 | Unnamed | Extratropical Storm | 40 |
| 9/25/1947 | Unnamed | Extratropical Storm | 40 |
| 8/24/1949 | Unnamed | Category 2 | 104 |
| 8/14/1953 | Barbara | Category 1 | 92 |
| 5/29/1954 | Unnamed | Tropical Storm | 46 |
| 8/31/1954 | Carol | Category 2 | 109 |
| 10/15/1954 | Hazel | Category 4 | 132 |
| 8/12/1955 | Connie | Category 2 | 98 |

| Date | Storm Name | Max Storm Category* | Max Wind Speed (mph)* |
|---|---|---|---|
| 9/19/1955 | Ione | Category 2 | 109 |
| 9/27/1956 | Flossy | Extratropical Storm | 58 |
| 10/17/1956 | Unnamed | Extratropical Storm | 58 |
| 9/27/1958 | Helene | Category 4 | 138 |
| 7/10/1959 | Cindy | Tropical Storm | 46 |
| 8/2/1959 | Unnamed | Tropical Storm | 46 |
| 7/30/1960 | Brenda | Tropical Storm | 63 |
| 9/12/1960 | Donna | Category 2 | 104 |
| 9/14/1961 | Unnamed | Tropical Storm | 40 |
| 8/28/1962 | Alma | Category 1 | 75 |
| 9/1/1964 | Cleo | Tropical Storm | 46 |
| 9/14/1964 | Dora | Tropical Storm | 58 |
| 10/16/1964 | Isbell | Category 1 | 75 |
| 9/16/1967 | Doria | Tropical Storm | 63 |
| 10/20/1968 | Gladys | Category 1 | 81 |
| 8/28/1971 | Doria | Tropical Storm | 63 |
| 9/30/1971 | Ginger | Category 1 | 86 |
| 6/22/1972 | Agnes | Tropical Storm | 52 |
| 6/29/1975 | Amy | Tropical Storm | 40 |
| 10/27/1975 | Hallie | Tropical Storm | 52 |
| 8/20/1981 | Dennis | Tropical Storm | 69 |
| 6/19/1982 | Subtrop: Unnamed | Subtropical Storm | 69 |
| 9/14/1984 | Diana | Tropical Storm | 58 |
| 9/27/1985 | Gloria | Category 2 | 104 |
| 11/22/1985 | Kate | Tropical Storm | 52 |
| 8/18/1986 | Charley | Category 1 | 81 |
| 8/19/1991 | Bob | Category 2 | 109 |
| 9/25/1992 | Danielle | Tropical Storm | 63 |
| 8/31/1993 | Emily | Category 3 | 115 |
| 6/6/1995 | Allison | Extratropical Storm | 46 |
| 6/19/1996 | Arthur | Tropical Storm | 46 |
| 7/13/1996 | Bertha | Category 1 | 75 |
| 10/8/1996 | Josephine | Extratropical Storm | 52 |
| 7/24/1997 | Danny | Tropical Storm | 46 |
| 8/27/1998 | Bonnie | Category 2 | 98 |
| 9/4/1998 | Earl | Extratropical Storm | 58 |
| 9/4/1999 | Dennis | Tropical Storm | 69 |
| 9/16/1999 | Floyd | Category 2 | 104 |
| 10/18/1999 | Irene | Category 2 | 109 |
| 9/24/2000 | Helene | Tropical Storm | 46 |
| 9/10/2002 | Gustav | Tropical Storm | 63 |
| 10/12/2002 | Kyle | Tropical Storm | 46 |
| 9/18/2003 | Isabel | Category 2 | 104 |
| 8/3/2004 | Alex | Category 2 | 98 |

| Date | Storm Name | Max Storm Category* | Max Wind Speed (mph)* |
|---|---|---|---|
| 8/14/2004 | Charley | Tropical Storm | 69 |
| 9/15/2005 | Ophelia | Category 1 | 86 |
| 6/14/2006 | Alberto | Extratropical Storm | 40 |
| 9/1/2006 | Ernesto | Tropical Storm | 58 |
| 6/3/2007 | Barry | Extratropical Storm | 46 |
| 9/9/2007 | Gabrielle | Tropical Storm | 58 |
| 7/20/2008 | Cristobal | Tropical Storm | 52 |
| 9/6/2008 | Hanna | Tropical Storm | 69 |
| 8/27/2011 | Irene | Category 1 | 86 |
| 6/7/2013 | Andrea | Extratropical Storm | 46 |
| 7/4/2014 | Arthur | Category 2 | 98 |
| 6/7/2016 | Colin | Extratropical Storm | 52 |
| 9/3/2016 | Hermine | Extratropical Storm | 69 |
| 10/9/2016 | Matthew | Category 1 | 81 |
| 8/30/2017 | Unnamed | Tropical Storm | 38 |
| 10/12/2018 | Michael | Tropical Storm | 55 |
| 9/7/2019 | Dorian | Category 2 | 90 |
| 10/21/2019 | Nestor | Tropical Storm | 40 |
| 5/19/2020 | Arthur | Tropical Storm | 45 |
| 7/10/2020 | Fay | Tropical Storm | 35 |
| 8/5/2020 | Isaias | Tropical Storm | 60 |
| 6/22/2021 | Claudette | Tropical Storm | 40 |
| 7/9/2021 | Elsa | Tropical Storm | 45 |
| 9/24/2023 | Ophelia | Tropical Storm | 60 |

*Reports the most intense category and wind speed that occurred within 50 miles of the Northeastern NC Region, not for the storm event overall.
Source: Office of Coastal Management, 2025. https://marinecadastre.gov/data/

The above list of storms is not an exhaustive list of hurricanes that have affected the Northeastern NC Region. Several storms, including Hurricane Earl and Hurricane Sandy, have passed further than 50 miles away from the Northeastern NC Region yet had strong enough wind or rain impacts to affect the region. NCEI records hurricane and tropical storm events across the region by county and zone; therefore, one event that impacts all four counties in the region is recorded for each county. During the 26-year period from 1999 through 2024, NCEI records 102 hurricane and tropical storm reports across 32 separate days. These events are summarized in Table 4.58 by storm. All death, injury, and damage records were combined from all counties/zones. Where property damage estimates were broken out by type, NCEI reports only the value of wind-related damages. Event narratives following this table provide a fuller scope of the impacts from selected events.

**Table 4.58 – Recorded Hurricane/Tropical Storm Winds in Northeastern NC Counties, 1999-2024**

| Date | Storm | Deaths/ Injuries | Property Damage | Crop Damage |
|---|---|---|---|---|
| 8/30 - 9/1/1999 | Hurricane Dennis | 0/0 | $5,000 | $19,000,000 |
| 9/14 - 9/15/1999 | Hurricane Floyd | 0/0 | $8,824,000 | $55,200,000 |
| 10/16 - 10/17/1999 | Hurricane Irene | 0/0 | $3,000 | $0 |
| 9/10/2002 | Tropical Storm Gustav | 0/0 | $55,000 | $0 |

| Date | Storm | Deaths/ Injuries | Property Damage | Crop Damage |
|---|---|---|---|---|
| 9/17 - 9/18/2003 | Hurricane Isabel | 0/0 | $14,500,000 | $0 |
| 8/3/2004 | Hurricane Alex | 0/0 | $5,000,000 | $0 |
| 8/14/2004 | Tropical Storm Charley | 0/0 | $175,000 | $450,000 |
| 9/13/2005 | Hurricane Ophelia | 0/0 | $50,000 | $0 |
| 8/31/2006 | Tropical Storm Ernesto | 0/0 | $65,000 | $0 |
| 7/20/2008 | Tropical Storm Cristobal | 0/0 | $0 | $0 |
| 9/5/2008 | Tropical Storm Hannah | 0/0 | $30,000 | $0 |
| 9/2/2010 | Hurricane Earl | 0/0 | $24,200 | $2,000,000 |
| 8/26 - 8/27/2011 | Hurricane Irene | 0/0 | $89,300,000 | $60,000,000 |
| 10/28/2012 | Hurricane Sandy | 0/0 | $100,000 | $0 |
| 6/6/2013 | Tropical Storm Andrea | 0/0 | $0 | $0 |
| 7/3 - 7/4/2014 | Hurricane Arthur | 0/0 | $0 | $0 |
| 9/2/2016 | Hurricane Hermine | 0/0 | $0 | $0 |
| 10/8/2016 | Hurricane Matthew | 0/0 | $0 | $0 |
| 9/13/2018 | Hurricane Florence | 0/0 | $14,984,000 | $0 |
| 10/11/2018 | Hurricane Michael | 0/0 | $0 | $0 |
| 9/5-9/6/2019 | Hurricane Dorian | 0/0 | $15,000 | $0 |
| 8/4/2020 | Hurricane Isaias | 0/0 | $500,000 | $0 |
| 7/8/2021 | Tropical Storm Elsa | 0/0 | $15,000 | $0 |
| 9/30/2022 | Hurricane Ian | 0/0 | $0 | $0 |
| 9/23/2023 | Tropical Storm Ophelia | 0/0 | $0 | $0 |
| 8/8/2024 | Tropical Storm Debby | 0/0 | $0 | $0 |
| | **Total** | **0/0** | **$72,545,200** | **$136,650,000** |

Source: NCEI

**September 14-15, 1999 –** Hurricane Floyd caused massive record flooding across inland sections of eastern North Carolina. At its peak on the morning of September 13th, the winds were 155 mph and the central pressure bottomed out at 921 mb. September 14th the first outer rainbands began affecting eastern North Carolina and in turn, reports of flooding began filtering into the National Weather Service office in Morehead City/Newport (MHX). At least 40 official shelters were open across the county warning area. Severe weather and rainfall preceded landfall. Estimates were near 6 to 10 inches with isolated areas of 12 to 15 inches. Hurricane Floyd made landfall on the morning of September 16th near North Topsail Beach as a category 2 hurricane. The eye moved northeast over Jacksonville, New Bern, Washington, and Plymouth and continued over the eastern shores of Virginia. As the hurricane moved over the eastern coast of North Carolina, it accelerated and weakened. It lost its tropical characteristics early on the 17th.

Similar to rainfall, the strongest ocean storm surges occurred west and northwest of the eye. Ocean storm surges were about 4 to 6 feet above normal, generally affecting Onslow, Carteret, and Hyde Counties. This caused extensive beach erosion on the south facing beaches. Ocracoke Island officials reported at least 10 new dune breaks along Highway 12. Along the Albemarle Sound, storm tides were about 5 to 6 feet above normal. The Pamlico River storm tides were around 6 to 8 feet above normal. Water levels were especially high in Hyde County. Extreme flooding was experienced across most counties. Inland flooding exceeded Hurricane Bertha, Fran, Bonnie, and Dennis combined. Most counties reported their worst flooding ever. The Roanoke River in Williamston rose to nearly 3 feet above its flood stage. Unbelievable numbers of homes were covered with water and over half a million customers throughout the county warning area were without power. In the Northeastern NC region, as reported by NCEI, wind

associated with Floyd caused $8,824,000 in property damages and over $55 million in crop damages, however there were no reported fatalities or injuries.

**September 17-18, 2003 –** Hurricane Isabel made landfall early in the afternoon on September 18th as a category two hurricane across Core Banks in extreme eastern Carteret County. Isabel moved north northwest near 20 mph across eastern North Carolina during the afternoon. Areas mainly near and east of the storm center experienced significant wind and storm surge effects. Major ocean over wash and beach erosion occurred along the North Carolina Outer Banks where waves up to 20 feet accompanied a 6-to-8-foot storm surge. Eastern Carteret, eastern Pamlico, southern Craven, Beaufort, and Hyde counties experienced significant storm surge damage with hundreds of homes flooded in most of these counties. Storm surges from 2 to 6 feet occurred across Hyde County with the highest water levels recorded in Swan Quarter in the southwest part of the county where hundreds of homes and businesses flooded. Wind damage was more significant across Hyde, Washington, Tyrell, Martin, and the Outer Banks counties where wind gusts of around 100 mph occurred. Hurricane force winds resulted in structural damage to homes. Numerous trees and power lines were downed across these areas resulting in a loss of electricity for several weeks in some locations. Isabel will be remembered for the extensive power outages in northeast North Carolina, and permanent change to the landscape from all the fallen trees and storm surge. Winds associated with Hurricane Isabel caused $14.5 million in damages in the Northeastern NC Region.

**August 26-27, 2011 –** Hurricane Irene made landfall near Cape Lookout as a large category 1 storm. Due to the large size of the hurricane, strong damaging winds, major storm surge, and flooding rains were experienced across much of eastern North Carolina. Across the Northeastern NC Region, winds gusted to 50 to 60 miles per hour, resulting in downed trees and power lines with power outages. A 3 to 5-foot surge occurring along the Albemarle Sound including Plymouth. Winds also resulted in total water level rises including wave action of 11 to 14 feet causing several dune breaches across highway 12 in Ocracoke. Sound-side surge was minimal, only up to 2-feet however on mainland Hyde County surge was 5 to 6-feet. Rainfall ranged from 7 to 8 inches in Hyde County up to 13 inches in Bertie County and 14 inches in Martin County. Low-lying roads experienced flooding and significant damage occurred to structures and crops across the region. Much of the region experienced extensive power outages. Additionally, two hurricanes – an EF1 near Creswell, and an EF2 near Columbia, touched down, adding to the damage, particularly to manufactured homes.

**September 13, 2018 –** Hurricane Florence was a long-lived Cape Verde hurricane and the wettest tropical cyclone on record in the Carolinas. By the evening of September 13, Florence had been downgraded to a Category 1 hurricane. Hurricane Florence made landfall near Wrightsville Beach early on Saturday September 15 and weakened further as it slowly moved inland. Thousands of downed trees caused widespread power outages to nearly all of eastern North Carolina. The historic legacy of Hurricane Florence will be record-breaking storm surge of 9 to 13 feet and widespread devastating rainfall of 20 to 30 inches, locally up to 36 inches, which produced catastrophic and life-threatening flooding. In the Northeastern NC Region, rainfall was generally 3 to 8 inches, with a storm total of 7.53 inches in Williamston. Winds gusted up to 62 miles per hour. The gusty winds combined with saturated ground led to some downed trees with and power outages. Property damages totaled almost $15 million across the region.

**August 4, 2020 –** Hurricane Isaias originated from a vigorous tropical wave off the coast of Africa that was first identified by the National Hurricane Center on July 23, 2020. The tropical wave gradually became more organized and became Tropical Storm Isaias on July 30. Isaias marked the earliest ninth named storm on record, surpassing 2005's Hurricane Irene by eight days. Isaias strengthened into a Category 1 hurricane the next day, reaching a peak intensity of 85 mph. On August 1, the storm made landfall on North Andros, Bahamas and subsequently weakened to a tropical storm before paralleling the east coast of Florida and Georgia. As it approached the Carolina coastline, it re-intensified to a hurricane

shortly before making landfall near Ocean Isle Beach, North Carolina, at 11:10 PM EDT on August 3 as a Category 1 hurricane and proceeded to accelerate up the East Coast of the United States. Across eastern North Carolina, Isaias produced tropical storm force winds, pockets of heavy rainfall, minor storm surge and tornadoes.

**September 23, 2023 –** Tropical Storm Ophelia made landfall in Emerald Island, NC (in the southeast part of the state) at 6:20 AM on Saturday, 9/23 as a tropical storm with 70 mph winds. Ophelia gradually weakened (and lost tropical characteristics) as it tracked northward toward the Wakefield CWA during the day on Saturday. Ophelia tracked northward roughly along the I-95 corridor during the afternoon and evening hours on Saturday, reaching the Richmond Metro Area while weakening to a depression. Ophelia became a post-tropical cyclone shortly thereafter and exited to the north/northeast on Sunday. Northeast winds gusted as high as 50-65 mph near the VA/NC coast well in advance of Ophelia Friday evening into early Saturday morning (due to a tight gradient between high pressure over New England and the tropical storm to the south), with 25-45 mph gusts farther inland. Winds turned to the SE near the coast on Saturday and a few gusts to 40-45 mph were observed (while winds remained northeast inland west of the low track).

In addition to wind impacts, the Northeastern NC Region has experienced storm surge from hurricane and tropical storm events, affecting Hyde, Tyrrell, and Washington Counties. Table 4.59 summarizes all recorded storm surge events from NCEI between 1999 and 2024. These events caused over $61 million in property damage. Narrative records on storm surge impacts are provided below.

**Table 4.59 – Recorded Storm Surge Events in Northeastern NC Counties, 1999-2024**

| Date | Location | Deaths/ Injuries | Property Damage | Crop Damage |
|---|---|---|---|---|
| 5/6/2005 | EASTERN HYDE (ZONE) | 0/0 | $0 | $0 |
| 7/20/2008 | EASTERN HYDE (ZONE) | 0/0 | $0 | $0 |
| 8/26/2011 | WESTERN HYDE (ZONE) | 0/0 | $40,000,000 | $0 |
| 8/26/2011 | TYRRELL (ZONE) | 0/0 | $20,000,000 | $0 |
| 8/26/2011 | WASHINGTON (ZONE) | 0/0 | $1,000,000 | $0 |
| 8/26/2011 | EASTERN HYDE (ZONE) | 0/0 | $0 | $0 |
| 10/28/2012 | EASTERN HYDE (ZONE) | 0/0 | $100,000 | $0 |
| | **Total** | **0/0** | **$61,100,000** | **$0** |

Source: NCEI

**May 6, 2005** – An unseasonable and strong Nor'easter buffeted the North Carolina coast on the 6th with damaging wind gusts, torrential rain, high surf, and coastal flooding. Winds were sustained as high as 45 to 55 mph with wind gusts to 80 mph across coastal counties of Eastern North Carolina. Water levels rose four to six feet above normal along Pamlico Sound, and the lower reaches of the Neuse River.

**August 26, 2011 (Hurricane Irene)** – Hurricane Irene made landfall during the morning of the 27th, near Cape Lookout, as a large category 1 hurricane on the Saffir/Simpson Hurricane Wind Scale. Due to the large size of the hurricane, strong damaging winds, major storm surge, and flooding rains were experienced across much of eastern North Carolina. Millions of dollars in damages were reported across the area. Storm surge damages were estimated at 240 million dollars. The highest storm surges of 8-11 feet occurred along the Pamlico Sound, and the lower reaches of the Neuse and Pamlico Rivers on the 27th. In western Hyde County, winds gusting above hurricane force resulted in sound-side storm surge of 5 to 6 feet with minor to moderate structural damage. In eastern Hyde, winds gusting above hurricane force resulted in total water level rises including wave action of 11 to 14 feet causing several dune breaches across highway 12 in Ocracoke. Sound-side surge was minimal up to 2 feet. Winds gusted up to

hurricane force resulting in a 3-to-5-foot surge along the Albemarle Sound including the Columbia area in Tyrrell County and Plymouth in Washington County.

**October 28, 2012 (Hurricane Sandy)** – Maximum wind gusts were estimated from 50 mph in mainland Hyde County to 60 mph in Outer Banks Hyde County. Storm surge ranged from 1 foot across mainland Hyde County in Engelhard to 3 feet sound-side in Ocracoke. Minor to moderate beach erosion occurred due to large breaking waves. Several homes were flooded due to sound-side surge. Damages were estimated at one hundred thousand dollars due to storm surge.

### *EROSION*

Though it can be exacerbated by major storms, erosion is an ongoing occurrence. The characteristics of a shoreline can impact the rate at which erosion occurs. According to a Soundfront Series report on Shoreline Erosion by NC Division of Coastal Management, North Carolina Sea Grant, and North Carolina State University, Tyrrell County has primarily low-bank shorelines for which erosion is typically very severe, while high-bank shorelines, for which erosion rates are high, are most common in Bertie County.

The Soundfront Series report also presents historical erosion rates by county from a 1975 USDA-SCS study. The study examined shoreline positions based on aerial photography available over a range of years between 1949 and 1970. Table 4.60 summarizes these statistics for the Northeastern NC Region coastal counties.

**Table 4.60 – Summary of Historical Shoreline Erosion Data**

| County | Length of Shoreline Studied | Portion of Shoreline Eroding | Time Period Studied | Average Bank Height | Average Erosion Rate |
|---|---|---|---|---|---|
| Bertie | 27 mi | 73% | 32 yrs | 15.7 ft | 0.9 ft/yr |
| Hyde | 235 mi | 100% | 25 yrs | 0.8 ft | 3.0 ft/yr |
| Tyrrell | 90 mi | 100% | 22 yrs | 1.6 ft | 2.0 ft/yr |
| Washington | 26 mi | 96% | 32 yrs | 4.5 ft | 4.5 ft/yr |

Source: 1975 USDA-SCS study referenced in Soundfront Series Shoreline Erosion Report

While newer data is not readily available, the above statistics indicate that as of 1970 all coastal counties in the Northeastern NC Region were experiencing erosion along at least some portion of their shoreline.

## PROBABILITY OF FUTURE OCCURRENCE

### *HURRICANES & TROPICAL STORMS*

Substantial hurricane damage is most likely to be expected in the easternmost counties of the state; however, hurricane and tropical storm-force winds have significantly impacted areas far inland. In the 26-year period from 1999 through 2024, 26 separate hurricanes and tropical storms have impacted the Northeastern NC Region according to records in NCEI, which equates to a 100 percent annual probability of hurricane winds impacting the planning area in any given year. This probability does not account for impacts from hurricane rains and storm surge, which may also be severe in the region. The probability of a hurricane or tropical storm impacting the Northeastern NC Region is highly likely.

*Probability: 4 – Highly Likely*

### *EROSION*

Erosion and accretion are natural processes that are likely to continue to occur. Although data on historical erosion rates is only available for ocean shorelines, erosion is expected to continue affecting estuarine shorelines as well. The likelihood of significant instances of erosion will likely be tied to the occurrence of hurricane, tropical storm, and nor'easter events.

Probability: 4 – Highly Likely

## CLIMATE CHANGE

Changing climate and weather conditions may increase the number and frequency of future hurricane events. Hurricanes and other coastal storms may result in increased flooding, injuries, deaths, and extreme property loss. According to the US Government Accountability Office, national storm losses from changing frequency and intensity of storms is projected to increase anywhere from $4-6 billion in the near future.

According to NOAA, weather extremes will likely cause more frequent, stronger storms in the future due to rising surface temperatures. NOAA models predict that while there may be less frequent, low-category storm events (Tropical Storms, Category 1 Hurricanes), there will be more high-category storm events (Category 4 and 5 Hurricanes) in the future. This means that there may be fewer hurricanes overall in any given year, but when hurricanes do form, it is more likely that they will become large storms that can create massive damage.

Given that climate change is expected to make heavy rain events and tropical storms and hurricanes more frequent and intense, the erosion typically caused by these storms can be expected to occur more frequently. Additionally, sea level rise along the North Carolina coast will likely result in an increase in storm surge flooding and eroded shorelines.

## VULNERABILITY ASSESSMENT

### *METHODOLOGIES AND ASSUMPTIONS*

Property at risk to hurricanes was estimated using data from the NCEM IRISK database, which was compiled in NCEM's Risk Management Tool. The vulnerability data displayed below is for wind-related damages. Hurricanes may also cause substantial damages from heavy rains and subsequent flooding, which is addressed in Section 4.5.6 Flooding.

### *PEOPLE*

The very young, the elderly and the handicapped are especially vulnerable to harm from hurricanes. For those who are unable to evacuate for medical reasons, there should be provision to take care of special-needs patients and those in hospitals and nursing homes. Many of these patients are either oxygen-dependent, insulin-dependent, or in need of intensive medical care. There is a need to provide ongoing treatment for these vulnerable citizens, either on the coast or by air evacuation to upland hospitals. The stress from disasters such as a hurricane can result in immediate and long-term physical and emotional health problems among victims.

Erosion is unlikely to have any direct impact on the health or safety of individuals. However, it may cause indirect harm by weakening structures and by changing landscapes in ways that increase risk of other hazard impacts. For example, streambank erosion can cause sedimentation that decreases the stream's capacity and forces floodwaters to overtop the banks.

*PROPERTY*

General damages to property are both direct (what the winds associated with hurricanes physically destroy) and indirect, which focuses on additional costs, damages and losses attributed to secondary hazards spawned by the hurricane, or due to the damages caused by the storm. Depending on the size and strength of the hurricane, associated winds are capable of damaging and eventually destroying almost anything. Construction practices and building codes can help maximize the resistance of structures to damage.

Secondary impacts of damage due to hurricane winds often result from damage to infrastructure. Downed power and communications transmission lines, coupled with disruptions to transportation, create difficulties in reporting and responding to emergencies. These impacts of a hurricane put tremendous strain on a community. In the immediate aftermath of a hurricane, the focus is on emergency services.

Hurricanes and tropical storm winds can also cause agricultural damages. For the Northeastern NC Region, USDA RMA reports losses of $55,979,499 from 2010-2023 due to hurricanes and tropical storms, which equates to an average annual loss of $3,998,535. Table 4.61 summarizes insured crop losses due to hurricanes and tropical storms reported in the RMA system by county.

**Table 4.61 – Crop Losses Due to Hurricanes and Tropical Storms, 2010-2024**

| Year | Bertie | Hyde | Martin | Tyrrell | Washington | Total |
|---|---|---|---|---|---|---|
| 2010 | - | $8,245 | $1,036 | - | $102,128 | **$111,409** |
| 2011 | $6,869,770 | $2,688,139 | $10,723,635 | $752,728 | $3,260,288 | **$24,294,560** |
| 2012 | - | $371,342 | $22,501 | $100,765 | $4,169 | **$498,777** |
| 2014 | $92,306 | $2,733,202 | $443,721 | $541,813 | $73,282 | **$3,884,324** |
| 2015 | - | - | $456 | $41,183 | $104,944 | **$146,583** |
| 2016 | $275,952 | $929,758 | $1,898,592 | $228,312 | $1,124,709 | **$4,457,323** |
| 2017 | $264,073 | $94,150 | $110,787 | $27,632 | - | **$496,642** |
| 2018 | $512,937 | $1,385,474 | $1,993,115 | $131,618 | $1,689,414 | **$5,712,558** |
| 2019 | $697,767 | $508,426 | $1,369,743 | $262,146 | $961,832 | **$3,799,914** |
| 2020 | $1,220,484 | $1,706,466 | $2,140,722 | $1,306,385 | $2,459,887 | **$8,833,944** |
| 2022 | $117,692 | $136,285 | $50,011 | $755 | $42,073 | **$346,816** |
| 2023 | $213,985 | $2,460,075 | $409,829 | $42,005 | $270,755 | **$3,396,649** |
| **Total** | **$10,264,966** | **$13,021,562** | **$19,164,148** | **$3,435,342** | **$10,093,481** | **$55,979,499** |

Source: USDA Risk Management Agency

Table 4.62 through Table 4.66 detail buildings at risk and provide damage estimates across all jurisdictions for the 25-, 50-, 100-, 300-, and 700-year hurricane wind events. All scenarios impacted approximately the same number of buildings but with varying severity of damage.

The damage estimates for the 100-year hurricane wind event total $171,501,824, which equates to a loss ratio of 3.7 percent. The loss ratio is the damage estimate divided by the total potential exposure (i.e., total value of all buildings in the planning area), displayed as a percentage of value at risk. FEMA considers loss ratios greater than 10% to be significant and an indicator a community may have more difficulties recovering from an event. These damage estimates account for only wind impacts and actual damages would likely be higher due to flooding. Therefore, the Region would likely experience a higher overall loss ratio from the 100-year hurricane event and face difficulty recovering from such an event.

### Table 4.62 – Buildings at Risk from 25-Year Hurricane Winds

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,686 | 78% | $1,722,040 | 2,275 | 20% | $366,666 | 158 | 1% | $94,427 | 11,119 | 99% | $2,183,133 |
| Town of Askewville | 502 | 383 | 76% | $72,583 | 107 | 21% | $7,553 | 12 | 2% | $5,563 | 502 | 100% | $85,700 |
| Town of Aulander | 744 | 640 | 86% | $122,743 | 90 | 12% | $14,485 | 14 | 2% | $1,745 | 744 | 100% | $138,973 |
| Town of Colerain | 428 | 333 | 78% | $107,731 | 74 | 17% | $25,244 | 14 | 3% | $2,049 | 421 | 98% | $135,023 |
| Town of Kelford | 173 | 150 | 87% | $9,513 | 14 | 8% | $104 | 4 | 2% | $123 | 168 | 97% | $9,740 |
| Town of Lewiston-Woodville | 719 | 597 | 83% | $120,947 | 106 | 15% | $7,189 | 16 | 2% | $1,306 | 719 | 100% | $129,442 |
| Town of Powellsville | 171 | 148 | 87% | $38,973 | 16 | 9% | $782 | 7 | 4% | $564 | 171 | 100% | $40,319 |
| Town of Roxobel | 205 | 153 | 75% | $14,207 | 48 | 23% | $639 | 4 | 2% | $205 | 205 | 100% | $15,051 |
| Town of Windsor | 1,815 | 1,442 | 79% | $306,043 | 307 | 17% | $45,222 | 64 | 4% | $18,750 | 1,813 | 100% | $370,016 |
| **Subtotal Bertie** | **15,932** | **12,532** | **79%** | **$2,514,780** | **3,037** | **19%** | **$467,884** | **293** | **2%** | **$124,732** | **15,862** | **100%** | **$3,107,397** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,272 | 76% | $6,561,262 | 747 | 13% | $570,476 | 97 | 2% | $139,143 | 5,116 | 91% | $7,270,881 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70% | $3,711,344 | 3,414 | 28% | $838,055 | 208 | 2% | $258,896 | 12,181 | 100% | $4,808,294 |
| Town of Bear Grass | 81 | 55 | 68% | $20,178 | 7 | 9% | $1,362 | 19 | 23% | $7,358 | 81 | 100% | $28,897 |
| Town of Everetts | 159 | 151 | 95% | $44,989 | 8 | 5% | $660 | 0 | 0% | $0 | 159 | 100% | $45,649 |
| Town of Hamilton | 292 | 233 | 80% | $85,146 | 26 | 9% | $5,108 | 32 | 11% | $16,212 | 291 | 100% | $106,466 |
| Town of Hassell | 70 | 59 | 84% | $24,231 | 11 | 16% | $1,392 | 0 | 0% | $0 | 70 | 100% | $25,623 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Jamesville | 297 | 228 | 77% | $87,403 | 43 | 14% | $23,728 | 22 | 7% | $6,800 | 293 | 99% | $117,930 |
| Town of Oak City | 313 | 302 | 96% | $150,074 | 10 | 3% | $923 | 1 | 0% | $3,759 | 313 | 100% | $154,756 |
| Town of Parmele | 149 | 132 | 89% | $56,943 | 16 | 11% | $6,905 | 1 | 1% | $624 | 149 | 100% | $64,472 |
| Town of Robersonville | 901 | 783 | 87% | $424,249 | 107 | 12% | $37,097 | 11 | 1% | $3,894 | 901 | 100% | $465,240 |
| Town of Williamston | 4,238 | 3,104 | 73% | $1,309,456 | 880 | 21% | $406,676 | 247 | 6% | $300,507 | 4,231 | 100% | $2,016,640 |
| **Subtotal Martin** | **18,688** | **13,606** | **73%** | **$5,914,013** | **4,522** | **24%** | **$1,321,906** | **541** | **3%** | **$598,050** | **18,669** | **100%** | **$7,833,967** |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 2,012 | 72% | $1,156,247 | 508 | 18% | $112,745 | 42 | 2% | $447,542 | 2,562 | 92% | $1,716,535 |
| Town of Columbia | 519 | 408 | 79% | $164,889 | 66 | 13% | $853,042 | 34 | 7% | $81,950 | 508 | 98% | $1,099,881 |
| **Subtotal Tyrrell** | **3,313** | **2,420** | **73%** | **$1,321,136** | **574** | **17%** | **$965,787** | **76** | **2%** | **$529,492** | **3,070** | **93%** | **$2,816,416** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 3,940 | 72% | $1,299,502 | 1,354 | 25% | $131,493 | 84 | 2% | $11,296 | 5,378 | 98% | $1,442,290 |
| Town of Creswell | 366 | 274 | 75% | $122,834 | 68 | 19% | $16,177 | 22 | 6% | $10,147 | 364 | 99% | $149,158 |
| Town of Plymouth | 2,779 | 2,338 | 84% | $441,705 | 330 | 12% | $94,085 | 105 | 4% | $16,063 | 2,773 | 100% | $551,854 |
| Town of Roper | 611 | 505 | 83% | $103,133 | 81 | 13% | $3,966 | 20 | 3% | $59,217 | 606 | 99% | $166,316 |
| **Subtotal Washington** | **9,238** | **7,057** | **76%** | **$1,967,174** | **1,833** | **20%** | **$245,721** | **231** | **3%** | **$96,723** | **9,121** | **99%** | **$2,309,618** |
| **Region Total** | **52,767** | **39,887** | **76%** | **$18,278,365** | **10,713** | **20%** | **$3,571,774** | **1,238** | **2%** | **$1,488,140** | **51,838** | **98%** | **$23,338,279** |

Source: NCEM Risk Management Tool

### Table 4.63 – Buildings at Risk from 50-Year Hurricane Winds

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,687 | 78% | $4,645,960 | 2,275 | 20% | $1,585,388 | 158 | 1% | $324,211 | 11,120 | 100% | $6,555,559 |
| Town of Askewville | 502 | 383 | 76% | $181,733 | 107 | 21% | $21,250 | 12 | 2% | $20,041 | 502 | 100% | $223,025 |
| Town of Aulander | 744 | 640 | 86% | $343,141 | 90 | 12% | $46,667 | 14 | 2% | $5,813 | 744 | 100% | $395,621 |
| Town of Colerain | 428 | 333 | 78% | $260,185 | 74 | 17% | $74,281 | 14 | 3% | $8,302 | 421 | 98% | $342,768 |
| Town of Kelford | 173 | 155 | 90% | $88,732 | 14 | 8% | $1,630 | 4 | 2% | $1,742 | 173 | 100% | $92,103 |
| Town of Lewiston-Woodville | 719 | 597 | 83% | $314,961 | 106 | 15% | $33,607 | 16 | 2% | $5,234 | 719 | 100% | $353,802 |
| Town of Powellsville | 171 | 148 | 87% | $92,286 | 16 | 9% | $3,186 | 7 | 4% | $2,501 | 171 | 100% | $97,974 |
| Town of Roxobel | 205 | 153 | 75% | $67,651 | 48 | 23% | $4,155 | 4 | 2% | $603 | 205 | 100% | $72,408 |
| Town of Windsor | 1,815 | 1,442 | 79% | $791,216 | 307 | 17% | $140,620 | 64 | 4% | $52,360 | 1,813 | 100% | $984,196 |
| **Subtotal Bertie** | **15,932** | **12,538** | **79%** | **$6,785,865** | **3,037** | **19%** | **$1,910,784** | **293** | **2%** | **$420,807** | **15,868** | **100%** | **$9,117,456** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,272 | 76% | $19,657,721 | 747 | 13% | $1,906,100 | 97 | 2% | $576,418 | 5,116 | 91% | $22,140,239 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70% | $9,355,294 | 3,414 | 28% | $3,106,569 | 208 | 2% | $1,025,067 | 12,181 | 100% | $13,486,930 |
| Town of Bear Grass | 81 | 55 | 68% | $61,592 | 7 | 9% | $7,438 | 19 | 23% | $32,701 | 81 | 100% | $101,730 |
| Town of Everetts | 159 | 151 | 95% | $106,488 | 8 | 5% | $3,122 | 0 | 0% | $0 | 159 | 100% | $109,610 |
| Town of Hamilton | 292 | 233 | 80% | $204,454 | 26 | 9% | $23,207 | 32 | 11% | $71,585 | 291 | 100% | $299,246 |
| Town of Hassell | 70 | 59 | 84% | $73,277 | 11 | 16% | $6,054 | 0 | 0% | $0 | 70 | 100% | $79,331 |
| Town of Jamesville | 297 | 228 | 77% | $222,224 | 43 | 14% | $97,079 | 22 | 7% | $27,216 | 293 | 99% | $346,519 |
| Town of Oak City | 313 | 302 | 96% | $472,120 | 10 | 3% | $4,137 | 1 | 0% | $13,473 | 313 | 100% | $489,730 |
| Town of Parmele | 149 | 132 | 89% | $133,794 | 16 | 11% | $26,104 | 1 | 1% | $2,756 | 149 | 100% | $162,654 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Robersonville | 901 | 783 | 87% | $1,080,212 | 107 | 12% | $161,484 | 11 | 1% | $16,097 | 901 | 100% | $1,257,794 |
| Town of Williamston | 4,238 | 3,104 | 73% | $3,196,195 | 880 | 21% | $1,621,501 | 247 | 6% | $1,175,961 | 4,231 | 100% | $5,993,657 |
| **Subtotal Martin** | **18,688** | **13,606** | **73%** | **$14,905,650** | **4,522** | **24%** | **$5,056,695** | **541** | **3%** | **$2,364,856** | **18,669** | **100%** | **$22,327,201** |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 2,012 | 72% | $3,124,105 | 508 | 18% | $376,755 | 42 | 2% | $1,393,875 | 2,562 | 92% | $4,894,736 |
| Town of Columbia | 519 | 408 | 79% | $416,225 | 66 | 13% | $1,416,129 | 34 | 7% | $205,662 | 508 | 98% | $2,038,016 |
| **Subtotal Tyrrell** | **3,313** | **2,420** | **73%** | **$3,540,330** | **574** | **17%** | **$1,792,884** | **76** | **2%** | **$1,599,537** | **3,070** | **93%** | **$6,932,752** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 3,940 | 72% | $3,965,716 | 1,354 | 25% | $550,365 | 84 | 2% | $59,084 | 5,378 | 98% | $4,575,165 |
| Town of Creswell | 366 | 274 | 75% | $271,007 | 68 | 19% | $54,036 | 22 | 6% | $44,561 | 364 | 99% | $369,603 |
| Town of Plymouth | 2,779 | 2,338 | 84% | $1,123,077 | 330 | 12% | $259,467 | 105 | 4% | $60,059 | 2,773 | 100% | $1,442,602 |
| Town of Roper | 611 | 505 | 83% | $499,495 | 81 | 13% | $39,439 | 20 | 3% | $324,947 | 606 | 99% | $863,881 |
| **Subtotal Washington** | **9,238** | **7,057** | **76%** | **$5,859,295** | **1,833** | **20%** | **$903,307** | **231** | **3%** | **$488,651** | **9,121** | **99%** | **$7,251,251** |
| **Region Total** | **52,767** | **39,893** | **76%** | **$50,748,861** | **10,713** | **20%** | **$11,569,770** | **1,238** | **2%** | **$5,450,269** | **51,844** | **98%** | **$67,768,899** |

Source: NCEM Risk Management Tool

### Table 4.64 – Buildings at Risk from 100-Year Hurricane Winds

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,687 | 78% | $10,780,288 | 2,275 | 20% | $3,415,225 | 158 | 1% | $888,639 | 11,120 | 100% | $15,084,152 |
| Town of Askewville | 502 | 383 | 76% | $406,976 | 107 | 21% | $59,742 | 12 | 2% | $51,259 | 502 | 100% | $517,977 |
| Town of Aulander | 744 | 640 | 86% | $373,372 | 90 | 12% | $48,108 | 14 | 2% | $7,766 | 744 | 100% | $429,246 |
| Town of Colerain | 428 | 333 | 78% | $651,823 | 74 | 17% | $203,545 | 14 | 3% | $36,582 | 421 | 98% | $891,950 |
| Town of Kelford | 173 | 155 | 90% | $88,732 | 14 | 8% | $1,630 | 4 | 2% | $1,742 | 173 | 100% | $92,103 |
| Town of Lewiston-Woodville | 719 | 597 | 83% | $809,831 | 106 | 15% | $135,813 | 16 | 2% | $20,955 | 719 | 100% | $966,598 |
| Town of Powellsville | 171 | 148 | 87% | $228,770 | 16 | 9% | $13,010 | 7 | 4% | $10,782 | 171 | 100% | $252,562 |
| Town of Roxobel | 205 | 153 | 75% | $146,168 | 48 | 23% | $14,301 | 4 | 2% | $2,400 | 205 | 100% | $162,870 |
| Town of Windsor | 1,815 | 1,442 | 79% | $1,731,487 | 307 | 17% | $437,926 | 64 | 4% | $175,260 | 1,813 | 100% | $2,344,673 |
| **Subtotal Bertie** | **15,932** | **12,538** | **79%** | **$15,217,447** | **3,037** | **19%** | **$4,329,300** | **293** | **2%** | **$1,195,385** | **15,868** | **100%** | **$20,742,131** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,272 | 76% | $45,187,537 | 747 | 13% | $4,580,006 | 97 | 2% | $1,496,087 | 5,116 | 91% | $51,263,630 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70% | $27,833,738 | 3,414 | 28% | $8,345,614 | 208 | 2% | $2,613,795 | 12,181 | 100% | $38,793,146 |
| Town of Bear Grass | 81 | 55 | 68% | $220,222 | 7 | 9% | $35,750 | 19 | 23% | $125,582 | 81 | 100% | $381,554 |
| Town of Everetts | 159 | 151 | 95% | $260,424 | 8 | 5% | $15,295 | 0 | 0% | $0 | 159 | 100% | $275,718 |
| Town of Hamilton | 292 | 233 | 80% | $623,975 | 26 | 9% | $87,340 | 32 | 11% | $237,361 | 291 | 100% | $948,676 |
| Town of Hassell | 70 | 59 | 84% | $272,882 | 11 | 16% | $22,119 | 0 | 0% | $0 | 70 | 100% | $295,001 |
| Town of Jamesville | 297 | 228 | 77% | $669,521 | 43 | 14% | $326,569 | 22 | 7% | $101,555 | 293 | 99% | $1,097,644 |
| Town of Oak City | 313 | 302 | 96% | $1,802,044 | 10 | 3% | $16,984 | 1 | 0% | $36,827 | 313 | 100% | $1,855,854 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Parmele | 149 | 132 | 89% | $394,238 | 16 | 11% | $74,437 | 1 | 1% | $9,391 | 149 | 100% | $478,066 |
| Town of Robersonville | 901 | 783 | 87% | $3,492,852 | 107 | 12% | $531,794 | 11 | 1% | $56,613 | 901 | 100% | $4,081,259 |
| Town of Williamston | 4,238 | 3,104 | 73% | $9,083,018 | 880 | 21% | $5,581,770 | 247 | 6% | $3,397,745 | 4,231 | 100% | $18,062,534 |
| **Subtotal Martin** | **18,688** | **13,606** | **73%** | **$44,652,914** | **4,522** | **24%** | **$15,037,672** | **541** | **3%** | **$6,578,869** | **18,669** | **100%** | **$66,269,452** |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 2,012 | 72% | $8,863,183 | 508 | 18% | $1,095,899 | 42 | 2% | $3,493,840 | 2,562 | 92% | $13,452,922 |
| Town of Columbia | 519 | 408 | 79% | $1,324,564 | 66 | 13% | $2,158,923 | 34 | 7% | $572,700 | 508 | 98% | $4,056,187 |
| **Subtotal Tyrrell** | **3,313** | **2,420** | **73%** | **$10,187,747** | **574** | **17%** | **$3,254,822** | **76** | **2%** | **$4,066,540** | **3,070** | **93%** | **$17,509,109** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 3,940 | 72% | $8,780,886 | 1,354 | 25% | $1,380,379 | 84 | 2% | $203,838 | 5,378 | 98% | $10,365,102 |
| Town of Creswell | 366 | 274 | 75% | $719,992 | 68 | 19% | $163,459 | 22 | 6% | $183,434 | 364 | 99% | $1,066,885 |
| Town of Plymouth | 2,779 | 2,338 | 84% | $2,432,206 | 330 | 12% | $669,881 | 105 | 4% | $204,589 | 2,773 | 100% | $3,306,677 |
| Town of Roper | 611 | 505 | 83% | $574,937 | 81 | 13% | $78,953 | 20 | 3% | $324,947 | 606 | 99% | $978,838 |
| **Subtotal Washington** | **9,238** | **7,057** | **76%** | **$12,508,021** | **1,833** | **20%** | **$2,292,672** | **231** | **3%** | **$916,808** | **9,121** | **99%** | **$15,717,502** |
| **Region Total** | **52,767** | **39,893** | **76%** | **$127,753,666** | **10,713** | **20%** | **$29,494,472** | **1,238** | **2%** | **$14,253,689** | **51,844** | **98%** | **$171,501,824** |

Source: NCEM Risk Management Tool

### Table 4.65 – Buildings at Risk from 300-Year Hurricane Winds

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,687 | 78% | $28,020,989 | 2,275 | 20% | $9,388,713 | 158 | 1% | $2,445,708 | 11,120 | 100% | $39,855,409 |
| Town of Askewville | 502 | 383 | 76% | $966,231 | 107 | 21% | $166,230 | 12 | 2% | $118,630 | 502 | 100% | $1,251,091 |
| Town of Aulander | 744 | 640 | 86% | $1,996,116 | 90 | 12% | $461,103 | 14 | 2% | $76,292 | 744 | 100% | $2,533,512 |
| Town of Colerain | 428 | 333 | 78% | $1,821,016 | 74 | 17% | $514,118 | 14 | 3% | $137,099 | 421 | 98% | $2,472,233 |
| Town of Kelford | 173 | 155 | 90% | $537,159 | 14 | 8% | $25,739 | 4 | 2% | $30,973 | 173 | 100% | $593,871 |
| Town of Lewiston-Woodville | 719 | 597 | 83% | $2,153,830 | 106 | 15% | $460,824 | 16 | 2% | $76,634 | 719 | 100% | $2,691,288 |
| Town of Powellsville | 171 | 148 | 87% | $633,295 | 16 | 9% | $48,710 | 7 | 4% | $40,813 | 171 | 100% | $722,818 |
| Town of Roxobel | 205 | 153 | 75% | $984,249 | 48 | 23% | $209,174 | 4 | 2% | $32,831 | 205 | 100% | $1,226,255 |
| Town of Windsor | 1,815 | 1,442 | 79% | $4,053,850 | 307 | 17% | $1,379,084 | 64 | 4% | $644,278 | 1,813 | 100% | $6,077,211 |
| **Subtotal Bertie** | **15,932** | **12,538** | **79%** | **$41,166,735** | **3,037** | **19%** | **$12,653,695** | **293** | **2%** | **$3,603,258** | **15,868** | **100%** | **$57,423,688** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,272 | 76% | $142,831,041 | 747 | 13% | $14,920,901 | 97 | 2% | $5,929,926 | 5,116 | 91% | $163,681,868 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70% | $137,857,868 | 3,414 | 28% | $32,171,745 | 208 | 2% | $9,740,666 | 12,181 | 100% | $179,770,278 |
| Town of Bear Grass | 81 | 55 | 68% | $1,081,924 | 7 | 9% | $222,363 | 19 | 23% | $414,523 | 81 | 100% | $1,718,810 |
| Town of Everetts | 159 | 151 | 95% | $780,423 | 8 | 5% | $62,661 | 0 | 0% | $0 | 159 | 100% | $843,084 |
| Town of Hamilton | 292 | 233 | 80% | $2,079,501 | 26 | 9% | $275,374 | 32 | 11% | $663,637 | 291 | 100% | $3,018,512 |
| Town of Hassell | 70 | 59 | 84% | $866,446 | 11 | 16% | $72,293 | 0 | 0% | $0 | 70 | 100% | $938,738 |
| Town of Jamesville | 297 | 228 | 77% | $5,050,093 | 43 | 14% | $2,375,825 | 22 | 7% | $790,896 | 293 | 99% | $8,216,814 |
| Town of Oak City | 313 | 302 | 96% | $5,832,639 | 10 | 3% | $60,738 | 1 | 0% | $99,062 | 313 | 100% | $5,992,439 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Parmele | 149 | 132 | 89% | $1,269,895 | 16 | 11% | $194,611 | 1 | 1% | $27,487 | 149 | 100% | $1,491,993 |
| Town of Robersonville | 901 | 783 | 87% | $11,542,515 | 107 | 12% | $1,502,194 | 11 | 1% | $178,883 | 901 | 100% | $13,223,592 |
| Town of Williamston | 4,238 | 3,104 | 73% | $28,732,757 | 880 | 21% | $17,037,244 | 247 | 6% | $8,638,741 | 4,231 | 100% | $54,408,741 |
| **Subtotal Martin** | **18,688** | **13,606** | **73%** | **$195,094,061** | **4,522** | **24%** | **$53,975,048** | **541** | **3%** | **$20,553,895** | **18,669** | **100%** | **$269,623,001** |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 2,012 | 72% | $25,718,123 | 508 | 18% | $2,922,962 | 42 | 2% | $8,113,775 | 2,562 | 92% | $36,754,860 |
| Town of Columbia | 519 | 408 | 79% | $3,940,843 | 66 | 13% | $3,416,572 | 34 | 7% | $1,595,472 | 508 | 98% | $8,952,886 |
| **Subtotal Tyrrell** | **3,313** | **2,420** | **73%** | **$29,658,966** | **574** | **17%** | **$6,339,534** | **76** | **2%** | **$9,709,247** | **3,070** | **93%** | **$45,707,746** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 3,940 | 72% | $32,904,452 | 1,354 | 25% | $4,151,740 | 84 | 2% | $993,204 | 5,378 | 98% | $38,049,396 |
| Town of Creswell | 366 | 274 | 75% | $1,819,409 | 68 | 19% | $428,484 | 22 | 6% | $584,838 | 364 | 99% | $2,832,732 |
| Town of Plymouth | 2,779 | 2,338 | 84% | $13,390,305 | 330 | 12% | $3,879,138 | 105 | 4% | $1,824,940 | 2,773 | 100% | $19,094,383 |
| Town of Roper | 611 | 505 | 83% | $3,731,025 | 81 | 13% | $700,548 | 20 | 3% | $1,133,405 | 606 | 99% | $5,564,978 |
| **Subtotal Washington** | **9,238** | **7,057** | **76%** | **$51,845,191** | **1,833** | **20%** | **$9,159,910** | **231** | **3%** | **$4,536,387** | **9,121** | **99%** | **$65,541,489** |
| **Region Total** | **52,767** | **39,893** | **76%** | **$460,595,994** | **10,713** | **20%** | **$97,049,088** | **1,238** | **2%** | **$44,332,713** | **51,844** | **98%** | **$601,977,792** |

Source: NCEM Risk Management Tool

### Table 4.66 – Buildings at Risk from 700-Year Hurricane Winds

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,687 | 78% | $62,487,845 | 2,275 | 20% | $18,536,965 | 158 | 1% | $6,022,872 | 11,120 | 100% | $87,047,682 |
| Town of Askewville | 502 | 383 | 76% | $2,253,001 | 107 | 21% | $412,288 | 12 | 2% | $269,692 | 502 | 100% | $2,934,981 |
| Town of Aulander | 744 | 640 | 86% | $4,841,565 | 90 | 12% | $1,373,648 | 14 | 2% | $220,925 | 744 | 100% | $6,436,139 |
| Town of Colerain | 428 | 333 | 78% | $4,503,254 | 74 | 17% | $1,163,007 | 14 | 3% | $377,711 | 421 | 98% | $6,043,972 |
| Town of Kelford | 173 | 155 | 90% | $1,249,322 | 14 | 8% | $72,074 | 4 | 2% | $88,244 | 173 | 100% | $1,409,640 |
| Town of Lewiston-Woodville | 719 | 597 | 83% | $5,106,975 | 106 | 15% | $1,228,357 | 16 | 2% | $226,509 | 719 | 100% | $6,561,840 |
| Town of Powellsville | 171 | 148 | 87% | $1,580,897 | 16 | 9% | $143,732 | 7 | 4% | $122,715 | 171 | 100% | $1,847,345 |
| Town of Roxobel | 205 | 153 | 75% | $2,245,168 | 48 | 23% | $538,367 | 4 | 2% | $83,751 | 205 | 100% | $2,867,286 |
| Town of Windsor | 1,815 | 1,442 | 79% | $9,702,064 | 307 | 17% | $3,773,262 | 64 | 4% | $1,992,493 | 1,813 | 100% | $15,467,819 |
| **Subtotal Bertie** | **15,932** | **12,538** | **79%** | **$93,970,091** | **3,037** | **19%** | **$27,241,700** | **293** | **2%** | **$9,404,912** | **15,868** | **100%** | **$130,616,704** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,272 | 76% | $209,478,896 | 747 | 13% | $24,520,957 | 97 | 2% | $9,556,632 | 5,116 | 91% | $243,556,485 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70% | $266,355,295 | 3,414 | 28% | $61,629,400 | 208 | 2% | $18,635,224 | 12,181 | 100% | $346,619,918 |
| Town of Bear Grass | 81 | 55 | 68% | $1,907,515 | 7 | 9% | $323,301 | 19 | 23% | $1,046,498 | 81 | 100% | $3,277,314 |
| Town of Everetts | 159 | 151 | 95% | $2,199,571 | 8 | 5% | $176,210 | 0 | 0% | $0 | 159 | 100% | $2,375,781 |
| Town of Hamilton | 292 | 233 | 80% | $5,444,388 | 26 | 9% | $675,685 | 32 | 11% | $1,602,231 | 291 | 100% | $7,722,305 |
| Town of Hassell | 70 | 59 | 84% | $1,970,921 | 11 | 16% | $188,668 | 0 | 0% | $0 | 70 | 100% | $2,159,588 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Jamesville | 297 | 228 | 77% | $8,119,358 | 43 | 14% | $4,799,469 | 22 | 7% | $1,554,791 | 293 | 99% | $14,473,617 |
| Town of Oak City | 313 | 302 | 96% | $13,559,288 | 10 | 3% | $165,548 | 1 | 0% | $242,744 | 313 | 100% | $13,967,580 |
| Town of Parmele | 149 | 132 | 89% | $3,265,251 | 16 | 11% | $452,192 | 1 | 1% | $68,109 | 149 | 100% | $3,785,552 |
| Town of Robersonville | 901 | 783 | 87% | $29,262,172 | 107 | 12% | $3,664,927 | 11 | 1% | $473,730 | 901 | 100% | $33,400,829 |
| Town of Williamston | 4,238 | 3,104 | 73% | $74,252,037 | 880 | 21% | $42,560,484 | 247 | 6% | $19,668,013 | 4,231 | 100% | $136,480,535 |
| **Subtotal Martin** | **18,688** | **13,606** | **73%** | **$406,335,796** | **4,522** | **24%** | **$114,635,884** | **541** | **3%** | **$43,291,340** | **18,669** | **100%** | **$564,263,019** |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 2,012 | 72% | $47,422,810 | 508 | 18% | $5,489,709 | 42 | 2% | $15,992,567 | 2,562 | 92% | $68,905,086 |
| Town of Columbia | 519 | 408 | 79% | $9,230,661 | 66 | 13% | $5,783,387 | 34 | 7% | $3,826,442 | 508 | 98% | $18,840,489 |
| **Subtotal Tyrrell** | **3,313** | **2,420** | **73%** | **$56,653,471** | **574** | **17%** | **$11,273,096** | **76** | **2%** | **$19,819,009** | **3,070** | **93%** | **$87,745,575** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 3,940 | 72% | $69,070,832 | 1,354 | 25% | $8,380,397 | 84 | 2% | $2,396,603 | 5,378 | 98% | $79,847,832 |
| Town of Creswell | 366 | 274 | 75% | $3,939,166 | 68 | 19% | $990,855 | 22 | 6% | $1,499,836 | 364 | 99% | $6,429,856 |
| Town of Plymouth | 2,779 | 2,338 | 84% | $30,019,989 | 330 | 12% | $8,367,344 | 105 | 4% | $4,202,278 | 2,773 | 100% | $42,589,611 |
| Town of Roper | 611 | 505 | 83% | $8,425,783 | 81 | 13% | $1,460,821 | 20 | 3% | $1,929,206 | 606 | 99% | $11,815,810 |
| **Subtotal Washington** | **9,238** | **7,057** | **76%** | **$111,455,770** | **1,833** | **20%** | **$19,199,417** | **231** | **3%** | **$10,027,923** | **9,121** | **99%** | **$140,683,109** |
| **Region Total** | **52,767** | **39,893** | **76%** | **$877,894,024** | **10,713** | **20%** | **$196,871,054** | **1,238** | **2%** | **$92,099,816** | **51,844** | **98%** | **$1,166,864,892** |

Source: NCEM Risk Management Tool

### *ENVIRONMENT*

Hurricane winds can cause massive damage to the natural environment, uprooting trees and other debris within the storm's path. Animals can either be killed directly by the storm or impacted indirectly through changes in habitat and food availability caused by high winds, storm surge, and intense rainfall. Endangered species can be dramatically impacted. Forests can be completely defoliated by strong winds.

Erosion can change the shape and characteristics of coastal shorelines and riverine floodplains. Eroded material may clog waterways and decrease drainage capacity. Erosion can also negatively impact water quality by increasing sediment loads in waterways.

### *CONSEQUENCE ANALYSIS*

Table 4.67 summarizes the potential negative consequences of hurricanes and coastal hazards.

**Table 4.67 – Consequence Analysis – Hurricane and Coastal Hazards**

| Category | Consequences |
|---|---|
| Public | Impacts include injury or death, loss of property, outbreak of diseases, mental trauma and loss of livelihoods. Power outages and flooding are likely to displace people from their homes. Water can become polluted such that if consumed, diseases and infection can be easily spread. Residential, commercial, and public buildings, as well as critical infrastructure such as transportation, water, energy, and communication systems may be damaged or destroyed, resulting in cascading impacts on the public. Erosion is unlikely to impact public health and safety. |
| Responders | Localized impact expected to limit damage to personnel in the inundation area at the time of the incident. Erosion is unlikely to require immediate response or rescue operations. |
| Continuity of Operations (including Continued Delivery of Services) | Damage to facilities/personnel from flooding or wind may require temporary relocation of some operations. Operations may be interrupted by power outages. Disruption of roads and/or utilities may postpone delivery of some services. Regulatory waivers may be needed locally. Fulfillment of some contracts may be difficult. Impact may reduce deliveries. Erosion is unlikely to impact public continuity of operations. |
| Property, Facilities and Infrastructure | Structural damage to buildings may occur; loss of glass windows and doors by high winds and debris; loss of roof coverings, partial wall collapses, and other damages requiring significant repairs are possible in a major (category 3 to 5) hurricane. Erosion can result in property damage if it is severe enough or if scour occurs that undermines the integrity of structural foundations. |
| Environment | Hurricanes can devastate wooded ecosystems and remove all the foliation from forest canopies, and they can change habitats so drastically that the indigenous animal populations suffer as a result. Specific foods can be taken away as high winds will often strip fruits, seeds and berries from bushes and trees. Secondary impacts may occur; for example, high winds and debris may result in damage to an above-ground fuel tank, resulting in a significant chemical spill. Erosion can increase sediment loads in waterbodies and change riverine and coastal topography. |

| Category | Consequences |
|---|---|
| Economic Condition of the Jurisdiction | Local economy and finances adversely affected, possibly for an extended period of time, depending on damages. Intangible impacts also likely, including business interruption and additional living expenses. Severe erosion can negatively impact tourist economies. Dredging projects to counter sedimentation buildup from erosion are costly. |
| Public Confidence in the Jurisdiction's Governance | Likely to impact public confidence due to possibility of major event requiring substantial response and long-term recovery effort. Erosion is unlikely to impact public confidence. |

## HAZARD SUMMARY BY JURISDICTION

### *HURRICANES & TROPICAL STORMS*

The following table summarizes hurricane and tropical storm hazard risk by jurisdiction. Most aspects of hurricane risk do not vary substantially by jurisdiction. While hurricanes have the possibility of being catastrophic across all jurisdictions, certain areas may be even more vulnerable. Mobile home units are more vulnerable to wind damage; therefore, Bertie and Tyrrell Counties, which have higher rates of mobile homes, may experience more severe impacts. Inland areas may experience less damage due to storm surge commonly associated with hurricanes and tropical storms.

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| *All Jurisdictions* | 4 | 4 | 4 | 1 | 3 | 3.6 | H |

### *EROSION*

The following table summarizes erosion risk by jurisdiction. Risk to coastal erosion varies across the region and is highest in the region's unincorporated areas along coastal and estuarine shorelines. Inland areas may still experience moderate erosion, but it is less likely than in coastal areas.

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| Unincorporated Bertie County | 4 | 2 | 1 | 4 | 1 | 2.5 | M |
| Town of Askewville | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Aulander | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Colerain | 3 | 2 | 1 | 4 | 1 | 2.2 | M |
| Town of Kelford | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Lewiston-Woodville | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Powellsville | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Roxobel | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Windsor | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Unincorporated Hyde County | 4 | 2 | 2 | 4 | 1 | 2.7 | M |
| Unincorporated Martin County | 3 | 2 | 1 | 4 | 1 | 2.2 | M |
| Town of Bear Grass | 1 | 1 | 1 | 4 | 1 | 1.3 | L |

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| Town of Everetts | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Hamilton | 3 | 2 | 1 | 4 | 1 | 2.2 | M |
| Town of Hassell | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Jamesville | 3 | 2 | 1 | 4 | 1 | 2.2 | M |
| Town of Oak City | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Parmele | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Robersonville | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Williamston | 2 | 2 | 1 | 4 | 1 | 1.9 | L |
| Unincorporated Tyrrell County | 4 | 2 | 1 | 4 | 1 | 2.5 | M |
| Town of Columbia | 4 | 2 | 1 | 4 | 1 | 2.5 | M |
| Washington County | 4 | 2 | 1 | 4 | 1 | 2.5 | M |
| Town of Creswell | 2 | 2 | 1 | 4 | 1 | 1.9 | L |
| Town of Plymouth | 4 | 2 | 1 | 4 | 1 | 2.5 | M |
| Town of Roper | 2 | 1 | 1 | 4 | 1 | 1.6 | L |

## 4.5.7 TORNADOES & THUNDERSTORMS

## HAZARD BACKGROUND

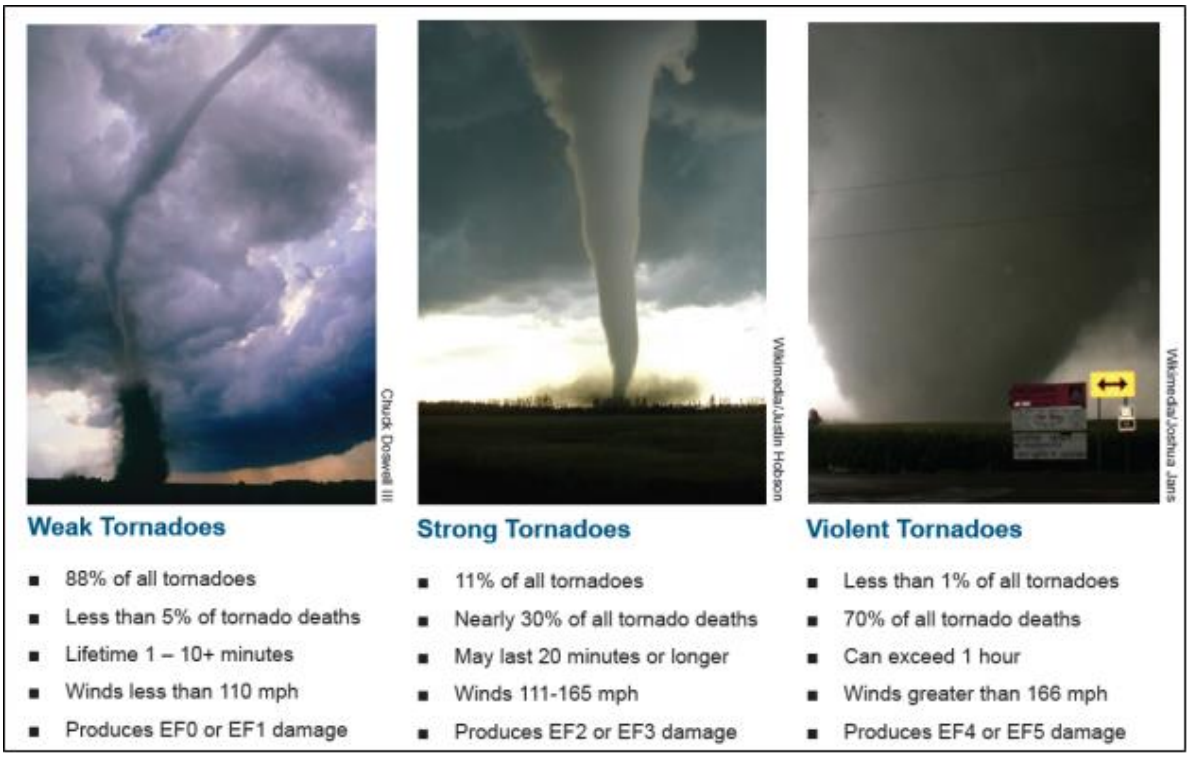
### *TORNADOES*

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

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

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

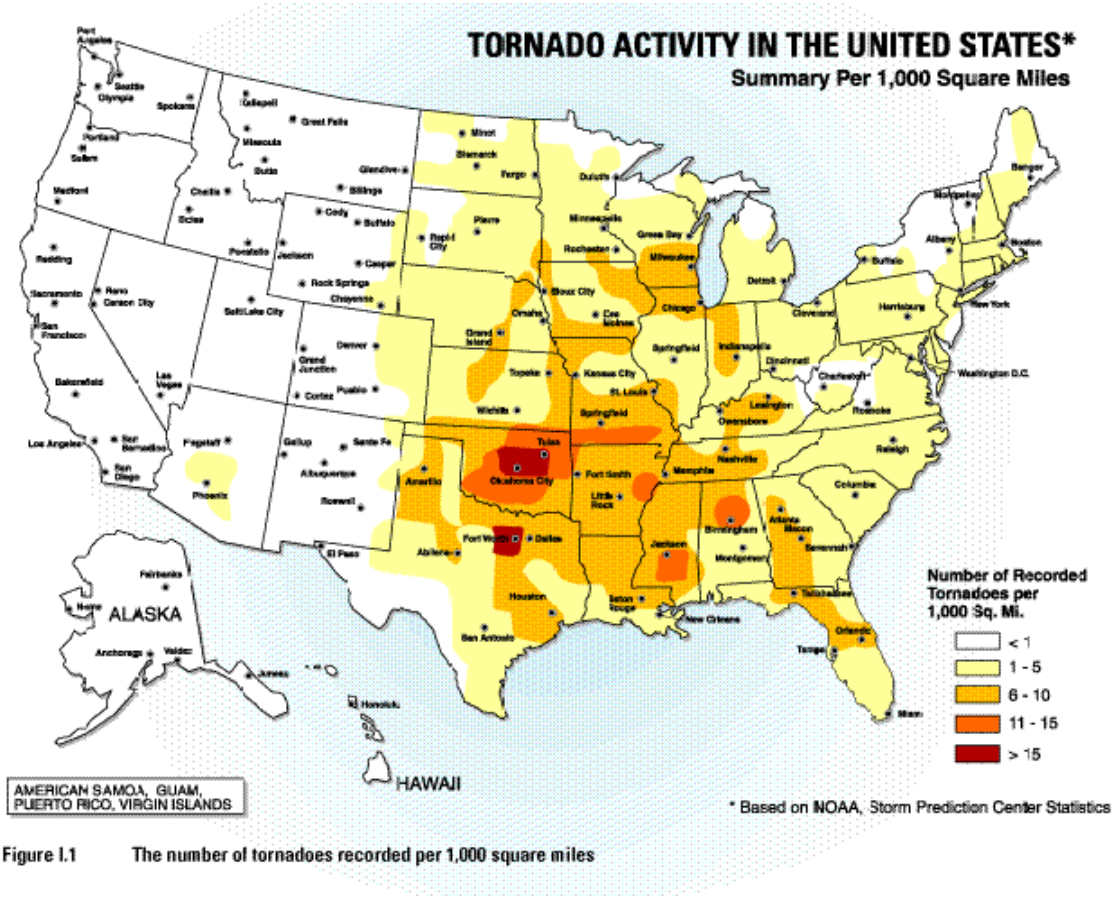
**Figure 4.47 – Tornado by Severity**




Source: NOAA National Weather Service

Figure 4.48 shows tornado activity in the United States based on the number of recorded tornadoes per 1,000 square miles. North Carolina has averaged 1 to 5 tornadoes per 1,000 square miles.

**Figure 4.48 – Tornado Activity in the U.S.**




Source: American Society of Civil Engineers

*Warning Time: 4 – Less than 6 hours*

*Duration: 1 – Less than 6 hours*

### *THUNDERSTORM WINDS*

Thunderstorms result from the rapid upward movement of warm, moist air. They can occur inside warm, moist air masses and at fronts. As the warm, moist air moves upward, it cools, condenses, and forms cumulonimbus clouds that can reach heights of greater than 35,000 ft. As the rising air reaches its dew point, water droplets and ice form and begin falling the long distance through the clouds towards earth's surface. As the droplets fall, they collide with other droplets and become larger. The falling droplets create a downdraft of air that spreads out at earth's surface and causes strong winds associated with thunderstorms.

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

Thunderstorms are responsible for the development and formation of many severe weather phenomena, posing great hazards to the population and landscape. Damage that results from thunderstorms is mainly inflicted by downburst winds, large hailstones, and flash flooding caused by heavy precipitation. Stronger thunderstorms are capable of producing tornadoes and waterspouts. While conditions for thunderstorm conditions may be anticipated within a few hours, severe conditions are difficult to predict. Regardless of severity, storms generally pass within a few hours.

*Warning Time: 4 – Less than six hours*

*Duration: 1 – Less than six hours*

### LIGHTNING

Lightning is a sudden electrical discharge released from the atmosphere that follows a course from cloud to ground, cloud to cloud, or cloud to surrounding air, with light illuminating its path. Lightning's unpredictable nature causes it to be one of the most feared weather elements.

All thunderstorms produce lightning, which often strikes outside of the area where it is raining and is known to fall more than 10 miles away from the rainfall area. When lightning strikes, electricity shoots through the air and causes vibrations creating the sound of thunder. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Nationwide, lightning kills 75 to 100 people each year. Lightning strikes can also start building and wildland fires, and damage electrical systems and equipment.

The watch/warning time for a given storm is usually a few hours. There is no warning time for any given lightning strike. Lightning strikes are instantaneous. Storms that cause lightning usually pass within a few hours.

*Warning Time: 4 – Less than six hours*

*Duration: 1 – Less than six hours*

### HAIL

According to NOAA, hail is precipitation that is formed when updrafts in thunderstorms carry raindrops upward into extremely cold areas of the atmosphere causing them to freeze. The raindrops form into small frozen droplets and then continue to grow as they come into contact with super-cooled water which will freeze on contact with the frozen rain droplet. This frozen rain droplet can continue to grow and form hail. As long as the updraft forces can support or suspend the weight of the hailstone, hail can continue to grow.

At the time when the updraft can no longer support the hailstone, it will fall down to the earth. For example, a ¼" diameter or pea sized hail requires updrafts of 24 mph, while a 2 ¾" diameter or baseball sized hail requires an updraft of 81 mph. The largest hailstone recorded in the United States was found in Vivian, South Dakota on July 23, 2010; it measured eight inches in diameter, almost the size of a soccer ball. While soccer-ball-sized hail is the exception, even small pea sized hail can do damage.

Hailstorms in North Carolina cause damage to property, crops, and the environment, and kill and injure livestock. In the United States, hail causes more than $1 billion in damage to property and crops each year. Much of the damage inflicted by hail is to crops. Even relatively small hail can shred plants to ribbons in a matter of minutes. Vehicles, roofs of buildings and homes, and landscaping are the other things most commonly damaged by hail. Hail has been known to cause injury to humans; occasionally, these injuries can be fatal.

The onset of thunderstorms with hail is generally rapid. However, advancements in meteorological forecasting allow for some warning. Storms usually pass in a few hours.

*Warning Time: 4 – Less than six hours*

*Duration: 1 – Less than six hours*

## LOCATION

### *TORNADOES*

Tornadoes and thunderstorms can occur anywhere in the region and do not have a defined vulnerability zone. Tornadoes typically impact a small area, but damage may be extensive. Tornado locations are completely random, meaning risk to tornado is not increased in one area of the county versus another. Tornadoes can be spawned by tropical cyclones; however, these tornadoes typically occur up to 2 days before and as many as 3 days after landfall of the tropical cyclone.

*Spatial Extent: 2 – Small*

### *THUNDERSTORM WINDS*

Thunderstorm wind, lightning, and hail events do not have a defined vulnerability zone. The scope of wind, lightning and hail is generally defined to the footprint of its associated thunderstorm. Given the general size and movement of thunderstorm events, thunderstorm winds from one event may impact a large portion of the planning area. The entirety of the Northeastern Region shares equal risk to the threat of severe weather.

*Spatial Extent: 4 – Large*

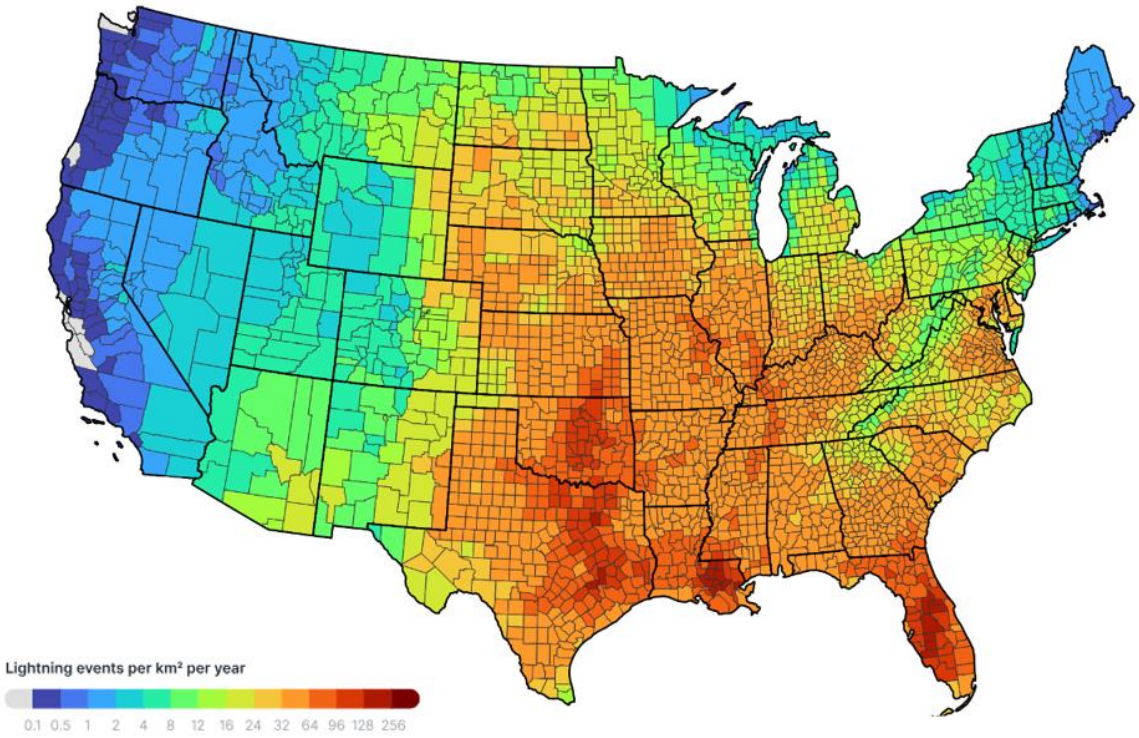
### *LIGHTNING AND HAIL*

The scope of lightning and hail is generally confined to the footprint of its associated thunderstorm. However, large-scale hail tends to occur in a more localized area within the storm, and lightning strikes and associated damages are highly localized and occur randomly. It should be noted that while lightning is most often affiliated with severe thunderstorms, it may also strike outside of heavy rain and might occur as far as 10 miles away from any rainfall. The entirety of the Northeastern Region is uniformly exposed to each of these hazards.

According to the Vaisala flash density map, shown in Figure 4.49, the majority of the Northeastern NC Region is located in an area that experiences between 16 and 64 lightning flashes per square mile per year. It should be noted that future lightning occurrences may exceed these figures.

*Spatial Extent: 1 – Negligible*

**Figure 4.49 – Lightning Flash Density (2016-2022)**




Source: Vaisala

## EXTENT

### *TORNADOES*

Prior to February 1, 2007, tornado intensity was measured by the Fujita (F) scale. This scale was revised and is now the Enhanced Fujita (EF) scale. Both scales are sets of wind estimates (not measurements) based on damage. The new scale provides more damage indicators (28) and associated degrees of damage, allowing for more detailed analysis, better correlation between damage and wind speed. It is also more precise because it takes into account the materials affected and the construction of structures damaged by a tornado. Table 4.68 shows the wind speeds associated with the enhanced Fujita scale ratings and the damage that could result at different levels of intensity.

**Table 4.68 – Enhanced Fujita Scale**

| EF Number | 3 Second Gust (mph) | Damage |
|---|---|---|
| 0 | 65-85 | **Light damage.** Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. |
| 1 | 96-110 | **Moderate damage.** Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken. |

| EF Number | 3 Second Gust (mph) | Damage |
|---|---|---|
| 2 | 111-135 | **Considerable damage.** Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground. |
| 3 | 136-165 | **Severe damage.** Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance. |
| 4 | 166-200 | **Devastating damage.** Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated. |
| 5 | Over 200 | **Incredible damage.** Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m; high-rise buildings have significant structural deformation; incredible phenomena will occur. |

Source: NWS Storm Prediction Center

The most intense tornado to pass through the Northeastern NC Region in the past 20 years was an EF3 in April 2011. This tornado resulted in 12 fatalities, 55 injuries and $2,250,000 in property damage – the most of any tornado in the region.

*Impact: 3 – Critical*

### *THUNDERSTORM WINDS*

The magnitude of a thunderstorm event can be defined by the storm's maximum wind speed and its impacts. NCEI divides wind events into several types including High Wind, Strong Wind, Thunderstorm Wind, Tornado and Hurricane. For this severe weather risk assessment, High Wind, Strong Wind and Thunderstorm Wind data was collected. Hurricane Wind and Tornadoes are addressed as individual hazards. The following definitions come from the NCEI Storm Data Preparation document.

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

The strongest recorded thunderstorm wind event in the region occurred on March 5, 2008, with a measured gust of 90 mph in Kelford. The event caused $25,000 in property damage, including a destroyed mobile home. A roof was also blown off a house and several outbuildings were destroyed.

*Impact: 2 – Limited*

### *LIGHTNING*

Lightning is measured by the Lightning Activity Level (LAL) scale, created by the National Weather Service to define lightning activity into a specific categorical scale. The LAL is a common parameter that is part of fire weather forecasts nationwide.

**Table 4.69 – Lightning Activity Level Scale**

| Lightning Activity Level Scale | |
|---|---|
| LAL 1 | No thunderstorms |
| LAL 2 | Isolated thunderstorms. Light rain will occasionally reach the ground. Lightning is very infrequent, 1 to 5 cloud to ground lightning strikes in a five-minute period |
| LAL 3 | Widely scattered thunderstorms. Light to moderate rain will reach the ground. Lightning is infrequent, 6 to 10 cloud to ground strikes in a five-minute period |
| LAL 4 | Scattered thunderstorms. Moderate rain is commonly produced. Lightning is frequent, 11 to 15 cloud to ground strikes in a five-minute period |
| LAL 5 | Numerous thunderstorms. Rainfall is moderate to heavy. Lightning is frequent and intense, greater than 15 cloud to ground strikes in a five-minute period |
| LAL 6 | Dry lightning (same as LAL 3 but without rain). This type of lightning has the potential for extreme fire activity and is normally highlighted in fire weather forecasts with a Red Flag warning |

Source: National Weather Service

With the right conditions in place, the entire county is susceptible to each lightning activity level as defined by the LAL. Most lightning strikes cause limited damage to specific structures in a limited area, and cause very few injuries or fatalities, and minimal disruption on quality of life.

*Impact: 1 – Minor*

### *HAIL*

The National Weather Service classifies hail by diameter size, and corresponding everyday objects to help relay scope and severity to the population. Table 4.70 indicates the hailstone measurements utilized by the National Weather Service.

**Table 4.70 – Hailstone Measurement Comparison Chart**

| Average Diameter | Corresponding Household Object |
|---|---|
| .25 inch | Pea |
| .5 inch | Marble/Mothball |
| .75 inch | Dime/Penny |
| .875 inch | Nickel |
| 1.0 inch | Quarter |
| 1.5 inch | Ping-pong ball |
| 1.75 inch | Golf ball |
| 2.0 inch | Hen egg |
| 2.5 inch | Tennis ball |
| 2.75 inch | Baseball |
| 3.00 inch | Teacup |
| 4.00 inch | Grapefruit |
| 4.5 inch | Softball |

Source: National Weather Service

The Tornado and Storm Research Organization (TORRO) has further described hail sizes by their typical damage impacts. Table 4.71 describes typical intensity and damage impacts of the various sizes of hail.

**Table 4.71 – Tornado and Storm Research Organization Hailstorm Intensity Scale**

| Intensity Category | Diameter (mm) | Diameter (inches) | Size Description | Typical Damage Impacts |
|---|---|---|---|---|
| Hard Hail | 5-9 | 0.2-0.4 | Pea | No damage |
| Potentially Damaging | 10-15 | 0.4-0.6 | Mothball | Slight general damage to plants, crops |
| Significant | 16-20 | 0.6-0.8 | Marble, grape | Significant damage to fruit, crops, vegetation |
| Severe | 21-30 | 0.8-1.2 | Walnut | Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored |
| Severe | 31-40 | 1.2-1.6 | Pigeon's egg > squash ball | Widespread glass damage, vehicle bodywork damage |
| Destructive | 41-50 | 1.6-2.0 | Golf ball > Pullet's egg | Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries |
| Destructive | 51-60 | 2.0-2.4 | Hen's egg | Bodywork of grounded aircraft dented, brick walls pitted |
| Destructive | 61-75 | 2.4-3.0 | Tennis ball > cricket ball | Severe roof damage, risk of serious injuries |
| Destructive | 76-90 | 3.0-3.5 | Large orange > softball | Severe damage to aircraft bodywork |
| Super Hailstorms | 91-100 | 3.6-3.9 | Grapefruit | Extensive structural damage. Risk of severe or even fatal injuries to people caught in the open |
| Super Hailstorms | >100 | 4.0+ | Melon | Extensive structural damage. Risk of severe or even fatal injuries to people caught in the open |

Source: Tornado and Storm Research Organization (TORRO), Department of Geography, Oxford Brookes University

It should be noted that in addition to hail diameter, factors including number and density of hailstones, hail fall speed, and surface wind speeds affect severity.

The average hailstone size recorded between 1999 and 2018 in the Northeastern NC Region was a little over 1" in diameter. The largest hailstones recorded during this period were 4.25", recorded on only one occasion. The worst instance occurred on May 9, 2003, in Colerain, where many vehicles and homes suffered damages.

*Impact: 1 – Minor*

## HISTORICAL OCCURRENCES

### *TORNADOES*

NCEI storm reports were reviewed from 1999 through 2024 to assess whether recent trends varied from the longer historical record. According to NCEI, the Northeastern NC Region experienced 53 tornado incidents between 1999 and 2024, causing 14 fatalities, 81 injuries, $6.5 million in property damage and $1.4 million in crop damage. Table 4.72 shows historical tornadoes in the Northeastern NC Region during this time period. Figure 4.50 reflects the tracks of past tornadoes that passed through the Region from 1950 through 2024 according to data from the NOAA/NWS Storm Prediction Center.

### Table 4.72 – Recorded Tornadoes in Northeastern NC Region, 1999-2024

| Location | Date | Time | Magnitude | Deaths | Injuries | Property Damage | Crop Damage |
|---|---|---|---|---|---|---|---|
| Creswell | 9/15/1999 | 1820 | F0 | 0 | 0 | $0 | $0 |
| Swanquarter | 9/15/1999 | 1825 | F0 | 0 | 0 | $0 | $0 |
| Windsor | 9/15/1999 | 1840 | F0 | 0 | 0 | $2,000 | $0 |
| Williamston | 2/14/2000 | 607 | F0 | 0 | 0 | $0 | $0 |
| Aulander | 9/24/2001 | 1700 | F0 | 0 | 0 | $20,000 | $0 |
| Williamston | 5/13/2002 | 2025 | F0 | 0 | 0 | $30,000 | $0 |
| Ocracoke | 9/10/2002 | 1105 | F0 | 0 | 0 | $1,000 | $0 |
| Colerain | 5/9/2003 | 1650 | F0 | 0 | 0 | $5,000 | $0 |
| Plymouth | 5/9/2003 | 1742 | F1 | 0 | 0 | $250,000 | $1,400,000 |
| Jamesville | 6/4/2004 | 1435 | F0 | 0 | 0 | $0 | $0 |
| Columbia | 6/4/2004 | 1715 | F1 | 0 | 1 | $75,000 | $0 |
| Columbia | 6/11/2004 | 2200 | F0 | 0 | 0 | $0 | $0 |
| Rose Bay | 8/14/2004 | 1440 | F0 | 0 | 0 | $0 | $0 |
| Columbia | 8/14/2004 | 1515 | F0 | 0 | 0 | $15,000 | $0 |
| Oak City | 9/27/2004 | 1900 | F1 | 0 | 0 | $100,000 | $0 |
| Roper | 5/14/2006 | 1606 | F0 | 0 | 0 | $10,000 | $0 |
| Robersonville | 5/14/2006 | 1946 | F0 | 0 | 0 | $0 | $0 |
| Columbia | 5/14/2006 | 2025 | F1 | 0 | 0 | $75,000 | $0 |
| Williamston | 2/18/2008 | 450 | EF1 | 0 | 0 | $100,000 | $0 |
| Cahaba | 4/20/2008 | 1805 | EF0 | 0 | 0 | $3,000 | $0 |
| Panzer | 4/28/2008 | 1640 | EF0 | 0 | 0 | $0 | $0 |
| Trap | 5/9/2008 | 729 | EF2 | 0 | 0 | $50,000 | $0 |
| Lewiston | 5/11/2008 | 1725 | EF2 | 0 | 2 | $1,000,000 | $0 |
| Aulander | 9/26/2008 | 953 | EF0 | 0 | 0 | $75,000 | $0 |
| Parmele | 11/15/2008 | 430 | EF1 | 0 | 0 | $50,000 | $0 |
| Plymouth | 9/29/2010 | 2115 | EF0 | 0 | 0 | $0 | $0 |
| Askewville | 4/16/2011 | 1755 | EF3 | 12 | 55 | $2,250,000 | $0 |
| Colerain | 4/16/2011 | 1805 | EF2 | 0 | 8 | $250,000 | $0 |
| Williamston Arpt | 4/16/2011 | 1809 | EF0 | 0 | 0 | $10,000 | $0 |
| Jerry | 4/16/2011 | 2001 | EF1 | 0 | 0 | $400,000 | $0 |
| Williamston | 4/26/2011 | 1315 | EF0 | 0 | 0 | $500 | $0 |
| Darden | 4/28/2011 | 1530 | EF0 | 0 | 0 | $0 | $0 |
| Scuppernong | 8/26/2011 | 2112 | EF0 | 0 | 0 | $75,000 | $0 |
| Columbia | 8/26/2011 | 2255 | EF2 | 0 | 0 | $150,000 | $0 |
| Jerry | 9/29/2011 | 310 | EF1 | 0 | 1 | $20,000 | $0 |
| Wenona | 3/21/2012 | 1000 | EF0 | 0 | 0 | $0 | $0 |
| Gurlock | 7/10/2012 | 1640 | EF0 | 0 | 0 | $0 | $0 |
| Ponzer | 4/7/2014 | 1500 | EF1 | 0 | 0 | $50,000 | $0 |
| Edenhouse | 4/25/2014 | 1820 | EF2 | 0 | 0 | $5,000 | $0 |
| Hamilton | 7/3/2014 | 1950 | EF1 | 0 | 0 | $26,000 | $0 |
| Columbia | 6/4/2015 | 100 | EF0 | 0 | 0 | $5,000 | $0 |
| Williamston | 6/13/2015 | 1650 | EF1 | 0 | 0 | $5,000 | $0 |
| Colerain | 2/24/2016 | 1454 | EF0 | 0 | 0 | $25,000 | $0 |

| Location | Date | Time | Magnitude | Deaths | Injuries | Property Damage | Crop Damage |
|---|---|---|---|---|---|---|---|
| Cremo | 3/31/2017 | 1715 | EF1 | 0 | 0 | $250,000 | $0 |
| Mt Gould | 5/5/2017 | 627 | EF0 | 0 | 0 | $5,000 | $0 |
| Gum Neck | 5/23/2017 | 1716 | EF1 | 0 | 0 | $0 | $0 |
| Swindell | 9/13/2018 | 1004 | EF1 | 0 | 0 | $0 | $0 |
| San Souci | 9/14/2018 | 903 | EF0 | 0 | 0 | $2,000 | $0 |
| Beasley | 4/13/2020 | 905 | EF0 | 0 | 0 | $0 | $0 |
| Jamesville | 8/30/2020 | 2302 | EF1 | 0 | 0 | $0 | $0 |
| Woodard | 8/04/2020 | 0015 | EF3 | 2 | 14 | $1,000,000 | $0 |
| Swanquarter | 7/08/2021 | 1353 | EFU | 0 | 0 | $0 | $0 |
| Woodard | 7/03/2023 | 1434 | EF0 | 0 | 0 | $75,000 | $0 |
| | | | **Total** | **14** | **81** | **$6,464,500** | **$1,400,000** |

Source: NCEI

Specific incidents with some level of impact include:

**May 9, 2003:** A tornado producing F1 damage was reported 2 miles northeast of Plymouth moved east northeast to Roper causing 1.4 million dollars in damage to crops, and $250,000 in damage to property, including several farm homes, and other farm structures.

**May 11, 2008:** Scattered severe thunderstorms produced damaging winds, large hail and one tornado across portions of northeast North Carolina. The tornado first touched down about two miles north-northwest of Lewiston Woodville. The tornado path then continued east-northeast across the county producing EF0 to EF2 damage. The tornado path ended as EF0 damage about one mile south of Powellsville. In total, the tornado caused 2 injuries and $1 million in property damages. Damage included EF0 damage, demolishing a porch attached to a mobile home and snapping several trees, EF1 damage, downing numerous trees, damaging several trailers, brick homes, mobile homes, and EF2 damage, which destroyed several mobile homes and demolished a church.

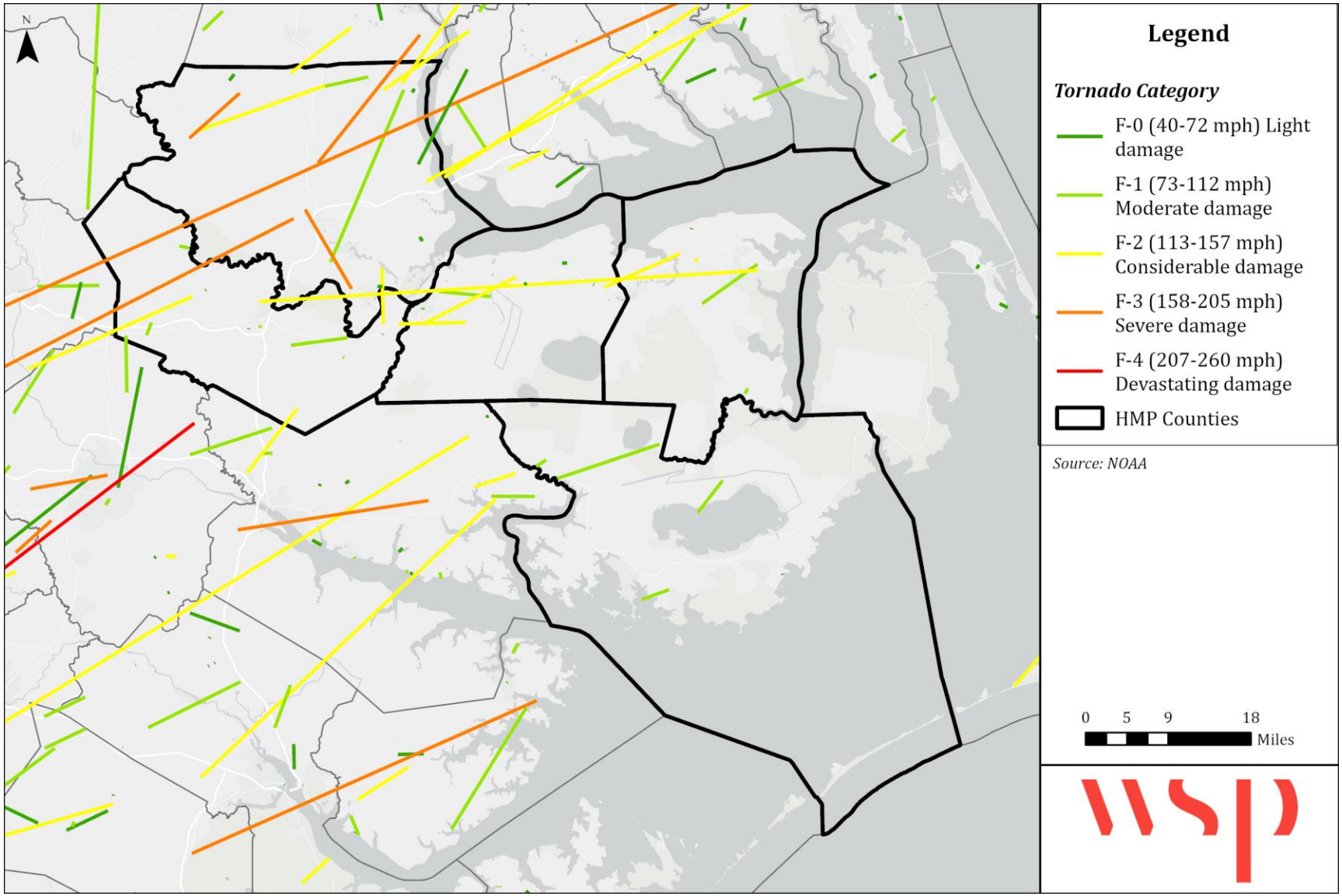
**April 16, 2011:** One of the largest tornado outbreaks ever observed across eastern North Carolina occurred during the afternoon and evening of April 16th, 2011. Several powerful super-cell thunderstorms developed ahead of an approaching cold front. Conditions ahead of the front were favorable for tornadoes and altogether 12 tornadoes were reported across the Newport/Morehead City warning area. These tornadoes combined to produce over 40 million dollars in damages. In the Northeastern NC Region, four different tornados touched down causing 12 fatalities, 63 injuries, and $2.9 million in damages ranging from EF0 to EF3. The most damaging tornado first touched down about one mile south of Askewville, producing minor tree and building damage. The tornado began producing significant damage on the east side of Askewville, where numerous structures and several mobile homes sustained major damage or were destroyed. The tornado then tracked continuously for nearly 19 miles finally lifting east of Harrellsville. For much of the tornado's life, the path width was one half to nearly three quarters of a mile wide. EF2 and EF3 damage was widespread from just east of Askewville northeast to about 3 miles west of Colerain, then gradually decreased as the tornado crossed into Hertford County. Numerous homes were destroyed, and many others suffered varying degrees of damage. Overall, this one tornado accounted for all of the fatalities, 55 of the injuries, and $2,250,000 worth of damages to the region.

A distinct separation in the damage paths northwest of Colerain suggested that a second tornado formed just northwest of Colerain and tracked northeast nearly parallel to the original tornado. North of Colerain, the tornado tracked parallel to Route 45 for about 1 mile then continued northeast into southeast Hertford County just west of the Chowan River. In the Bertie County portion of the tornado, several homes and

other buildings were damaged. Poultry houses and other farm equipment were also damaged. Many trees were downed or snapped off. This split left 8 injuries and $250,000 in damages in its wake.

**August 8, 2020**: The center of Tropical Storm Isaias tracked north just inland of the Middle Atlantic Coast from late Monday night, August 3rd through Tuesday morning, August 4th. Outer bands north and east of the Tropical Storm produced three tornadoes across portions of northeast North Carolina. A damage survey conducted by the NWS Wakefield office found a path of storm damage consistent with an EF3 tornado. The tornado touched down near the intersection of Knowles Lane and Middle Track Road. It then tracked to the north northwest and reached its strongest point just south of the town of Woodard as it crossed Morning Road, where its width increased to just over one third of a mile and it reached EF3 intensity. The tornado completely destroyed several mobile homes and stick built houses in this area. It flattened seven single-wide and double-wide mobile homes, leaving unrecognizable bits of debris. The fatalities and injuries occurred in the vicinity of Morning Road. The tornado weakened to EF1 intensity as it approached the west side of the town of Windsor, but it did damage a farm on Highway 306. The tornado then lifted just before reaching Governors Road about 2 miles northwest of Windsor.

**Figure 4.50 – Tornado Paths Through Northeastern NC Region, 1950-2024**



### *THUNDERSTORM WINDS*

Between January 1, 1999 and December 31, 2024, the NCEI recorded 311 separate incidents of high winds, strong winds, and thunderstorm winds, occurring on 163 separate days. These events caused $635,800 in recorded property damage, and 2 injuries, with no recorded fatalities or crop damages. The recorded gusts averaged 60 mph, with the highest gust recorded at 89.8 mph. Of these events, 78 caused property damage. Wind gusts with property damage recorded averaged $8,151 in damage. The largest damage estimate, approximately $70,000 was caused by a 69-mph gust on January 7, 2009 in Williamston. All incidents causing property damage are recorded below:

**Table 4.73 – Recorded Wind Events with Property Damages in Northeastern NC Region, 1999-2024**

| Location | Date | Time | Wind Speed (mph) | Fatalities | Injuries | Property Damage |
|---|---|---|---|---|---|---|
| Williamston | 5/20/2000 | 2215 | 71 | 0 | 0 | $10,000 |
| Roper | 5/27/2000 | 2223 | - | 0 | 0 | $30,000 |
| Bear Grass | 5/27/2000 | 2245 | - | 0 | 0 | $10,000 |
| Colerain | 8/16/2000 | 2040 | 58 | 0 | 0 | $5,000 |
| Merry Hill | 8/18/2000 | 1750 | 58 | 0 | 0 | $3,000 |
| Williamston | 5/22/2001 | 2015 | 61 | 0 | 0 | $10,000 |
| Columbia | 4/25/2002 | 2000 | - | 0 | 0 | $5,000 |
| Windsor | 5/13/2002 | 2035 | - | 0 | 0 | $2,000 |
| Lewiston | 7/10/2002 | 1850 | - | 0 | 0 | $2,000 |
| Windsor | 11/11/2002 | 1230 | - | 0 | 0 | $2,000 |
| Colerain | 5/9/2003 | 1710 | 58 | 0 | 0 | $15,000 |
| Aulander | 6/7/2003 | 1736 | 58 | 0 | 0 | $2,000 |
| Ocracoke | 12/11/2003 | 27 | 63 | 0 | 0 | $10,000 |
| Windsor | 5/2/2004 | 1440 | 58 | 0 | 0 | $2,000 |
| Countywide | 3/8/2005 | 1200 | 75 | 0 | 1 | $50,000 |
| Williamston | 3/8/2005 | 1115 | 58 | 0 | 0 | $25,000 |
| Countywide | 3/8/2005 | 1140 | 63 | 0 | 0 | $25,000 |
| Countywide | 3/8/2005 | 1212 | 75 | 0 | 0 | $25,000 |
| Windsor | 9/17/2005 | 2235 | 58 | 0 | 0 | $2,000 |
| Aulander | 1/14/2006 | 225 | 58 | 0 | 0 | $4,000 |
| Jamesville | 4/3/2006 | 1125 | 69 | 0 | 0 | $10,000 |
| Buena Vista | 7/28/2006 | 1900 | 58 | 0 | 0 | $2,000 |
| Windsor | 7/28/2006 | 2115 | 58 | 0 | 0 | $2,000 |
| Kelford | 3/5/2008 | 100 | 90 | 0 | 0 | $25,000 |
| Cremo | 5/11/2008 | 1752 | 58 | 0 | 0 | $2,000 |
| Trap | 5/11/2008 | 1757 | 58 | 0 | 0 | $2,000 |
| Colerain | 5/11/2008 | 1800 | 58 | 0 | 0 | $2,000 |
| Colerain | 6/1/2008 | 1610 | 58 | 0 | 0 | $1,000 |
| Cremo | 6/1/2008 | 1822 | 58 | 0 | 0 | $1,000 |
| Bertie (Zone) | 12/31/2008 | 1723 | 46 | 0 | 0 | $1,000 |
| Williamston | 1/7/2009 | 1021 | 69 | 0 | 0 | $70,000 |
| Bertie (Zone) | 1/7/2009 | 2015 | 58 | 0 | 0 | $5,000 |

| Location | Date | Time | Wind Speed (mph) | Fatalities | Injuries | Property Damage |
|---|---|---|---|---|---|---|
| Woodville | 4/6/2009 | 1130 | 60 | 0 | 0 | $25,000 |
| Fairfield | 5/29/2009 | 1505 | 63 | 0 | 0 | $2,000 |
| Windsor | 9/28/2009 | 2000 | 58 | 0 | 0 | $2,000 |
| Martin (Zone) | 2/10/2010 | 815 | 52 | 0 | 0 | $500 |
| Woodville | 6/16/2010 | 1614 | 58 | 0 | 0 | $2,000 |
| Colerain | 6/16/2010 | 1631 | 58 | 0 | 0 | $2,000 |
| Merry Hill | 8/12/2010 | 1608 | 58 | 0 | 0 | $2,000 |
| Cremo | 5/23/2011 | 1922 | 58 | 0 | 0 | $2,000 |
| Windsor | 6/27/2011 | 1515 | 58 | 0 | 0 | $2,000 |
| Cahaba | 6/27/2011 | 1550 | 58 | 0 | 0 | $2,000 |
| Burden | 7/20/2011 | 1600 | 58 | 0 | 0 | $2,000 |
| Aulander | 7/1/2012 | 1533 | 58 | 0 | 0 | $1,000 |
| Woodard | 7/24/2012 | 1635 | 58 | 0 | 0 | $2,000 |
| Williamston | 1/31/2013 | 203 | 69 | 0 | 0 | $20,000 |
| Robersonville | 1/31/2013 | 147 | 69 | 0 | 0 | $5,000 |
| Windsor | 1/31/2013 | 230 | 60 | 0 | 0 | $2,000 |
| Martin (Zone) | 3/6/2013 | 1300 | 49 | 0 | 0 | $500 |
| Colerain | 6/13/2013 | 1730 | 58 | 0 | 0 | $2,000 |
| Bear Grass | 6/13/2013 | 1803 | 58 | 0 | 0 | $300 |
| Windsor | 4/25/2014 | 1730 | 58 | 0 | 0 | $3,000 |
| Creswell | 6/5/2014 | 1250 | 64 | 0 | 0 | $4,000 |
| Trap | 6/19/2014 | 1925 | 58 | 0 | 0 | $2,000 |
| Colerain | 7/15/2014 | 1410 | 58 | 0 | 0 | $5,000 |
| Fairfield | 2/16/2016 | 946 | 69 | 0 | 0 | $5,000 |
| Lake Comfort | 2/16/2016 | 943 | 69 | 0 | 0 | $3,000 |
| Robersonville | 7/8/2016 | 1925 | 75 | 0 | 0 | $10,000 |
| Bertie (Zone) | 10/8/2016 | 1800 | 58 | 0 | 0 | $50,000 |
| Midway | 3/31/2017 | 1055 | 58 | 0 | 0 | $3,000 |
| Trap | 3/31/2017 | 1728 | 58 | 0 | 0 | $1,000 |
| Bertie | 6/5/2017 | 1553 | 58 | 0 | 0 | $30,000 |
| Powellsville | 6/5/2017 | 1600 | 58 | 0 | 0 | $3,000 |
| Kelford | 6/20/2019 | 1600 | 58 | 0 | 0 | $2,000 |
| Woodville | 6/20/2019 | 1603 | 58 | 0 | 0 | $2,000 |
| Colerain | 7/22/2019 | 1830 | 58 | 0 | 0 | $1,000 |
| Bertie | 8/23/2019 | 1625 | 58 | 0 | 0 | $2,000 |
| Republican | 7/28/2020 | 1702 | 58 | 0 | 0 | $3,000 |
| Burden | 3/28/2021 | 1510 | 58 | 0 | 0 | $1,000 |
| Buena vista | 3/28/2021 | 1530 | 58 | 0 | 0 | $2,000 |
| Cremo | 4/7/2022 | 1720 | 58 | 0 | 1 | $30,000 |
| Roxobel | 5/6/2022 | 2055 | 58 | 0 | 0 | $23,500 |
| Roxobel | 6/17/2022 | 1855 | 58 | 0 | 0 | $3,000 |
| Ellis store | 7/16/2022 | 1908 | 58 | 0 | 0 | $1,000 |
| Quitsna | 7/3/2023 | 1400 | 58 | 0 | 0 | $3,000 |

| Location | Date | Time | Wind Speed (mph) | Fatalities | Injuries | Property Damage |
|---|---|---|---|---|---|---|
| Woodville | 8/7/2023 | 2000 | 58 | 0 | 0 | $1,000 |
| Kelford | 5/27/2024 | 1600 | 58 | 0 | 0 | $2,000 |
| Powellsville | 5/27/2024 | 1630 | 58 | 0 | 0 | $2,000 |
| **Total** | | | | **0** | **2** | **$635,800** |

Source: NCEI

### *LIGHTNING*

According to NCEI data, there were no lightning strikes reported between 1999 and 2025. It should be noted that this indicates no damaging lightning strikes, causing injury, fatality, or property damage, were recorded. However, lightning strikes certainly occurred and will continue to occur in the future, and the possibility of future damages remains.

### *HAIL*

NCEI records 132 separate hail incidents across 76 days between 1999 and 2025 in the Northeastern NC Region. Of these, four events were reported to have directly caused property damage, and two events were reported to have directly caused crop damage; there were no reported deaths, or injuries. The largest diameter hail recorded in the Region was 4.25 inches; hail this size fell on May 9, 2003 in Colerain. The average hail size in all storms was a little over one inch in diameter. Table 4.74 summarizes hail occurrences by county from 1999 through 2025.

**Table 4.74 – Summary of Hail Occurrences by County, 1999-2025**

| County | Number of Occurrences | Average Hail Diameter | Total Property Damage | Total Crop Damage |
|---|---|---|---|---|
| Bertie County | 23 | 1.55” | $95,000 | $251,000 |
| Hyde County | 20 | 1.28” | $0 | $0 |
| Martin County | 55 | 1.07” | $0 | $0 |
| Tyrrell County | 9 | 0.92” | $0 | $0 |
| Washington County | 25 | 1.02” | $0 | $0 |
| **Total** | **132** | **1.16”** | **$95,000** | **$251,000** |

The following narratives provide detail on select hailstorms from the above list of NCEI recorded events:

**June 15, 2000 –** Hail caused $1,000 in damage to tobacco fields.

**May 9, 2003 –** Hail of up to 4.25” in diameter fell in Colerain, causing $20,000 in property damages to vehicles and homes.

**July 24, 2009 –** A cold front and upper-level disturbance combined to produce widespread severe thunderstorms across the area mainly during the afternoon hours. The storm led to baseball size hail and tree limbs down on Highway 45 five miles southwest of Pungo Lake.

**May 31, 2019 -** Baseball size hail was reported. Hail damage occurred to homes and vehicles. Also, widespread crop damage was reported.

## PROBABILITY OF FUTURE OCCURRENCE

Based on historical occurrences recorded by NCEI for the 26-year period from 1999 through 2024, Northeastern Region averages 12 days with thunderstorm wind events per year. Over this same period, no lightning events were reported.

Over the 26-year period from 1999 through 2024, the Northeastern Region experienced 132 reported hail incidents; this averages to 5.1 reported incidents per year somewhere in the planning area.

Over this same period, 53 tornado incidents were reported, which equates to 2.0 reported incidents per year somewhere in the planning area. However, only seven of these past tornado events were a magnitude EF2 or greater; therefore, the annual probability of a significant tornado event is approximately 27 percent.

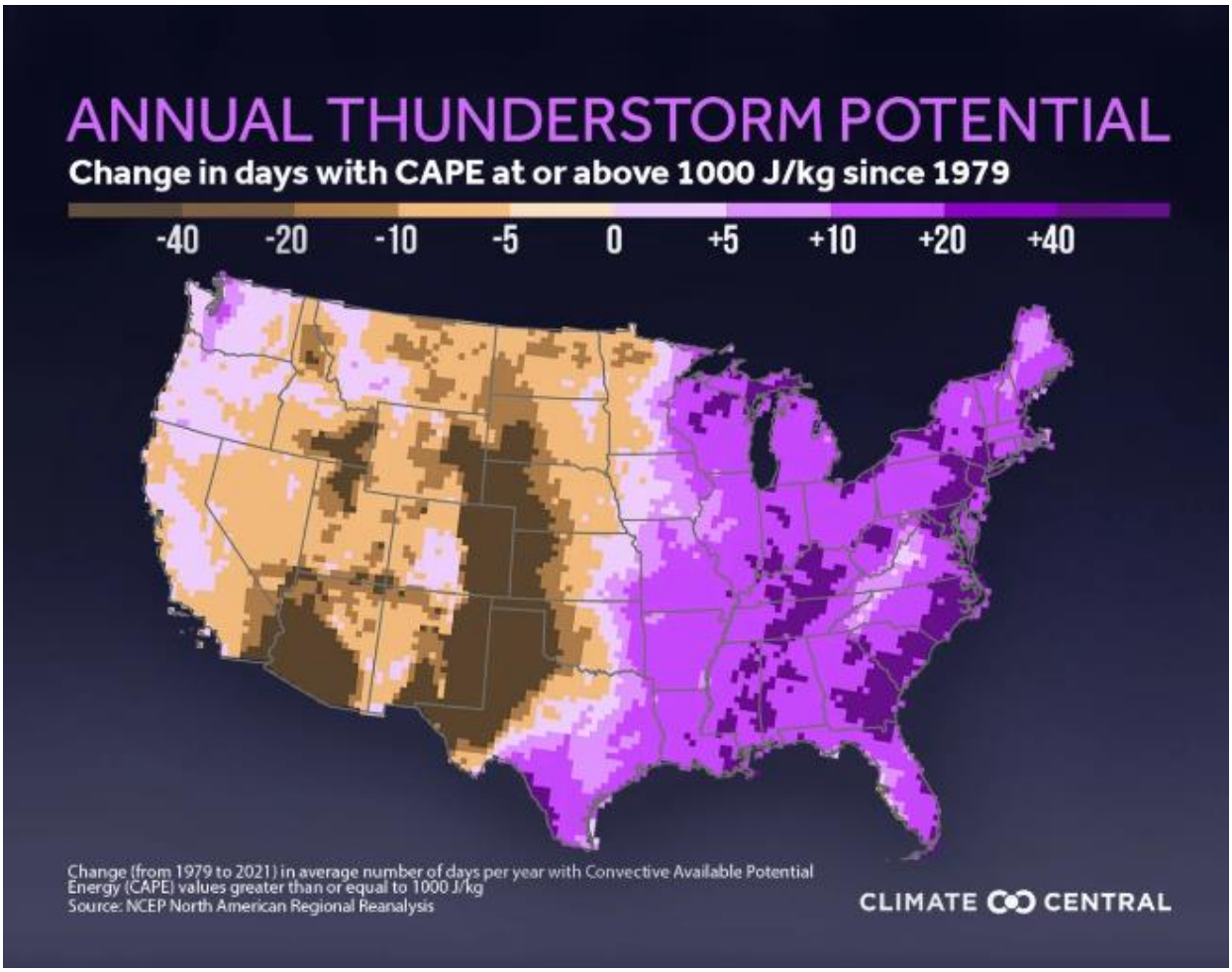
Based on these historical occurrences, there is a 100% chance that the Region will experience severe weather each year. The probability of a damaging impacts is highly likely.

*Probability: 4 – Highly Likely*

## CLIMATE CHANGE

According to the National Aeronautics and Space Administration (NASA), thunderstorm events in the future are likely to become more frequent in the southeast as a result of weather extremes. Thunderstorm potential is measured by an index that NASA created called the Convective Available Potential Energy (CAPE) index. This measures how warm and moist the air is, which is a major contributing factor in thunderstorm/tornado formation. Between 1979 and 2021, the Northeastern Region experienced 40+ more days on average with CAPE at or above 1000 J/kg, which is considered a high cape value. Figure 4.51 below shows the change in days with high potential for thunderstorms nationwide.

**Figure 4.51 – Change in Days with High Thunderstorm Potential from 1979 to 2021**




Source: NCEP North American Regional Reanalysis, Climate Central 2022

NASA projects that by the period of 2072-2099, the CAPE in the southeastern United States will increase dramatically. Parts of North Carolina are in an area that will likely experience the greatest increase in CAPE in the United States, and the entire state is likely to experience at least some increase.

For a thunderstorm to become a supercell event, meaning that it produces more severe weather like large hail, damaging winds, and tornadoes, it relies on not only warm moist air, but also wind at different levels moving in different directions at different speed (wind shear). As the planet warms, wind shear, unlike warm, moist air, is expected to decrease. Therefore, it is difficult to predict if more supercell thunderstorm events and the tornadoes they can bring with them are more likely to occur.

Additionally, while supercell events are associated with tornadoes, only about 20% of supercell thunderstorms produce tornadoes. To complicate things further, no one fully understands how tornadoes are formed. Therefore, there is no identified conclusion on how climate change will impact tornadoes.

The relationship between hail and climate change is also unclear, however, a 2022 study shows that climate change could increase severe and/or significant spring hailstorms within the Central U.S. (Fan, et.al, 2022). Lightning has a more direct correlation with increasing temperatures as it occurs more frequently when the temperature is hotter than when it is colder. Romps, et. al postulate that lightning will increase by 12% for every degree of rise in global average air temperature.

# VULNERABILITY ASSESSMENT

## *METHODOLOGIES AND ASSUMPTIONS*

Population and property at risk to wind events was estimated using data from the NCEM IRISK database, which was compiled in NCEM's Risk Management Tool.

## *PEOPLE*

People and populations exposed to the elements are most vulnerable to severe weather. A common hazard associated with wind events is falling trees and branches. Risk of being struck by lightning is greater in open areas, at higher elevations, and on the water. Lightning can also cause cascading hazards, including power loss. Loss of power could critically impact those relying on energy to service, including those that need powered medical devices. Additionally, the ignition of fires is always a concern with lightning strikes.

The availability of sheltered locations such as basements, buildings constructed using hail-resistant materials and methods, and public storm shelters, all reduce the exposure of the population. Individuals who work outdoors may face increased risk during severe weather events. Residents living in mobile homes are also more vulnerable to hail events due to the lack of shelter locations and the vulnerability of the housing unit to damages. Table 4.75 summarizes estimates of mobile home units in the Northeastern NC Region by county as of 2023. Based on these figures, vulnerability is high in Bertie and Tyrrell Counties.

**Table 4.75 – Mobile Home Units in the Northeastern NC Region, 2023**

| County | Occupied Mobile Home Units | Total Occupied Housing Units | Percent of Occupied Housing |
|---|---|---|---|
| Bertie County | 2,141 | 7,024 | 30.5% |
| Hyde County | 449 | 2,115 | 21.2% |
| Martin County | 2,020 | 9,361 | 21.6% |
| Tyrrell County | 430 | 1,426 | 30.2% |
| Washington County | 1,263 | 4,832 | 26.1% |

Source: American Community Survey 2019-2023 5-Year Estimates

Between 1999 and 2024, the NCEI records no fatalities and 2 injuries attributed to wind events in the Region. There are no injuries or fatalities attributed to hail or lightning. NCEI records 14 deaths and 81 injuries attributed to tornadoes during this same time.

## *PROPERTY*

Property damage caused by lightning usually occurs in one of two ways – either by direct damages through fires ignited by lightning, or by secondary impacts due to power loss. There was no damage recorded due to lightning in the region, but often property damage is due to structure fires.

General damages to property from hail are direct, including destroyed windows, dented cars, and building, roof and siding damage in areas exposed to hail. Hail can also cause enough damage to cars to cause them to be totaled. The level of damage is commensurate with both a material's ability to withstand hail impacts, and the size of the hailstones that are falling. Construction practices and building codes can help maximize the resistance of the structures to damage. Large amounts of hail may need to be physically cleared from roadways and sidewalks, depending on accumulation. Hail can cause other cascading impacts, including power loss. During the 26-year span from 1999 and 2024, NCEI reported

$95,000 in damages caused by hail in the Northeastern NC Region, which equates to an annualized loss of $3,653.

According to PolicyGenius, North Carolina had one of the highest numbers of hail loss claims (25,026) in the U.S. in 2019. It should be noted that property damage due to hail is usually insured loss, with damages covered under most major comprehensive insurance plans. Because of this, hail losses are notoriously underreported by the NCEI. It is difficult to find an accurate repository of hail damages in the Northeastern Region, thus the NCEI is still used to form a baseline.

When strong enough, wind events can cause significant direct damage to buildings and infrastructure. NCEI reports $635,800 in property losses due to wind events over 26 years (1999-2024). The average impact from wind per incident in the Northeastern Region is $2,044. NCEM's IRISK database estimates damages from increasing magnitudes of wind events, detailed in Table 4.76 through Table 4.80. Note that these tables sum the total estimated damage should every exposed property in each jurisdiction be impacted by an event of the given magnitude. Therefore, these tables are not an approximation of the total damages that would occur from an event of each magnitude because a thunderstorm wind event would not uniformly impact the entire Region. These tables should only be used to understand potential damages relative to storms of varying degrees of severity.

General damages to property are both direct (what the tornado physically destroys) and indirect (additional costs, damages, and losses attributed to secondary hazards spawned by the tornado or due to the damages caused by the tornado). Depending on its size and path, a tornado is capable of damaging and eventually destroying almost anything. During a 26-year span between 1999 and 2024, tornadoes caused $6,464,500 in damage in the Northeastern Region, averaging $121,971 per event. Construction practices and building codes can help maximize the resistance of the structures to damage. Estimated building damages for different tornado magnitudes are detailed in Table 4.81 to

Table 4.85.

### Table 4.76 – Estimated Buildings Impacted by 25-Year Thunderstorm Winds

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,687 | 78 | $3,813,289 | 2,275 | 20 | $1,179,630 | 158 | 1 | $244,303 | 11,120 | 100 | $5,237,222 |
| Town of Askewville | 502 | 383 | 76 | $119,371 | 107 | 21 | $12,675 | 12 | 2 | $11,038 | 502 | 100 | $143,084 |
| Town of Aulander | 744 | 640 | 86 | $213,639 | 90 | 12 | $26,606 | 14 | 2 | $3,071 | 744 | 100 | $243,316 |
| Town of Colerain | 428 | 333 | 78 | $260,185 | 74 | 17 | $74,281 | 14 | 3 | $8,302 | 421 | 98 | $342,768 |
| Town of Kelford | 173 | 155 | 90 | $56,944 | 14 | 8 | $751 | 4 | 2 | $800 | 173 | 100 | $58,496 |
| Town of Lewiston-Woodville | 719 | 597 | 83 | $197,387 | 106 | 15 | $15,634 | 16 | 2 | $2,561 | 719 | 100 | $215,583 |
| Town of Powellsville | 171 | 148 | 87 | $92,286 | 16 | 9 | $3,186 | 7 | 4 | $2,501 | 171 | 100 | $97,974 |
| Town of Roxobel | 205 | 153 | 75 | $89,222 | 48 | 23 | $6,342 | 4 | 2 | $1,182 | 205 | 100 | $96,746 |
| Town of Windsor | 1,815 | 1,442 | 79 | $510,714 | 307 | 17 | $79,617 | 64 | 4 | $30,700 | 1,813 | 100 | $621,030 |
| **Subtotal Bertie** | 15,932 | 12,538 | 79 | $5,353,037 | 3,037 | 19 | $1,398,722 | 293 | 2 | $304,458 | 15,868 | 100 | $7,056,219 |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,272 | 76 | $3,125,895 | 747 | 13 | $271,402 | 97 | 2 | $61,732 | 5,116 | 91 | $3,459,030 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70 | $5,822,792 | 3,414 | 28 | $1,677,736 | 208 | 2 | $513,063 | 12,181 | 100 | $8,013,592 |
| Town of Bear Grass | 81 | 55 | 68 | $34,849 | 7 | 9 | $3,245 | 19 | 23 | $15,917 | 81 | 100 | $54,011 |
| Town of Everetts | 159 | 151 | 95 | $70,472 | 8 | 5 | $1,402 | 0 | 0 | $0 | 159 | 100 | $71,875 |
| Town of Hamilton | 292 | 233 | 80 | $130,777 | 26 | 9 | $11,143 | 32 | 11 | $35,593 | 291 | 100 | $177,512 |
| Town of Hassell | 70 | 59 | 84 | $40,806 | 11 | 16 | $3,020 | 0 | 0 | $0 | 70 | 100 | $43,825 |
| Town of Jamesville | 297 | 228 | 77 | $138,533 | 43 | 14 | $49,931 | 22 | 7 | $13,612 | 293 | 99 | $202,076 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Oak City | 313 | 302 | 96 | $258,034 | 10 | 3 | $1,974 | 1 | 0 | $7,441 | 313 | 100 | $267,449 |
| Town of Parmele | 149 | 132 | 89 | $86,425 | 16 | 11 | $13,943 | 1 | 1 | $1,372 | 149 | 100 | $101,739 |
| Town of Robersonville | 901 | 783 | 87 | $664,458 | 107 | 12 | $80,141 | 11 | 1 | $8,108 | 901 | 100 | $752,708 |
| Town of Williamston | 4,238 | 3,104 | 73 | $2,045,892 | 880 | 21 | $826,991 | 247 | 6 | $621,069 | 4,231 | 100 | $3,493,952 |
| **Subtotal Martin** | 18,688 | 13,606 | 73 | $9,293,038 | 4,522 | 24 | $2,669,526 | 541 | 3 | $1,216,175 | 18,669 | 100 | $13,178,739 |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 519 | 408 | 79 | $164,889 | 66 | 13 | $853,042 | 34 | 7 | $81,950 | 508 | 98 | $1,099,881 |
| Town of Columbia | 2,794 | 2,012 | 72 | $1,156,247 | 508 | 18 | $112,745 | 42 | 2 | $447,542 | 2,562 | 92 | $1,716,535 |
| **Subtotal Tyrrell** | 3,313 | 2,420 | 73 | $1,321,136 | 574 | 17 | $965,787 | 76 | 2 | $529,492 | 3,070 | 93 | $2,816,416 |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 3,940 | 72 | $2,099,303 | 1,354 | 25 | $188,534 | 84 | 2 | $20,683 | 5,378 | 98 | $2,308,520 |
| Town of Creswell | 366 | 274 | 75 | $122,834 | 68 | 19 | $16,177 | 22 | 6 | $10,147 | 364 | 99 | $149,158 |
| Town of Plymouth | 2,779 | 2,338 | 84 | $1,109,789 | 330 | 12 | $257,118 | 105 | 4 | $60,059 | 2,773 | 100 | $1,426,966 |
| Town of Roper | 611 | 505 | 83 | $254,141 | 81 | 13 | $18,655 | 20 | 3 | $150,020 | 606 | 99 | $422,816 |
| **Subtotal Washington** | 9,238 | 7,057 | 76 | $3,586,067 | 1,833 | 20 | $480,484 | 231 | 3 | $240,909 | 9,121 | 99 | $4,307,460 |
| **Region Total** | 52,767 | 39,893 | 76 | $22,679,173 | 10,713 | 20 | $5,785,921 | 1,238 | 2 | $2,352,766 | 51,844 | 98 | $30,817,864 |

Source: NCEM Risk Management Tool

### Table 4.77 – Estimated Buildings Impacted by 50-Year Thunderstorm Winds

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,687 | 78 | $6,005,165 | 2,275 | 20 | $1,981,754 | 158 | 1 | $412,402 | 11,120 | 100 | $8,399,321 |
| Town of Askewville | 502 | 383 | 76 | $191,956 | 107 | 21 | $21,559 | 12 | 2 | $20,041 | 502 | 100 | $233,556 |
| Town of Aulander | 744 | 640 | 86 | $343,141 | 90 | 12 | $46,667 | 14 | 2 | $5,813 | 744 | 100 | $395,621 |
| Town of Colerain | 428 | 333 | 78 | $406,792 | 74 | 17 | $125,382 | 14 | 3 | $18,305 | 421 | 98 | $550,480 |
| Town of Kelford | 173 | 155 | 90 | $88,732 | 14 | 8 | $1,630 | 4 | 2 | $1,742 | 173 | 100 | $92,103 |
| Town of Lewiston-Woodville | 719 | 597 | 83 | $314,961 | 106 | 15 | $33,607 | 16 | 2 | $5,234 | 719 | 100 | $353,802 |
| Town of Powellsville | 171 | 148 | 87 | $143,453 | 16 | 9 | $6,633 | 7 | 4 | $5,400 | 171 | 100 | $155,486 |
| Town of Roxobel | 205 | 153 | 75 | $146,168 | 48 | 23 | $14,301 | 4 | 2 | $2,400 | 205 | 100 | $162,870 |
| Town of Windsor | 1,815 | 1,442 | 79 | $791,216 | 307 | 17 | $140,620 | 64 | 4 | $52,360 | 1,813 | 100 | $984,196 |
| **Subtotal Bertie** | 15,932 | 12,538 | 79 | $8,431,584 | 3,037 | 19 | $2,372,153 | 293 | 2 | $523,697 | 15,868 | 100 | $11,327,435 |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,272 | 76 | $5,281,330 | 747 | 13 | $534,540 | 97 | 2 | $142,780 | 5,116 | 91 | $5,958,649 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70 | $9,367,387 | 3,414 | 28 | $3,322,055 | 208 | 2 | $933,408 | 12,181 | 100 | $13,622,850 |
| Town of Bear Grass | 81 | 55 | 68 | $61,592 | 7 | 9 | $7,438 | 19 | 23 | $32,701 | 81 | 100 | $101,730 |
| Town of Everetts | 159 | 151 | 95 | $106,488 | 8 | 5 | $3,122 | 0 | 0 | $0 | 159 | 100 | $109,610 |
| Town of Hamilton | 292 | 233 | 80 | $204,454 | 26 | 9 | $23,207 | 32 | 11 | $71,585 | 291 | 100 | $299,246 |
| Town of Hassell | 70 | 59 | 84 | $73,277 | 11 | 16 | $6,054 | 0 | 0 | $0 | 70 | 100 | $79,331 |
| Town of Jamesville | 297 | 228 | 77 | $222,224 | 43 | 14 | $97,079 | 22 | 7 | $27,216 | 293 | 99 | $346,519 |
| Town of Oak City | 313 | 302 | 96 | $472,120 | 10 | 3 | $4,137 | 1 | 0 | $13,473 | 313 | 100 | $489,730 |
| Town of Parmele | 149 | 132 | 89 | $133,794 | 16 | 11 | $26,104 | 1 | 1 | $2,756 | 149 | 100 | $162,654 |
| Town of Robersonville | 901 | 783 | 87 | $1,080,212 | 107 | 12 | $161,484 | 11 | 1 | $16,097 | 901 | 100 | $1,257,794 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Williamston | 4,238 | 3,104 | 73 | $3,196,195 | 880 | 21 | $1,621,501 | 247 | 6 | $1,175,961 | 4,231 | 100 | $5,993,657 |
| **Subtotal Martin** | 18,688 | 13,606 | 73 | $14,917,743 | 4,522 | 24 | $5,272,181 | 541 | 3 | $2,273,197 | 18,669 | 100 | $22,463,121 |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 408 | 79 | $164,889 | 66 | 13 | $853,042 | 34 | 7 | $81,950 | 508 | 98 | $1,099,881 |
| Town of Columbia | 519 | 2,012 | 72 | $1,156,247 | 508 | 18 | $112,745 | 42 | 2 | $447,542 | 2,562 | 92 | $1,716,535 |
| **Subtotal Tyrrell** | **3,313** | **2,420** | **73** | **$1,321,136** | **574** | **17** | **$965,787** | **76** | **2** | **$529,492** | **3,070** | **93** | **$2,816,416** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 274 | 75 | $122,834 | 68 | 19 | $16,177 | 22 | 6 | $10,147 | 364 | 99 | $149,158 |
| Town of Creswell | 366 | 2,338 | 84 | $1,109,789 | 330 | 12 | $257,118 | 105 | 4 | $60,059 | 2,773 | 100 | $1,426,966 |
| Town of Plymouth | 2,779 | 505 | 83 | $254,141 | 81 | 13 | $18,655 | 20 | 3 | $150,020 | 606 | 99 | $422,816 |
| Town of Roper | 611 | 3,940 | 72 | $2,099,303 | 1,354 | 25 | $188,534 | 84 | 2 | $20,683 | 5,378 | 98 | $2,308,520 |
| **Subtotal Washington** | 9,238 | 7,057 | 76 | $3,586,067 | 1,833 | 20 | $480,484 | 231 | 3 | $240,909 | 9,121 | 99 | $4,307,460 |
| **Region Total** | **52,767** | **39,893** | **76** | **$22,679,173** | **10,713** | **20** | **$5,785,921** | **1,238** | **2** | **$2,352,766** | **51,844** | **98** | **$30,817,864** |

Source: NCEM Risk Management Tool

### Table 4.78 – Estimated Buildings Impacted by 100-Year Thunderstorm Winds

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,687 | 78 | $9,524,072 | 2,275 | 20 | $3,261,783 | 158 | 1 | $750,661 | 11,120 | 100 | $13,536,516 |
| Town of Askewville | 502 | 383 | 76 | $406,483 | 107 | 21 | $59,742 | 12 | 2 | $51,259 | 502 | 100 | $517,485 |
| Town of Aulander | 744 | 640 | 86 | $532,939 | 90 | 12 | $81,305 | 14 | 2 | $11,404 | 744 | 100 | $625,648 |
| Town of Colerain | 428 | 333 | 78 | $651,823 | 74 | 17 | $203,545 | 14 | 3 | $36,582 | 421 | 98 | $891,950 |
| Town of Kelford | 173 | 155 | 90 | $136,862 | 14 | 8 | $3,545 | 4 | 2 | $3,906 | 173 | 100 | $144,313 |
| Town of Lewiston-Woodville | 719 | 597 | 83 | $503,785 | 106 | 15 | $70,631 | 16 | 2 | $10,853 | 719 | 100 | $585,269 |
| Town of Powellsville | 171 | 148 | 87 | $228,770 | 16 | 9 | $13,010 | 7 | 4 | $10,782 | 171 | 100 | $252,562 |
| Town of Roxobel | 205 | 153 | 75 | $236,919 | 48 | 23 | $31,506 | 4 | 2 | $5,005 | 205 | 100 | $273,430 |
| Town of Windsor | 1,815 | 1,442 | 79 | $1,199,424 | 307 | 17 | $251,875 | 64 | 4 | $95,895 | 1,813 | 100 | $1,547,194 |
| **Subtotal Bertie** | **15,932** | **12,538** | **79** | **$13,421,077** | **3,037** | **19** | **$3,976,942** | **293** | **2** | **$976,347** | **15,868** | **100** | **$18,374,367** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,272 | 76 | $10,456,583 | 747 | 13 | $1,101,793 | 97 | 2 | $335,475 | 5,116 | 91 | $11,893,851 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70 | $16,361,441 | 3,414 | 28 | $5,719,113 | 208 | 2 | $1,636,422 | 12,181 | 100 | $23,716,976 |
| Town of Bear Grass | 81 | 55 | 68 | $115,412 | 7 | 9 | $17,418 | 19 | 23 | $67,833 | 81 | 100 | $200,663 |
| Town of Everetts | 159 | 151 | 95 | $163,426 | 8 | 5 | $7,368 | 0 | 0 | $0 | 159 | 100 | $170,794 |
| Town of Hamilton | 292 | 233 | 80 | $347,208 | 26 | 9 | $47,036 | 32 | 11 | $135,687 | 291 | 100 | $529,932 |
| Town of Hassell | 70 | 59 | 84 | $141,329 | 11 | 16 | $12,167 | 0 | 0 | $0 | 70 | 100 | $153,497 |
| Town of Jamesville | 297 | 228 | 77 | $379,631 | 43 | 14 | $184,156 | 22 | 7 | $54,755 | 293 | 99 | $618,542 |
| Town of Oak City | 313 | 302 | 96 | $928,212 | 10 | 3 | $8,720 | 1 | 0 | $22,795 | 313 | 100 | $959,728 |
| Town of Parmele | 149 | 132 | 89 | $151,325 | 16 | 11 | $30,151 | 1 | 1 | $5,171 | 149 | 100 | $186,647 |
| Town of Robersonville | 901 | 783 | 87 | $1,903,536 | 107 | 12 | $302,768 | 11 | 1 | $31,058 | 901 | 100 | $2,237,362 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Williamston | 4,238 | 3,104 | 73 | $5,263,857 | 880 | 21 | $3,109,774 | 247 | 6 | $2,067,938 | 4,231 | 100 | $10,441,569 |
| **Subtotal Martin** | **18,688** | **13,606** | **73** | **$25,755,377** | **4,522** | **24** | **$9,438,671** | **541** | **3** | **$4,021,659** | **18,669** | **100** | **$39,215,710** |
| Tyrrell | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 2,012 | 72 | $5,004,499 | 508 | 18 | $581,246 | 42 | 2 | $2,251,609 | 2,562 | 92 | $7,837,354 |
| Town of Columbia | 519 | 408 | 79 | $742,839 | 66 | 13 | $1,759,611 | 34 | 7 | $346,524 | 508 | 98 | $2,848,974 |
| **Subtotal Tyrrell** | **3,313** | **2,420** | **73** | **$5,747,338** | **574** | **17** | **$2,340,857** | **76** | **2** | **$2,598,133** | **3,070** | **93** | **$10,686,328** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 3,940 | 72 | $5,268,617 | 1,354 | 25 | $660,782 | 84 | 2 | $91,530 | 5,378 | 98 | $6,020,929 |
| Town of Creswell | 366 | 274 | 75 | $271,007 | 68 | 19 | $54,036 | 22 | 6 | $44,561 | 364 | 99 | $369,603 |
| Town of Plymouth | 2,779 | 2,338 | 84 | $2,432,206 | 330 | 12 | $669,881 | 105 | 4 | $204,589 | 2,773 | 100 | $3,306,677 |
| Town of Roper | 611 | 505 | 83 | $567,141 | 81 | 13 | $78,186 | 20 | 3 | $324,947 | 606 | 99 | $970,275 |
| **Subtotal Washington** | 9,238 | 7,057 | 76 | $8,538,971 | 1,833 | 20 | $1,462,885 | 231 | 3 | $665,627 | 9,121 | 99 | $10,667,484 |
| **Region Total** | **52,767** | **39,893** | **76** | **$63,919,346** | **10,713** | **20** | **$18,321,148** | **1,238** | **2** | **$8,597,241** | **51,844** | **98** | **$90,837,740** |

Source: NCEM Risk Management Tool

### Table 4.79 – Estimated Buildings Impacted by 300-Year Thunderstorm Winds

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,687 | 78 | $19,989,342 | 2,275 | 20 | $6,655,631 | 158 | 1 | $1,549,707 | 11,120 | 100 | $28,194,680 |
| Town of Askewville | 502 | 383 | 76 | $634,335 | 107 | 21 | $103,086 | 12 | 2 | $79,799 | 502 | 100 | $817,219 |
| Town of Aulander | 744 | 640 | 86 | $1,287,553 | 90 | 12 | $263,488 | 14 | 2 | $42,725 | 744 | 100 | $1,593,766 |
| Town of Colerain | 428 | 333 | 78 | $1,821,016 | 74 | 17 | $514,118 | 14 | 3 | $137,099 | 421 | 98 | $2,472,233 |
| Town of Kelford | 173 | 155 | 90 | $344,559 | 14 | 8 | $14,535 | 4 | 2 | $17,084 | 173 | 100 | $376,179 |
| Town of Lewiston-Woodville | 719 | 597 | 83 | $1,351,932 | 106 | 15 | $266,159 | 16 | 2 | $42,844 | 719 | 100 | $1,660,935 |
| Town of Powellsville | 171 | 148 | 87 | $386,718 | 16 | 9 | $26,983 | 7 | 4 | $22,496 | 171 | 100 | $436,197 |
| Town of Roxobel | 205 | 153 | 75 | $625,331 | 48 | 23 | $122,071 | 4 | 2 | $19,050 | 205 | 100 | $766,452 |
| Town of Windsor | 1,815 | 1,442 | 79 | $2,661,637 | 307 | 17 | $811,377 | 64 | 4 | $350,509 | 1,813 | 100 | $3,823,523 |
| **Subtotal Bertie** | **15,932** | **12,538** | **79** | **$29,102,423** | **3,037** | **19** | **$8,777,448** | **293** | **2** | **$2,261,313** | **15,868** | **100** | **$40,141,184** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,272 | 76 | $27,091,314 | 747 | 13 | $3,157,185 | 97 | 2 | $1,110,168 | 5,116 | 91 | $31,358,667 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70 | $48,486,862 | 3,414 | 28 | $13,119,915 | 208 | 2 | $4,254,459 | 12,181 | 100 | $65,861,235 |
| Town of Bear Grass | 81 | 55 | 68 | $425,288 | 7 | 9 | $73,611 | 19 | 23 | $245,584 | 81 | 100 | $744,483 |
| Town of Everetts | 159 | 151 | 95 | $455,010 | 8 | 5 | $34,042 | 0 | 0 | $0 | 159 | 100 | $489,052 |
| Town of Hamilton | 292 | 233 | 80 | $1,179,273 | 26 | 9 | $163,780 | 32 | 11 | $413,891 | 291 | 100 | $1,756,944 |
| Town of Hassell | 70 | 59 | 84 | $511,796 | 11 | 16 | $42,772 | 0 | 0 | $0 | 70 | 100 | $554,568 |
| Town of Jamesville | 297 | 228 | 77 | $1,220,826 | 43 | 14 | $587,955 | 22 | 7 | $192,051 | 293 | 99 | $2,000,832 |
| Town of Oak City | 313 | 302 | 96 | $3,401,765 | 10 | 3 | $34,506 | 1 | 0 | $61,551 | 313 | 100 | $3,497,822 |
| Town of Parmele | 149 | 132 | 89 | $394,238 | 16 | 11 | $74,437 | 1 | 1 | $9,391 | 149 | 100 | $478,066 |
| Town of Robersonville | 901 | 783 | 87 | $4,553,918 | 107 | 12 | $653,771 | 11 | 1 | $58,835 | 901 | 100 | $5,266,523 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Williamston | 4,238 | 3,104 | 73 | $16,614,852 | 880 | 21 | $10,206,415 | 247 | 6 | $5,590,794 | 4,231 | 100 | $32,412,062 |
| **Subtotal Martin** | **18,688** | **13,606** | **73** | **$77,243,828** | **4,522** | **24** | **$24,991,204** | **541** | **3** | **$10,826,556** | **18,669** | **100** | **$113,061,587** |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 408 | 79 | $1,324,564 | 66 | 13 | $2,158,923 | 34 | 7 | $572,700 | 508 | 98 | $4,056,187 |
| Town of Columbia | 519 | 2,012 | 72 | $9,962,065 | 508 | 18 | $1,136,544 | 42 | 2 | $5,145,964 | 2,562 | 92 | $16,244,572 |
| **Subtotal Tyrrell** | 3,313 | 2,420 | 73 | $11,286,629 | 574 | 17 | $3,295,467 | 76 | 2 | $5,718,664 | 3,070 | 93 | $20,300,759 |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 3,940 | 72 | $12,730,286 | 1,354 | 25 | $1,734,339 | 84 | 2 | $308,145 | 5,378 | 98 | $14,772,771 |
| Town of Creswell | 366 | 274 | 75 | $719,992 | 68 | 19 | $163,459 | 22 | 6 | $183,434 | 364 | 99 | $1,066,885 |
| Town of Plymouth | 2,779 | 2,338 | 84 | $3,708,421 | 330 | 12 | $1,088,703 | 105 | 4 | $384,492 | 2,773 | 100 | $5,181,616 |
| Town of Roper | 611 | 505 | 83 | $1,448,424 | 81 | 13 | $268,498 | 20 | 3 | $639,059 | 606 | 99 | $2,355,981 |
| **Subtotal Washington** | **9,238** | **7,057** | **76** | **$18,607,123** | **1,833** | **20** | **$3,254,999** | **231** | **3** | **$1,515,130** | **9,121** | **99** | **$23,377,253** |
| **Region Total** | **52,767** | **39,893** | **76** | **$163,331,317** | **10,713** | **20** | **$43,476,303** | **1,238** | **2** | **$21,431,831** | **51,844** | **98** | **$228,239,450** |

Source: NCEM Risk Management Tool

### Table 4.80 – Estimated Buildings Impacted by 700-Year Thunderstorm Winds

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,687 | 78 | $35,675,007 | 2,275 | 20 | $11,370,942 | 158 | 1 | $2,901,999 | 11,120 | 100 | $49,947,948 |
| Town of Askewville | 502 | 383 | 76 | $1,338,798 | 107 | 21 | $228,418 | 12 | 2 | $167,576 | 502 | 100 | $1,734,792 |
| Town of Aulander | 744 | 640 | 86 | $1,996,116 | 90 | 12 | $461,103 | 14 | 2 | $76,292 | 744 | 100 | $2,533,512 |
| Town of Colerain | 428 | 333 | 78 | $3,019,884 | 74 | 17 | $819,509 | 14 | 3 | $250,352 | 421 | 98 | $4,089,745 |
| Town of Kelford | 173 | 155 | 90 | $537,159 | 14 | 8 | $25,739 | 4 | 2 | $30,973 | 173 | 100 | $593,871 |
| Town of Lewiston-Woodville | 719 | 597 | 83 | $2,153,830 | 106 | 15 | $460,824 | 16 | 2 | $76,634 | 719 | 100 | $2,691,288 |
| Town of Powellsville | 171 | 148 | 87 | $1,050,370 | 16 | 9 | $93,023 | 7 | 4 | $78,319 | 171 | 100 | $1,221,711 |
| Town of Roxobel | 205 | 153 | 75 | $984,249 | 48 | 23 | $209,174 | 4 | 2 | $32,831 | 205 | 100 | $1,226,255 |
| Town of Windsor | 1,815 | 1,442 | 79 | $4,060,375 | 307 | 17 | $1,379,084 | 64 | 4 | $644,278 | 1,813 | 100 | $6,083,736 |
| **Subtotal Bertie** | **15,932** | **12,538** | **79** | **$50,815,788** | **3,037** | **19** | **$15,047,816** | **293** | **2** | **$4,259,254** | **15,868** | **100** | **$70,122,858** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,272 | 76 | $56,435,553 | 747 | 13 | $6,021,227 | 97 | 2 | $2,304,075 | 5,116 | 91 | $64,760,855 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70 | $90,101,864 | 3,414 | 28 | $23,216,173 | 208 | 2 | $6,891,234 | 12,181 | 100 | $120,209,271 |
| Town of Bear Grass | 81 | 55 | 68 | $752,772 | 7 | 9 | $129,147 | 19 | 23 | $414,523 | 81 | 100 | $1,296,442 |
| Town of Everetts | 159 | 151 | 95 | $780,423 | 8 | 5 | $62,661 | 0 | 0 | $0 | 159 | 100 | $843,084 |
| Town of Hamilton | 292 | 233 | 80 | $2,079,501 | 26 | 9 | $275,374 | 32 | 11 | $663,637 | 291 | 100 | $3,018,512 |
| Town of Hassell | 70 | 59 | 84 | $866,446 | 11 | 16 | $72,293 | 0 | 0 | $0 | 70 | 100 | $938,738 |
| Town of Jamesville | 297 | 228 | 77 | $2,074,323 | 43 | 14 | $974,953 | 22 | 7 | $322,560 | 293 | 99 | $3,371,837 |
| Town of Oak City | 313 | 302 | 96 | $5,832,639 | 10 | 3 | $60,738 | 1 | 0 | $99,062 | 313 | 100 | $5,992,439 |
| Town of Parmele | 149 | 132 | 89 | $1,269,895 | 16 | 11 | $194,611 | 1 | 1 | $27,487 | 149 | 100 | $1,491,993 |
| Town of Robersonville | 901 | 783 | 87 | $11,542,515 | 107 | 12 | $1,502,194 | 11 | 1 | $178,883 | 901 | 100 | $13,223,592 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Williamston | 4,238 | 3,104 | 73 | $28,732,757 | 880 | 21 | $17,037,244 | 247 | 6 | $8,638,741 | 4,231 | 100 | $54,408,741 |
| **Subtotal Martin** | **18,688** | **13,606** | **73** | **$144,033,135** | **4,522** | **24** | **$43,525,388** | **541** | **3** | **$17,236,127** | **18,669** | **100** | **$204,794,649** |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 2,012 | 72 | $21,929,557 | 508 | 18 | $2,593,772 | 42 | 2 | $7,892,803 | 2,562 | 92 | $32,416,132 |
| Town of Columbia | 519 | 408 | 79 | $3,940,843 | 66 | 13 | $3,416,572 | 34 | 7 | $1,595,472 | 508 | 98 | $8,952,886 |
| **Subtotal Tyrrell** | **3,313** | **2,420** | **73** | **$25,870,400** | **574** | **17** | **$6,010,344** | **76** | **2** | **$9,488,275** | **3,070** | **93** | **$41,369,018** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 3,940 | 72 | $22,388,573 | 1,354 | 25 | $2,925,590 | 84 | 2 | $634,941 | 5,378 | 98 | $25,949,105 |
| Town of Creswell | 366 | 274 | 75 | $1,317,041 | 68 | 19 | $320,957 | 22 | 6 | $383,390 | 364 | 99 | $2,021,389 |
| Town of Plymouth | 2,779 | 2,338 | 84 | $8,910,251 | 330 | 12 | $2,699,706 | 105 | 4 | $1,194,371 | 2,773 | 100 | $12,804,328 |
| Town of Roper | 611 | 505 | 83 | $2,423,243 | 81 | 13 | $477,045 | 20 | 3 | $886,788 | 606 | 99 | $3,787,077 |
| **Subtotal Washington** | 9,238 | **7,057** | **76** | **$35,039,108** | **1,833** | **20** | **$6,423,298** | **231** | **3** | **$3,099,490** | **9,121** | **99** | **$44,561,899** |
| **Region Total** | **52,767** | **39,893** | **76** | **$312,193,984** | **10,713** | **20** | **$77,028,073** | **1,238** | **2** | **$36,387,221** | **51,844** | **98** | **$425,609,279** |

Source: NCEM Risk Management Tool

### Table 4.81 – Estimated Buildings Impacted by EF0 Tornado

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,732 | 78 | $53,269,580 | 2,275 | 20 | $27,744,583 | 158 | 1 | $3,976,050 | 11,165 | 100 | $84,990,213 |
| Town of Askewville | 502 | 383 | 76 | $2,106,365 | 107 | 21 | $1,034,690 | 12 | 2 | $196,967 | 502 | 100 | $3,338,023 |
| Town of Aulander | 744 | 640 | 86 | $3,820,597 | 90 | 12 | $1,778,305 | 14 | 2 | $215,956 | 744 | 100 | $5,814,859 |
| Town of Colerain | 428 | 340 | 79 | $2,295,641 | 74 | 17 | $811,412 | 14 | 3 | $218,778 | 428 | 100 | $3,325,832 |
| Town of Kelford | 173 | 155 | 90 | $824,341 | 14 | 8 | $74,665 | 4 | 2 | $27,780 | 173 | 100 | $926,786 |
| Town of Lewiston-Woodville | 719 | 597 | 83 | $3,428,849 | 106 | 15 | $1,476,018 | 16 | 2 | $108,304 | 719 | 100 | $5,013,171 |
| Town of Powellsville | 171 | 148 | 87 | $932,172 | 16 | 9 | $122,071 | 7 | 4 | $69,809 | 171 | 100 | $1,124,052 |
| Town of Roxobel | 205 | 153 | 75 | $992,205 | 48 | 23 | $421,680 | 4 | 2 | $26,224 | 205 | 100 | $1,440,109 |
| Town of Windsor | 1,815 | 1,442 | 79 | $9,549,610 | 307 | 17 | $5,023,765 | 64 | 4 | $2,069,488 | 1,813 | 100 | $16,642,863 |
| **Subtotal Bertie** | **15,932** | **12,590** | **79** | **$77,219,360** | **3,037** | **19** | **$38,487,189** | **293** | **2** | **$6,909,356** | **15,920** | **100** | **$122,615,908** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,362 | 78 | $28,056,098 | 747 | 13 | $7,986,043 | 98 | 2 | $979,642 | 5,207 | 93 | $37,021,783 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70 | $74,156,091 | 3,414 | 28 | $36,758,249 | 208 | 2 | $6,150,278 | 12,181 | 100 | $117,064,618 |
| Town of Bear Grass | 81 | 55 | 68 | $422,294 | 7 | 9 | $108,561 | 19 | 23 | $487,853 | 81 | 100 | $1,018,707 |
| Town of Everetts | 159 | 151 | 95 | $1,181,914 | 8 | 5 | $81,744 | 0 | 0 | $0 | 159 | 100 | $1,263,658 |
| Town of Hamilton | 292 | 233 | 80 | $1,661,760 | 26 | 9 | $437,985 | 32 | 11 | $438,536 | 291 | 100 | $2,538,281 |
| Town of Hassell | 70 | 59 | 84 | $474,434 | 11 | 16 | $181,008 | 0 | 0 | $0 | 70 | 100 | $655,442 |
| Town of Jamesville | 297 | 228 | 77 | $1,772,123 | 43 | 14 | $1,521,717 | 22 | 7 | $625,539 | 293 | 99 | $3,919,379 |
| Town of Oak City | 313 | 302 | 96 | $2,760,723 | 10 | 3 | $95,284 | 1 | 0 | $45,911 | 313 | 100 | $2,901,918 |
| Town of Parmele | 149 | 132 | 89 | $952,416 | 16 | 11 | $272,389 | 1 | 1 | $10,680 | 149 | 100 | $1,235,485 |
| Town of Robersonville | 901 | 783 | 87 | $8,054,065 | 107 | 12 | $3,571,639 | 11 | 1 | $142,226 | 901 | 100 | $11,767,930 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Williamston | 4,238 | 3,104 | 73 | $25,961,933 | 880 | 21 | $28,753,243 | 247 | 6 | $7,358,417 | 4,231 | 100 | $62,073,594 |
| **Subtotal Martin** | **18,688** | **13,606** | **73** | **$117,397,753** | **4,522** | **24** | **$71,781,819** | **541** | **3** | **$15,259,440** | **18,669** | **100** | **$204,439,012** |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 519 | 408 | 79 | $2,693,382 | 66 | 13 | $1,444,059 | 34 | 7 | $925,316 | 508 | 98 | $5,062,757 |
| Town of Columbia | 2,794 | 2,073 | 74 | $13,871,088 | 510 | 18 | $4,216,480 | 43 | 2 | $1,600,664 | 2,626 | 94 | $19,688,232 |
| **Subtotal Tyrrell** | **3,313** | **2,481** | **75** | **$16,564,470** | **576** | **17** | **$5,660,539** | **77** | **2** | **$2,525,980** | **3,134** | **95** | **$24,750,989** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 4,026 | 73 | $22,895,407 | 1,361 | 25 | $7,478,735 | 84 | 2 | $663,392 | 5,471 | 100 | $31,037,534 |
| Town of Creswell | 366 | 274 | 75 | $1,358,217 | 68 | 19 | $588,562 | 22 | 6 | $535,142 | 364 | 99 | $2,481,920 |
| Town of Plymouth | 2,779 | 2,338 | 84 | $11,964,764 | 330 | 12 | $4,213,446 | 105 | 4 | $996,821 | 2,773 | 100 | $17,175,031 |
| Town of Roper | 611 | 505 | 83 | $2,398,785 | 81 | 13 | $521,167 | 20 | 3 | $366,645 | 606 | 99 | $3,286,597 |
| **Subtotal Washington** | 9,238 | 7,143 | 77 | $38,617,173 | 1,840 | 20 | $12,801,910 | 231 | 3 | $2,562,000 | 9,214 | 100 | $53,981,082 |
| **Region Total** | **52,767** | **40,182** | **76** | **$277,854,854** | **10,722** | **20** | **$136,717,500** | **1,240** | **2** | **$28,236,418** | **52,144** | **99** | **$442,808,774** |

### Table 4.82 – Buildings Impacted by EF1 Tornado

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,732 | 78 | $381,257,551 | 2,275 | 20 | $183,497,651 | 158 | 1 | $22,271,315 | 11,165 | 100 | $587,026,516 |
| Town of Askewville | 502 | 383 | 76 | $14,982,162 | 107 | 21 | $6,803,769 | 12 | 2 | $1,256,760 | 502 | 100 | $23,042,692 |
| Town of Aulander | 744 | 640 | 86 | $27,349,682 | 90 | 12 | $12,403,744 | 14 | 2 | $1,319,930 | 744 | 100 | $41,073,356 |
| Town of Colerain | 428 | 340 | 79 | $16,712,953 | 74 | 17 | $5,236,774 | 14 | 3 | $1,201,797 | 428 | 100 | $23,151,524 |
| Town of Kelford | 173 | 155 | 90 | $5,905,413 | 14 | 8 | $421,410 | 4 | 2 | $223,644 | 173 | 100 | $6,550,466 |
| Town of Lewiston-Woodville | 719 | 597 | 83 | $24,545,159 | 106 | 15 | $9,763,352 | 16 | 2 | $846,369 | 719 | 100 | $35,154,880 |
| Town of Powellsville | 171 | 148 | 87 | $6,741,263 | 16 | 9 | $667,284 | 7 | 4 | $543,703 | 171 | 100 | $7,952,251 |
| Town of Roxobel | 205 | 153 | 75 | $7,166,368 | 48 | 23 | $2,620,127 | 4 | 2 | $211,281 | 205 | 100 | $9,997,775 |
| Town of Windsor | 1,815 | 1,442 | 79 | $69,128,368 | 307 | 17 | $32,199,142 | 64 | 4 | $15,640,758 | 1,813 | 100 | $116,968,268 |
| **Subtotal Bertie** | **15,932** | **12,590** | **79** | **$553,788,919** | **3,037** | **19** | **$253,613,253** | **293** | **2** | **$43,515,557** | **15,920** | **100** | **$850,917,728** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,362 | 78 | $203,253,342 | 747 | 13 | $50,742,150 | 98 | 2 | $6,293,525 | 5,207 | 93 | $260,289,017 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70 | $536,455,645 | 3,414 | 28 | $242,491,355 | 208 | 2 | $34,691,567 | 12,181 | 100 | $813,638,567 |
| Town of Bear Grass | 81 | 55 | 68 | $3,071,047 | 7 | 9 | $740,692 | 19 | 23 | $2,084,187 | 81 | 100 | $5,895,926 |
| Town of Everetts | 159 | 151 | 95 | $8,549,364 | 8 | 5 | $413,632 | 0 | 0 | $0 | 159 | 100 | $8,962,997 |
| Town of Hamilton | 292 | 233 | 80 | $12,046,509 | 26 | 9 | $2,676,281 | 32 | 11 | $3,535,695 | 291 | 100 | $18,258,485 |
| Town of Hassell | 70 | 59 | 84 | $3,487,568 | 11 | 16 | $819,914 | 0 | 0 | $0 | 70 | 100 | $4,307,483 |
| Town of Jamesville | 297 | 228 | 77 | $12,864,254 | 43 | 14 | $10,230,982 | 22 | 7 | $2,794,164 | 293 | 99 | $25,889,400 |
| Town of Oak City | 313 | 302 | 96 | $20,251,439 | 10 | 3 | $528,828 | 1 | 0 | $370,155 | 313 | 100 | $21,150,421 |
| Town of Parmele | 149 | 132 | 89 | $6,938,100 | 16 | 11 | $1,718,932 | 1 | 1 | $86,108 | 149 | 100 | $8,743,139 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Robersonville | 901 | 783 | 87 | $58,384,712 | 107 | 12 | $23,229,057 | 11 | 1 | $1,059,275 | 901 | 100 | $82,673,044 |
| Town of Williamston | 4,238 | 3,104 | 73 | $187,876,594 | 880 | 21 | $183,621,299 | 247 | 6 | $49,207,346 | 4,231 | 100 | $420,705,239 |
| **Subtotal Martin** | **18,688** | 13,606 | 73 | $849,925,232 | 4,522 | 24 | $466,470,972 | 541 | 3 | $93,828,497 | 18,669 | 100 | $1,410,224,701 |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 2,073 | 74 | $98,822,093 | 510 | 18 | $27,991,401 | 43 | 2 | $11,162,112 | 2,626 | 94 | $137,975,606 |
| Town of Columbia | 519 | 408 | 79 | $19,429,887 | 66 | 13 | $9,191,509 | 34 | 7 | $4,920,600 | 508 | 98 | $33,541,996 |
| **Subtotal Tyrrell** | **3,313** | **2,481** | **75** | **$118,251,980** | **576** | **17** | **$37,182,910** | **77** | **2** | **$16,082,712** | **3,134** | **95** | **$171,517,602** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 4,026 | 73 | $164,193,137 | 1,361 | 25 | $51,074,004 | 84 | 2 | $4,309,223 | 5,471 | 100 | $219,576,364 |
| Town of Creswell | 366 | 274 | 75 | $9,662,280 | 68 | 19 | $3,555,773 | 22 | 6 | $2,558,507 | 364 | 99 | $15,776,560 |
| Town of Plymouth | 2,779 | 2,338 | 84 | $86,819,686 | 330 | 12 | $26,205,635 | 105 | 4 | $6,532,316 | 2,773 | 100 | $119,557,637 |
| Town of Roper | 611 | 505 | 83 | $17,270,252 | 81 | 13 | $3,046,499 | 20 | 3 | $2,063,709 | 606 | 99 | $22,380,460 |
| **Subtotal Washington** | **9,238** | **7,143** | **77** | **$277,945,355** | **1,840** | **20** | **$83,881,911** | **231** | **3** | **$15,463,755** | **9,214** | **100** | **$377,291,021** |
| **Region Total** | **52,767** | **40,182** | **76** | **$2,003,164,828** | **10,722** | **20** | **$891,891,196** | **1,240** | **2** | **$175,184,046** | **52,144** | **99** | **$3,070,240,069** |

### Table 4.83 – Buildings Impacted by EF2 Tornado

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,732 | 78 | $381,257,551 | 2,275 | 20 | $183,497,651 | 158 | 1 | $22,271,315 | 11,165 | 100 | $587,026,516 |
| Town of Askewville | 502 | 383 | 76 | $14,982,162 | 107 | 21 | $6,803,769 | 12 | 2 | $1,256,760 | 502 | 100 | $23,042,692 |
| Town of Aulander | 744 | 640 | 86 | $27,349,682 | 90 | 12 | $12,403,744 | 14 | 2 | $1,319,930 | 744 | 100 | $41,073,356 |
| Town of Colerain | 428 | 340 | 79 | $16,712,953 | 74 | 17 | $5,236,774 | 14 | 3 | $1,201,797 | 428 | 100 | $23,151,524 |
| Town of Kelford | 173 | 155 | 90 | $5,905,413 | 14 | 8 | $421,410 | 4 | 2 | $223,644 | 173 | 100 | $6,550,466 |
| Town of Lewiston-Woodville | 719 | 597 | 83 | $24,545,159 | 106 | 15 | $9,763,352 | 16 | 2 | $846,369 | 719 | 100 | $35,154,880 |
| Town of Powellsville | 171 | 148 | 87 | $6,741,263 | 16 | 9 | $667,284 | 7 | 4 | $543,703 | 171 | 100 | $7,952,251 |
| Town of Roxobel | 205 | 153 | 75 | $7,166,368 | 48 | 23 | $2,620,127 | 4 | 2 | $211,281 | 205 | 100 | $9,997,775 |
| Town of Windsor | 1,815 | 1,442 | 79 | $69,128,368 | 307 | 17 | $32,199,142 | 64 | 4 | $15,640,758 | 1,813 | 100 | $116,968,268 |
| **Subtotal Bertie** | **15,932** | **12,590** | **79** | **$553,788,919** | **3,037** | **19** | **$253,613,253** | **293** | **2** | **$43,515,557** | **15,920** | **100** | **$850,917,728** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,362 | 78 | $203,253,342 | 747 | 13 | $50,742,150 | 98 | 2 | $6,293,525 | 5,207 | 93 | $260,289,017 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70 | $536,455,645 | 3,414 | 28 | $242,491,355 | 208 | 2 | $34,691,567 | 12,181 | 100 | $813,638,567 |
| Town of Bear Grass | 81 | 55 | 68 | $3,071,047 | 7 | 9 | $740,692 | 19 | 23 | $2,084,187 | 81 | 100 | $5,895,926 |
| Town of Everetts | 159 | 151 | 95 | $8,549,364 | 8 | 5 | $413,632 | 0 | 0 | $0 | 159 | 100 | $8,962,997 |
| Town of Hamilton | 292 | 233 | 80 | $12,046,509 | 26 | 9 | $2,676,281 | 32 | 11 | $3,535,695 | 291 | 100 | $18,258,485 |
| Town of Hassell | 70 | 59 | 84 | $3,487,568 | 11 | 16 | $819,914 | 0 | 0 | $0 | 70 | 100 | $4,307,483 |
| Town of Jamesville | 297 | 228 | 77 | $12,864,254 | 43 | 14 | $10,230,982 | 22 | 7 | $2,794,164 | 293 | 99 | $25,889,400 |
| Town of Oak City | 313 | 302 | 96 | $20,251,439 | 10 | 3 | $528,828 | 1 | 0 | $370,155 | 313 | 100 | $21,150,421 |
| Town of Parmele | 149 | 132 | 89 | $6,938,100 | 16 | 11 | $1,718,932 | 1 | 1 | $86,108 | 149 | 100 | $8,743,139 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Robersonville | 901 | 783 | 87 | $58,384,712 | 107 | 12 | $23,229,057 | 11 | 1 | $1,059,275 | 901 | 100 | $82,673,044 |
| Town of Williamston | 4,238 | 3,104 | 73 | $187,876,594 | 880 | 21 | $183,621,299 | 247 | 6 | $49,207,346 | 4,231 | 100 | $420,705,239 |
| **Subtotal Martin** | **18,688** | 13,606 | 73 | $849,925,232 | 4,522 | 24 | $466,470,972 | 541 | 3 | $93,828,497 | 18,669 | 100 | $1,410,224,701 |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 2,073 | 74 | $98,822,093 | 510 | 18 | $27,991,401 | 43 | 2 | $11,162,112 | 2,626 | 94 | $137,975,606 |
| Town of Columbia | 519 | 408 | 79 | $19,429,887 | 66 | 13 | $9,191,509 | 34 | 7 | $4,920,600 | 508 | 98 | $33,541,996 |
| **Subtotal Tyrrell** | **3,313** | **2,481** | **75** | **$118,251,980** | **576** | **17** | **$37,182,910** | **77** | **2** | **$16,082,712** | **3,134** | **95** | **$171,517,602** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 4,026 | 73 | $164,193,137 | 1,361 | 25 | $51,074,004 | 84 | 2 | $4,309,223 | 5,471 | 100 | $219,576,364 |
| Town of Creswell | 366 | 274 | 75 | $9,662,280 | 68 | 19 | $3,555,773 | 22 | 6 | $2,558,507 | 364 | 99 | $15,776,560 |
| Town of Plymouth | 2,779 | 2,338 | 84 | $86,819,686 | 330 | 12 | $26,205,635 | 105 | 4 | $6,532,316 | 2,773 | 100 | $119,557,637 |
| Town of Roper | 611 | 505 | 83 | $17,270,252 | 81 | 13 | $3,046,499 | 20 | 3 | $2,063,709 | 606 | 99 | $22,380,460 |
| **Subtotal Washington** | **9,238** | **7,143** | **77** | **$277,945,355** | **1,840** | **20** | **$83,881,911** | **231** | **3** | **$15,463,755** | **9,214** | **100** | **$377,291,021** |
| **Region Total** | **52,767** | **40,182** | **76** | **$2,003,164,828** | **10,722** | **20** | **$891,891,196** | **1,240** | **2** | **$175,184,046** | **52,144** | **99** | **$3,070,240,069** |

### Table 4.84 – Buildings Impacted by EF3 Tornado

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,732 | 78 | $768,458,987 | 2,275 | 20 | $340,727,082 | 158 | 1 | $106,009,533 | 11,165 | 100 | $1,215,195,601 |
| Town of Askewville | 502 | 383 | 76 | $31,626,965 | 107 | 21 | $13,023,908 | 12 | 2 | $6,615,805 | 502 | 100 | $51,266,678 |
| Town of Aulander | 744 | 640 | 86 | $65,856,997 | 90 | 12 | $31,142,477 | 14 | 2 | $6,580,430 | 744 | 100 | $103,579,904 |
| Town of Colerain | 428 | 340 | 79 | $36,013,595 | 74 | 17 | $13,889,726 | 14 | 3 | $5,866,533 | 428 | 100 | $55,769,854 |
| Town of Kelford | 173 | 155 | 90 | $11,805,927 | 14 | 8 | $1,295,681 | 4 | 2 | $1,287,235 | 173 | 100 | $14,388,844 |
| Town of Lewiston-Woodville | 719 | 597 | 83 | $48,932,974 | 106 | 15 | $25,455,859 | 16 | 2 | $4,823,505 | 719 | 100 | $79,212,338 |
| Town of Powellsville | 171 | 148 | 87 | $14,695,541 | 16 | 9 | $2,432,967 | 7 | 4 | $3,095,044 | 171 | 100 | $20,223,552 |
| Town of Roxobel | 205 | 153 | 75 | $14,748,969 | 48 | 23 | $8,433,595 | 4 | 2 | $1,216,183 | 205 | 100 | $24,398,746 |
| Town of Windsor | 1,815 | 1,442 | 79 | $148,979,627 | 307 | 17 | $98,898,176 | 64 | 4 | $88,090,307 | 1,813 | 100 | $335,968,111 |
| **Subtotal Bertie** | **15,932** | **8,732** | **78** | **$768,458,987** | **2,275** | **20** | **$340,727,082** | **158** | **1** | **$106,009,533** | **11,165** | **100** | **$1,215,195,601** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,362 | 78 | $434,131,508 | 747 | 13 | $108,731,001 | 98 | 2 | $32,927,250 | 5,207 | 93 | $575,789,759 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70 | $1,156,368,747 | 3,414 | 28 | $633,433,670 | 208 | 2 | $171,784,632 | 12,181 | 100 | $1,961,587,050 |
| Town of Bear Grass | 81 | 55 | 68 | $6,458,538 | 7 | 9 | $2,115,962 | 19 | 23 | $8,531,390 | 81 | 100 | $17,105,890 |
| Town of Everetts | 159 | 151 | 95 | $17,654,128 | 8 | 5 | $1,784,693 | 0 | 0 | $0 | 159 | 100 | $19,438,821 |
| Town of Hamilton | 292 | 233 | 80 | $25,062,391 | 26 | 9 | $7,516,476 | 32 | 11 | $20,353,963 | 291 | 100 | $52,932,830 |
| Town of Hassell | 70 | 59 | 84 | $7,599,557 | 11 | 16 | $1,934,310 | 0 | 0 | $0 | 70 | 100 | $9,533,867 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Jamesville | 297 | 228 | 77 | $29,421,920 | 43 | 14 | $26,889,459 | 22 | 7 | $11,868,405 | 293 | 99 | $68,179,784 |
| Town of Oak City | 313 | 302 | 96 | $43,829,079 | 10 | 3 | $1,841,216 | 1 | 0 | $2,130,872 | 313 | 100 | $47,801,168 |
| Town of Parmele | 149 | 132 | 89 | $14,675,167 | 16 | 11 | $4,597,706 | 1 | 1 | $495,696 | 149 | 100 | $19,768,570 |
| Town of Robersonville | 901 | 783 | 87 | $131,609,190 | 107 | 12 | $62,764,339 | 11 | 1 | $5,934,052 | 901 | 100 | $200,307,581 |
| Town of Williamston | 4,238 | 3,104 | 73 | $439,339,411 | 880 | 21 | $532,685,617 | 247 | 6 | $264,299,991 | 4,231 | 100 | $1,236,325,020 |
| **Subtotal Martin** | **18,688** | **13,606** | **73** | **$1,872,018,128** | **4,522** | **24** | **$1,275,563,448** | **541** | **3** | **$485,399,001** | **18,669** | **100** | **$3,632,980,581** |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 2,073 | 74 | $214,496,894 | 510 | 18 | $52,182,114 | 43 | 2 | $61,008,277 | 2,626 | 94 | $327,687,284 |
| Town of Columbia | 519 | 408 | 79 | $43,275,328 | 66 | 13 | $27,406,644 | 34 | 7 | $23,572,956 | 508 | 98 | $94,254,929 |
| **Subtotal Tyrrell** | **3,313** | **2,481** | **75** | **$257,772,222** | **576** | **17** | **$79,588,758** | **77** | **2** | **$84,581,233** | **3,134** | **95** | **$421,942,213** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 4,026 | 73 | $331,731,830 | 1,361 | 25 | $98,664,044 | 84 | 2 | $22,865,514 | 5,471 | 100 | $453,261,388 |
| Town of Creswell | 366 | 274 | 75 | $20,151,492 | 68 | 19 | $9,248,512 | 22 | 6 | $11,440,342 | 364 | 99 | $40,840,346 |
| Town of Plymouth | 2,779 | 2,338 | 84 | $205,305,786 | 330 | 12 | $83,836,678 | 105 | 4 | $34,794,931 | 2,773 | 100 | $323,937,395 |
| Town of Roper | 611 | 505 | 83 | $38,598,947 | 81 | 13 | $10,713,565 | 20 | 3 | $10,210,564 | 606 | 99 | $59,523,076 |
| **Subtotal Washington** | 9,238 | 40,182 | 76 | $4,300,829,495 | 10,722 | 20 | $2,201,645,477 | 1,240 | 2 | $905,803,410 | 52,144 | 99 | $7,408,278,386 |
| **Region Total** | **52,767** | **40,182** | **76** | **$2,003,164,828** | **10,722** | **20** | **$891,891,196** | **1,240** | **2** | **$175,184,046** | **52,144** | **99** | **$3,070,240,069** |

### Table 4.85 – Buildings Impacted by EF4 Tornado

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 8,732 | 78 | $769,487,844 | 2,275 | 20 | $345,241,988 | 158 | 1 | $113,613,674 | 11,165 | 100 | $1,228,343,506 |
| Town of Askewville | 502 | 383 | 76 | $31,892,548 | 107 | 21 | $13,185,714 | 12 | 2 | $6,992,095 | 502 | 100 | $52,070,358 |
| Town of Aulander | 744 | 640 | 86 | $67,039,519 | 90 | 12 | $31,552,255 | 14 | 2 | $6,985,303 | 744 | 100 | $105,577,077 |
| Town of Colerain | 428 | 340 | 79 | $36,086,141 | 74 | 17 | $14,246,293 | 14 | 3 | $6,313,269 | 428 | 100 | $56,645,703 |
| Town of Kelford | 173 | 155 | 90 | $11,805,927 | 14 | 8 | $1,359,061 | 4 | 2 | $1,333,428 | 173 | 100 | $14,498,416 |
| Town of Lewiston-Woodville | 719 | 597 | 83 | $48,932,974 | 106 | 15 | $26,132,153 | 16 | 2 | $5,007,384 | 719 | 100 | $80,072,511 |
| Town of Powellsville | 171 | 148 | 87 | $14,771,161 | 16 | 9 | $2,603,741 | 7 | 4 | $3,213,838 | 171 | 100 | $20,588,740 |
| Town of Roxobel | 205 | 153 | 75 | $14,748,969 | 48 | 23 | $8,863,429 | 4 | 2 | $1,259,798 | 205 | 100 | $24,872,196 |
| Town of Windsor | 1,815 | 1,442 | 79 | $149,578,249 | 307 | 17 | $102,384,091 | 64 | 4 | $91,685,770 | 1,813 | 100 | $343,648,110 |
| **Subtotal Bertie** | **15,932** | **12,590** | **79** | **$1,144,343,332** | **3,037** | **19** | **$545,568,725** | **293** | **2** | **$236,404,559** | **15,920** | **100** | **$1,926,316,617** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 4,362 | 78 | $435,190,008 | 747 | 13 | $112,027,852 | 98 | 2 | $34,756,431 | 5,207 | 93 | $581,974,291 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 8,559 | 70 | $1,161,592,560 | 3,414 | 28 | $650,224,873 | 208 | 2 | $184,214,730 | 12,181 | 100 | $1,996,032,163 |
| Town of Bear Grass | 81 | 55 | 68 | $6,458,538 | 7 | 9 | $2,193,646 | 19 | 23 | $9,615,950 | 81 | 100 | $18,268,134 |
| Town of Everetts | 159 | 151 | 95 | $17,654,128 | 8 | 5 | $1,941,353 | 0 | 0 | $0 | 159 | 100 | $19,595,482 |
| Town of Hamilton | 292 | 233 | 80 | $25,062,391 | 26 | 9 | $7,765,889 | 32 | 11 | $21,083,451 | 291 | 100 | $53,911,731 |
| Town of Hassell | 70 | 59 | 84 | $7,599,557 | 11 | 16 | $1,985,681 | 0 | 0 | $0 | 70 | 100 | $9,585,239 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Jamesville | 297 | 228 | 77 | $29,696,193 | 43 | 14 | $27,401,172 | 22 | 7 | $13,241,080 | 293 | 99 | $70,338,445 |
| Town of Oak City | 313 | 302 | 96 | $43,829,079 | 10 | 3 | $1,953,541 | 1 | 0 | $2,207,243 | 313 | 100 | $47,989,863 |
| Town of Parmele | 149 | 132 | 89 | $14,675,167 | 16 | 11 | $4,778,720 | 1 | 1 | $513,462 | 149 | 100 | $19,967,349 |
| Town of Robersonville | 901 | 783 | 87 | $132,708,570 | 107 | 12 | $64,399,794 | 11 | 1 | $6,183,546 | 901 | 100 | $203,291,911 |
| Town of Williamston | 4,238 | 3,104 | 73 | $444,841,940 | 880 | 21 | $553,007,881 | 247 | 6 | $278,034,701 | 4,231 | 100 | $1,275,884,522 |
| **Subtotal Martin** | **18,688** | **13,606** | **73** | **$1,884,118,123** | **4,522** | **24** | **$1,315,652,550** | **541** | **3** | **$515,094,163** | **18,669** | **100** | **$3,714,864,839** |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 2,073 | 74 | $216,763,263 | 510 | 18 | $52,771,423 | 43 | 2 | $63,925,527 | 2,626 | 94 | $333,460,212 |
| Town of Columbia | 519 | 408 | 79 | $43,649,322 | 66 | 13 | $28,648,828 | 34 | 7 | $25,486,485 | 508 | 98 | $97,784,635 |
| **Subtotal Tyrrell** | **3,313** | **2,481** | **75** | **$260,412,585** | **576** | **17** | **$81,420,251** | **77** | **2** | **$89,412,012** | **3,134** | **95** | **$431,244,847** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 4,026 | 73 | $331,975,173 | 1,361 | 25 | $99,030,973 | 84 | 2 | $24,121,566 | 5,471 | 100 | $455,127,712 |
| Town of Creswell | 366 | 274 | 75 | $20,295,192 | 68 | 19 | $9,683,208 | 22 | 6 | $12,589,583 | 364 | 99 | $42,567,982 |
| Town of Plymouth | 2,779 | 2,338 | 84 | $207,878,918 | 330 | 12 | $87,652,445 | 105 | 4 | $36,673,800 | 2,773 | 100 | $332,205,163 |
| Town of Roper | 611 | 505 | 83 | $38,973,915 | 81 | 13 | $11,348,864 | 20 | 3 | $10,951,882 | 606 | 99 | $61,274,661 |
| **Subtotal Washington** | 9,238 | 7,143 | 77 | $599,123,198 | 1,840 | 20 | $207,715,490 | 231 | 3 | $84,336,831 | 9,214 | 100 | $891,175,518 |
| **Region Total** | **52,767** | **40,182** | **76** | **$4,323,187,246** | **10,722** | **20** | **$2,262,384,868** | **1,240** | **2** | **$960,003,996** | **52,144** | **99** | **$7,545,576,112** |

Severe weather can also cause significant agricultural losses. Between 2007-2024, the sum of claims paid for crop damage due to hail and wind damages in the Region was $5,027,134 or an average of $279,285 in losses annually. Bertie and Martin Counties were responsible for most of these claims. Table 4.86 summarizes crop losses due to severe weather by year, and Table 4.87 shows the total crop losses due to severe weather by county, as reported in the RMA system.

**Table 4.86 – Crop Losses Resulting from Hail & Wind by Year, 2007-2024**

| Year | Hail Indemnity Amount | Wind Indemnity Amount |
|---|---|---|
| 2007 | $0 | $161,266 |
| 2008 | $73,092 | $368,531 |
| 2009 | $5,900 | $205,500 |
| 2010 | $7,197 | $27,696 |
| 2011 | $18,032 | $143,749 |
| 2012 | $158,889 | $240,087 |
| 2013 | $7,030 | $227,167 |
| 2014 | $54,763 | $475,867 |
| 2015 | $9,314 | $191,986 |
| 2016 | $0 | $653,568 |
| 2017 | $0 | $194,393 |
| 2018 | $98,858 | $288,219 |
| 2019 | $199,903 | $191,650 |
| 2020 | $31,574 | $79,705 |
| 2021 | $1,808 | $18,824 |
| 2022 | $612,857 | $196,041 |
| 2023 | $10,899 | $11,640 |
| 2024 | $31,261 | $29,868 |
| **Total** | **$1,321,377** | **$3,705,757** |

Source: USDA Risk Management Agency

**Table 4.87 – Crop Losses Resulting from Hail & Wind by County, 2007-2024**

| County | Hail Indemnity Amount | Wind Indemnity Amount |
|---|---|---|
| Bertie | $229,766 | $1,066,034 |
| Hyde | $28,992 | $264,108 |
| Martin | $384,330 | $1,902,227 |
| Tyrrell | $38,349 | $163,340 |
| Washington | $639,940 | $310,048 |
| **Total** | **$1,321,377** | **$3,705,757** |

Source: USDA Risk Management Agency

*ENVIRONMENT*

The main environmental impact from wind is damage to trees or crops. Wind events can also bring down power lines, which could cause a fire and result in even greater environmental impacts. Lightning may also result in the ignition of wildfires. This is part of a natural process, however, and the environment will return to its original state in time.

Hail can cause extensive damage to the natural environment, pelting animals, trees and vegetation with hailstones. Melting hail can also increase both river and flash flood risk.

### *CONSEQUENCE ANALYSIS*

Table 4.88 summarizes the potential negative consequences of tornadoes and thunderstorms.

**Table 4.88 – Consequence Analysis – Tornadoes & Thunderstorms**

| Category | Consequences |
|---|---|
| Public | Injuries and fatalities are possible. Individuals who cannot take shelter are most vulnerable as well as those in unsecured buildings like mobile homes. Injury may also result from debris or damaged buildings. |
| Responders | Responders may be hindered by storm impacts; damages may block access to affected areas or make it dangerous to enter affected buildings or areas. |
| Continuity of Operations (including Continued Delivery of Services) | Potential impacts to continuity of operations may result if personnel are harmed or if critical systems or resources are damaged. Delays in providing services may result. |
| Property, Facilities and Infrastructure | Possibility of structure fire ignition; potential for disruptions in power and communications infrastructure; destruction and/or damage to any exposed property, especially windows, cars and siding; mobile homes see increased risk. The weakest tornadoes, EF0, can cause minor roof damage, while strong tornadoes can destroy frame buildings and even badly damage steel reinforced concrete structures. Buildings are vulnerable to direct impact from tornado winds and wind-borne debris. |
| Environment | Potential fire ignition from lightning; hail damage to wildlife and foliage; Downed trees and damages to vegetation are likely during tornadoes. Debris may be thrown great distances and end up in natural areas, with potential impacts on habitats. If hazardous materials facilities are impacted, chemical releases may occur and would require remediation. |
| Economic Condition of the Jurisdiction | Lightning damage contingent on target; can severely impact/destroy critical infrastructure and other economic drivers. Economic impacts are contingent on tornado's path, but a tornado can severely impact/destroy critical infrastructure and other economic drivers, halt economic activity, or cause direct losses to businesses. |
| Public Confidence in the Jurisdiction's Governance | Public confidence is not generally affected by thunderstorm events, however public confidence in the jurisdiction's governance may be influenced by severe tornado events if response and recovery are not timely and effective. |

## HAZARD SUMMARY BY JURISDICTION

The following table summarizes severe weather hazard risk by jurisdiction. Most aspects of severe weather risk do not vary substantially by jurisdiction; however, wind and hail impacts may be greater in more highly developed areas with higher exposure in terms of both property and population density. Additionally, mobile home units are more vulnerable to wind damage. Mobile home units comprise approximately 30% of the housing mix of Bertie County and Tyrrell County; therefore, these areas may face more severe impacts from wind. Martin County and Bertie County also experienced high agricultural losses, so the unincorporated areas of these counties were rated higher for impact.

### *TORNADOES*

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| *All Jurisdictions* | 3 | 3 | 2 | 4 | 1 | 2.7 | M |

### *THUNDERSTORM WIND*

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| Bertie County | 4 | 2 | 4 | 4 | 1 | 3.1 | H |
| Town of Askewville | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Aulander | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Colerain | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Kelford | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Lewiston-Woodville | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Powellsville | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Roxobel | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Windsor | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Hyde County | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Martin County | 4 | 2 | 4 | 4 | 1 | 3.1 | H |
| Town of Bear Grass | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Everetts | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Hamilton | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Hassell | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Jamesville | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Oak City | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Parmele | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Robersonville | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Williamston | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Tyrrell County | 4 | 2 | 4 | 4 | 1 | 3.1 | H |
| Town of Columbia | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Washington County | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Creswell | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Plymouth | 4 | 1 | 4 | 4 | 1 | 2.8 | M |
| Town of Roper | 4 | 1 | 4 | 4 | 1 | 2.8 | M |

### *LIGHTNING*

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| *All Jurisdictions* | 4 | 1 | 1 | 4 | 1 | 2.2 | M |

### *HAIL*

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| *All Jurisdictions* | 4 | 1 | 1 | 4 | 1 | 2.2 | M |

## 4.5.8 SEVERE WINTER WEATHER

### HAZARD BACKGROUND

A winter storm can range from a moderate snow over a period of a few hours to blizzard conditions with blinding wind-driven snow that lasts for several days. Events may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. Some winter storms might be large enough to affect several states, while others might affect only localized areas. Occasionally, heavy snow might also cause significant property damages, such as roof collapses on older buildings.

All winter storm events have the potential to present dangerous conditions to the affected area. Larger snowfalls pose a greater risk, reducing visibility due to blowing snow and making driving conditions treacherous. A heavy snow event is defined by the National Weather Service as an accumulation of 4 or more inches in 12 hours or less. A blizzard is the most severe form of winter storm. It combines low temperatures, heavy snow, and winds of 35 miles per hour or more, which reduces visibility to a quarter mile or less for at least 3 hours. Winter storms are often accompanied by sleet, freezing rain, or an ice storm. Such freeze events are particularly hazardous as they create treacherous surfaces.

Ice storms are defined as storms with significant amounts of freezing rain and are a result of cold air damming (CAD). CAD is a shallow, surface-based layer of relatively cold, stably stratified air entrenched against the eastern slopes of the Appalachian Mountains. With warmer air above, falling precipitation in the form of snow melts, then becomes either super-cooled (liquid below the melting point of water) or re-freezes. In the former case, super-cooled droplets can freeze on impact (freezing rain), while in the latter case, the re-frozen water particles are ice pellets (or sleet). Sleet is defined as partially frozen raindrops or refrozen snowflakes that form into small ice pellets before reaching the ground. They typically bounce when they hit the ground and do not stick to the surface. Sleet does accumulate like snow, posing similar problems and has the potential to accumulate into a layer of ice on surfaces. Freezing rain, conversely, usually sticks to the ground, creating a sheet of ice on the roadways and other surfaces. All winter storm elements – snow, low temperatures, sleet, ice, etcetera – have the potential to cause significant hazard to a community. Even small accumulations can down power lines and tree limbs and create hazardous driving conditions. Furthermore, communication and power may be disrupted for days.

Advancements in meteorology and forecasting usually allow for mostly accurate forecasting a few days in advance of an impending storm. Most storms have a duration of a few hours; however, impacts can last a few days after the initial incident until cleanup is completed.

*Warning Time: 1 – More than 24 hours*

*Duration: 3 – Less than one week*

### LOCATION

The entirety of North Carolina is susceptible to winter storm and freeze events. Some ice and winter storms may be large enough to affect several states, while others might affect limited, localized areas. Severe winter weather is usually a countywide or regional hazard, impacting a large portion of the planning area at the same time. The degree of exposure typically depends on the normal expected severity of local winter weather. The risk of severe winter storm occurring is uniform across the Region.

*Spatial Extent: 4 – Large*

### EXTENT

NOAA uses the Regional Snowfall Index (RSI) to assess the societal impact of winter storms in the six easternmost regions in the United States. The index makes use of population and regional differences to

assess the impact of snowfall. For example, areas which receive very little snowfall on average may be more adversely affected than other regions, resulting in a higher severity.

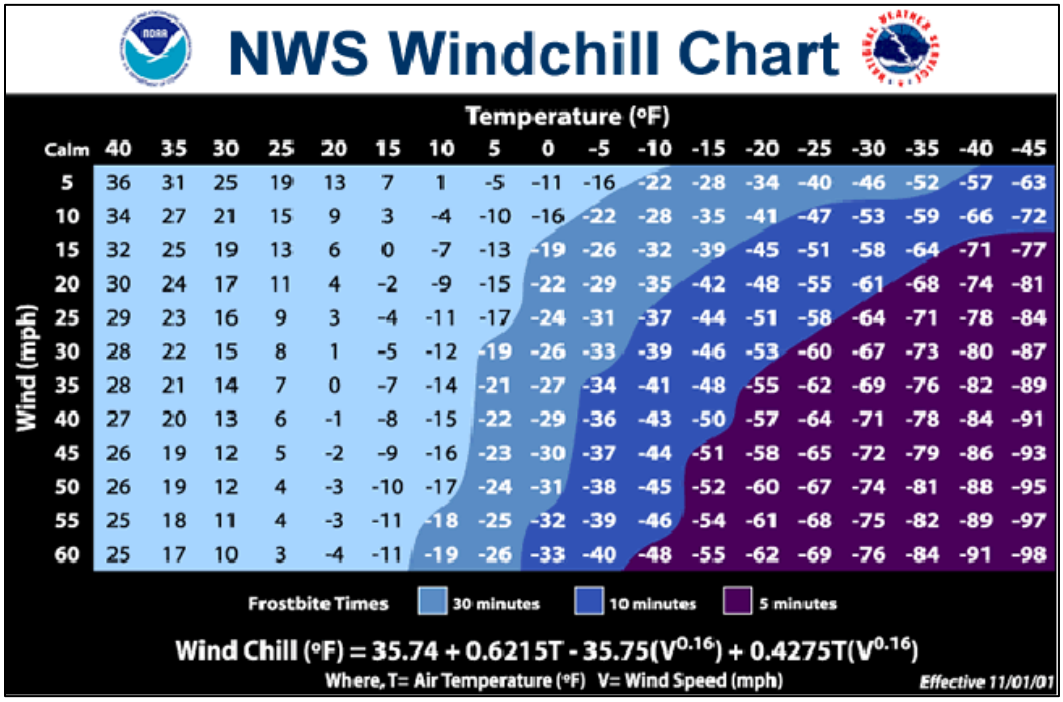
**Table 4.89 – Regional Snowfall Index (RSI) Values**

| Category | RSI Value | Description |
|---|---|---|
| 1 | 1-3 | Notable |
| 2 | 3-6 | Significant |
| 3 | 6-10 | Major |
| 4 | 10-18 | Crippling |
| 5 | 18+ | Extreme |

Source: NOAA

Severe winter storms often involve a mix of hazardous weather conditions. The magnitude of an event can be defined based on the severity of each of the involved factors, including precipitation type, precipitation accumulation amounts, temperature, and wind. The NWS Wind Chill Temperature Index, shown in Figure 4.52, provides a formula for calculating the dangers of winter winds and freezing temperatures.

**Figure 4.52 – NWS Wind Chill Temperature Index**




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

Table 4.90 notes greatest recorded one-day snowfall totals for each county in the Northeastern NC Region.

**Table 4.90 – Greatest One-Day Snowfall by County**

| County | Inches | Location | Date |
|---|---|---|---|
| Bertie | 11.5 in. | Lewiston | February 6, 1980 |
| Hyde | 9.0 in. | Ocracoke | January 24, 2003 |
| Martin | 17.0 in. | Williamston | March 3, 1980 |

| County | Inches | Location | Date |
|---|---|---|---|
| Tyrrell | 12.0 in. | Columbia | February 6, 1980 |
| Washington | 10.5 in. | Plymouth | February 6, 1980 |

Source: North Carolina Climate Office

The most significant recorded snow depth over the last 20 years took place in January 2018, with recorded depths of 7 inches occurring in Bertie County. Additionally, Hyde County experienced their second highest one-day snowfall record in January 2025 with 6 inches of snow reported in Ocracoke.

The entirety of North Carolina is susceptible to winter storm and freeze events. Some ice and winter storms may be large enough to affect several states, while others might affect limited, localized areas. The degree of exposure typically depends on the normal expected severity of local winter weather. The Northeastern NC Region is accustomed to moderate winter weather as a result of a nor'easter originating in the Gulf Stream and producing frozen precipitation. Given the atmospheric nature of the hazard, the entire planning area has uniform exposure to a winter storm.

*Impact: 1 – Minor*

## HISTORICAL OCCURRENCES

To get a full picture of the range of impacts of a severe winter storm, data for the following weather types as defined by the National Weather Service (NWS) Raleigh Forecast Office and tracked by NCEI were collected:

- **Blizzard** – A winter storm which produces the following conditions for 3 consecutive hours or longer: (1) sustained winds or frequent gusts 30 knots (35 mph) or greater, and (2) falling and/or blowing snow reducing visibility frequently to less than 1/4 mile.
- **Cold/Wind Chill** – Period of low temperatures or wind chill temperatures reaching or exceeding locally/regionally defined advisory conditions of 0°F to -14°F with wind speeds 10 mph (9 kt) or greater.
- **Extreme Cold/Wind Chill** – A period of extremely low temperatures or wind chill temperatures reaching or exceeding locally/regionally defined warning criteria, defined as wind chill -15°F or lower with wind speeds 10 mph (9 kt) or greater.
- **Frost/Freeze** – A surface air temperature of 32°F or lower, or the formation of ice crystals on the ground or other surfaces, for a period of time long enough to cause human or economic impact, during the locally defined growing season.
- **Heavy Snow** – Snow accumulation meeting or exceeding 12 and/or 24-hour warning criteria of 3 and 4 inches, respectively.
- **Ice Storm** – Ice accretion meeting or exceeding locally/regionally defined warning criteria of ¼ inch or greater resulting in significant, widespread power outages, tree damage and dangerous travel. Issued only in those rare instances where just heavy freezing rain is expected and there will be no "mixed bag" precipitation meaning no snow, sleet or rain.
- **Sleet** – Sleet accumulations meeting or exceeding locally/regionally defined warning criteria of ½ inch or more.
- **Winter Storm** – A winter weather event that has more than one significant hazard and meets or exceeds locally/regionally defined 12 and/or 24-hour warning criteria for at least one of the precipitation elements. Defined by NWS Raleigh Forecast Office as snow accumulations 3 inches or greater in 12 hours (4 inches or more in 24 hours); Freezing rain accumulations ¼ inch (6 mm) or greater; Sleet accumulations ½ inch (13 mm) or more. Issued when there is at least a 60% forecast confidence of any one of the three criteria being met.

— **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.

Summarized impacts from data collected for the years 1999 through 2024 are included in Table 4.91. As reported, the Northeastern NC Region experienced $25,000 in property damage and no crop damage resulting from the 144 severe winter weather incidents recorded across 74 separate days. While property and crop damage were not recorded for these incidents, they may have occurred and are possible impacts of future events. The region also experienced no fatalities or injuries from the impacts of severe winter storm, though these types of impacts are possible in future events. No blizzard, cold/wind chill, extreme cold/wind chill, or sleet events were recorded.

**Table 4.91 – Total Severe Winter Storm Impacts in Northeastern NC, 1999-2024**

| Event Type | Event Count | Total Fatalities | Total Injuries | Total Property Damage | Total Crop Damage |
|---|---|---|---|---|---|
| **Bertie County** | | | | | |
| Winter Storm | 19 | 0 | 0 | $25,000 | $0 |
| Winter Weather | 18 | 0 | 0 | $0 | $0 |
| Frost/Freeze | 4 | 0 | 0 | $0 | $0 |
| **Hyde County** | | | | | |
| Winter Storm | 13 | 0 | 0 | $0 | $0 |
| Winter Weather | 8 | 0 | 0 | $0 | $0 |
| Heavy Snow | 7 | 0 | 0 | $0 | $0 |
| Frost/Freeze | 1 | 0 | 0 | $0 | $0 |
| **Martin County** | | | | | |
| Winter Storm | 15 | 0 | 0 | $0 | $0 |
| Winter Weather | 7 | 0 | 0 | $0 | $0 |
| Ice Storm | 1 | 0 | 0 | $0 | $0 |
| Heavy Snow | 5 | 0 | 0 | $0 | $0 |
| Frost/Freeze | 1 | 0 | 0 | $0 | $0 |
| **Tyrrell County** | | | | | |
| Winter Storm | 9 | 0 | 0 | $0 | $0 |
| Winter Weather | 4 | 0 | 0 | $0 | $0 |
| Heavy Snow | 5 | 0 | 0 | $0 | $0 |
| Frost/Freeze | 1 | 0 | 0 | $0 | $0 |
| **Washington County** | | | | | |
| Winter Storm | 12 | 0 | 0 | $0 | $0 |
| Winter Weather | 6 | 0 | 0 | $0 | $0 |
| Ice Storm | 1 | 0 | 0 | $0 | $0 |
| Heavy Snow | 6 | 0 | 0 | $0 | $0 |
| Frost/Freeze | 1 | 0 | 0 | $0 | $0 |
| **Northeastern NC Region** | | | | | |
| Winter Storm | 68 | 0 | 0 | $25,000 | $0 |
| Winter Weather | 43 | 0 | 0 | $0 | $0 |
| Ice Storm | 2 | 0 | 0 | $0 | $0 |
| Heavy Snow | 23 | 0 | 0 | $0 | $0 |

| Event Type | Event Count | Total Fatalities | Total Injuries | Total Property Damage | Total Crop Damage |
|---|---|---|---|---|---|
| Frost/Freeze | 8 | 0 | 0 | $0 | $0 |
| **Region Total** | **144** | **0** | **0** | **$25,000** | **$0** |

Source: NCEI

Impacts in the Northeastern NC Region by incident are recorded in Table 4.92.

**Table 4.92 – Recorded Severe Winter Storm Impacts in the Northeastern NC Region, 1999-2024**

| Date | Event Type | Fatalities | Injuries | Property Damage | Crop Damage |
|---|---|---|---|---|---|
| 1/24/2000 | Winter Storm | 0 | 0 | $0 | $0 |
| 12/3/2000 | Heavy Snow | 0 | 0 | $0 | $0 |
| 12/3/2000 | Winter Storm | 0 | 0 | $25,000 | $0 |
| 1/2/2002 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/2/2002 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/3/2002 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/16/2003 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/23/2003 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/23/2003 | Winter Storm | 0 | 0 | $0 | $0 |
| 11/30/2003 | Frost/Freeze | 0 | 0 | $0 | $0 |
| 1/9/2004 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/9/2004 | Winter Weather | 0 | 0 | $0 | $0 |
| 1/25/2004 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/25/2004 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/26/2004 | Winter Storm | 0 | 0 | $0 | $0 |
| 2/15/2004 | Winter Storm | 0 | 0 | $0 | $0 |
| 2/16/2004 | Winter Weather | 0 | 0 | $0 | $0 |
| 2/26/2004 | Winter Weather | 0 | 0 | $0 | $0 |
| 3/23/2004 | Frost/Freeze | 0 | 0 | $0 | $0 |
| 4/6/2004 | Frost/Freeze | 0 | 0 | $0 | $0 |
| 12/19/2004 | Winter Weather | 0 | 0 | $0 | $0 |
| 12/20/2004 | Winter Weather | 0 | 0 | $0 | $0 |
| 12/26/2004 | Winter Storm | 0 | 0 | $0 | $0 |
| 12/26/2004 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/19/2005 | Winter Weather | 0 | 0 | $0 | $0 |
| 1/20/2005 | Winter Weather | 0 | 0 | $0 | $0 |
| 1/21/2005 | Winter Weather | 0 | 0 | $0 | $0 |
| 2/20/2006 | Winter Weather | 0 | 0 | $0 | $0 |
| 2/1/2007 | Winter Weather | 0 | 0 | $0 | $0 |
| 11/21/2008 | Winter Weather | 0 | 0 | $0 | $0 |
| 1/20/2009 | Heavy Snow | 0 | 0 | $0 | $0 |
| 1/20/2009 | Winter Weather | 0 | 0 | $0 | $0 |
| 1/20/2009 | Heavy Snow | 0 | 0 | $0 | $0 |
| 1/30/2010 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/30/2010 | Heavy Snow | 0 | 0 | $0 | $0 |
| 2/12/2010 | Heavy Snow | 0 | 0 | $0 | $0 |
| 2/13/2010 | Winter Weather | 0 | 0 | $0 | $0 |

| Date | Event Type | Fatalities | Injuries | Property Damage | Crop Damage |
|---|---|---|---|---|---|
| 3/2/2010 | Winter Weather | 0 | 0 | $0 | $0 |
| 12/16/2010 | Winter Weather | 0 | 0 | $0 | $0 |
| 12/25/2010 | Winter Storm | 0 | 0 | $0 | $0 |
| 12/26/2010 | Heavy Snow | 0 | 0 | $0 | $0 |
| 1/22/2011 | Heavy Snow | 0 | 0 | $0 | $0 |
| 2/9/2011 | Winter Storm | 0 | 0 | $0 | $0 |
| 2/10/2011 | Heavy Snow | 0 | 0 | $0 | $0 |
| 1/25/2013 | Winter Weather | 0 | 0 | $0 | $0 |
| 2/16/2013 | Winter Weather | 0 | 0 | $0 | $0 |
| 1/21/2014 | Winter Weather | 0 | 0 | $0 | $0 |
| 1/28/2014 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/28/2014 | Winter Storm | 0 | 0 | $0 | $0 |
| 2/11/2014 | Winter Storm | 0 | 0 | $0 | $0 |
| 2/12/2014 | Winter Weather | 0 | 0 | $0 | $0 |
| 3/3/2014 | Winter Weather | 0 | 0 | $0 | $0 |
| 2/16/2015 | Ice Storm | 0 | 0 | $0 | $0 |
| 2/16/2015 | Winter Storm | 0 | 0 | $0 | $0 |
| 2/24/2015 | Winter Weather | 0 | 0 | $0 | $0 |
| 2/25/2015 | Winter Storm | 0 | 0 | $0 | $0 |
| 2/25/2015 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/22/2016 | Winter Weather | 0 | 0 | $0 | $0 |
| 2/12/2016 | Winter Weather | 0 | 0 | $0 | $0 |
| 2/12/2016 | Winter Storm | 0 | 0 | $0 | $0 |
| 4/5/2016 | Frost/Freeze | 0 | 0 | $0 | $0 |
| 4/10/2016 | Frost/Freeze | 0 | 0 | $0 | $0 |
| 1/7/2017 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/7/2017 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/7/2017 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/3/2018 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/3/2018 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/17/2018 | Winter Weather | 0 | 0 | $0 | $0 |
| 1/17/2018 | Winter Weather | 0 | 0 | $0 | $0 |
| 12/9/2018 | Winter Weather | 0 | 0 | $0 | $0 |
| 2/20/2020 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/28/2021 | Winter Storm | 0 | 0 | $0 | $0 |
| 1/28/2021 | Winter Weather | 0 | 0 | $0 | $0 |
| 1/21/2022 | Winter Storm | 0 | 0 | $0 | $0 |

Source: NCEI

Several storm impacts from NCEI are summarized below:

**December 3, 2000 -** A winter storm struck parts of northeast North Carolina. The storm struck a relatively small area, but the locations that had snow received impressive totals. Some specific snow totals were as follows: Aulander 15”; Woodland, Winton, and Murfreesboro 13"; Rich Square and Como 12"; Gatesville 11"; Windsor and Conway 10"; Eure and Milwaukee 9"; Edenton, Ahoskie, and Moyock 8"; South Mills and Sunbury 7"; Severn 6"; and Weeksville and Seaboard 5". Local law enforcement

reported numerous traffic accidents, but no injuries were recorded. NCEI reports $25,000 in property damages in Bertie County.

**January 23, 2003 –** A major winter storm affected eastern North Carolina on January 23, 2003. The storm dumped the highest amounts of snow east of highway 17 across the area known as the Outer Banks, where 8 to 12 inches of snow fell with isolated amounts up to 14 inches, including the counties of eastern Carteret, Dare and, and Hyde counties. This was the largest one-day snowfall on the Outer Banks in over a decade. Snowfall amounts from 4 to 8 inches fell across central sections of the county warning area including Craven, Pamlico, Beaufort, and Tyrrell counties. Other western counties received 2 to 4-inch snowfall amounts.

**December 26, 2004 –** A winter storm produced a narrow band of six to as much as eleven inches of snow across interior northeast North Carolina. The snow caused very hazardous driving conditions, which resulted in numerous accidents. The highest amounts were reported at Gatesville in Gates County 11" Sunbury in Gates County 11", Gates in Gates County 10", Ahoskie in Hertford County 9.5", Pendleton in Northampton County 8.5", Murfreesboro in Hertford County 8", Askewville in Bertie County 7.5", and Lasker in Northampton County 6".

**January 28, 2014 –** Weak low pressure developed to the south of eastern North Carolina on January 28th then lifted northeast offshore of the coast on January 29th. Widespread light wintry precipitation developed during the morning of January 28th, becoming heavier and more widespread through the afternoon as it spread north and east. The wintry weather lasted through the night of January 28th before finally ending during the morning of January 29th. Mainly snow was reported over the northern sections with 4 to 7 inches of accumulations. Over the southern tier the precipitation fell as a mix of sleet and freezing rain, with a little snow at the end. Sleet accumulated up to 2 inches in spots with 1/4 to 1/2 inch of freezing rain, heaviest over the southern Outer Banks. Roads became snow and ice covered during the event and persisted for a couple days. Many schools were closed for four days. Snow and sleet fell across the region through the morning of January 29th. Snow mixed with sleet at times and in total accumulated up to 7 inches in Bertie and Washington Counties. Power outages were reported for many residents as power lines were downed from the ice and gusty winds. Roads were icy for several days during and after the event.

**January 17, 2018 –** Low pressure deepening off the North Carolina coast produced significant snowfall over most of eastern North Carolina during the late evening of January 17th through the early morning of January 18th. Snowfall over the region ranged from less than 1 inch over the southwest tier to 8 inches or more over the north coast. There was one weather related traffic fatality reported in Washington county on the morning of January 18th.

**January 21, 2022 –** A cold front moved through the area late in the day of January 20th. As the front moved through rain changed over to a wintry mix of snow, sleet and freezing rain on the evening of January 20th through early morning on the 21st before ending. Significant amounts of ice fell toward the Crystal Coast, with a general 2 to 6 of snow mixed with sleet farther north and west. The icing amounts of a quarter to a half of an inch toward the Crystal Coast were the highest amounts of ice this area has experienced, over the widest area, since the late 1990s.

HMPC members noted also noted a severe ice storm that downed power lines across the coastal plain and caused widespread, long-term power outages. An event narrative from NC State Climate Office is below:

**January 9-13, 1968** – A period of freezing rain, sleet, and snow during which outdoor surfaces in almost all areas of North Carolina became heavily coated with ice. In a large area east and south of Raleigh, poles and lines were broken to the extent that several entire counties were without electricity or telephone for periods of one to five days. One of several telephone companies affected reported losses in mid-category five; one power company reported costs in category six with 2,000 linemen working on repairs for several days and night. Trees and shrubs were broken over an even larger area. Throughout most of

the state, traffic was severely curtailed. No deaths or injuries are known to have resulted from the direct action of the weather, but at least five people were killed in weather-related traffic accidents, and thousands required hospital treatment for injuries received in traffic accidents or in falls on the ice. Widespread lack of power caused some economic losses and a great deal of discomfort. There was much loss of time from school and business closings. A few roofs fell from the weight of ice.

The Northeastern NC Region received one emergency declaration and two presidential disaster declarations since 1968 for incidents related to severe winter storms. These declarations were made for Bertie, Hyde, Martin, and Washington Counties. As a state, North Carolina received eight disaster declarations related to severe winter storms during this timeframe.

**Table 4.93 – Emergency & Disaster Declarations in Northeastern NC Region for Severe Winter Storms**

| Disaster Number | Date | Disaster Type | Incident Start | Incident End |
|---|---|---|---|---|
| 234 | 1968 | Severe Ice Storm | 2/10/1968 | 2/10/1968 |
| 3110 | 1993 | Severe Snow and Winter Storm | 3/13/1993 | 3/17/1993 |
| 1087 | 1996 | Snow | 1/6/1996 | 1/12/1996 |

Source: FEMA, July 9, 2025

## PROBABILITY OF FUTURE OCCURRENCE

NCEI records 74 separate days with severe winter weather related events during the 26-year period from 1999 through 2024, which equates to an average of almost 3 days with winter weather per year or more than 100 percent likelihood of an occurrence in any given year.

*Probability: 4 – Highly Likely*

## CLIMATE CHANGE

According to the 2023 North Carolina Hazard Mitigation Plan, there is uncertainty associated with climate change impacts on future severe winter storms. Global temperature rise could cause shorter and warmer winters in many areas; however, the likelihood of dangerously low temperatures may increase due to continuing trends of temperature extremes. Warmer winters, however, mean that precipitation that would normally fall as snow may begin to fall as rain or freezing rain instead.

## VULNERABILITY ASSESSMENT

### *PEOPLE*

Winter storms are considered deceptive killers because most deaths are indirectly related to the storm event. The leading cause of death during winter storms is from automobile or other transportation accidents due to poor visibility and/or slippery roads. Additionally, exhaustion and heart attacks caused by overexertion may result from winter storms.

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

The HMPC noted that power outages during periods of freezing temperatures is a serious risk to safety in the region, particularly because many households are reliant on electric heat.

### *PROPERTY*

According to reported data of storm impacts recorded by the NCEI, between 1999 and 2018, the Northeastern NC Region experienced minimal – $25,000 – property damage related to the impacts of severe winter storm. Losses due to severe winter weather may not have been reported but should be expected during severe winter weather incidents.

Potential losses associated with winter storms include the cost of the removal of snow from roadways, debris cleanup, and indirect losses from power outages, lost productivity, and other factors. Additionally, severe ice is often associated with winter storms; and an icy roadway on a bridge or at a busy intersection, for example, threatens the safety of residents and visitors. Ice accumulation can also cause power outages and have a significant impact on public utilities.

### *ENVIRONMENT*

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

### *CONSEQUENCE ANALYSIS*

Table 4.94 summarizes the potential negative consequences of severe winter weather.

**Table 4.94 – Consequence Analysis – Severe Winter Weather**

| Category | Consequences |
|---|---|
| Public | Localized impact expected to be severe for affected areas and moderate to light for other less affected areas. |
| Responders | Adverse impact expected to be severe for unprotected personnel and moderate to light for trained, equipped, and protected personnel. |
| Continuity of Operations (including Continued Delivery of Services) | Localized disruption of roads and/or utilities caused by incident may postpone delivery of some services. |
| Property, Facilities and Infrastructure | Localized impact to facilities and infrastructure in the areas of the incident. Power lines and roads most adversely affected. |
| Environment | Environmental damage to trees, bushes, etc. |
| Economic Condition of the Jurisdiction | Local economy and finances may be adversely affected, depending on damage. |
| Public Confidence in the Jurisdiction's Governance | Ability to respond and recover may be questioned and challenged if planning, response, and recovery not timely and effective. |

## HAZARD SUMMARY BY JURISDICTION

The following table summarizes severe winter weather risk by jurisdiction. Severe winter storm risk does not vary substantially by jurisdiction because these events are typically regional in nature.

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| *All Jurisdictions* | 4 | 1 | 4 | 1 | 3 | 2.7 | M |

## 4.5.9 SINKHOLE

### HAZARD BACKGROUND

Sinkholes are a natural and common geologic feature in areas with underlying limestone and other rock types that are soluble in natural water. Most limestone is porous, allowing the acidic water of rain to percolate through their strata, dissolving some limestone and carrying it away in solution. Over time, this persistent erosional process can create extensive underground voids and drainage systems in much of the carbonate rocks. Collapse of overlying sediments into the underground cavities produces sinkholes.

The three general types of sinkholes are: subsidence, solution, and collapse. Collapse sinkholes are most common in areas where the overburden (the sediments and water contained in the unsaturated zone, surficial aquifer system, and the confining layer above an aquifer) is thick, but the confining layer is breached or absent. Collapse sinkholes can form with little warning and leave behind a deep, steep sided hole. Subsidence sinkholes form gradually where the overburden is thin and only a veneer of sediments is overlying the limestone. Solution sinkholes form where no overburden is present and the limestone is exposed at land surface.

Sinkholes occur in many shapes, from steep-walled holes to bowl or cone shaped depressions. Sinkholes can be dramatic because the land generally stays intact for a while until the underground spaces get too big. If there is not enough support for the land above the spaces, then a sudden collapse of the land surface can occur. Under natural conditions, sinkholes form slowly and expand gradually. However, human activities such as dredging, constructing reservoirs, diverting surface water, and pumping groundwater can accelerate the rate of sinkhole expansions, resulting in the abrupt formation of collapse sinkholes.

Although a sinkhole can form without warning, specific signs can signal potential development:

- Slumping or falling fenceposts, trees, or foundations;
- Sudden formation of small ponds;
- Wilting vegetation;
- Discolored well water; and/or
- Structural cracks in walls, floors.

Sinkhole formation can be accelerated by urbanization. Development increases water usage, alters drainage pathways, overloads the ground surface, and redistributes soil. According to FEMA, the number of human-induced sinkholes has doubled since 1930, insurance claims for damages as a result of sinkholes has increased 1,200 percent from 1987 to 1991, costing nearly $100 million.

*Warning Time: 4 – Less than six hours*

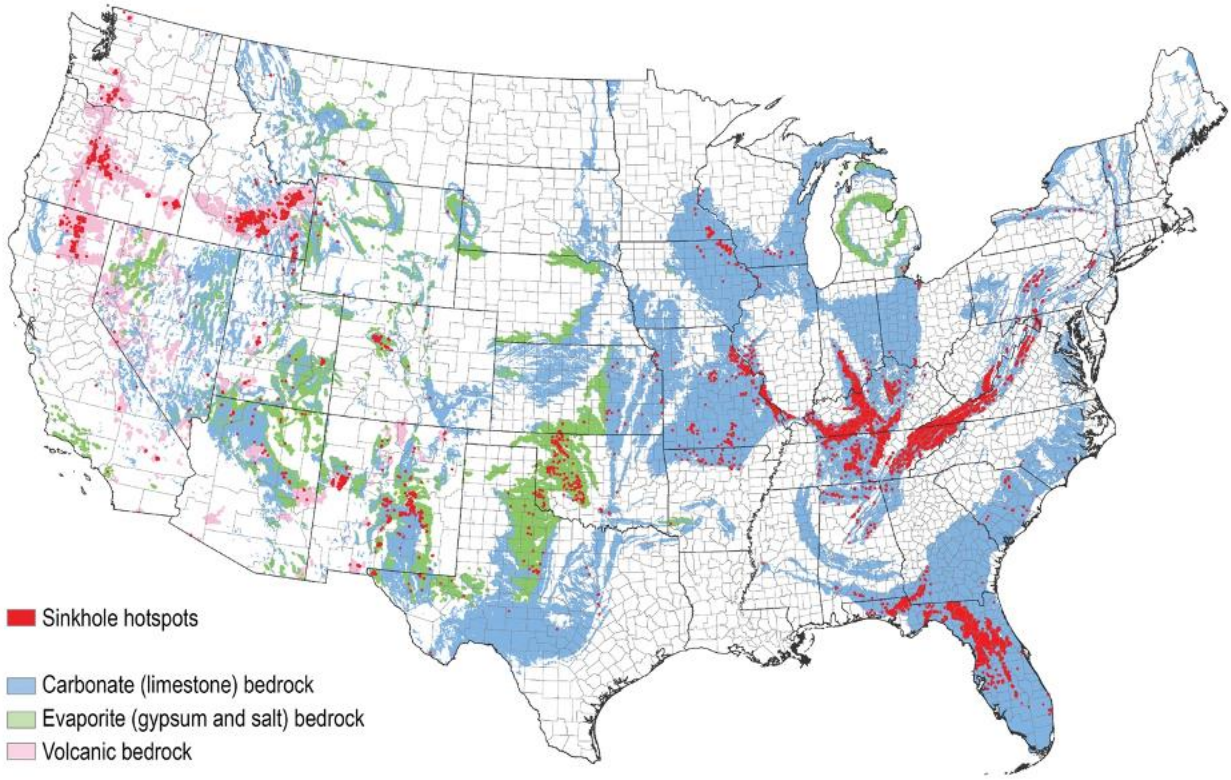
*Duration: 1 – Less than six hours*

### LOCATION

According to the North Carolina Department of Environmental Quality (NC DEQ), in North Carolina sinkholes mainly occur in the coastal plain. NC DEQ does not specifically identify vulnerability in any counties in the Northeastern NC region, but it does note sinkhole occurrence in counties adjacent to the region. Additionally, USGS's Karst Map of the Conterminous United States, Figure 4.53, shows karst areas in Eastern North Carolina, including Bertie, Washington, and Tyrrell counties. However, the map does not identify any sinkhole hotspots in the Northeastern Region.

*Spatial Extent: 1 – Negligible*

**Figure 4.53 – Karst Map of the Conterminous United States – 2020**




Source: USGS

## EXTENT

Sinkholes are relatively unpredictable, causing greater impacts when they do occur. They can range dramatically in size, from a few feet wide to hundreds of acres wide and from less than 1 foot to more than 100 feet deep. Sinkholes can also vary in shape. Some are shaped like shallow bowls or saucers while others have vertical walls. In North Carolina, sinkholes sometimes hold water and form natural ponds. There is no formal scale for measuring the extent of sinkholes.

Sinkholes can have dramatic effects if they occur in urban settings, particularly when infrastructure, such as roads, or buildings are on top of the cavity, causing catastrophic damage. They can also contaminate water resources and have been known to swallow up vehicles, swimming pools, parts of roadways, and even buildings.

*Impact: 2 – Limited*

## PAST OCCURRENCES

There are limited records of sinkholes in the Northeastern NC region. Records reported here were found in local news reports and are likely only a sample of past occurrences.

**August 2011** – A sinkhole formed in U.S. 264 at the Dare-Hyde County line, closing the highway to traffic in both directions.

**April 2013** – A sinkhole in Bertie County was reported to WITN local news, but this report was not confirmed.

**April 2013 –** A sinkhole was reported in Martin County on Lee Road, which spanned the width of the road and required that the road be closed. This sinkhole was approximately two feet in diameter and three feet deep.

## PROBABILITY OF FUTURE OCCURRENCE

Sinkholes are a potential occurrence in localized areas of the Northeastern NC region based on geologic conditions. Future occurrence of sinkholes may be impacted by weather events, including heavy rain, as well as human activity, including increased development and groundwater pumping. There are two known recent occurrences of sinkhole that blocked roadways and required emergency repair. Though small events due occur, the region is unlikely to experience a significant sinkhole event, therefore the probability of future sinkhole events is considered possible.

*Probability: 2 – Possible*

## CLIMATE CHANGE

Direct effects from global warming and climate change such as an increase in droughts, floods and hurricanes could contribute to an increase in sinkholes. Climate change raises the likelihood of extreme weather, meaning the torrential rain and flooding conditions which often lead to the exposure of sinkholes are likely to become increasingly common. Certain events such as a hurricane following a period of drought can trigger a sinkhole due to low levels of groundwater combined with a heavy influx of rain. As discussed in Sections 4.5.2 Drought, 4.5.5 Flood, and 4.5.6 Hurricane, potential increases in these contributing events are possible. Therefore, an increase in the occurrence of sinkholes in the future is possible.

## VULNERABILITY ASSESSMENT

### *PEOPLE*

A person's vulnerability is directly related to the speed in which the sinkhole opens and the person being above the sinkhole. Records exist for deaths associated with sinkholes opening beneath homes while occupants were present or from motor vehicle deaths when drivers could not avoid driving into the sinkhole before protective barriers were in place. However, there are not records of such severe events in the Northeastern NC region.

### *PROPERTY*

Similar to people, property's vulnerability to a sinkhole is dependent on a variety of factors including the speed at which the sinkhole develops. Property above a large sinkhole that suddenly collapses can suffer catastrophic damages ranging from cracked foundations to damaged roadways and totaled vehicles.

### *ENVIRONMENT*

Sinkholes are unlikely to cause substantial impacts to the natural environment. Natural areas that are damaged will recover quickly.

### *CONSEQUENCE ANALYSIS*

Table 4.95 summarizes the potential negative consequences of sinkhole.

**Table 4.95 – Consequence Analysis – Sinkhole**

| Category | Consequences |
|---|---|
| Public | Impacts are expected to be minimal to the larger population. Impacts for those effected could cause anxiety or depression about economic and property losses and personal injury. |
| Responders | First responders will be impacted similarly to other events that have advance warning. |
| Continuity of Operations (including Continued Delivery of Services) | Continuity of operations is generally not disrupted by sinkholes. |
| Property, Facilities and Infrastructure | Although sinkhole extents are localized, buildings located on or adjacent to a sinkhole are susceptible to foundation damage or building collapse. If the building is located close enough to the sinkhole it can be completely destroyed or in worst cases, completely collapse into the sinkhole. Remediation costs can be high due to costly foundation shoring or cost of stabilization of the sinkhole itself. |
| Environment | Sinkholes are natural occurring process and local plants and animals adjust quickly. Many naturally occurring sinkholes fill with rainwater creating new aquatic habitat. |
| Economic Condition of the Jurisdiction | Sinkholes located in open areas or that impact only small numbers of buildings, while having a high impact to the local property owner, do not have substantial impacts to the economy. Sinkholes that open up in major traffic thoroughfares can include significant impact to daily work traffic and flow of goods. |
| Public Confidence in the Jurisdiction's Governance | Sinkholes are relatively unpredictable, however if a sinkhole occurs after a recent inspection and causes harm to people or property, the public may lose confidence in the jurisdiction's ability to manage a future sinkhole event. |

## HAZARD SUMMARY BY JURISDICTION

The following table summarizes sinkhole hazard risk by jurisdiction. Sinkhole hazard risk does not vary substantially by jurisdiction. Jurisdictions with known recent sinkhole occurrences and/or that fall within a karst area were given a probability rating of 2; all others were given a probability rating of 1. However, the overall hazard priority for sinkhole remains low for all jurisdictions.

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | PRI Score | Priority |
|---|---|---|---|---|---|---|---|
| Bertie County | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Town of Askewville | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Town of Aulander | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Town of Colerain | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Town of Kelford | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Town of Lewiston-Woodville | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Town of Powellsville | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Town of Roxobel | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Town of Windsor | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Hyde County | 2 | 1 | 1 | 4 | 1 | 1.6 | L |

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | PRI Score | Priority |
|---|---|---|---|---|---|---|---|
| Martin County | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Town of Bear Grass | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Everetts | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Hamilton | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Hassell | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Jamesville | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Oak City | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Parmele | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Robersonville | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Town of Williamston | 1 | 1 | 1 | 4 | 1 | 1.3 | L |
| Tyrrell County | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Town of Columbia | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Washington County | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Town of Creswell | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Town of Plymouth | 2 | 1 | 1 | 4 | 1 | 1.6 | L |
| Town of Roper | 2 | 1 | 1 | 4 | 1 | 1.6 | L |

## 4.5.10 WILDFIRE

### HAZARD BACKGROUND

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

- **Ground fires** – burn organic matter in the soil beneath surface litter and are sustained by glowing combustion.
- **Surface fires** – spread with a flaming front and burn leaf litter, fallen branches and other fuels located at ground level.
- **Crown fires** – burn through the top layer of foliage on a tree, known as the canopy or crown fires. Crown fires, the most intense type of fire and often the most difficult to contain, need strong winds, steep slopes and a heavy fuel load to continue burning.

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

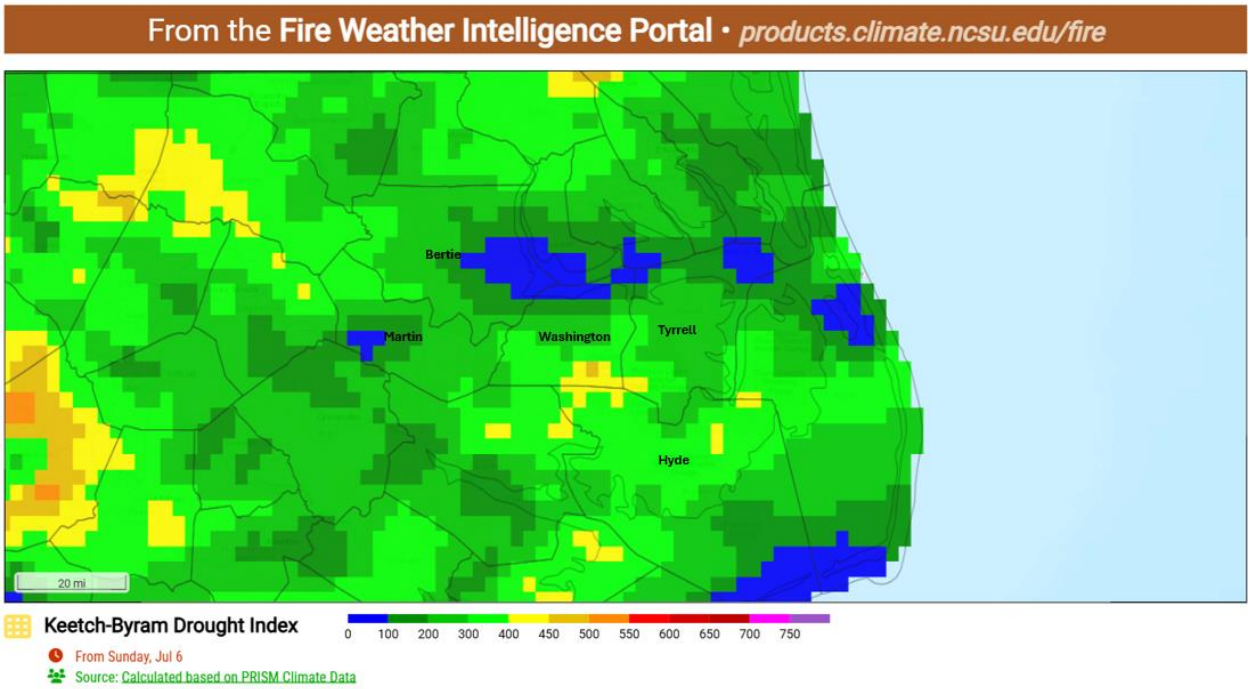
Weather plays a major role in the birth, growth and death of a wildfire. In support of forecasting for fire weather, the National Weather Service Fire Weather Program emerged in response to a need for weather support to large and dangerous wildfires. This service is provided to federal and state land management agencies for the prevention, suppression, and management of forest and rangeland fires.

The Northeastern NC Region experiences a variety of wildfire conditions found in the Keetch-Byram Drought Index, which is described in Table 4.96. The Keetch-Byram Drought Index (KBDI) for July 6, 2024, is shown in Figure 4.54. The KBDI for the Northeastern Region at this time was 100-400 for most of the region; however, Washington County experienced 400-500 in its southeastern area.

**Table 4.96 – Keetch-Byram Index Fire Danger Rating System**

| KBDI | Description |
|---|---|
| 0-200 | Soil and fuel moisture are high. Most fuels will not readily ignite or burn. However, with sufficient sunlight and wind, cured grasses and some light surface fuels will burn in sports and patches. |
| 200-400 | Fires more readily burn and will carry across an area with no gaps. Heavier fuels will still not readily ignite and burn. Also, expect smoldering and the resulting smoke to carry into and possibly through the night. |
| 400-600 | Fire intensity begins to significantly increase. Fires will readily burn in all directions exposing mineral soils in some locations. Larger fuels may burn or smolder for several days creating possible smoke and control problems. |
| 600-800 | Fires will burn to mineral soil. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn through the night and heavier fuels will actively burn and contribute to fire intensity. |

**Figure 4.54 – Keetch-Byram Drought Index, July 2025**




Source: North Carolina State Climate Office

*Warning Time: 4 – Less than six hours*

*Duration: 3 – Less than one week*

## LOCATION

The location of wildfire risk can be defined by the acreage of Functional Wildland Urban Interface (WUI). The Functional WUI is described as the classification of the land near buildings into zones that describe the wildfire risk mitigation activities appropriate for each zone. Buildings used in producing the Functional WUI are defined as greater than 40 square meters. There are five Functional WUI categories recognized. There are five Functional WUI categories recognized.

- **Direct Exposure:** Burnable land cover within 75m of a building. Buildings in this zone are exposed to ignition from convective and radiative heat from a wildfire, embers, and adjacent burning structures/outbuildings.
- **Indirect Exposure:** Nonburnable land cover within 75m of a building and less than 1,530m from a 500-ha contiguous block of wildland fuel. Buildings in this zone are exposed to ignition from embers and/or adjacent burning structures
- **Critical Fireshed:** The burnable land cover from which a wildfire can reach a significant number of buildings within a single burning period.
- **Little-to-no Exposure:** Non-burnable land cover within 75m of a building and more than 1530m from a 500-ha contiguous block of wildland fuel. Buildings in this zone are relatively safe from ember ignition and building-to-building spread.
- **Sources of Ember Load to Buildings:** Burnable land cover more than 75m from a building that produces embers capable of reaching nearby buildings. Ember production is a function of fire type and intensity; ember travel is a function of wind speed and direction. Ember modeling is based on fire modeling based on gridded historical climatology.

The Southern Wildfire Risk Assessment (SWRA) estimates that 72.9% percent of the Northeastern Region is within the critical fireshed and 2.7% percent of the region is in direct exposure to the Functional WUI. The expansion of residential development out into rural landscapes increases the potential for wildland fire threat to public safety and the potential for damage to forest resources and dependent industries. Incorporated towns in the region experience a significantly higher percentage of land that is in direct exposure to the WUI than the unincorporated land within each county.

Table 4.97 through Table 4.102 detail the extent of the Functional WUI by jurisdiction in the Northeastern Region. Figure 4.55 shows the location of the functional wildland urban interface in the Northeastern Region.

*Spatial Extent: 3 – Moderate*

**Table 4.97 – Functional Wildland Urban Interface, Northeastern Region**

| | Functional Wildland Urban Interface (WUI) Category | Acres | Percent |
|---|---|---|---|
| | Direct Exposure | 40,551 | 2.7% |
| | Indirect Exposure | 45,539 | 3.0% |
| | Critical Fireshed | 1,103,122 | 72.9% |
| | Sources of Ember Load to Buildings | 142,079 | 9.4% |
| | Little to No Exposure | 51 | 0.003% |
| | Water | 181,383 | 12.0% |
| | **Total** | **1,512,725** | **100%** |

Source: Southern Wildfire Risk Assessment

**Table 4.98 – Functional Wildland Urban Interface, Bertie County**

| | Functional Wildland Urban Interface (WUI) Category | Acres | Percent |
|---|---|---|---|
| | Direct Exposure | 14,368 | 3.2% |
| | Indirect Exposure | 12,951 | 2.9% |
| | Critical Fireshed | 370,915 | 81.7% |
| | Sources of Ember Load to Buildings | 42,432 | 9.3% |
| | Little to No Exposure | 0 | 0.0% |
| | Water | 13,465 | 3.0% |
| | **Total** | **454,126** | **100%** |

Source: Southern Wildfire Risk Assessment

**Table 4.99 – Functional Wildland Interface, Hyde County**

| | Functional Wildland Urban Interface (WUI) Category | Acres | Percent |
|---|---|---|---|
| | Direct Exposure | 3,789 | 1% |
| | Indirect Exposure | 5,301 | 1% |
| | Critical Fireshed | 220,779 | 61% |
| | Sources of Ember Load to Buildings | 22,302 | 6% |
| | Little to No Exposure | 0 | 0% |
| | Water | 111,404 | 31% |
| | **Total** | **363,575** | **100%** |

Source: Southern Wildfire Risk Assessment

### Table 4.100 – Functional Wildland Interface, Martin County

| | Functional Wildland Urban Interface (WUI) Category | Acres | Percent |
|---|---|---|---|
| | Direct Exposure | 12,647 | 4.4% |
| | Indirect Exposure | 16,585 | 5.8% |
| | Critical Fireshed | 212,774 | 74.5% |
| | Sources of Ember Load to Buildings | 41,955 | 14.7% |
| | Little to No Exposure | 0 | 0.0% |
| | Water | 1,518 | 0.5% |
| | **Total** | **285,478** | **100.0%** |

Source: Southern Wildfire Risk Assessment

### Table 4.101 – Functional Wildland Interface, Tyrrell County

| | Functional Wildland Urban Interface (WUI) Category | Acres | Percent |
|---|---|---|---|
| | Direct Exposure | 2,889 | 1.6% |
| | Indirect Exposure | 3,061 | 1.6% |
| | Critical Fireshed | 138,009 | 74.2% |
| | Sources of Ember Load to Buildings | 13,623 | 7.3% |
| | Little to No Exposure | 4 | 0.0% |
| | Water | 28,446 | 15.3% |
| | **Total** | **186,033** | **100%** |

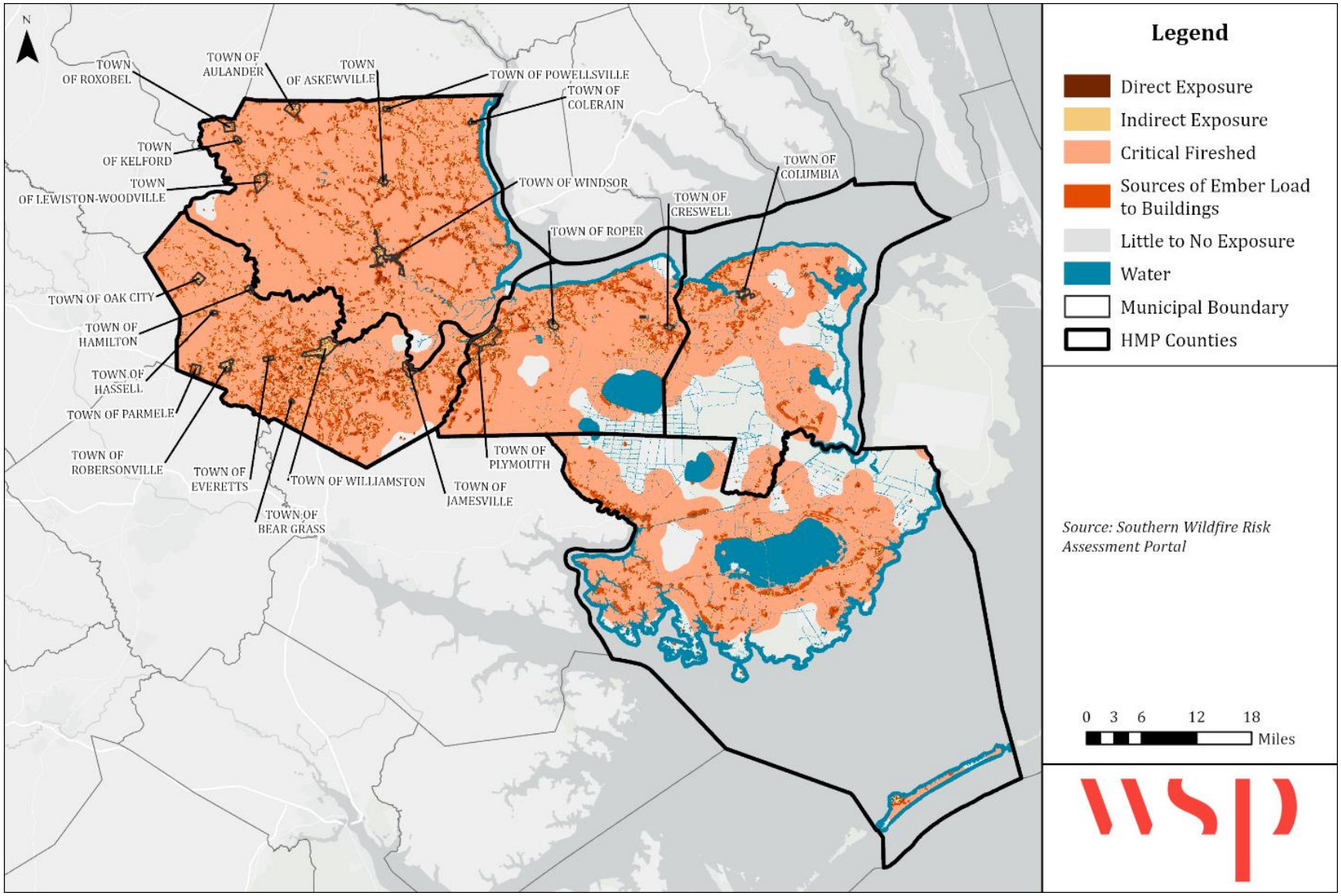
Source: Southern Wildfire Risk Assessment

### Table 4.102 – Functional Wildland Interface, Washington County

| | Functional Wildland Urban Interface (WUI) Category | Acres | Percent |
|---|---|---|---|
| | Direct Exposure | 6,858 | 3.1% |
| | Indirect Exposure | 7,641 | 3.4% |
| | Critical Fireshed | 160,645 | 71.9% |
| | Sources of Ember Load to Buildings | 21,767 | 9.7% |
| | Little to No Exposure | 47 | 0.0% |
| | Water | 26,550 | 11.9% |
| | **Total** | **223,506** | **100.0%** |

Source: Southern Wildfire Risk Assessment

**Figure 4.55 – Functional Wildland Urban Interface, Northeastern Region**



## EXTENT

Wildfire extent can be defined by the fire's intensity and measured by the Characteristic Fire Intensity Scale, which identifies areas where significant fuel hazards which could produce dangerous fires exist. Fire Intensity ratings identify where significant fuel hazards and dangerous fire behavior potential exist based on fuels, topography, and a weighted average of four percentile weather categories. The Fire Intensity Scale consists of five classes, as defined by Southern Wildfire Risk Assessment. 0.3 percent of the region may experience up to a Class 5 Fire Intensity, which has great potential for harm or damage to life and property. However, Hyde County is the county in the region that contains Class 5 Fire Intensity. 17.3 percent of the region may experience up to a Class 4 or Class 4.5 Fire Intensity, which poses significant harm or damage to life and property. 10.3 percent of the county may experience Class 3 Fire Intensity, which has potential for harm to life and property but is easier to suppress with dozer and plows. The remainder of the county is either non-burnable (36.1%) or would face a Class 1 or Class 2 Fire Intensity, which are easily suppressed.

The Fire Intensity Scale consists of five classes, as defined by Southern Wildfire Risk Assessment and shown in Table 4.103. Table 4.104 through Table 4.109 detail fire intensity for the Northeastern NC Region. Figure 4.56 shows the potential fire intensity across the Northeastern NC Region.

**Table 4.103 – Fire Intensity Scale**

| Class | Description |
|---|---|
| **1, Very Low** | Very small, discontinuous flames, usually less than 1 foot in length; very low rate of spread; no spotting. Fires are typically easy to suppress by firefighters with basic training and non-specialized equipment. |
| **2, Low** | Small flames, usually less than two feet long; small amount of very short-range spotting possible. Fires are easy to suppress by trained firefighters with protective equipment and specialized tools. |
| **3, Moderate** | Flames up to 8 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 30 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** | Very large flames up to 150 feet in length; profuse short-range spotting, frequent long-range spotting; strong fire-induced winds. Indirect attack marginally effective at the head of the fire. Great potential for harm or damage to life and property. |

Source: Southern Wildfire Risk Assessment

*Impact: 2 – Limited*

### Table 4.104 – Characteristic Fire Intensity, Northeastern Region

| | Characteristic Fire Intensity Scale Category | Acres | Percent |
|---|---|---|---|
| | Non-burnable | 637,422 | 36.1% |
| | 1 Lowest Intensity | 258,149 | 14.6% |
| | 1.5 | 162,239 | 9.2% |
| | 2 Low | 130,675 | 7.4% |
| | 2.5 | 84,811 | 4.8% |
| | 3 Moderate | 134,342 | 7.6% |
| | 3.5 | 47,941 | 2.7% |
| | 4 High | 213,450 | 12.1% |
| | 4.5 | 91,406 | 5.2% |
| | 5 Highest Intensity | 5,393 | 0.3% |
| | > 5 | 0 | 0.0% |
| | **Total** | **1,765,828** | **100%** |

Source: Southern Wildfire Risk Assessment

### Table 4.105 – Characteristic Fire Intensity by Jurisdiction, Bertie County

| | Characteristic Fire Intensity Scale Category | Acres | Percent |
|---|---|---|---|
| | Non-burnable | 120,514 | 26% |
| | 1 Lowest Intensity | 95,157 | 21% |
| | 1.5 | 32,708 | 7% |
| | 2 Low | 52,136 | 11% |
| | 2.5 | 59,123 | 13% |
| | 3 Moderate | 63,350 | 14% |
| | 3.5 | 11,844 | 3% |
| | 4 High | 25,757 | 6% |
| | 4.5 | 299 | 0% |
| | 5 Highest Intensity | 0 | 0% |
| | > 5 | 0 | 0% |
| | **Total** | **460,883** | **100%** |

Source: Southern Wildfire Risk Assessment

### Table 4.106 – Characteristic Fire Intensity by Jurisdiction, Hyde County

| | Characteristic Fire Intensity Scale Category | Acres | Percent |
|---|---|---|---|
| | Non-burnable | 204,722 | 41% |
| | 1 Lowest Intensity | 37,515 | 8% |
| | 1.5 | 30,496 | 6% |
| | 2 Low | 31,468 | 6% |
| | 2.5 | 2,150 | 0% |
| | 3 Moderate | 15,147 | 3% |
| | 3.5 | 4,557 | 1% |
| | 4 High | 88,783 | 18% |
| | 4.5 | 73,095 | 15% |
| | 5 Highest Intensity | 5,393 | 1% |
| | > 5 | 0 | 0% |
| | **Total** | **493,326** | **100%** |

Source: Southern Wildfire Risk Assessment

### Table 4.107 – Characteristic Fire Intensity, Martin County

| | Characteristic Fire Intensity Scale Category | Acres | Percent |
|---|---|---|---|
| | Non-burnable | 96,242 | 33% |
| | 1 Lowest Intensity | 55,810 | 19% |
| | 1.5 | 27,487 | 9% |
| | 2 Low | 17,895 | 6% |
| | 2.5 | 16,067 | 5% |
| | 3 Moderate | 36,992 | 13% |
| | 3.5 | 19,935 | 7% |
| | 4 High | 21,503 | 7% |
| | 4.5 | 372 | 0% |
| | 5 Highest Intensity | 0 | 0% |
| | > 5 | 0 | 0% |
| | **Total** | **292,298** | **100%** |

Source: Southern Wildfire Risk Assessment

### Table 4.108 – Characteristic Fire Intensity, Tyrrell County

| | Characteristic Fire Intensity Scale Category | Acres | Percent |
|---|---|---|---|
| | Non-burnable | 93,008 | 34% |
| | 1 Lowest Intensity | 47,081 | 17% |
| | 1.5 | 46,352 | 17% |
| | 2 Low | 17,443 | 6% |
| | 2.5 | 2,848 | 1% |
| | 3 Moderate | 4,825 | 2% |
| | 3.5 | 3,046 | 1% |
| | 4 High | 46,501 | 17% |
| | 4.5 | 12,653 | 5% |
| | 5 Highest Intensity | 0 | 0% |
| | > 5 | 0 | 0% |
| | **Total** | **273,757** | **100%** |

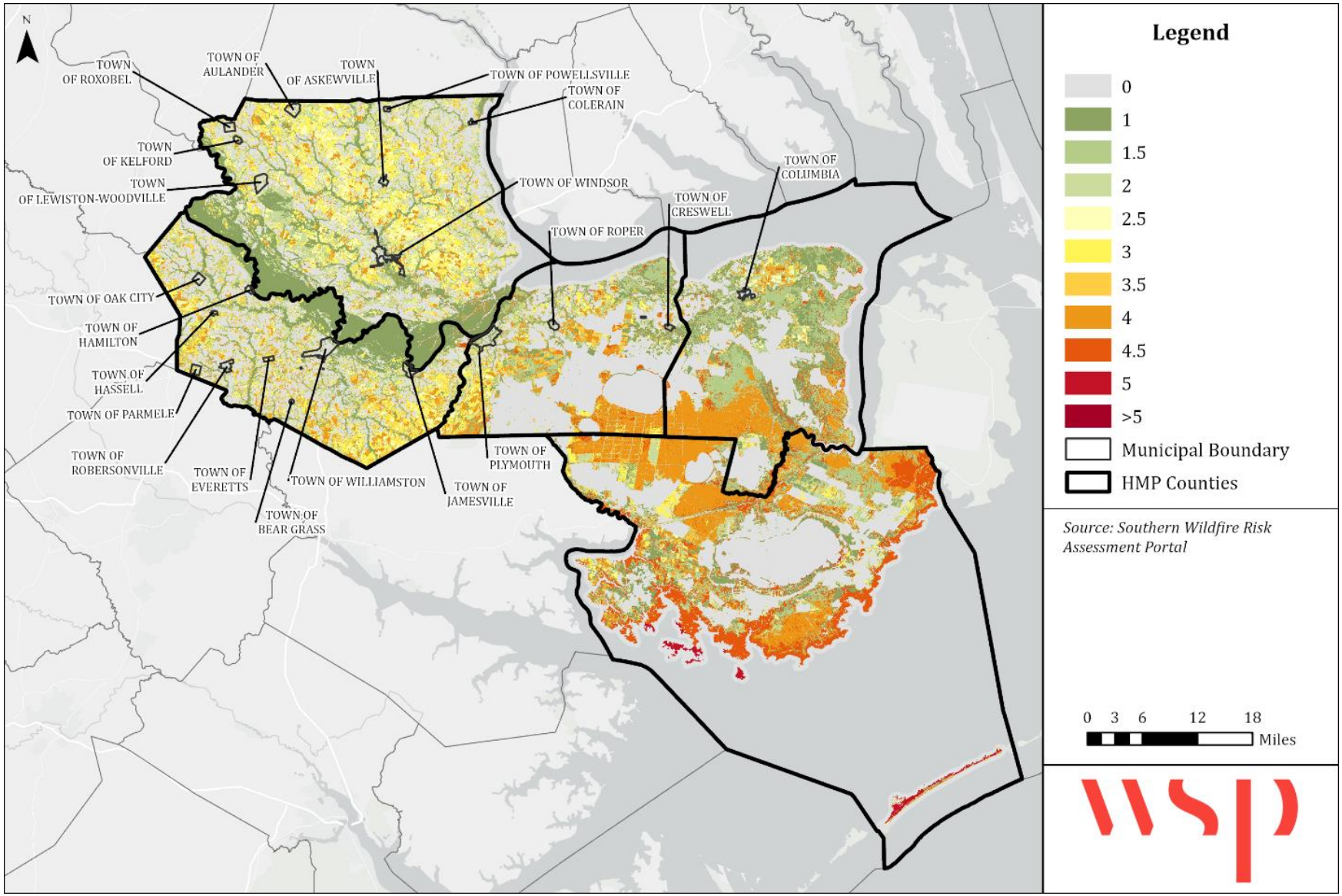
Source: Southern Wildfire Risk Assessment

### Table 4.109 – Characteristic Fire Intensity, Washington County

| | Characteristic Fire Intensity Scale Category | Acres | Percent |
|---|---|---|---|
| | Non-burnable | 122,936 | 50% |
| | 1 Lowest Intensity | 22,586 | 9% |
| | 1.5 | 25,196 | 10% |
| | 2 Low | 11,733 | 5% |
| | 2.5 | 4,623 | 2% |
| | 3 Moderate | 14,028 | 6% |
| | 3.5 | 8,559 | 3% |
| | 4 High | 30,906 | 13% |
| | 4.5 | 4,987 | 2% |
| | 5 Highest Intensity | 0 | 0% |
| | > 5 | 0 | 0% |
| | **Total** | **245,551** | **100%** |

Source: Southern Wildfire Risk Assessment

**Figure 4.56 – Characteristic Fire Intensity, Northeastern NC Region**



## HISTORICAL OCCURRENCES

Table 4.110 lists past occurrences of wildfire in the Northeastern NC Region since 1999 as provided by the North Carolina Forest Service (NCFS) in July 2025. This data only accounts for occurrences within unincorporated areas within the region, which fall under the NCFS jurisdiction, as well as larger events in incorporated areas where local fire departments requested NCFS support for fire suppression. Actual number of fires and acreage burned are higher than what can be reported here.

**Table 4.110 – Records for Wildfire in the Northeastern NC Region, 1999-2024**

| Year | Wildfire Count | Acres Burned | Average Acreage Burned |
|---|---|---|---|
| 1999 | 76 | 223.4 | 2.94 |
| 2000 | 76 | 630.7 | 8.30 |
| 2001 | 156 | 846.8 | 5.43 |
| 2002 | 106 | 518.8 | 4.89 |
| 2003 | 32 | 161.3 | 5.04 |
| 2004 | 56 | 324.4 | 5.79 |
| 2005 | 59 | 156.9 | 2.66 |
| 2006 | 105 | 435.3 | 4.15 |
| 2007 | 153 | 825.8 | 5.40 |
| 2008 | 141 | 18,284.6 | 129.68 |
| 2009 | 104 | 508.0 | 4.88 |
| 2010 | 82 | 290.5 | 3.54 |
| 2011 | 126 | 534.0 | 4.24 |
| 2012 | 73 | 166.8 | 2.28 |
| 2013 | 70 | 206.9 | 2.96 |
| 2014 | 60 | 254.8 | 4.25 |
| 2015 | 74 | 169.4 | 2.29 |
| 2016 | 54 | 6,958.3 | 128.86 |
| 2017 | 103 | 176.0 | 1.71 |
| 2018 | 72 | 43.8 | 0.61 |
| 2019 | 105 | 147.24 | 1.40 |
| 2020 | 74 | 63.78 | 0.86 |
| 2021 | 100 | 284.23 | 2.84 |
| 2022 | 119 | 2,454.45 | 20.62 |
| 2023 | 72 | 5,582.75 | 77.53 |
| 2024 | 79 | 261.58 | 3.31 |
| **Total** | **2,327** | **40,510.5** | **17.40** |

Source: NC Forest Service

In 2008 and 2016, the Northeastern NC Region saw an exceptional number of acres burned, averaging 129.68 and 128.86 per fire event, respectively. The region experienced drought in 2008, and acres burned were higher on average across all counties in the region, with impacts most severe in Hyde County. In 2008, over 16,500 acres burned in Hyde County, and in 2016 almost 7,000 acres burned.

In June 2008, a record-breaking fire started at the Pocosin Lakes National Wildlife Refuge and spread to privately owned rural land in Hyde, Tyrrell, and Washington Counties. The Whipping Creek fire started as two smaller fires in April 2016, and Hyde County officials were forced to shut down a 30-mile stretch of U.S. Highway 264. Despite its large size, the fire occurred where no people or communities were

threatened, according to the North Carolina Forestry Service. In 2022, a wildfire began in private land in Carolina Ranch near the Pocosin Lakes National Wildlife Refuge in Hyde County and burned around 1,940 acres.

On average, the Northeastern NC Region experiences 89.5 fires, and 1,558 acres burned annually from fires that require the North Carolina Forest Service to respond. Actual number of fires and acreage burned is likely higher because smaller fires within jurisdictional boundaries are managed by local fire departments. During HMPC discussions, a NCFS representative noted that the Northeastern NC Region is prone to long-lasting fires, which can be taxing on response resources.

## PROBABILITY OF FUTURE OCCURRENCE

The Southern Wildfire Risk Assessment provides a Burn Probability analysis which signifies the likelihood of a wildfire burning a specific location within a set time frame - commonly represented as the chance of burning during one calendar year or wildfire season. According to the SWRA, Burn Probability can be expressed as a fraction (ex. 0.005) or odds (1-in-200) and is based on fire behavior modeling across thousands of simulations of possible fire seasons. In each simulation, factors contributing to the probability of a fire occurring, including weather and ignition likelihood are varied based on patterns derived from observations in recent decades. It is not predictive and does not reflect any currently forecasted weather or fire danger conditions. Burn Probability does not say anything about the intensity of fire if it occurs. The Burn Probability for the Northeastern NC Region and its respective counties is presented in Table 4.111 through Table 4.116 and illustrated in Figure 4.57.

The Northeastern Region has a relatively low to moderate burn probability, with about 1.1 percent of the region experiencing a higher burn probability. The majority of the area with higher burn probability is found in Hyde County. Areas of moderate to high burn probability have a comparatively higher probability of experiencing a wildfire.

*Probability: 3 – Likely*

**Table 4.111 – Burn Probability, Northeastern NC Region**

| | Burn Probability Category | Acres | Percent |
|---|---|---|---|
| | 0 | 195,272 | 11.1% |
| | >0 - 0.0001000 | 229,493 | 13.0% |
| | 0.0001000 - 0.0002154 | 306,942 | 17.4% |
| | 0.0002154 - 0.0004642 | 384,413 | 21.8% |
| | 0.0004642 - 0.0010000 | 316,285 | 17.9% |
| | 0.0010000 - 0.0021544 | 234,792 | 13.3% |
| | 0.0021544 - 0.0046416 | 78,346 | 4.4% |
| | 0.0046416 - 0.0100000 | 19,803 | 1.1% |
| | 0.0100000 - 0.0215443 | 473 | 0.0% |
| | 0.0215443 - 0.0464159 | 0 | 0.0% |
| | 0.0464159 - 0.1000000 | 0 | 0.0% |
| | >0.10000000 | 0 | 0.0% |
| | **Total** | **1,765,815** | **100%** |

Source: Southern Wildfire Risk Assessment

### Table 4.112 – Burn Probability, Bertie County

| | Burn Probability Category | Acres | Percent |
|---|---|---|---|
| | 0 | 13,465 | 3% |
| | >0 - 0.0001000 | 35,180 | 8% |
| | 0.0001000 - 0.0002154 | 134,118 | 29% |
| | 0.0002154 - 0.0004642 | 145,115 | 31% |
| | 0.0004642 - 0.0010000 | 108,863 | 24% |
| | 0.0010000 - 0.0021544 | 24,130 | 5% |
| | 0.0021544 - 0.0046416 | 13 | 0% |
| | 0.0046416 - 0.0100000 | 0 | 0% |
| | 0.0100000 - 0.0215443 | 0 | 0% |
| | 0.0215443 - 0.0464159 | 0 | 0% |
| | 0.0464159 - 0.1000000 | 0 | 0% |
| | >0.10000000 | 0 | 0% |
| | **Total** | **460,883** | **100%** |

Source: Southern Wildfire Risk Assessment

### Table 4.113 – Burn Probability, Hyde County

| | Burn Probability Category | Acres | Percent |
|---|---|---|---|
| | 0 | 111,752 | 23% |
| | >0 - 0.0001000 | 48,460 | 10% |
| | 0.0001000 - 0.0002154 | 20,611 | 4% |
| | 0.0002154 - 0.0004642 | 47,148 | 10% |
| | 0.0004642 - 0.0010000 | 69,739 | 14% |
| | 0.0010000 - 0.0021544 | 106,973 | 22% |
| | 0.0021544 - 0.0046416 | 68,380 | 14% |
| | 0.0046416 - 0.0100000 | 19,789 | 4% |
| | 0.0100000 - 0.0215443 | 473 | 0% |
| | 0.0215443 - 0.0464159 | 0 | 0% |
| | 0.0464159 - 0.1000000 | 0 | 0% |
| | >0.10000000 | 0 | 0% |
| | **Total** | **493,326** | **100%** |

Source: Southern Wildfire Risk Assessment

### Table 4.114 – Burn Probability, Martin County

| | Burn Probability Category | Acres | Percent |
|---|---|---|---|
| | 0 | 1,518 | 1% |
| | >0 - 0.0001000 | 50,153 | 17% |
| | 0.0001000 - 0.0002154 | 107,521 | 37% |
| | 0.0002154 - 0.0004642 | 76,358 | 26% |
| | 0.0004642 - 0.0010000 | 41,093 | 14% |
| | 0.0010000 - 0.0021544 | 15,500 | 5% |
| | 0.0021544 - 0.0046416 | 158 | 0% |
| | 0.0046416 - 0.0100000 | 0 | 0% |
| | 0.0100000 - 0.0215443 | 0 | 0% |
| | 0.0215443 - 0.0464159 | 0 | 0% |
| | 0.0464159 - 0.1000000 | 0 | 0% |
| | >0.10000000 | 0 | 0% |
| | **Total** | **292,299** | **100%** |

Source: Southern Wildfire Risk Assessment

### Table 4.115 – Burn Probability, Tyrrell County

| | Burn Probability Category | Acres | Percent |
|---|---|---|---|
| | 0 | 31,167 | 11% |
| | >0 - 0.0001000 | 39,036 | 14% |
| | 0.0001000 - 0.0002154 | 17,211 | 6% |
| | 0.0002154 - 0.0004642 | 66,238 | 24% |
| | 0.0004642 - 0.0010000 | 57,986 | 21% |
| | 0.0010000 - 0.0021544 | 53,043 | 19% |
| | 0.0021544 - 0.0046416 | 9,063 | 3% |
| | 0.0046416 - 0.0100000 | 14 | 0% |
| | 0.0100000 - 0.0215443 | 0 | 0% |
| | 0.0215443 - 0.0464159 | 0 | 0% |
| | 0.0464159 - 0.1000000 | 0 | 0% |
| | >0.10000000 | 0 | 0% |
| | **Total** | **273,757** | **100%** |

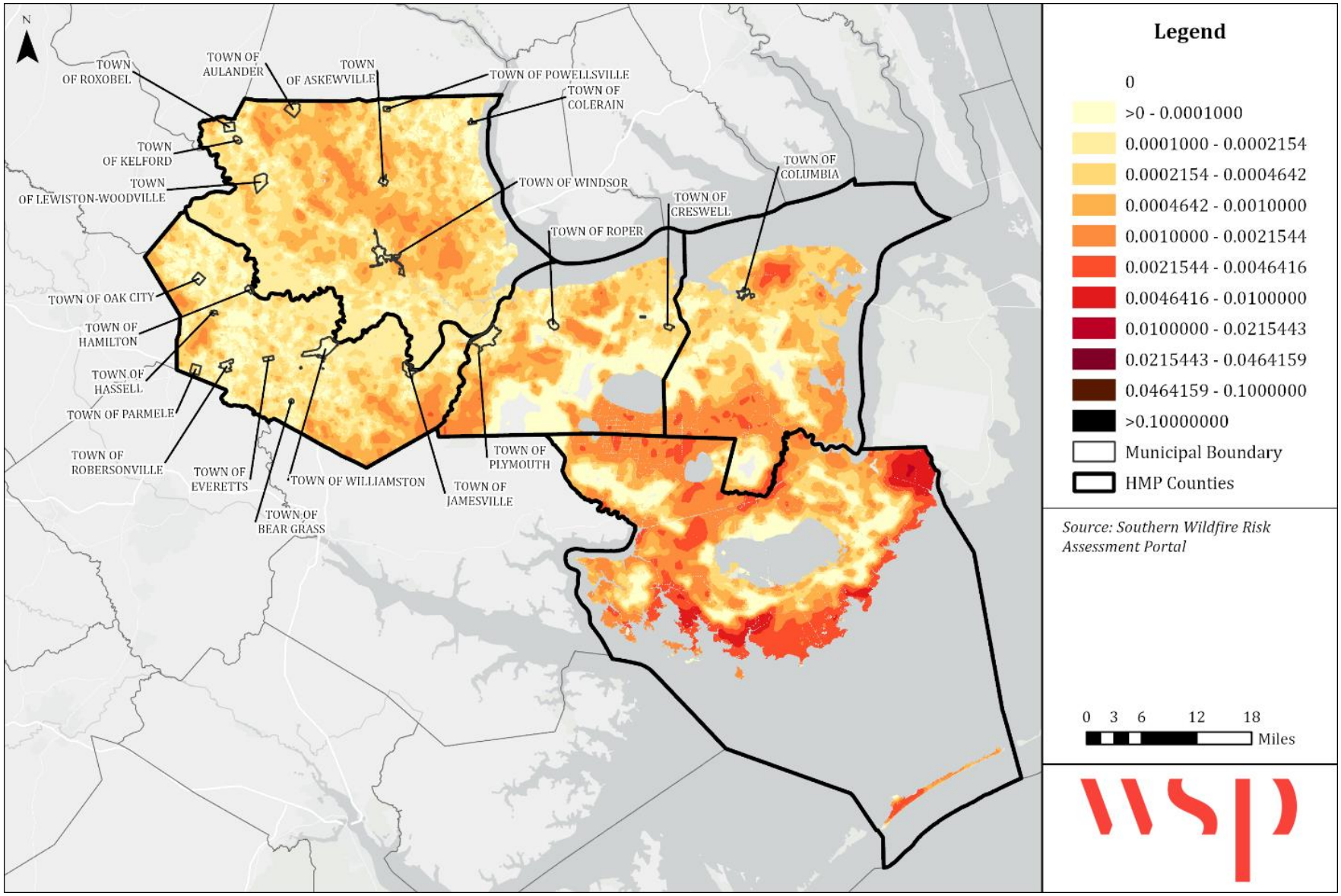
Source: Southern Wildfire Risk Assessment

### Table 4.116 – Burn Probability, Washington County

| | Burn Probability Category | Acres | Percent |
|---|---|---|---|
| | 0 | 37,370 | 15% |
| | >0 - 0.0001000 | 56,664 | 23% |
| | 0.0001000 - 0.0002154 | 27,481 | 11% |
| | 0.0002154 - 0.0004642 | 49,554 | 20% |
| | 0.0004642 - 0.0010000 | 38,604 | 16% |
| | 0.0010000 - 0.0021544 | 35,146 | 14% |
| | 0.0021544 - 0.0046416 | 732 | 0% |
| | 0.0046416 - 0.0100000 | 0 | 0% |
| | 0.0100000 - 0.0215443 | 0 | 0% |
| | 0.0215443 - 0.0464159 | 0 | 0% |
| | 0.0464159 - 0.1000000 | 0 | 0% |
| | >0.10000000 | 0 | 0% |
| | **Total** | **245,550** | **100%** |

Source: Southern Wildfire Risk Assessment

**Figure 4.57 – Burn Probability, Northeastern NC Region**



## CLIMATE CHANGE

The North Carolina Climate Science Report predicts that conditions conducive to wildfire occurrence will likely increase in the future due to future increases in annual and seasonal average temperatures and associated increases in drying rates. Additionally, future droughts are very likely to be warmer, increasing the drying rate of fuels and leading to higher wildfire likelihood. However, changes in other climate elements that affect wildfire likelihood are uncertain.

## VULNERABILITY ASSESSMENT

### *METHODOLOGIES AND ASSUMPTIONS*

Population and property at risk to wildfire was estimated using data from the NCEM IRISK database, which was compiled in NCEM's Risk Management Tool.

Within IRISK, wildfire hazard areas were determined using the Wildland Fire Susceptibility Index (WFSI). The following parameters were applied:

- Areas with a WFSI value of 0.01 – 0.05 were considered to be at moderate risk.
- Areas with a WFSI value greater than 0.05 were considered to be at high risk.
- Areas with a WFSI value less than 0.01 were considered to not be at risk.

The WFSI integrates the probability of an acre igniting and the expected final fire size based on the rate of spread in four weather percentile categories into a single measure of wildland fire susceptibility. Due to some necessary assumptions, mainly fuel homogeneity, it is not the true probability. But since all areas of the state have this value determined consistently, it allows for comparison and ordination of areas of the state as to the likelihood of an acre burning.

### *PEOPLE*

Wildfire can cause fatalities and human health hazards. Ensuring procedures are in place for rapid warning and evacuation are essential to reducing vulnerability. Table 4.117 details the population estimated to be at risk to wildfire according to the NCEM IRISK database.

**Table 4.117 – Estimated Population Impacted by Wildfire**

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| **Bertie** | | | | | | | | | |
| Unincorporated Bertie County | 11,675 | 4,904 | 42% | 2,855 | 1,199 | 42% | 417 | 175 | 42% |
| Town of Askewville | 152 | 116 | 76% | 45 | 34 | 76% | 12 | 9 | 75% |
| Town of Aulander | 748 | 7 | 1% | 208 | 0 | 0% | 117 | 0 | 0% |
| Town of Colerain | 291 | 81 | 28% | 49 | 13 | 27% | 9 | 2 | 25% |
| Town of Kelford | 245 | 0 | 0% | 69 | 0 | 0% | 15 | 0 | 0% |
| Town of Lewiston-Woodville | 466 | 93 | 20% | 137 | 26 | 19% | 24 | 5 | 20% |
| Town of Powellsville | 141 | 113 | 80% | 113 | 76 | 67% | 0 | 0 | 0% |
| Town of Roxobel | 347 | 0 | 0% | 66 | 0 | 0% | 24 | 0 | 0% |

| Jurisdiction | Total Population | Total Population at Risk | | All Elderly Population | Elderly Population at Risk | | All Children Population | Children at Risk | |
|---|---|---|---|---|---|---|---|---|---|
| | | Number | Percent | | Number | Percent | | Number | Percent |
| Town of Windsor | 3,417 | 683 | 20% | 703 | 141 | 20% | 94 | 17 | 18% |
| **Subtotal Bertie** | **17,482** | **5,997** | **34%** | **4,245** | **1,489** | **35%** | **712** | **208** | **.29%** |
| **Hyde** | | | | | | | | | |
| Unincorporated Hyde County | 4,625 | 1,711 | 37% | 1,054 | 390 | 37% | 124 | 46 | 37% |
| **Martin** | | | | | | | | | |
| Unincorporated Martin County | 13,680 | 3,420 | 25% | 3,396 | 849 | 25% | 753 | 188 | 25% |
| Town of Bear Grass | 94 | 75 | 80% | 12 | 12 | 100% | 22 | 22 | 100% |
| Town of Everetts | 158 | 63 | 40% | 18 | 9 | 50% | 9 | 0 | 0% |
| Town of Hamilton | 183 | 0 | 0% | 84 | 0 | 0% | 2 | 0 | 0% |
| Town of Hassell | 49 | 12 | 25% | 30 | 0 | 0% | 0 | 0 | 0% |
| Town of Jamesville | 373 | 119 | 32% | 118 | 39 | 33% | 8 | 4 | 50% |
| Town of Oak City | 472 | 0 | 0% | 145 | 0 | 0% | 30 | 0 | 0% |
| Town of Parmele | 288 | 52 | 18% | 85 | 16 | 19% | 0 | 0 | 25% |
| Town of Robersonville | 1,319 | 106 | 8% | 374 | 22 | 6% | 52 | 0 | 0% |
| Town of Williamston | 5,157 | 774 | 15% | 1,182 | 177 | 15% | 194 | 29 | 15% |
| **Subtotal Martin** | **21,773** | **4,621** | **21%** | **5,444** | **1,125** | **21%** | **1,070** | **243** | **23%** |
| **Tyrrell** | | | | | | | | | |
| Unincorporated Tyrrell County | 2,702 | 1,567 | 58% | 695 | 403 | 58% | 146 | 85 | 58% |
| Town of Columbia | 674 | 425 | 63% | 167 | 84 | 50% | 24 | 0 | 0% |
| **Subtotal Tyrrell** | **3,376** | **1,992** | **59%** | **862** | **487** | **56%** | **170** | **85** | **50%** |
| **Washington** | | | | | | | | | |
| Unincorporated Washington County | 6,850 | 5,343 | 78% | 1,841 | 1,436 | 78% | 64 | 51 | 79% |
| Town of Creswell | 205 | 182 | 89% | 58 | 52 | 89% | 15 | 15 | 100% |
| Town of Plymouth | 3,264 | 2,970 | 91% | 923 | 840 | 91% | 140 | 140 | 100% |
| Town of Roper | 586 | 416 | 71% | 162 | 115 | 71% | 22 | 18 | 80% |
| **Subtotal Washington** | **10,905** | **8,912** | **82%** | **2,984** | **2,443** | **82%** | **241** | **223** | **93%** |
| **Region Total** | **58,161** | **23,233** | **40%** | **14,589** | **5,934** | **41%** | **2,317** | **805** | **35%** |

Source: NCEM Risk Management Tool; ACS 2019-2023 5-Year Estimate

### *PROPERTY*

Wildfire can cause direct property losses, including damage to buildings, vehicles, landscaped areas, agricultural lands, and livestock. Construction practices and building codes can increase fire resistance and fire safety of structures. Techniques for reducing vulnerability to wildfire include using street design to ensure accessibility to fire trucks, incorporating fire resistant materials in building construction, and using landscaping practices to reduce flammability and the ability for fire to spread.

Table 4.118 details the buildings at risk to wildfire in the Northeastern NC Region.

### Table 4.118 – Estimated Buildings Impacted by Wildfire

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| **Bertie** | | | | | | | | | | | | | |
| Unincorporated Bertie County | 11,175 | 3,647 | 33% | $323,237,774 | 763 | 7% | $124,502,648 | 83 | 1% | $75,073,561 | 4,493 | 40% | $522,813,983 |
| Town of Askewville | 502 | 292 | 58% | $24,758,416 | 71 | 14% | $8,709,268 | 10 | 2% | $6,727,871 | 373 | 74% | $40,195,555 |
| Town of Aulander | 744 | 8 | 1% | $743,850 | 4 | 1% | $2,758,440 | 0 | 0% | $0 | 12 | 2% | $3,502,289 |
| Town of Colerain | 428 | 97 | 23% | $9,505,529 | 6 | 1% | $1,830,289 | 9 | 2% | $4,070,965 | 112 | 26% | $15,406,783 |
| Town of Kelford | 173 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 |
| Town of Lewiston-Woodville | 719 | 119 | 17% | $9,975,586 | 12 | 2% | $2,608,708 | 2 | 0% | $720,771 | 133 | 18% | $13,305,065 |
| Town of Powellsville | 171 | 121 | 71% | $11,768,545 | 12 | 7% | $2,181,581 | 4 | 2% | $2,238,531 | 137 | 80% | $16,188,657 |
| Town of Roxobel | 205 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 |
| Town of Windsor | 1,815 | 279 | 15% | $22,758,263 | 31 | 2% | $9,302,435 | 13 | 1% | $6,608,400 | 323 | 18% | $38,669,099 |
| **Subtotal Bertie** | **15,932** | **4,563** | **29%** | **$402,747,963** | **899** | **6%** | **$151,893,369** | **121** | **1%** | **$95,440,099** | **5,583** | **35%** | **$650,081,431** |
| **Hyde** | | | | | | | | | | | | | |
| Unincorporated Hyde County | 5,596 | 1,726 | 31% | $170,630,885 | 294 | 5% | $47,008,764 | 44 | 1% | $14,270,325 | 2,064 | 37% | $231,909,974 |
| **Martin** | | | | | | | | | | | | | |
| Unincorporated Martin County | 12,188 | 2,092 | 17% | $256,675,462 | 657 | 5% | $115,142,563 | 48 | 0% | $49,524,689 | 2,797 | 23% | $421,342,714 |
| Town of Bear Grass | 81 | 42 | 52% | $4,575,853 | 6 | 7% | $2,089,679 | 16 | 20% | $8,997,112 | 64 | 79% | $15,662,644 |
| Town of Everetts | 159 | 61 | 38% | $7,246,695 | 1 | 1% | $24,189 | 0 | 0% | $0 | 62 | 39% | $7,270,885 |
| Town of Hamilton | 292 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 |
| Town of Hassell | 70 | 8 | 11% | $780,243 | 1 | 1% | $42,815 | 0 | 0% | $0 | 9 | 13% | $823,058 |

| Jurisdiction | All Buildings | Residential Buildings at Risk | | | Commercial Buildings at Risk | | | Public Buildings at Risk | | | Total Buildings at Risk | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Num | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages | Num | % of Total | Estimated Damages |
| Town of Jamesville | 297 | 76 | 26% | $11,590,900 | 4 | 1% | $2,383,513 | 10 | 3% | $9,499,997 | 90 | 30% | $23,474,410 |
| Town of Oak City | 313 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 | 0 | 0% | $0 |
| Town of Parmele | 149 | 23 | 15% | $2,359,397 | 0 | 0% | $0 | 0 | 0% | $0 | 23 | 15% | $2,359,397 |
| Town of Robersonville | 901 | 65 | 7% | $8,327,967 | 5 | 1% | $920,636 | 0 | 0% | $0 | 70 | 8% | $9,248,603 |
| Town of Williamston | 4,238 | 461 | 11% | $62,830,045 | 174 | 4% | $72,851,022 | 64 | 2% | $117,840,833 | 699 | 16% | $253,521,900 |
| **Subtotal Martin** | **18,688** | **2,828** | **15%** | **$354,386,562** | **848** | **5%** | **$193,454,417** | **138** | **1%** | **$185,862,631** | **3,814** | **20%** | **$733,703,611** |
| **Tyrrell** | | | | | | | | | | | | | |
| Unincorporated Tyrrell County | 2,794 | 1,255 | 45% | $124,399,257 | 229 | 8% | $24,628,657 | 28 | 1% | $30,388,310 | 1,512 | 54% | $179,416,223 |
| Town of Columbia | 519 | 241 | 46% | $25,662,629 | 20 | 4% | $6,934,356 | 13 | 3% | $10,971,164 | 274 | 53% | $43,568,149 |
| **Subtotal Tyrrell** | **3,313** | **1,496** | **45%** | **$150,061,886** | **249** | **8%** | **$31,563,013** | **41** | **1%** | **$41,359,474** | **1,786** | **54%** | **$222,984,372** |
| **Washington** | | | | | | | | | | | | | |
| Unincorporated Washington County | 5,482 | 3,162 | 58% | $256,589,430 | 777 | 14% | $56,536,137 | 74 | 1% | $21,327,627 | 4,013 | 73% | $334,453,194 |
| Town of Creswell | 366 | 244 | 67% | $18,161,501 | 56 | 15% | $6,545,082 | 22 | 6% | $12,849,739 | 322 | 88% | $37,556,322 |
| Town of Plymouth | 2,779 | 2,124 | 76% | $192,514,428 | 274 | 10% | $76,204,933 | 95 | 3% | $35,173,608 | 2,493 | 90% | $303,892,969 |
| Town of Roper | 611 | 358 | 59% | $27,955,039 | 55 | 9% | $9,339,041 | 16 | 3% | $10,020,756 | 429 | 70% | $47,314,835 |
| **Subtotal Washington** | **9,238** | **5,888** | **64%** | **$495,220,398** | **1,162** | **13%** | **$148,625,193** | **207** | **2%** | **$79,371,730** | **7,257** | **79%** | **$723,217,320** |
| **Region Total** | **52,767** | **16,501** | **31%** | **$1,573,047,694** | **3,452** | **7%** | **$572,544,756** | **551** | **1%** | **$416,304,259** | **20,504** | **39%** | **$2,561,896,708** |

Source: NCEM Risk Management Tool

Table 4.119 details critical infrastructure and key resources at risk by sector. The sectors facing the greatest risk to wildfire in Northeastern NC Region are energy, commercial facilities, government facilities, and food and agriculture.

**Table 4.119 – CIKR at Risk to Wildfire**

| Sector | Number of Buildings at Risk | Estimated Damages |
|---|---|---|
| Banking and Finance | 30 | $7,859,553 |
| Commercial Facilities | 923 | $337,441,244 |
| Communications | 2 | $205,453 |
| Critical Manufacturing | 214 | $81,585,808 |
| Emergency Services | 15 | $8,449,512 |
| Energy | 1 | $500,000,000 |
| Food and Agriculture | 2,431 | $187,519,286 |
| Government Facilities | 271 | $269,681,645 |
| Healthcare and Public Health | 55 | $63,560,516 |
| Nuclear Reactors, Materials and Waste | 2 | $352,540 |
| Postal and Shipping | 3 | $1,600,000 |
| Transportation Systems | 92 | $33,909,558 |
| Water | 15 | $60,656,600 |
| **All Categories** | **4,054** | **$1,552,821,715** |

Source: NCEM Risk Management Tool

Table 4.120 summarizes critical facilities in the WUI with direct exposure to wildfire risk according to WUI data from the Southern Wildfire Risk Assessment portal.

**Table 4.120 – Critical Facilities with Direct Exposure to Wildfire by County**

| FEMA Lifeline | Number of Facilities at Risk | | | | | Total |
|---|---|---|---|---|---|---|
| | Bertie | Hyde | Martin | Tyrrell | Washington | |
| Safety & Security | 3 | 1 | 0 | 3 | 3 | **10** |
| Food, Hydration, Shelter | 16 | 5 | 2 | 8 | 23 | **54** |
| Health & Medical | 3 | 0 | 0 | 0 | 2 | **5** |
| Water Systems | 2 | 4 | 8 | 0 | 4 | **18** |
| **Total** | **24** | **10** | **10** | **11** | **32** | **87** |

### *ENVIRONMENT*

Wildfires have the potential to destroy forest and forage resources and damage natural habitats. Wildfire can also damage agricultural crops on private land. Wildfire is part of a natural process, however, and the environment will return to its original state in time.

### *CONSEQUENCE ANALYSIS*

Table 4.121 summarizes the potential detrimental consequences of wildfire.

**Table 4.121 – Consequence Analysis - Wildfire**

| Category | Consequences |
|---|---|
| Public | In addition to the potential for fatalities, wildfire and the resulting diminished air quality pose health risks. 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 children, the elderly, people with respiratory problems or with heart disease. Even healthy citizens may experience minor symptoms, such as sore throats and itchy eyes. |
| Responders | Public and firefighter safety is the first priority in all wildland fire management activities. Wildfires are a real threat to the health and safety of the emergency services. Most fire-fighters in rural areas are 'retained'. This means that they are part-time and can be called away from their normal work to attend to fires. |
| Continuity of Operations (including Continued Delivery of Services) | Wildfire events can result in a loss of power which may impact operations. Downed trees, power lines and damaged road conditions may prevent access to critical facilities and/or emergency equipment. |
| Property, Facilities and Infrastructure | 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. |
| Environment | Wildfires cause damage to the natural environment, killing vegetation and animals. The risk of floods and debris flows increases after wildfires due to the exposure of bare ground and the loss of vegetation. In addition, the secondary effects of wildfires, including erosion, landslides, introduction of invasive species, and changes in water quality, are often more disastrous than the fire itself. |
| Economic Condition of the Jurisdiction | 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. |
| Public Confidence in the Jurisdiction's Governance | Wildfire events may cause issues with public confidence because they have very visible impacts on the community. Public confidence in the jurisdiction's governance may be influenced by mitigation and preparation efforts, warning, response activities, and recovery efforts. |

## HAZARD SUMMARY BY JURISDICTION

The following table summarizes wildfire hazard risk by jurisdiction. Warning time and duration do not vary by jurisdiction. Spatial extent ratings were based on the proportion of area within the WUI. Impact ratings were based on fire intensity data from SWRA. Jurisdictions with significant clusters of moderate to high fire intensity were assigned a rating of 3; all other jurisdictions were assigned a rating of 2. Probability ratings were determined based on burn probability data from SWRA. Jurisdictions with clusters of moderate burn probability were assigned a rating of 3; all others were assigned a probability of 2.

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| Bertie County | 3 | 3 | 3 | 4 | 3 | 3.1 | H |
| Town of Askewville | 2 | 3 | 3 | 4 | 3 | 2.8 | M |
| Town of Aulander | 2 | 3 | 3 | 4 | 3 | 2.8 | M |
| Town of Colerain | 2 | 2 | 3 | 4 | 3 | 2.5 | M |
| Town of Kelford | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Town of Lewiston-Woodville | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Town of Powellsville | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Town of Roxobel | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Town of Windsor | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Hyde County | 3 | 3 | 3 | 4 | 3 | 3.1 | H |
| Martin County | 3 | 3 | 3 | 4 | 3 | 3.1 | H |
| Town of Bear Grass | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Town of Everetts | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Town of Hamilton | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Town of Hassell | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Town of Jamesville | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Town of Oak City | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Town of Parmele | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Town of Robersonville | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Town of Williamston | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Tyrrell County | 3 | 3 | 3 | 4 | 3 | 3.1 | H |
| Town of Columbia | 2 | 3 | 4 | 4 | 3 | 3 | H |
| Washington County | 3 | 3 | 3 | 4 | 3 | 3.1 | H |
| Town of Creswell | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Town of Plymouth | 2 | 2 | 4 | 4 | 3 | 2.7 | M |
| Town of Roper | 2 | 2 | 4 | 4 | 3 | 3.1 | H |

## 4.5.11 HAZARDOUS SUBSTANCES

### HAZARD BACKGROUND

Generally, a hazardous material is a substance or combination of substances which, because of quantity, concentration, or physical, chemical, or infectious characteristics, may either cause or significantly contribute to an increase in mortality or serious illness. Hazardous materials may also pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. Hazardous material incidents can occur while a hazardous substance is stored at a fixed facility, or while the substance is being transported along a road corridor or railroad line or via an enclosed pipeline or other linear infrastructure.

The U.S. Department of Transportation (DOT), U.S. Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA) all have responsibilities relating to the transportation, storage, and use of hazardous materials and waste. The Right to Know Network (RTK NET), maintained by the EPA's National Response Center (NRC), is a primary source of information on the use and storage of hazardous materials, as well as data regarding spills and releases.

Hazardous materials are typically divided into the following classes:

- Explosives
- Compressed gases: flammable, non-flammable compressed, poisonous
- Flammable or combustible liquids
- Flammable solids: spontaneously combustible, dangerous when wet
- Oxidizers and organic peroxides
- Toxic materials: poisonous material, infectious agents
- Radioactive material
- Corrosive material: destruction of human skin, corrodes steel

It is common to see hazardous materials releases as escalating incidents resulting from other hazards such as floods, wildfires, and earthquakes that may cause containment systems to fail or affect transportation infrastructure. The release of hazardous materials can greatly complicate or even eclipse the response to the natural hazards disaster that caused the spill.

#### *FIXED HAZARDOUS MATERIALS INCIDENT*

A fixed hazardous materials incident is the accidental release of chemical substances or mixtures during production or handling at a fixed facility. While these incidents can sometimes involve large quantities of materials, their locations can be more easily predicted and monitored.

#### *TRANSPORTATION HAZARDOUS MATERIALS INCIDENT*

A transportation hazardous materials incident is the accidental release of chemical substances or mixtures during transport. Transportation hazardous materials incidents can occur during highway or air transport. Highway accidents involving hazardous materials pose a great potential for public exposures. Both nearby populations and motorists can be impacted and become exposed by accidents and releases. If airplanes carrying hazardous cargo crash or otherwise leak contaminated cargo, populations and the environment in the impacted area can become exposed.

### *PIPELINE INCIDENT*

A pipeline transportation incident occurs when a break in a pipeline creates the potential for an explosion or leak of a dangerous substance (oil, gas, etc.) possibly requiring evacuation. An underground pipeline incident can be caused by environmental disruption, accidental damage, or sabotage. Incidents can range from a small, slow leak to a large rupture where an explosion is possible. Inspection and maintenance of the pipeline system along with marked gas line locations and an early warning and response procedure can lessen the risk to those near the pipelines.

*Warning Time Score: 4 – Less than six hours*

*Duration Score: 2 – Less than 24 hours*

## LOCATION

The Toxic Release Inventory (TRI) Program run by the U.S. Environmental Protection Agency (EPA) maintains a database of industrial facilities across the country and the type and quantity of toxic chemicals they release. The program also tracks pollution prevention activities, and which facilities are reducing toxic releases. The Toxic Release Inventory reports 6 sites with hazardous materials in the Region; three in Bertie County, two in Martin County, and one in Washington County. TRI sites are listed in Table 4.122 and are shown in Figure 4.58.

*Spatial Extent: 2 – Small*

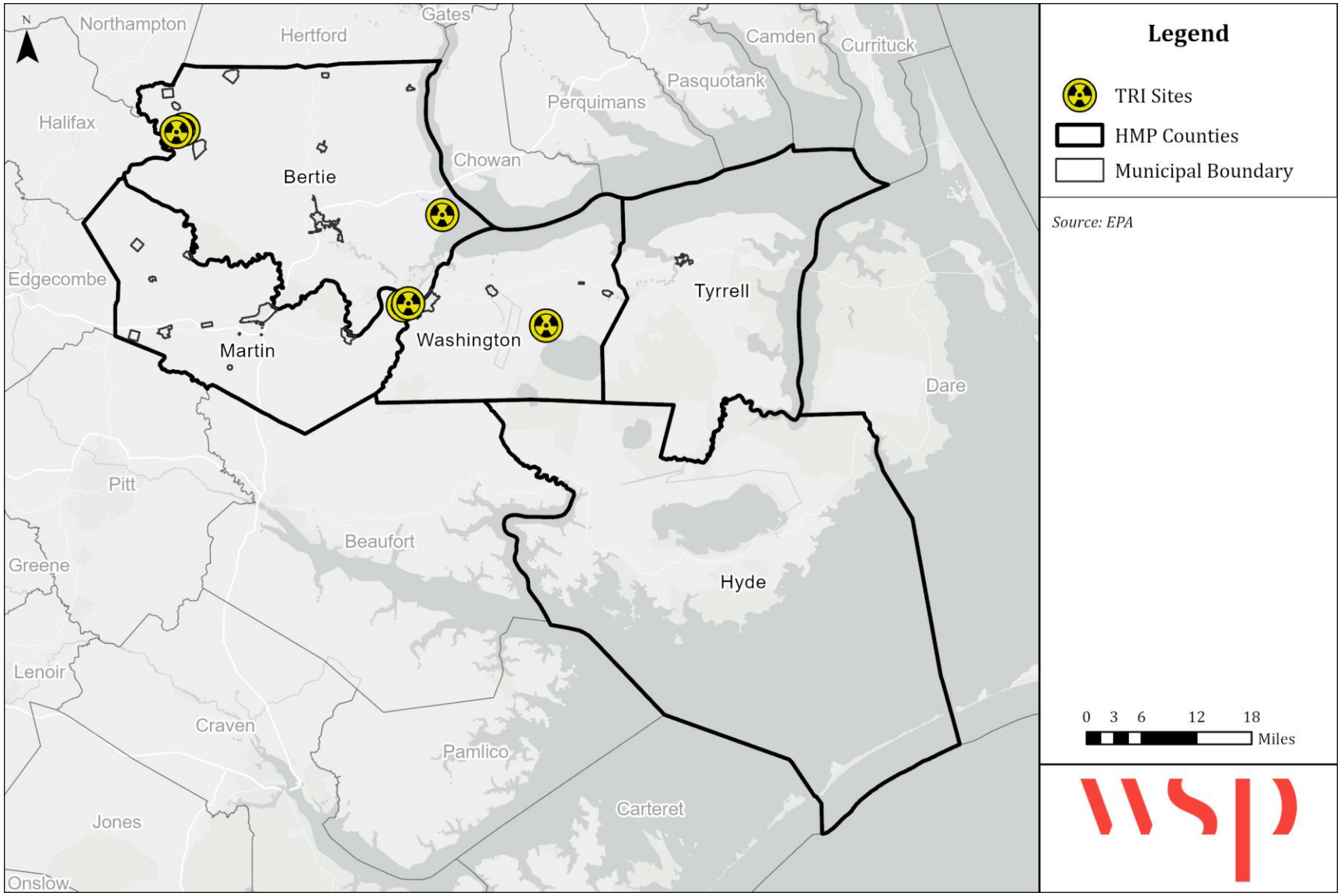
**Table 4.122 – Toxic Release Inventory Sites, Northeastern Region**

| Facility Name | Jurisdiction | Industry Sector | Chemicals Present |
|---|---|---|---|
| Avoca LLC | Merry Hill | Food | n-Hexane, Methanol, Chloroform |
| Darling Ingredients Inc. | Lewiston Woodville | Food | Ammonia |
| Domtar Paper Co LLC-Plymouth Mill | Plymouth | Paper | Ammonia, Formic acid, Catechol, Vanadium compounds, Manganese compounds, Hydrogen sulfide, Dioxin, Methanol, Zinc compounds, Nitrate compounds, Acetaldehyde, Cresol, Phenol, Lead compounds, Formaldehyde, Nitric acid, Polycyclic aromatic compounds, Chlorine dioxide, Hydrochloric acid, Barium compounds, Chlorine, Mercury compounds |
| Murphy Brown LLC New Colony Feed Mill | Creswell | Food | Copper and Copper Compounds, Zinc (fume or dust) |
| Perdue Foods LLC - Lewiston Processing Plant | Lewiston Woodville | Food | Hydrogen sulfide, Peracetic acid, Ammonia, Nitrate compounds |
| Weyerhaeuser Nr Co - Lumber Technologies | Plymouth | Wood Products | Methanol |
| **Region Total: 6** | | | |

Source: US EPA Toxic Release Inventory

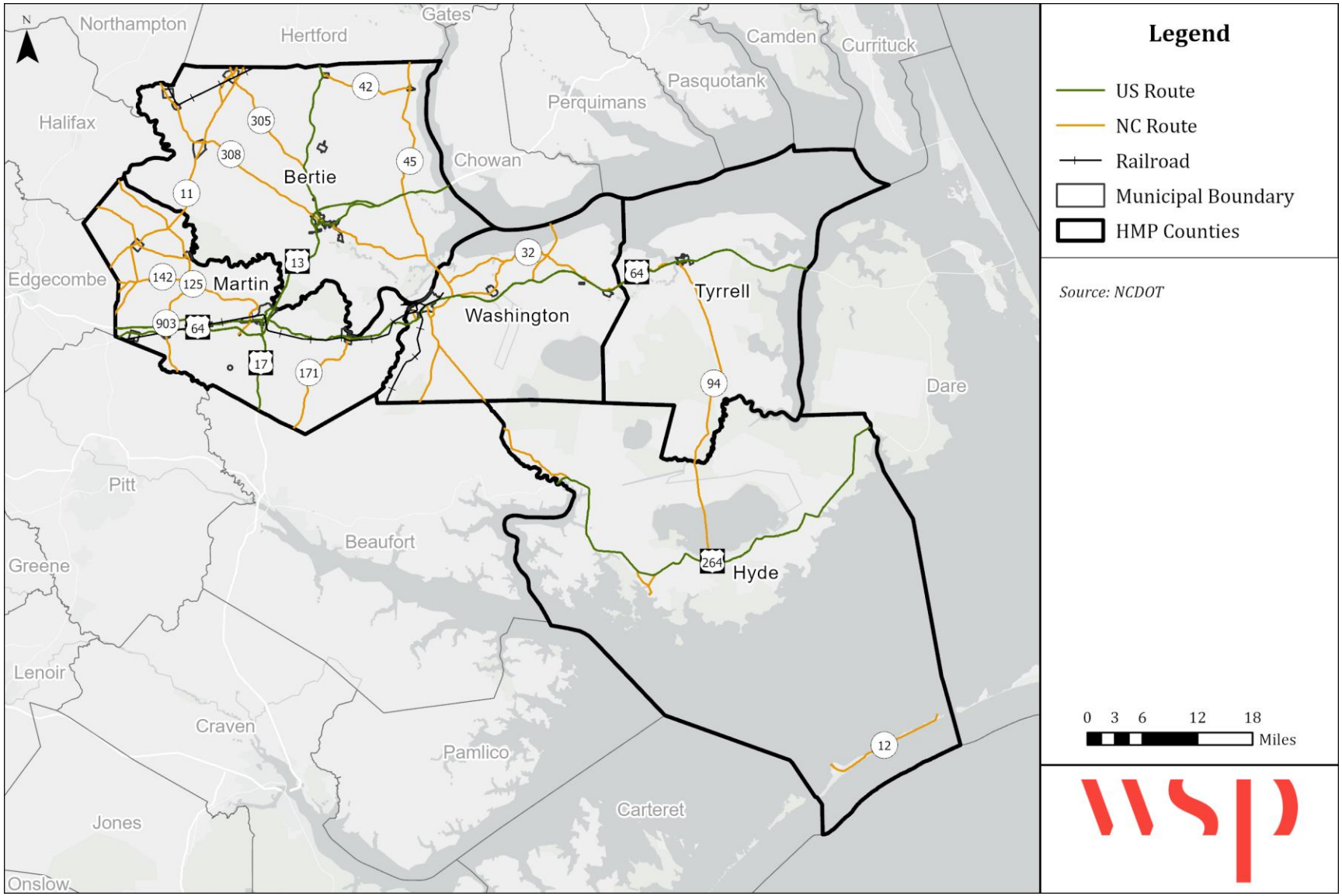
Transportation incidents that release hazardous substances are most likely to occur along major transportation corridors such as highways, interstates, or railways. However, transportation incidents can occur throughout the Region. All major transportation corridors located in the planning area are shown in Figure 4.58 below.

**Figure 4.58 – Major Hazardous Materials Facilities in the Northeastern Region**




Source: EPA Toxic Release Inventory

**Figure 4.59 – Major Transportation Corridors, Northeastern Region**




Source: NCDOT

## HISTORICAL OCCURRENCES

The USDOT's PHMSA maintains a database of reported hazardous materials incidents since 1989. According to PHSMA records, there were 31 recorded releases in the Region from 1990 to 2024. These releases are listed in Table 4.123. Of these events, 8 (25%) were flagged as serious incidents, shown in Table 4.123. Of the total incidents to occur in the planning area, these events caused an estimated $1,461,307 in damages with all incidents occurring on highways and roads except for one incident which occurred on the railroad.

Of the total incidents to occur in the Northeastern Region, 16 percent occurred in Bertie County, 3 percent in Hyde County, 22 percent in Martin County, and 58 percent in Washington County. It is important to note that there were no PHMSA incident reports recorded in Tyrrell County during this time period.

**Table 4.123 – Annual Reported Hazardous Materials Incidents, 1990-2024, Northeastern Region**

| Year | Bertie | Hyde | Martin | Washington | Region Total |
|---|---|---|---|---|---|
| 1990 | 0 | 0 | 1 | 1 | 2 |
| 1991 | 0 | 0 | 0 | 0 | 0 |
| 1992 | 0 | 0 | 0 | 0 | 0 |
| 1993 | 0 | 0 | 1 | 1 | 2 |
| 1994 | 0 | 0 | 0 | 0 | 0 |
| 1995 | 0 | 0 | 1 | 2 | 3 |
| 1996 | 0 | 0 | 1 | 1 | 2 |
| 1997 | 0 | 0 | 0 | 0 | 0 |
| 1998 | 1 | 0 | 0 | 0 | 1 |
| 1999 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 0 | 0 | 1 | 2 | 3 |
| 2001 | 0 | 0 | 0 | 1 | 1 |
| 2002 | 0 | 0 | 0 | 1 | 1 |
| 2003 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 0 | 0 | 1 | 1 | 2 |
| 2005 | 1 | 0 | 0 | 0 | 1 |
| 2006 | 1 | 0 | 0 | 2 | 3 |
| 2007 | 0 | 0 | 0 | 1 | 1 |
| 2008 | 0 | 0 | 0 | 4 | 4 |
| 2009 | 0 | 1 | 0 | 0 | 1 |
| 2010 | 1 | 0 | 0 | 0 | 1 |
| 2011 | 0 | 0 | 0 | 0 | 0 |
| 2012 | 0 | 0 | 0 | 0 | 0 |
| 2013 | 0 | 0 | 0 | 0 | 0 |
| 2014 | 0 | 0 | 0 | 0 | 0 |
| 2015 | 0 | 0 | 0 | 0 | 0 |
| 2016 | 0 | 0 | 0 | 1 | 1 |
| 2017 | 1 | 0 | 0 | 0 | 1 |
| 2018 | 0 | 0 | 0 | 0 | 0 |
| 2019 | 0 | 0 | 0 | 0 | 0 |
| 2020 | 0 | 0 | 0 | 0 | 0 |
| 2021 | 0 | 0 | 0 | 0 | 0 |

| Year | Bertie | Hyde | Martin | Washington | Region Total |
|---|---|---|---|---|---|
| 2022 | 0 | 0 | 0 | 0 | 0 |
| 2023 | 0 | 0 | 1 | 0 | 1 |
| 2024 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **5** | **1** | **7** | **18** | **31** |
| **Avg/Year** | **0.14** | **0.02** | **0.2** | **0.5** | **0.88** |

Source: PHMSA Incident Reports, Office of Hazardous Materials Safety, Incident Reports Database Search

The most common materials spilled in the planning area are Class 3 (Flammable Combustible Liquids) and Class 8 (Corrosive). Figure 4.60 describes all nine hazard classes.

**Figure 4.60 – Hazardous Materials Classes**




Source: U.S. Department of Transportation

## EXTENT

The magnitude of a hazardous materials incident can be defined by the material type, the amount released, and the location of the release. The U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA), which records hazardous material incidents across the country, defines a "serious incident" as a hazardous materials incident that involves:

- a fatality or major injury caused by the release of a hazardous material,
- the evacuation of 25 or more persons as a result of release of a hazardous material or exposure to fire,
- a release or exposure to fire which results in the closure of a major transportation artery,
- the alteration of an aircraft flight plan or operation,
- the release of radioactive materials from Type B packaging,
- the release of over 11.9 galls or 88.2 pounds of a severe marine pollutant, or
- the release of a bulk quantity (over 199 gallons or 882 pounds) of a hazardous material.

The release or spill of hazardous materials can also require different emergency responses depending on the amount, type, and location of the spill incident. Potential losses can vary greatly for hazardous

material incidents. For even a small incident, there are cleanup and disposal costs. In a larger scale incident, cleanup can be extensive and protracted. There can be deaths or injuries requiring doctor's visits and hospitalization, disabling chronic injuries, soil and water contamination can occur, necessitating costly remediation. Evacuations can disrupt home and business activities. Large-scale incidents can easily reach $1 million or more in direct damages, with clean-ups that can last for years.

*Impact: 3 – Critical*

## PROBABILITY OF FUTURE OCCURRENCE

Based on historical occurrences, there have been 31 hazardous materials release in the 35-year period from 1990 through 2024. While the number of incidents varies from year to year, the overall trend shows no increase or decrease in the number. Thus, the planning area can expect 0.88 hazardous materials incidents a year. The majority of these incidents may occur in Bertie, Martin, and Washington Counties where there are larger transportation corridors.

However, the number of serious incidents is significantly lower: only 8 in 35 years or an average of 0.2 serious incidents per year. This means that based on historical data, there is a 22 percent annual chance of the planning area experiencing a damaging hazardous materials incident.

*Probability: 3 – Likely*

## CLIMATE CHANGE

Climate change is not expected to impact hazardous materials incidents.

## VULNERABILITY ASSESSMENT

The impacts of a hazardous materials incident vary based on the type and quantity of material released, as well as the location, time of day, and weather conditions.

### *METHODOLOGIES AND ASSUMPTIONS*

Vulnerability to hazardous materials incidents was assessed based on past occurrences in the region and nationally and the known behavior of these materials.

### *PEOPLE*

Hazardous materials incidents can cause injuries, hospitalizations, and even death to people nearby. People living near hazardous facilities and along transportation routes may be at a higher risk of exposure, particularly those living or working downstream and downwind from such facilities. For example, a toxic spill or a release of an airborne chemical near a populated area can lead to significant evacuations and have a high potential for loss of life. Individuals working with or transporting hazardous materials are also at heightened risk.

In addition to the immediate health impacts of releases, a handful of studies have found long term health impacts such as increased incidence of certain cancers and birth defects among people living near certain chemical facilities. However there has not been sufficient research done on the subject to allow detailed analysis.

The primary economic impact of hazardous material incidents results from lost business, delayed deliveries, property damage, and potential contamination. Large and publicized hazardous material-related events can deter tourists and could potentially discourage residents and businesses. Economic effects from major transportation corridor closures can be significant.

### PROPERTY

The property impacts of a fixed hazardous facility, such as a chemical processing facility is typically localized to the property where the incident occurs. The impact of a small spill (i.e. liquid spill) may also be limited to the extent of the spill and remediated if needed. While cleanup costs from major spills can be significant, they do not typically cause significant long-term impacts to property.

Impacts of hazardous material incidents on critical facilities are most often limited to the area or facility where they occurred, such as at a transit station, airport, fire station, hospital, or railroad. However, they can cause long-term traffic delays and road closures resulting in major delays in the movement of goods and services. These impacts can spread beyond the planning area to affect neighboring counties, or vice-versa. While cleanup costs from major spills can be significant, they do not typically cause significant long-term impacts to critical facilities.

### ENVIRONMENT

Hazardous material incidents may affect a small area at a regulated facility or cover a large area outside such a facility. Widespread effects occur when hazardous materials contaminate the groundwater and eventually the municipal water supply, or they migrate to a major waterway or aquifer.

### CONSEQUENCE ANALYSIS

Table 4.124 summarizes the potential detrimental consequences of hazardous materials incident.

**Table 4.124 – Consequence Analysis – Hazardous Materials Incident**

| Category | Consequences |
|---|---|
| Public | Contact with hazardous materials could cause serious illness or death. Those living and working closest to hazardous materials sites face the greatest risk of exposure. Exposure may also occur through contamination of food or water supplies. |
| Responders | Responders face similar risks as the general public but a heightened potential for exposure to hazardous materials. |
| Continuity of Operations (including Continued Delivery of Services) | A hazardous materials incident may cause temporary road closures or other localized impacts but is unlikely to affect continuity of operations. |
| Property, Facilities and Infrastructure | Some hazardous materials are flammable, explosive, and/or corrosive, which could result in structural damages to property. Impacts would be highly localized. |
| Environment | Consequences depend on the type of material released. Possible ecological impacts include loss of wildlife, loss of habitat, and degradation of air and/or water quality. |
| Economic Condition of the Jurisdiction | Clean up, remediation, and/or litigation costs may apply. Long-term economic damage is unlikely. |
| Public Confidence in the Jurisdiction's Governance | A hazardous materials incident may affect public confidence if the environmental or health impacts are enduring. |

## HAZARD SUMMARY BY JURISDICTION

The table below summarizes hazardous materials incident risk by jurisdiction. Probability was determined based on past incidents. All other factors do not vary by jurisdiction.

| Jurisdiction | Probability | Impact | Spatial Extent | Warning Time | Duration | Score | Priority |
|---|---|---|---|---|---|---|---|
| Bertie County | 3 | 3 | 2 | 4 | 2 | 2.8 | M |
| Town of Askewville | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Aulander | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Colerain | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Kelford | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Lewiston-Woodville | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Powellsville | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Roxobel | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Windsor | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Hyde County | 1 | 3 | 2 | 4 | 2 | 2.2 | M |
| Martin County | 3 | 3 | 2 | 4 | 2 | 2.8 | M |
| Town of Bear Grass | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Everetts | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Hamilton | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Hassell | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Jamesville | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Oak City | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Parmele | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Robersonville | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Williamston | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Tyrrell County | 1 | 3 | 2 | 4 | 2 | 2.2 | M |
| Town of Columbia | 1 | 3 | 2 | 4 | 2 | 2.2 | M |
| Washington County | 3 | 3 | 2 | 4 | 2 | 2.8 | M |
| Town of Creswell | 2 | 3 | 2 | 4 | 2 | 2.5 | M |
| Town of Plymouth | 3 | 3 | 2 | 4 | 2 | 2.8 | M |
| Town of Roper | 2 | 3 | 2 | 4 | 2 | 2.5 | M |

# 4.6 CONCLUSIONS ON HAZARD RISK

## PRIORITY RISK INDEX

As discussed in Section 4.3 Risk Assessment Methodology and Assumptions, the Priority Risk Index was used to rate each hazard on a set of risk criteria and determine an overall standardized score for each hazard. The conclusions drawn from this process are summarized below by classifying hazards into three categories—high, medium, or low risk—based on the assigned risk value. For some hazards, PRI ratings vary by jurisdiction. In these cases, the overall PRI rating reflects the highest risk that applies to the region.

General assumptions for high, moderate, and low risk hazards are described below, and hazard risk ratings are summarized in Table 4.125.

- **High Risk** – Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread.
- **Medium Risk** – Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **Low Risk** – Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal. This is not a priority hazard.

**Table 4.125 – Summary of Hazard Risk Classification**

| | |
|---|---|
| **High Risk (≥ 3.0)** | Excessive Heat<br>Flooding<br>Hurricane & Coastal Hazards |
| **Moderate Risk (2.0 – 2.9)** | Dam & Levee Failure<br>Drought<br>Tornadoes & Thunderstorms<br>Severe Winter Weather<br>Wildfire |
| **Low Risk (< 2.0)** | Earthquake<br>Sinkhole |

Table 4.126 summarizes the degree of risk assigned to each identified hazard using the PRI method. Where PRI ratings varied by jurisdiction, the range is shown. Additionally, where a hazard encompasses several sub-hazards, the PRI rating for each sub-hazard is provided.

### Table 4.126 – Summary of PRI Results

| Hazard | Probability | Impact | Spatial Extent | Warning Time | Duration | PRI Score |
|---|---|---|---|---|---|---|
| Dam & Levee Failure[1] | Unlikely | Limited-Critical | Negligible | Less than 6 hrs | Less than 1 week | 2.1 |
| Drought[1] | Possible | Minor-Limited | Large | More than 24 hrs | More than 1 week | 2.2 |
| Earthquake | Unlikely | Minor | Large | Less than 6 hrs | Less than 6 hrs | 1.9 |
| Excessive Heat | Highly Likely | Critical | Large | More than 24 hrs | Less than 1 week | 3.3 |
| Flooding[1] | Possible-Likely | Critical | Negligible-Moderate | 6 to 12 hours | Less than 1 week | 3.0 |
| Hurricanes & Tropical Storms[2] | Highly Likely | Catastrophic | Large | More than 24 hrs | Less than 1 week | 3.6 |
| Coastal Erosion[1,2] | Unlikely-Highly Likely | Minor-Limited | Negligible-Small | More than 24 hrs | Less than 6 hrs | 2.4 |
| Tornado[3] | Likely | Critical | Small | Less than 6 hrs | Less than 6 hrs | 2.7 |
| Thunderstorm Winds[1,3] | Highly Likely | Minor-Limited | Large | Less than 6 hrs | Less than 6 hrs | 3.1 |
| Lightning[3] | Highly Likely | Minor | Negligible | Less than 6 hrs | Less than 6 hrs | 2.2 |
| Hail[3] | Highly Likely | Minor | Negligible | Less than 6 hrs | Less than 6 hrs | 2.2 |
| Severe Winter Weather | Highly Likely | Minor | Large | More than 24 hrs | Less than 1 week | 2.7 |
| Sinkhole[1] | Unlikely-Possible | Limited | Negligible | Less than six hrs | Less than six hrs | 1.6 |
| Wildfire[1] | Possible-Likely | Limited-Critical | Moderate-Large | Less than 6 hrs | Less than 1 week | 2.8 |
| Hazardous Substances | Likely | Critical | Small | Less than 6 hrs | Less than 24 hrs | 2.8 |

[1]Note: PRI ratings for this hazard vary by jurisdiction. The range of ratings are shown here.
[2]Note: This is a sub-hazard of the Hurricanes and Coastal Hazards section. The overall hazard rating is an average of these sub-hazards.
[3]Note: This is a sub-hazard of the Tornadoes & Thunderstorms hazard. The overall hazard rating is an average of these sub-hazards.

# 5 CAPABILITY ASSESSMENT

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

5.1 Overview
5.2 Conducting the Capability Assessment
5.3 Capability Assessment Findings
5.4 Conclusions on Local Capability

## 5.1 OVERVIEW

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

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

The capability assessment completed for the Northeastern NC region serves as a critical planning step toward developing an effective mitigation strategy. Coupled with the risk assessment, the capability assessment helps identify and target effective goals, objectives, and mitigation actions that are realistically achievable under given local conditions.

## 5.2 CONDUCTING THE CAPABILITY ASSESSMENT

This capability assessment was originally developed using feedback from the HMPC in 2021 through a detailed Local Capability Self-Assessment worksheet and was updated based on best available data in 2025. The self-assessment requested information on a variety of "capability indicators" such as existing local plans, policies, programs, or ordinances that contribute to and/or hinder the region's ability to implement hazard mitigation actions. Other indicators included information related to the region's fiscal, administrative, and technical capabilities, such as access to local budgetary and personnel resources for mitigation purposes, and existing education and outreach programs that can be used to promote mitigation. Communities were also asked to comment on the current political climate with respect to hazard mitigation, an important consideration for any local planning or decision-making process

The survey results provided an extensive and consolidated inventory of existing local plans, ordinances, programs, and resources in place or under development. In completing the survey, local officials were also asked to qualitatively rate their jurisdiction's specific capabilities. The survey instrument thereby not

only helps accurately assess the degree of local capability, but it also serves as a good source of introspection for counties and local jurisdictions that want to improve their capabilities. Identified gaps, weaknesses, or conflicts can be recast as opportunities for specific actions to be proposed as part of the mitigation strategy.

The information provided in response to the survey questionnaire was incorporated into a database for further analysis. A general scoring methodology was then applied to quantify each jurisdiction's overall capability. According to the scoring system, each capability indicator was assigned a point value based on its relevance to hazard mitigation. Additional points were added based on the jurisdiction's self-assessment of their own planning and regulatory capability, administrative and technical capability, fiscal capability, education and outreach capability, and political capability.

Using this scoring methodology, a total score and an overall capability rating of "High," "Moderate," or "Limited" could be determined according to the total number of points received. These classifications are designed to provide nothing more than a general assessment of local government capability. In combination with the narrative responses provided by local officials, the results of this capability assessment provide critical information for developing an effective and meaningful mitigation strategy.

## 5.3 CAPABILITY ASSESSMENT FINDINGS

The findings of the capability assessment are summarized in this plan to provide insight into the relevant capacity of the Northeastern NC region to implement hazard mitigation activities. All information is based upon the input provided by local government officials through the Local Capability Self-Assessment and subsequent updates by the planning team and the HMPC.

### *5.3.1 PLANNING AND REGULATORY CAPABILITY*

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

Table 5.1 provides a summary of the relevant local plans, ordinances, and programs already in place or under development for the Northeastern NC region. A checkmark (✓) indicates that the given item is currently in place and being implemented. A plus sign (+) indicates that a jurisdiction is covered for that item under a county-implemented version. Each of these local plans, ordinances, and programs should be considered available mechanisms for incorporating the requirements of the Hazard Mitigation Plan. This information will help identify opportunities to address gaps, weaknesses, or conflicts with other initiatives and integrate the implementation of this plan with existing planning mechanisms where appropriate.

## Table 5.1 – Relevant Plans, Ordinances, and Programs

| Jurisdiction | Hazard Mitigation Plan | Comprehensive Land Use Plan | Floodplain Management Plan | Open Space Management Plan | Stormwater Management Plan | Emergency Operations Plan | SARA Title III Plan | Radiological Emergency Plan | Continuity of Operations Plan | Evacuation Plan | Disaster Recovery Plan | Capital Improvements Plan | Economic Development Plan | Historic Preservation Plan | Transportation Plan | Flood Damage Prevention Ordinance | Zoning Ordinance | Subdivision Ordinance | Site Plan Review Requirements | Unified Development Ordinance | Post-Disaster Redevelopment Ordinance | Building Code | Fire Code | Community Wildfire Protection Plan | National Flood Insurance Program | Community Rating System |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Bertie County** | ✓ | ✓ | | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| Town of Askewville | ✓ | + | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | | |
| Town of Aulander | ✓ | + | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| Town of Colerain | ✓ | + | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| Town of Kelford | ✓ | + | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| Town of Lewiston-Woodville | ✓ | + | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | | |
| Town of Powellsville | ✓ | + | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | | |
| Town of Roxobel | ✓ | ✓ | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| Town of Windsor | ✓ | ✓ | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | |
| **Hyde County** | ✓ | ✓ | | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ |
| **Martin County** | ✓ | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | |
| Town of Bear Grass | ✓ | + | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| Town of Everetts | ✓ | + | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | | |

| Jurisdiction | Hazard Mitigation Plan | Comprehensive Land Use Plan | Floodplain Management Plan | Open Space Management Plan | Stormwater Management Plan | Emergency Operations Plan | SARA Title III Plan | Radiological Emergency Plan | Continuity of Operations Plan | Evacuation Plan | Disaster Recovery Plan | Capital Improvements Plan | Economic Development Plan | Historic Preservation Plan | Transportation Plan | Flood Damage Prevention Ordinance | Zoning Ordinance | Subdivision Ordinance | Site Plan Review Requirements | Unified Development Ordinance | Post-Disaster Redevelopment Ordinance | Building Code | Fire Code | Community Wildfire Protection Plan | National Flood Insurance Program | Community Rating System |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Town of Hamilton | ✓ | + | | | | + | + | | + | + | + | | + | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| Town of Hassell | ✓ | + | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| Town of Jamesville | ✓ | + | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| Town of Oak City | ✓ | + | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| Town of Parmele | ✓ | + | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | | |
| Town of Robersonville | ✓ | + | | | | + | + | | + | + | + | | + | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| Town of Williamston | ✓ | ✓ | | | | + | + | | + | + | + | ✓ | + | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| **Tyrrell County** | ✓ | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| Town of Columbia | ✓ | + | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | |
| **Washington County** | ✓ | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ |
| Town of Creswell | ✓ | | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ |
| Town of Plymouth | ✓ | ✓ | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ |
| Town of Roper | ✓ | | | | | + | + | | + | + | + | | | | + | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | | ✓ |

Source: Local Capability Assessment Survey & 2025 research

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

#### 5.3.1.1 *EMERGENCY MANAGEMENT*

Hazard mitigation is widely recognized as one of the four primary phases of emergency management, as is shown in Figure 5.1. In reality, mitigation is interconnected with all other phases and is an essential component of effective preparedness, response, and recovery. Opportunities to reduce potential losses through mitigation practices are most often implemented before a disaster event, such as through the elevation of flood-prone structures or by regular enforcement of policies that regulate development. However, mitigation opportunities can also be identified during immediate preparedness or response activities, such as installing storm shutters in advance of a hurricane. Furthermore, incorporating mitigation during the long-term recovery and redevelopment process following a disaster event is what enables a community to become more resilient.

**Figure 5.1 – 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.

## HAZARD MITIGATION PLAN

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

- All participating jurisdictions in this regional planning effort have previously been covered by the Northeastern NC Regional Hazard Mitigation Plan.
- In addition to the official local hazard mitigation plan, several communities have participated in mitigation and resilience planning efforts that involve risk and vulnerability assessment and mitigation or resilience action development. Bertie County, Aulander, Windsor, Hyde County (Ocracoke), Washington County, Creswell, and Plymouth have participated in the North Carolina Division of Coastal Management's Resilient Coastal Communities Program and developed Resilience Strategies through that program. The Albemarle Commission and the Mid-East Commission worked with the former North Carolina Office of Recovery and Resiliency's RISE Program to develop the

Albemarle Regional Resilience Portfolio and the Mid-East Regional Resilience Portfolio which contain regional resilience projects relevant to the Northeastern NC Region.

### DISASTER RECOVERY PLAN

A disaster recovery plan serves to guide the physical, social, environmental, and economic recovery and reconstruction process following a disaster event. In many instances, hazard mitigation principles and practices are incorporated into local disaster recovery plans with the intent of capitalizing on opportunities to break the cycle of repetitive disaster losses. Disaster recovery plans can also lead to the preparation of disaster redevelopment policies and ordinances to be enacted following a hazard event.

- All participating jurisdictions have a disaster recovery plan in place or are covered under a county plan (5 jurisdictions have one in place; 21 covered under a county plan).
- Following NC Disaster Recovery Act of 2016, each county, in partnership with the N.C. Office of Recovery & Resiliency, developed a resilient redevelopment plan that includes housing, economic, infrastructure, and environmental strategies for recovery and resilience.

### EMERGENCY OPERATIONS PLAN

An emergency operations plan outlines responsibilities and how resources will be deployed during and following an emergency or disaster.

- All participating jurisdictions have an emergency operations plan either in place or are covered under a county plan (5 jurisdictions have one in place; 21 covered under a county plan).

### CONTINUITY OF OPERATIONS PLAN

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

- All participating jurisdictions have a continuity of operations plan either in place or are covered under a county plan (5 jurisdictions have one in place; 21 covered under a county plan).

#### 5.3.1.2 *GENERAL PLANNING*

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

### COMPREHENSIVE/GENERAL PLAN

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

- 24 of the 26 participating jurisdictions have a comprehensive land use plan in place.

### CAPITAL IMPROVEMENTS PLAN

A capital improvements plan guides the scheduling of spending on public improvements. A capital improvements plan can serve as an important mechanism for guiding future development away from identified hazard areas. Limiting public spending in hazardous areas is one of the most effective long-term mitigation actions available to local governments.

— 2 of the 26 participating jurisdictions have a capital improvements plan in place.

## HISTORIC PRESERVATION PLAN

A historic preservation plan is intended to preserve historic structures or districts within a community. An often-overlooked aspect of the historic preservation plan is the assessment of buildings and sites located in areas subject to natural hazards, and the identification of ways to reduce future damages. This may involve retrofitting or relocation techniques that account for the need to protect buildings that do not meet current building standards or are within a historic district that cannot easily be relocated out of harm's way.

— None of the participating jurisdictions have an historic preservation plan in place or under development.

## ZONING ORDINANCE

Zoning represents the primary means by which land use is controlled by local governments. As part of a community's police power, zoning is used to protect the public health, safety, and welfare of those in a given jurisdiction that maintains zoning authority. A zoning ordinance is the mechanism through which zoning is typically implemented. Since zoning regulations enable municipal governments to limit the type and density of development, a zoning ordinance can serve as a powerful tool when applied in identified hazard areas.

— 22 of the 26 participating jurisdictions have a zoning ordinance in place. Several jurisdictions developed zoning ordinances over the last five years to comply with State Chapter 160D. Bertie, Hyde, Martin, and Tyrrell Counties do not have zoning ordinances.

## SUBDIVISION ORDINANCE

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

— All participating jurisdictions have a subdivision ordinance in place.

## BUILDING CODES, PERMITTING, AND INSPECTIONS

Building codes regulate construction standards. In many communities, permits and inspections are required for new construction. Decisions regarding the adoption of building codes (that account for hazard risk), the type of permitting process required both before and after a disaster, and the enforcement of inspection protocols all affect the level of hazard risk faced by a community.

— All participating jurisdictions have building codes in place.

The adoption and enforcement of building codes by local jurisdictions is routinely assessed through the Building Code Effectiveness Grading Schedule (BCEGS) program, developed by the Insurance Services Office, Inc. (ISO). In North Carolina, the North Carolina Department of Insurance assesses the building codes in effect in a particular community and how the community enforces its building codes, with special emphasis on mitigation of losses from natural hazards. North Carolina has limitations regarding building codes and mandates statewide code enforcement.

The results of BCEGS assessments are routinely provided to ISO's member private insurance companies, which in turn may offer ratings credits for new buildings constructed in communities with strong BCEGS classifications. The expectation is that communities with well-enforced, up-to-date codes should experience fewer disaster-related losses, and as a result should have lower insurance rates.

In conducting the assessment, ISO collects information related to personnel qualification and continuing education, as well as number of inspections performed per day. This type of information combined with local building codes is used to determine a grade for that jurisdiction. The grades range from 1 to 10, with a BCEGS grade of 1 representing exemplary commitment to building code enforcement, and a grade of 10 indicating less than minimum recognized protection. In North Carolina, the average BCEGS grade is 4 for both commercial and residential building.

#### 5.3.1.3 *FLOODPLAIN MANAGEMENT*

Flooding represents the greatest natural hazard facing the nation, yet the tools available to reduce the impacts associated with flooding are among the most developed when compared to other hazard-specific mitigation techniques. In addition to approaches that cut across hazards such as education, outreach, and the training of local officials, the National Flood Insurance Program (NFIP) contains specific regulatory measures that enable government officials to determine where and how growth occurs relative to flood hazards. Participation in the NFIP is voluntary for local governments; however, program participation is strongly encouraged by FEMA as a first step for implementing and sustaining an effective hazard mitigation program. It is therefore used as part of this capability assessment as a key indicator for measuring local capability.

To participate in the NFIP, a county or municipality must adopt a local flood damage prevention ordinance that requires established minimum building standards in the floodplain. These standards require that all new buildings and substantial improvements to existing buildings be protected from damage by a 100-year flood event and that new development in the floodplain not exacerbate existing flood problems or increase damage to other properties.

A key service provided by the NFIP is the mapping of identified flood hazard areas. Once completed, the Flood Insurance Rate Maps (FIRMs) are used to assess flood hazard risk, regulate construction practices, and set flood insurance rates. FIRMs are an important source of information to educate residents, government officials, and the private sector about the likelihood of flooding in their community. Current effective FIRMS are dated between 2009 and 2025. Each community's current effective FIRM is listed in Table 5.2.

Table 5.2 also provides NFIP policy and claim information for each participating jurisdiction in the Northeastern NC region. Overall, in the last five years, the number of active policies has decreased by 38 percent and insurance in force has decreased by 30 percent, while the number of total closed paid losses has increased by 43 percent and the value of total losses paid has increased by 77 percent.

Of the 26 jurisdictions, 21 participate in the NFIP and will continue to comply with all required provisions of the program. Floodplain management is managed through zoning ordinances, building code restrictions, and building inspection programs. The jurisdictions will coordinate with NCEM and FEMA to develop maps and regulations related to Special Flood Hazard Areas within their jurisdictional boundaries and, through a consistent monitoring process, will design and improve their floodplain management program in a way that reduces the risk of flooding to people and property.

The Towns of Askewville, Lewiston Woodville, Powellsville, Everetts, and Parmele do not participate in the NFIP because they have little to no land in high-risk flood zones. Details on flood zone acreage by community are provided in the county annexes.

## COMMUNITY RATING SYSTEM

An additional indicator of floodplain management capability is active participation in the Community Rating System (CRS). The CRS is an incentive-based program that encourages communities to undertake defined flood mitigation activities that go beyond the minimum requirements of the NFIP. Each of the CRS mitigation activities is assigned a point value. As a community earns points and reaches identified thresholds, they can apply for an improved CRS class. Class ratings, which range from 10 to 1 and

increase on 500-point increments, are tied to flood insurance premium reductions. Every class improvement earns an additional 5 percent discount for NFIP policyholders, with a starting discount of 5 percent for Class 9 communities and a maximum possible discount of 45 percent for Class 1 communities.

Community participation in the CRS is voluntary. Any community that is in full compliance with the rules and regulations of the NFIP may apply to FEMA for a CRS classification better than class 10. The CRS application process has been greatly simplified over the past several years, based on community comments intended to make the CRS more user friendly, and extensive technical assistance available for communities who request it.

— 5 of 26 participating jurisdictions in the Northeastern NC Region participate in the CRS. Washington County is a CRS Class 7 community and Creswell, Plymouth, Roper, and Hyde County are CRS Class 8 communities.

## FLOODPLAIN MANAGEMENT PLAN

A floodplain management plan (or a flood mitigation plan) provides a framework for action regarding corrective and preventative measures to reduce flood-related impacts.

— None of the 26 participating jurisdictions have a floodplain management plan in place. However, this hazard mitigation plan follows the 10 steps of the CRS Activity 510 Floodplain Management Plan process and provides a similar framework for flood mitigation; therefore, all jurisdictions have planned for floodplain management through this process.

### Table 5.2 – NFIP Policy and Claim Information

| Jurisdiction | Date Joined NFIP | CRS Class | Current Effective Map Date | NFIP Policies in Force | Insurance in Force | Closed Losses | Total Payments |
|---|---|---|---|---|---|---|---|
| **Bertie County** | 12/04/85 | - | 01/17/25 | 45 | $10,522,000 | 101 | $2,519,821 |
| Town of Askewville | *Not participating* | - | 01/17/25 | 0 | 0 | 0 | 0 |
| Town of Aulander | 02/04/09 | - | 08/03/09 | 5 | $512,000 | 9 | $70,372 |
| Town of Colerain | 10/23/14 | - | 01/17/25 | 1 | $350,000 | 0 | 0 |
| Town of Kelford | 05/24/12 | - | 08/03/09 | 1 | $70,000 | 0 | 0 |
| Town of Lewiston-Woodville | *Not participating* | - | 01/17/25 | 0 | 0 | 0 | 0 |
| Town of Powellsville | *Not participating* | - | 08/03/09 | 0 | 0 | 0 | 0 |
| Town of Roxobel | 02/04/09 | - | 08/03/09 | 0 | $0 | 0 | 0 |
| Town of Windsor | 07/18/77 | - | 01/17/25 | 64 | $10,960,000 | 305 | $10,696,473 |
| **Hyde County** | 02/04/87 | 8 | 06/15/22 | 819 | $189,978,000 | 1,765 | $44,869,696 |
| **Martin County** | 07/16/91 | - | 01/17/25 | 28 | $6,824,000 | 22 | $270,080 |
| Town of Bear Grass | 09/11/07 | - | 01/17/25 | 0 | 0 | 0 | 0 |
| Town of Everetts | *Not participating* | - | 01/17/25 | 0 | 0 | 0 | 0 |
| Town of Hamilton | 05/05/81 | - | 02/04/09 | 0 | 0 | 1 | $26,019 |
| Town of Hassell | 10/12/07 | - | 01/17/25 | 0 | 0 | 0 | 0 |
| Town of Jamesville | 10/12/07 | - | 02/04/09 | 0 | 0 | 0 | 0 |
| Town of Oak City | 12/18/07 | - | 01/17/25 | 0 | 0 | 0 | 0 |
| Town of Parmele | *Not participating* | - | 01/17/25 | 0 | 0 | 0 | 0 |
| Town of Robersonville | 07/01/87 | - | 01/17/25 | 4 | $1,187,000 | 5 | $39,838 |
| Town of Williamston | 08/19/87 | - | 01/17/25 | 32 | $7,186,900 | 14 | $229,349 |
| **Tyrrell County** | 08/19/85 | - | 01/17/25 | 224 | $40,016,000 | 131 | $4,883,771 |
| Town of Columbia | 08/05/85 | - | 01/17/25 | 68 | $11,909,000 | 195 | $4,133,497 |
| **Washington County** | 08/19/85 | 7 | 01/17/25 | 87 | $21,154,000 | 98 | $1,358,045 |
| Town of Creswell | 08/19/85 | 8 | 01/17/25 | 88 | $1,518,000 | 6 | $25,575 |
| Town of Plymouth | 08/19/85 | 8 | 01/17/25 | 40 | $11,448,000 | 48 | $1,302,048 |
| Town of Roper | 08/05/85 | 8 | 01/17/25 | 7 | $1,729,000 | 5 | $83,20 |
| **Region Total** | **-** | **-** | **-** | **1,513** | **$315,363,900.00** | **2,705** | **$70,424,584.00** |

Source: FEMA Community Status Book, November 2025; NFIP Policy Statistics via FEMA Community Information System

Note: Powellsville, Bear Grass, Everetts, Parmele have no SFHA. Lewiston-Woodville has minimal SFHA.

## SUBSTANTIAL DAMAGE PROCEDURES

The NFIP requires that participating communities regulate and enforce substantial damage and substantial improvement procedures such that, at a minimum, buildings that are damaged to 50 percent or more of their market value or improved by 50 percent or more of their market value are required to be brought into compliance with flood damage prevention regulations for new development, such as being elevated to the freeboard requirement. Procedures followed by the participating jurisdictions in the Northeastern NC Region are outlined below.

The communities' Floodplain Administrators are responsible for managing and enforcing substantial damage requirements and making substantial damage determinations for existing buildings and structures, as outlined in each communities' flood damage prevention ordinance. Below is a list of each community's Floodplain Administrator:

- Bertie County and incorporated jurisdictions, minus Windsor: Planning Director
- Town of Windsor: Zoning Administrator
- Hyde County: Building Inspector
- Martin County and all incorporated jurisdictions: Martin County Building Inspector
- Washington County, Town of Creswell, Town of Roper, Tyrrell County, and Town of Columbia: Washington County Planning Director
- Town of Plymouth: Town Manager

In all communities in the region, substantial damage and substantial improvement determinations are made during the permitting process for repairs or improvements. For applications for building permits to improve buildings and structures, including alterations, movement, enlargement, replacement, repair, change of occupancy, additions, rehabilitations, renovations, substantial improvements, repairs of substantial damage, and any other improvement of or work on such buildings and structures, the Floodplain Administrator, in coordination with the Building Official, shall follow the procedures outlined below:

- Estimate the market value, or require the applicant to obtain an appraisal of the market value prepared by a qualified independent appraiser, of the building or structure before the start of construction of the proposed work; in the case of repair, the market value of the building or structure shall be the market value before the damage occurred and before any repairs are made;
- Compare the cost to perform the improvement, the cost to repair a damaged building to its pre-damaged condition, or the combined costs of improvements and repairs, if applicable, to the market value of the building or structure;
- Determine and document whether the proposed work constitutes substantial improvement or repair of substantial damage; and
- Notify the applicant if it is determined that the work constitutes substantial improvement or repair of substantial damage and that compliance with the flood resistant construction requirements of the NC Building Code and the flood damage prevention ordinance is required.

Post-disaster, substantial damages are identified during the damage assessment process, which is led by each county's Emergency Management department. Initial damage assessments are collected and tabulated using Survey123. Structures with major damage or worse are flagged and teams organized by tax assessors offices use data on market value to make an initial substantial damage determination. Enforcement and/or appeal occurs during the permitting process for repairs.

### OPEN SPACE MANAGEMENT PLAN

An open space management plan is designed to preserve, protect, and restore largely undeveloped lands in their natural state, and to expand or connect areas in the public domain such as parks, greenways, and other outdoor recreation areas. In many instances open space management practices are consistent with the goals of reducing hazard losses, such as the preservation of wetlands or other flood-prone areas in their natural state in perpetuity.

— 2 of the 26 participating jurisdictions have an open space management plan in place.

### STORMWATER MANAGEMENT PLAN

A stormwater management plan is designed to address flooding associated with stormwater runoff. The stormwater management plan is typically focused on design and construction measures that are intended to reduce the impact of more frequently occurring minor urban flooding.

— None of the 26 participating jurisdictions have a stormwater management plan in place.

## *5.3.2 ADMINISTRATIVE AND TECHNICAL CAPABILITY*

The ability of a local government to develop and implement mitigation projects, policies, and programs is directly tied to its ability to direct staff time and resources for that purpose. Administrative capability can be evaluated by determining how mitigation-related activities are assigned to local departments and if there are adequate personnel resources to complete these activities. The degree of intergovernmental coordination among departments will also affect administrative capability for the implementation and success of proposed mitigation activities.

Technical capability can generally be evaluated by assessing the level of knowledge and technical expertise of local government employees, such as personnel skilled in using geographic information systems (GIS) to analyze and assess community hazard vulnerability. The Local Capability Self-Assessment was used to capture information on administrative and technical capability through the identification of available staff and personnel resources.

Table 5.3 provides a summary of the Local Capability Self-Assessment results for the region with regard to relevant staff and personnel resources. A checkmark indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill.

Administrative capability is fairly low across the region. Most smaller communities rely on the county for administrative assistance. Many county and town staff members serve multiple roles for their communities. However, one notable administrative strength is that the counties and towns in the region are highly collaborative.

One improvement in administrative capability over the last five years is that Hyde County, Washington County, Creswell, and Roper, and Tyrrell County and Columbia have been designated as Community Disaster Resilience Zones (CDRZs), which means they have advantages in some federal grant programs, as well as some administrative support from the North Carolina Office of Resilience. Additionally, all communities are covered by statewide mutual aid agreements.

### Table 5.3 – Relevant Staff/Personnel Resources

| Jurisdiction | Planners with knowledge of land development and land management practices | Engineers or professionals trained in construction practices related to buildings and/or infrastructure | Planners or engineers with an understanding of natural and/or human-caused hazards | Building Official | Emergency manager | Floodplain manager | Land surveyors | Scientist familiar with the hazards of the community | Staff with education or expertise to assess the community vulnerability to hazards | Personnel skilled in Geographic Information Systems (GIS) and/or HAZUS | Resource development staff or grant writers | Maintenance programs to reduce risk | Warning systems/services | Mutual Aid Agreements |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Bertie County** | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Town of Askewville | | | | | | | | | | | | | ✓ | ✓ |
| Town of Aulander | | | | | | | | | | | | | ✓ | |
| Town of Colerain | | | | | | | | | | | | | ✓ | ✓ |
| Town of Kelford | | | | | | | | | | | | | ✓ | |
| Town of Lewiston-Woodville | | | | | | | | | | | | | ✓ | |
| Town of Powellsville | | | | | | | | | | | | | ✓ | |
| Town of Roxobel | | | | | | | | | | | | | ✓ | |
| Town of Windsor | | | | | | | | | | | | ✓ | ✓ | ✓ |
| **Hyde County** | | | | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Martin County** | | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Town of Bear Grass | | | | | | | | | | | | | ✓ | |
| Town of Everetts | | | | | | | | | | | | | ✓ | |
| Town of Hamilton | | | | | | | | | | | | | ✓ | |
| Town of Hassell | | | | | | | | | | | | | ✓ | |
| Town of Jamesville | | | | | | | | | | | | | ✓ | ✓ |
| Town of Oak City | | | | | | | | | | | | | ✓ | |
| Town of Parmele | | | | | | | | | | | | | ✓ | |
| Town of Robersonville | | | | | | | | | | | | | ✓ | ✓ |
| Town of Williamston | | ✓ | ✓ | | | | | | | ✓ | | | ✓ | ✓ |

| Jurisdiction | Planners with knowledge of land development and land management practices | Engineers or professionals trained in construction practices related to buildings and/or infrastructure | Planners or engineers with an understanding of natural and/or human-caused hazards | Building Official | Emergency manager | Floodplain manager | Land surveyors | Scientist familiar with the hazards of the community | Staff with education or expertise to assess the community vulnerability to hazards | Personnel skilled in Geographic Information Systems (GIS) and/or HAZUS | Resource development staff or grant writers | Maintenance programs to reduce risk | Warning systems/services | Mutual Aid Agreements |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Tyrrell County** | | | | ✓ | ✓ | ✓ | | | ✓ | | | ✓ | ✓ | ✓ |
| Town of Columbia | | | | | | | | | | | | | ✓ | ✓ |
| **Washington County** | | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Town of Creswell | | | | | | | | | | | | ✓ | ✓ | |
| Town of Plymouth | | | | | | | | | | | | ✓ | ✓ | |
| Town of Roper | | | | | | | | | | | | ✓ | ✓ | |

Source: Local Capability Assessment Survey

### 5.3.3 FISCAL CAPABILITY

The ability of a local government to implement mitigation actions is often dependent on the amount of money available. This may take the form of outside grant funding awards or locally based revenue and financing. The costs associated with mitigation policy and project implementation vary widely. In some cases, policies are tied primarily to staff time or administrative costs associated with the creation and monitoring of a given program. In other cases, direct expenses are linked to an actual project such as the acquisition of flood-prone houses, which can require a substantial commitment from local, state, and federal funding sources.

The Local Capability Self-Assessment was used to capture information on the region's fiscal capability through the identification of locally available financial resources.

Table 5.4 provides a summary of the results for the region with regard to relevant fiscal resources. A checkmark (✓) indicates that the given fiscal resource is locally available for hazard mitigation purposes (including match funds for state and federal mitigation grant funds).

**Table 5.4 – Relevant Fiscal Resources**

| Jurisdiction | Capital Improvement Programming | Community Development Block Grants (CDBG) | Special Purpose Taxes | Gas/Electric Utility Fees | Water/Sewer Fees | Stormwater Utility Fees | Development Impact Fees | General Obligation Bonds | Revenue Bonds | Special Tax Bonds |
|---|---|---|---|---|---|---|---|---|---|---|
| **Bertie County** | | ✓ | | | ✓ | | | | | |
| Town of Askewville | | | | | | | | | | |
| Town of Aulander | | | | | | | | | | |
| Town of Colerain | | | | | | | | | | |
| Town of Kelford | | | | | | | | | | |
| Town of Lewiston-Woodville | | | | | | | | | | |
| Town of Powellsville | | | | | | | | | | |
| Town of Roxobel | | | | | | | | | | |
| Town of Windsor | | ✓ | | ✓ | ✓ | | | | | |
| **Hyde County** | | ✓ | | | ✓ | | | | | |
| **Martin County** | | | | | ✓ | | | | | |
| Town of Bear Grass | | | | | | | | | | |
| Town of Everetts | | | | | | | | | | |
| Town of Hamilton | | | | | | | | | | |
| Town of Hassell | | | | | | | | | | |
| Town of Jamesville | | | | | ✓ | | | | | |
| Town of Oak City | | | | | ✓ | | | | | |
| Town of Parmele | | | | | | | | | | |

| Jurisdiction | Capital Improvement Programming | Community Development Block Grants (CDBG) | Special Purpose Taxes | Gas/Electric Utility Fees | Water/Sewer Fees | Stormwater Utility Fees | Development Impact Fees | General Obligation Bonds | Revenue Bonds | Special Tax Bonds |
|---|---|---|---|---|---|---|---|---|---|---|
| Town of Robersonville | | | | | ✓ | | | | | |
| Town of Williamston | ✓ | | | | ✓ | | | | | |
| **Tyrrell County** | | ✓ | ✓ | | ✓ | | | | ✓ | |
| Town of Columbia | | | | | ✓ | | | | | |
| **Washington County** | | | | | ✓ | | | | | |
| Town of Creswell | | | | | | | | | | |
| Town of Plymouth | | | | | | | | | | |
| Town of Roper | | | | | | | | | | |

Source: Local Capability Assessment Survey

### 5.3.4 EDUCATION AND OUTREACH CAPABILITY

This type of local capability refers to education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information. Examples include natural disaster or safety related school programs; participation in community programs such as Firewise or StormReady; and activities conducted as part of hazard awareness campaigns such as a Tornado Awareness Month.

Table 5.5 provides a summary of the results for the region with regard to relevant education and outreach resources. A checkmark (✓) indicates that the given resource is locally available for hazard mitigation purposes.

There are no Firewise USA Sites in the region because there are not communities large enough to organize around this effort.

Martin, Hyde, Tyrrell, and Washington Counties are all StormReady communities. Hyde County is also a TsunamiReady community.

### Table 5.5 – Education and Outreach Resources

| Jurisdiction | Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc. | Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education) | Natural disaster or safety related school programs | StormReady certification | Firewise USA Sites certification | Public-private partnership initiatives addressing disaster-related issues |
|---|---|---|---|---|---|---|
| **Bertie County** | ✓ | ✓ | ✓ | | | ✓ |
| Town of Askewville | | | | | | |
| Town of Aulander | | | | | | |
| Town of Colerain | | | | | | |
| Town of Kelford | | | | | | |
| Town of Lewiston-Woodville | | | | | | |
| Town of Powellsville | | | | | | |
| Town of Roxobel | | | | | | |
| Town of Windsor | ✓ | ✓ | | | | ✓ |
| **Hyde County** | ✓ | ✓ | | ✓ | | ✓ |
| **Martin County** | ✓ | ✓ | ✓ | ✓ | | |
| Town of Bear Grass | | | | | | |
| Town of Everetts | | | | | | |
| Town of Hamilton | | | | | | |
| Town of Hassell | | | | | | |
| Town of Jamesville | | | | | | |
| Town of Oak City | | | | | | |
| Town of Parmele | | | | | | |
| Town of Robersonville | | | | | | |
| Town of Williamston | | ✓ | | | | |
| **Tyrrell County** | ✓ | ✓ | ✓ | ✓ | | ✓ |
| Town of Columbia | ✓ | ✓ | ✓ | | | |
| **Washington County** | ✓ | ✓ | ✓ | ✓ | | |
| Town of Creswell | ✓ | ✓ | | | | |
| Town of Plymouth | ✓ | ✓ | | | | |
| Town of Roper | ✓ | ✓ | | | | |

Source: Local Capability Assessment Survey

### 5.3.5 MITIGATION CAPABILITY

This type of local capability refers to the mitigation strategies and actions that are developed by the communities in this plan.

Table 5.6 provides a summary of the results for the planning area with regard to relevant mitigation resources. A checkmark (✓) indicates that the given resource is locally available for hazard mitigation purposes.

**Table 5.6 – Mitigation Resources**

| Jurisdiction | Do you apply for mitigation grant funding? | Do you perform reconstruction projects? | Do you perform building elevations? | Do you perform acquisitions? |
|---|---|---|---|---|
| **Bertie County** | ✓ | | ✓ | ✓ |
| Town of Askewville | | | | |
| Town of Aulander | | | | |
| Town of Colerain | | | | |
| Town of Kelford | | | | |
| Town of Lewiston-Woodville | | | | |
| Town of Powellsville | | | | |
| Town of Roxobel | | | | |
| Town of Windsor | ✓ | | ✓ | ✓ |
| **Hyde County** | ✓ | ✓ | ✓ | ✓ |
| **Martin County** | ✓ | | | |
| Town of Bear Grass | | | | |
| Town of Everetts | | | | |
| Town of Hamilton | | | | |
| Town of Hassell | | | | |
| Town of Jamesville | | | | |
| Town of Oak City | | | | |
| Town of Parmele | | | | |
| Town of Robersonville | | | | |
| Town of Williamston | | | | |
| **Tyrrell County** | ✓ | ✓ | ✓ | ✓ |
| Town of Columbia | | | ✓ | |
| **Washington County** | ✓ | ✓ | ✓ | ✓ |
| Town of Creswell | | ✓ | | |
| Town of Plymouth | ✓ | | | |
| Town of Roper | | | | |

## 5.3.6 POLITICAL CAPABILITY

One of the most difficult capabilities to evaluate involves the political will of a jurisdiction to enact meaningful policies and projects designed to reduce the impact of future hazard events. Hazard mitigation may not be a local priority, or it may conflict with or be seen as an impediment to other goals of the community, such as growth and economic development. Therefore, the local political climate must be considered in designing mitigation strategies, as it could be the most difficult hurdle to overcome in accomplishing their adoption and implementation.

The Local Capability Self-Assessment was used to capture information on political capability of the region. Survey respondents were asked to rate political support as they perceive it and identify general examples of local political capability, such as guiding development away from identified hazard areas, restricting public investments or capital improvements within hazard areas, or enforcing local development standards that go beyond minimum state or federal requirements (e.g., building codes, floodplain management, etc.). The comments provided by the participating jurisdictions are listed below:

HMPC representatives from all participating jurisdictions responded that political leaders are at least potentially willing to implement mitigation measures, though these measures must compete with other local needs for limited funding. Several of the participating jurisdictions have some local standards that exceed state requirements. Bertie County has the most restrictive freeboard requirement with the County and all its municipalities requiring a five-foot freeboard. Hyde County requires three feet of freeboard for 1% and 0.2% zones and 9 feet NAVD 1988 for residential buildings on the Island of Ocracoke.

## 5.3.7 LOCAL SELF-ASSESSMENT RATING

In addition to the inventory and analysis of specific local capabilities, the Local Capability Self-Assessment asked counties and local jurisdictions within the Northeastern NC region to assign a rating of their perceived capability across each of the capability categories and overall as either “limited,” “moderate,” or “high.” Table 5.7 summarizes the results of the self-assessment ratings for each community in the Northeastern NC Region.

**Table 5.7 – Self-Assessment of Capability**

| Jurisdiction | Plans, Ordinances, Codes and Programs | Administrative and Technical Capability | Fiscal Capability | Education and Outreach Capability | Mitigation Capability | Political Capability | Overall Capability |
|---|---|---|---|---|---|---|---|
| **Bertie County** | Moderate | Limited | Moderate | Moderate | Moderate | Moderate | Moderate |
| Town of Askewville | Limited | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Aulander | Limited | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Colerain | Limited | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Kelford | Limited | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Lewiston-Woodville | Limited | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Powellsville | Limited | Limited | Limited | Limited | Limited | Limited | Limited |

| Jurisdiction | Plans, Ordinances, Codes and Programs | Administrative and Technical Capability | Fiscal Capability | Education and Outreach Capability | Mitigation Capability | Political Capability | Overall Capability |
|---|---|---|---|---|---|---|---|
| Town of Roxobel | Limited | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Windsor | Moderate | Limited | Moderate | Moderate | Moderate | Moderate | Moderate |
| **Hyde County** | Moderate | Limited | Moderate | Moderate | High | Moderate | Moderate |
| **Martin County** | Moderate | Limited | Moderate | Moderate | Moderate | Moderate | Moderate |
| Town of Bear Grass | Limited | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Everetts | Limited | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Hamilton | Limited | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Hassell | Limited | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Jamesville | Moderate | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Oak City | Moderate | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Parmele | Limited | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Robersonville | Moderate | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Williamston | Moderate | Limited | Limited | Limited | Limited | Limited | Limited |
| **Tyrrell County** | Limited | Limited | Limited | Limited | Moderate | Limited | Limited |
| Town of Columbia | Limited | Limited | Limited | Limited | Limited | Limited | Limited |
| **Washington County** | Moderate | Limited | Moderate | Moderate | Moderate | Moderate | Moderate |
| Town of Creswell | Limited | Limited | Limited | Limited | Limited | Limited | Limited |
| Town of Plymouth | Moderate | Limited | Moderate | Moderate | Moderate | Moderate | Moderate |
| Town of Roper | Limited | Limited | Limited | Limited | Limited | Limited | Limited |

Source: Local Capability Assessment Survey

## 5.4 CONCLUSIONS ON LOCAL CAPABILITY

To form meaningful conclusions on the assessment of local capability, a quantitative scoring methodology was designed and applied to results of the Local Capability Assessment Survey. This methodology attempts to assess the overall level of capability of the Northeastern NC region to implement hazard mitigation actions.

Table 5.8 shows the results of the capability assessment using the designed scoring methodology. The capability score is based solely on the information provided by local officials in response to the Local Capability Self-Assessment and subsequent updates by the planning team. According to the assessment, the average local capability score for all responding jurisdictions is 56, which falls into the Low capability ranking.

**Table 5.8 – Capability Assessment Results**

| Jurisdiction | Overall Capability Score | Overall Capability Rating |
|---|---|---|
| **Bertie County** | 86 | Moderate |
| Town of Askewville | 43 | Low |
| Town of Aulander | 43 | Low |
| Town of Colerain | 46 | Low |
| Town of Kelford | 43 | Low |
| Town of Lewiston-Woodville | 43 | Low |
| Town of Powellsville | 43 | Low |
| Town of Roxobel | 43 | Low |
| Town of Windsor | 76 | Moderate |
| **Hyde County** | 78 | Moderate |
| **Martin County** | 67 | Low |
| Town of Bear Grass | 49 | Low |
| Town of Everetts | 46 | Low |
| Town of Hamilton | 49 | Low |
| Town of Hassell | 49 | Low |
| Town of Jamesville | 54 | Low |
| Town of Oak City | 51 | Low |
| Town of Parmele | 46 | Low |
| Town of Robersonville | 54 | Low |
| Town of Williamston | 62 | Low |
| **Tyrrell County** | 79 | Moderate |
| Town of Columbia | 59 | Low |
| **Washington County** | 85 | Moderate |
| Town of Creswell | 57 | Low |
| Town of Plymouth | 62 | Low |
| Town of Roper | 56 | Low |

Source: Local Capability Assessment Survey, NCEM Risk Management Tool

As previously discussed, one of the reasons for conducting a capability assessment is to examine local capabilities to detect any existing gaps or weaknesses within ongoing government activities that could hinder proposed mitigation activities and possibly exacerbate community hazard vulnerability. These gaps have been identified, for each jurisdiction, in the tables found throughout this section. The participating jurisdictions used the capability assessment as part of the basis for the mitigation actions that are identified in Section 7; therefore, each jurisdiction addresses their ability to expand on and improve their existing capabilities through the identification of their mitigation actions.

# 6 MITIGATION STRATEGY

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

This section describes the process for developing the mitigation strategy for the Northeastern NC Regional Hazard Mitigation Plan. It describes how the Region met the requirements for Planning Step 6 (Set Goals), Planning Step 7 (Review Possible Activities), and Planning Step 8 (Draft an Action Plan). This section includes the following sub-sections:

- 6.1 Goals and Objectives
- 6.2 Identification & Analysis of Mitigation Activities

## 6.1 GOALS AND OBJECTIVES

**Requirement §201.6(c)(3)(i): [The mitigation strategy section shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.**

Goal setting builds upon the findings of Section 4, which documents the hazards and associated risks that threaten the Northeastern NC Region, and Section 5, which evaluates the capacity of the Region to reduce the impact of those hazards. The intent of goal setting is to identify areas where feasible actions can be taken or improvements to existing capabilities can be made so that community vulnerability is reduced. Goals are also necessary to guide the review of possible mitigation measures. This plan needs to make sure that recommended actions are consistent with what is appropriate for the Region. Mitigation goals need to reflect community priorities and should be consistent with other local plans.

- **Goals** are general guidelines that explain what is to be achieved. They are usually broad-based policy type statements, long term and represent global visions. Goals help define the benefits that the plan is trying to achieve.
- **Objectives** are short term aims that, when combined, form a strategy or course of action to meet a goal. Unlike goals, objectives are specific and measurable.

### *6.1.1 COORDINATION WITH OTHER PLANNING EFFORTS*

The goals of this plan need to be consistent with and complement the goals of other local planning efforts. The primary planning documents that the goals of this plan should complement and be consistent with are the participating jurisdictions' comprehensive plans. Comprehensive plans are important because they are developed and designed to guide future growth within their communities. Keeping the Hazard Mitigation Plan and Comprehensive Plans consistent ensures that land development is done with awareness and understanding of hazard risk and that mitigation projects complement rather than contradict community development objectives.

## 6.1.2 GOAL SETTING

At the second planning meeting, the HMPC reviewed and discussed the goals from the 2021 plan. The HMPC largely approved of the existing goals but agreed on some revisions to improve overall clarity, reorganize objectives, and include verbiage regarding property protection measures and pre-disaster public education.

The revised goals and objectives of this plan update are detailed below in Section 6.1.3.

## 6.1.3 RESULTING GOALS AND OBJECTIVES

The HMPC agreed upon four general goals with specific objectives in support of each goal. The refined goals and objectives are as follows:

**Goal 1 – Promote the public health, safety, and general welfare of residents and minimize public and private losses due to natural hazards through local land development regulations, capital improvements, planning/investment, and proactive long-range planning.**

**Objective 1.1:** Reduce the length of time that local infrastructure systems are deemed inoperable due to the impacts of natural hazards.

**Objective 1.2:** Preserve open space in floodplain areas.

**Objective 1.3:** Reduce flooding and erosion vulnerability through land development initiatives, maintenance, and improvement of storm drainage.

**Objective 1.4:** Reduce the risk of damage from wildfires (including under fires) to existing and future development.

**Goal 2 – 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.**

**Objective 2.1:** Work toward compliance with all State and Federal planning and regulatory requirements including standards for Local Emergency Operations Plans, Flood Damage Prevention Ordinances, Continuity of Operations Plans.

**Objective 2.2:** Improve floodplain management, including through participation in the Community Rating System, where appropriate.

**Objective 2.3:** Implement property protection projects and structural projects that protect existing development from hazards.

**Goal 3 – Effectively expedite post-disaster reconstruction through the implementation of mitigation strategies and intergovernmental coordination.**

**Objective 3.1:** Improve all participating jurisdictions' general hazard mitigation capability.

**Objective 3.2:** Ensure effective local/interagency communication and response during disaster events.

**Goal 4 – Provide education to citizens that empowers them to protect themselves and their families from natural hazards.**

**Objective 4.1:** Ensure adequate warning and notification relating to hazards including efforts to establish well publicized, accessible shelter facilities that meet national standards for safety and supply.

**Objective 4.2:** Improve public awareness and understanding of local vulnerability to hazards including providing education on hazard risks and mitigation opportunities and improving disaster warning/post-disaster information efforts.

## 6.2 IDENTIFICATION AND ANALYSIS OF MITIGATION ACTIVITIES

**Requirement §201.6(c)(3)(ii): [The mitigation strategy section shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.**

To identify and select mitigation projects that support the mitigation goals and objectives, the risks and vulnerabilities associated with all hazards identified in Section 4 Risk Assessment were evaluated for mitigation opportunities. The HMPC analyzed viable mitigation options that supported the identified goals and objectives, addressed key problems, risks, or vulnerabilities, and aligned with other local plans and efforts. The HMPC was provided with the following list of mitigation categories which are utilized as part of the CRS planning process but are also applicable to multi-hazard mitigation. Acronyms used in the Mitigation Action Plans to identify each action's category are listed in parentheses.

- Prevention (P)
- Property Protection (PP)
- Natural Resource Protection (NRP)
- Emergency Services (ES)
- Structural Projects (SP)
- Public Information and Outreach (PIO)

The HMPC was also provided with examples of potential mitigation actions for each of the above categories. The HMPC was instructed to consider both future and existing buildings in evaluating possible mitigation actions. Facilitated discussions took place to examine and analyze the options. The HMPC also considered which actions from the previous plan that were not already completed should be continued in this action plan.

More details on mitigation alternatives considered by the HMPC are provided in Appendix C.

### *6.2.1 PRIORITIZATION PROCESS*

In the process of identifying continuing and new mitigation actions, the HMPC was provided with a set of prioritization criteria to assist in deciding why one recommended action might be more important, more effective, or more likely to be implemented than another. The prioritization criteria were grouped into three categories: Suitability, Risk Reduction, and Cost. The criteria for the prioritization process included the following:

**Suitability**

- Appropriateness of Action
- Community Acceptance
- Technical and Administrative Feasibility

- Environmental Impact
- Legal Conformance
- Consistency with Existing Plans and Other Community Goals

**Risk Reduction**

- Scope of Benefits
- Potential to Save Lives
- Importance of Benefits
- Level of Inconvenience or Unintended Consequence
- Losses Avoided
- Number of People to Benefit

**Cost**

- Estimate of Upfront Cost
- Estimate of Ongoing Cost
- Benefit to Cost Ratio
- Financing Availability
- Affordability
- Elimination of Repetitive Damages

In accordance with the DMA requirements, an emphasis was placed on the importance of a benefit-cost analysis in determining action priority, as reflected in the prioritization criteria above. For each action, the HMPC considered the benefit-cost analysis in terms of:

- Ability of the action to address the problem
- Contribution of the action to save life or property
- Available technical and administrative resources for implementation
- Availability of funding and perceived cost-effectiveness

The consideration of these criteria helped to prioritize and refine mitigation actions but did not constitute a full benefit-cost analysis. The cost-effectiveness of any mitigation alternative will be considered in greater detail through performing benefit-cost project analyses when seeking FEMA mitigation grant funding for eligible actions associated with this plan.

Using these prioritization criteria, the HMPC assigned each action a ranking of High, Medium, or Low priority. The prioritization ranking for each mitigation action considered by the HMPC is provided in Section 7 Mitigation Action Plans.

# 7 MITIGATION ACTION PLANS

**Requirement §201.6(c)(3)(iii): [The mitigation strategy section shall include an] action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.**

This section provides the mitigation action plan for each participating jurisdiction, grouped by county. To improve regional coordination and increase capability to implement projects, many actions are multi-jurisdictional but will be led by the respective county.

The following acronyms are used to identify potential funding sources for each action:

- FEMA – Federal Emergency Management Agency
- NCDEQ – North Carolina Department of Environmental Quality
- NCDOT – North Carolina Department of Transportation
- NCDPS – North Carolina Department of Public Safety
- NFIP – National Flood Insurance Program
- USDA – United States Department of Agriculture

The following acronyms are used to identify the mitigation category for each action:

- P – Prevention
- PP – Property Protection
- NRP – Natural Resource Protection
- SP – Structural Projects
- ES – Emergency Services
- PIO – Public Information & Outreach

**Table 7.1 – Mitigation Action Plan, Bertie County**

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B1 | Continue to develop a Geographic Information System (GIS) to map current land uses and to map proposed future land uses (CAMA Land Use Plan Update) as an aid in assessing community vulnerability. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | All Hazards | Med | 2.2, 3.1 | P | Bertie County Planning Department<br>Bertie County Emergency Management<br>Municipal Administrations | Staff Time | General Fund, NCDPS | 2 to 3 years | Carry Forward | Updated flood data has been included in County GIS system, as have utility lines, fire districts, and fire stations. Remains a priority to develop a GIS layer for land use. |
| B2 | Accomplish the following during the next CAMA Land Use Plan update:<br>• Establish more specific growth guidelines and policies and specifically delineate sensitive environmental areas for protection;<br>• Adopt a more limited policy on the types of uses allowed within flood hazard areas;<br>• Adopt a policy to not extend public services and utilities into flood hazard or other environmentally sensitive areas to discourage growth. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | All Hazards | Med | 2.2, 1.1, 1.2 | PP | Bertie County Planning Department<br>Bertie County Administration<br>Municipal Administrations | $45,000 | General Fund, NCDPS, NCDEQ | 3 to 5 years | Carry Forward | No progress to report. This remains a priority and Bertie County is still seeking funding to update the CAMA Land Use Plan. |
| B3 | Consider adopting a zoning ordinance that:<br>• Establishes zoning districts and sets standards for future development.<br>• Includes standards for clustering of residential lot development to help preserve flood hazard areas from development.<br>• Includes a flood hazard overlay zone to ensure that inappropriate development is adequately controlled. | Bertie County | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Med | 1.2 | PP | Bertie County Planning Department<br>Bertie County Board of Commissioners | $75,000 | General Fund | 3 to 5 years | Carry Forward | Bertie County is still considering developing and adopting Countywide zoning regulations but would like to update the CAMA Land Use Plan first to inform this. ECU students prepared a study and draft ordinance for the Highway 17 area. |
| B4 | Identify repetitive flood loss properties and other high risk properties for acquisition and relocation. Seek Federal and State funding (voluntary program). | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Med | 2.3, 1.2 | SP | Bertie County Administration<br>Bertie County Board of Commissioners<br>Municipal Administrations | Staff Time | General Fund, NCDPS | 2025-2030 | Carry Forward | Bertie County and Town of Windsor have completed HMGP grants for acquisitions and elevations. Will continue to look for opportunities to protect additional properties. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B5 | Establish a countywide Stormwater Management Program to improve and maintain stormwater drainage systems countywide. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 1.3 | SP | Bertie County Administration<br>Municipal Administrations | To Be Determined | General Fund, NCDPS | 1 year | Carry Forward | Coordinating committee not established and drainage needs to be addressed on a countywide level. Specific drainage issues have been identified. Bertie County and Town of Windsor have received a grant to address drainage improvements in Hoggard Mill Pond. |
| B6 | Maintain a coordinated debris inspection and removal program. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Flooding, Hurricanes & Tropical Storm, Severe Winter Storm, Extreme Heat, Earthquake, Wildfire, Dam & Levee Failure, Severe Weather, Tornado | High | 3.2 | ES | Bertie County Board of Commissioners<br>Bertie County Emergency Management<br>Municipal Administrations | Staff Time | General Fund, NCDPS, FEMA | 2025-2030 | Carry Forward | Bertie County will continue to maintain a post disaster debris management contractor. The County will review this contract and update it annually prior to hurricane season. |
| B7 | Advise/assist property owners in retrofitting homes and businesses. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 4.2 | PIO | Bertie County Planning Department<br>Municipal Administrations | Staff Time | General Fund | 2025-2030 | Carry Forward | The Bertie County Planning and Inspection Department works closely with property owners and builders to retrofit homes to minimize future flood damages. County coordinates with NRCS to offer advice on drainage issues. |
| B8 | Acquire generators or other forms of redundant power supply to ensure that critical facilities and infrastructure remain operational where normal power supply is not available. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | All Hazards | High | 1.1 | PP | Bertie County Emergency Management<br>American Red Cross<br>Bertie County School System<br>Municipal Administrations | To Be Determined | General Fund, NCDPS | 1 to 3 years | Carry Forward | Priority facilities in need of backup generators include: County Admin Building, two EMS substations, all schools, all fire departments, and new 911 Center |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B9 | Work to improve the emergency notification system in an effort to increase awareness regarding the locations of shelters and evacuation routes during natural hazard events. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | All Hazards | High | 4.1 | PIO | Bertie County Emergency Management<br>Municipal Administrations | Staff Time | General Fund | 2025-2030 | Carry Forward | Bertie County, along with other counties in the region, uses HyperReach emergency notification system. Additional improvements to support emergency notifications will be pursued as funding becomes available. |
| B10 | Seek grant funding for eligible mitigation opportunities which may include but are not limited to: acquisition/elevation (addressed above), mitigation/reconstruction, and wet/dry floodproofing to residential and non-residential structures. Funding may also be utilized for redundant power to critical facilities, wind retrofits to critical facilities, storm shelters and other activities that reduce the loss of life and property. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Med | 1.1, 2.3 | PP, SP | Bertie County Administration<br>Municipal Administrations | To Be Determined | NCDPS, FEMA | 2025-2030 | Carry Forward | County has received grants for drainage improvements and property protection. County has contracted with a consultant to identify and apply for grant funding. |
| B11 | Work to implement all strategies and recommendations outlined within the Bertie County Hurricane Matthew Resilient Redevelopment Plan. | Bertie County | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Low | 2.3, 1.1 | SP | Bertie County Administration<br>Municipal Administrations | To Be Determined | General Fund, NCDPS, FEMA | 5 years | Carry Forward | Drainage study completed. County will work to identify and implement other projects that are still a priority. |
| B12 | Create or Update Community Wildfire Protection Plans in each fire district. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Wildfire | Med | 1.4 | P | Bertie County Emergency Management,<br>Fire Departments,<br>NC Forest Service | To Be Determined | Grant Funds | 5 years | New | |
| B13 | Acquire additional emergency response equipment to support emergency management operations, including lights, command trailer, and portable generators. | Bertie County | All Hazards | High | 3.4, 4.1 | ES | Bertie County Emergency Management | To Be Determined | General Fund, NCDPS, FEMA | 5 years | New | |

**Table 7.2 – Mitigation Action Plan, Hyde County**

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H1 | Promote the availability of flood insurance available through the National Flood Insurance Program (NFIP) using the following means:<br>• Post on county website<br>• Provide information on building permit applications<br>• Make available at the library on the mainland in Engelhard and on Ocracoke Island. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Med | 4.2 | PIO | Hyde County Administration, Hyde County Building Inspections | Staff Time | General Fund, NCDPS | 2025-2030 | Carry Forward | Hyde County continues to promote the availability of federally subsidized flood insurance available to all County residents. Particular attention is given to those citizens that are not located within the defined special flood hazard area but are still potentially subject to flood damage. |
| H2 | Continue to maintain, operate, and carry out all activities outlined within the Swan Quarter Watershed Project Operation and Maintenance Checklist. This effort includes ensuring functionality of the Swan Quarter Dike. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 1.3 | PP, SP | Hyde County Administration, Hyde County Soil & Water, Hyde County Water & Flood Control Manager, SQ Watershed Steering Committee | Staff Time | General Fund, NCDPS, HMGP | 2025-2030 | Carry Forward | Hyde County continues to monitor the status of the Swan Quarter flood control system and associated maintenance protocols.<br>In addition, Hyde County continues to apply for grant and private funding to improve the functionality of the flood control system through the installation of additional pumps and culvert resizing and replacement for feeder canals.<br>Pre-storm and post-storm assessments of the flood-control system will continue to be standard protocol as outlined in our SQ Watershed Operations and Maintenance Plan. |
| H3 | Continue to maintain and map GIS-based data related to floodplain management and mitigation. These efforts will involve maintaining the most recent Flood Insurance Rate Maps (FIRMS), as well as GIS locations for each property either acquired or mitigated under through current and past Mitigation Grant Projects. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Med | 4.2, 2.2 | PIO | Hyde County Administration | Staff Time | General Fund | 2 to 3 years | Carry Forward | Hyde County has the most current FIRMS mapped within its GIS system and will continue to update the GIS database, to work in concert with the information provided in this plan, to be utilized for guidance regarding development policy and regulation. |
| H4 | Make a variety of materials related to flood insurance, flood protection, floodplain management, increased cost of compliance coverage, information on floodplains, and listings of qualified contractors familiar with floodproofing and elevation techniques, available through various methods including:<br>• Placing materials in the county library<br>• Disseminating information to local contractors | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Med | 4.2 | PIO | Hyde County Administration | Staff Time | General Fund, NCDPS | 2025-2030 | Carry Forward | The Hyde County Building Inspections Department continues to maintain materials associated with floodplain protection that are available to County residents. |

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H5 | Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) and high risk properties from future flooding events. The county will continue maintaining a list of RLPs, and on an annual basis, will apply for funding for all structures that meet cost-benefit thresholds as defined by FEMA. The priority will be for the elevation of structures. Hyde County will also work with homeowners in marginalized communities to address living conditions and provide housing repairs as needed to fortify existing structures until elevation funding is made available. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 1.1, 2.3 | PP | Hyde County Administration and Grants Management, Planning & Economic Development | Staff Time | General Fund, NCDPS, FEMA, CDBG, NC Housing Finance, HMGP | 2025-2030 | Carry Forward | Hyde County continues to utilize funding to address the treatment of repetitive loss properties through both annual funding cycles, as well as through post disaster funding. Hyde will also continue to apply for CDBG funding, NCFA Urgent Repair Program funds and any other available funding sources. |
| H6 | Review the vulnerability of all critical facilities identified in this plan as a component of annual county Emergency Operations Plan updates. This effort will involve an assessment of whether facilities are readily accessible before, during, or after a natural hazard event has transpired. The county will also consider all information and data outlined in this plan when making determinations on the location of all future critical facilities. | All Hazards | High | 4.1, 3.2 | ES | Hyde County Emergency Services<br>Hyde County Administration | Staff Time | General Fund | 1 to 3 years | Carry Forward | Hyde County continues to work to fortify all critical facilities with elevations and generators. Hyde County will update their Emergency Operations Plan, as well as hold annual tabletop exercises and other trainings. |
| H7 | Continue to participate in and support the Disaster Assistance Working Group (DAWG). This effort includes maintaining a mutual aid agreement with DAWG, which makes all available Hyde County resources available to participating counties in the event of a disaster. Coordination of all county resources in concert with DAWG will be handled through the group's E-Plan web based portal. All resources are updated as a component of the NC State Resource Management System. | All Hazards | High | 3.2 | ES | Hyde County Emergency Services<br>Disaster Assistance Working Group | Staff Time | General Fund, NCDPS | 2025-2030 | Carry Forward | Hyde County continues to support the efforts of the Disaster Assistance Working Group and the group's efforts to further emergency service effectiveness throughout the region. |

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H8 | Continue to support the efforts of Tideland Electric and NCDOT in maintaining the county's right-of-ways and utility easements. This effort involves the trimming and pruning of trees that pose an imminent threat to the county's limited infrastructure system as well as supporting Tideland and NCDOT across Hatteras Inlet and NC DOT Hwy 12 which is the supply of Ocracoke Island's electricity, telecommunications and transportation to the mainland. Maintaining clear access into and out of the county, as well as protection of the county's electrical and communications networks, is critical to effective response during natural hazard events. | Flooding, Hurricanes & Coastal Hazards, Severe Winter Storm, Earthquake, Wildfire, Dam & Levee Failure, Severe Weather, Tornado | High | 1.1 | P | Hyde County Emergency Services<br>Electric Service Providers | Staff Time | General Fund, Electric Service Providers | 2025-2030 | Carry Forward | Hyde County continues to work closely with all utility providers to ensure that right of ways and utility easements are properly maintained in an effort to minimize damage associated with natural hazard events. Additionally, utility providers attend the Control Group meetings before and after natural disasters and are involved with long term resilience planning related to access to Ocracoke Island via the North End from Hatteras for transportation, utilities and telecommunications. |
| H9 | In an effort to inform and educate citizens about county efforts to increase public safety and mitigate private property losses and other government functions, Hyde County will hold an annual Citizen Hyde class for interested individuals. Presenters include but are not limited to Sheriff, EMS, Building Inspections, Emergency Management and Grants Management. Additionally, Emergency Mgmt, EMS, Sheriff and Administration staff will present information related to students in the local schools. | All Hazards | High | 4.2 | PIO | Hyde County Emergency Services<br>Hyde County Administration | Staff Time | General Fund | 2025-2030 | Carry Forward | Action revised. Hyde County will continue to disseminate information associated with emergency services through their Citizen Hyde academy. |
| H10 | Continue to work closely with NCDPS, NCDOT, the American Red Cross, and DAWG in addressing emergency evacuation and sheltering needs throughout the county. Due to limited resources and high vulnerability, Hyde County must often rely on resources available throughout the region. This effort is bolstered by the regional coordination efforts available through DAWG. | All Hazards | High | 4.1 | ES | Hyde County Emergency Services | Staff Time | General Fund, American Red Cross | 2025-2030 | Carry Forward | Hyde County continues to work closely with the American Red Cross to address the issue of shelter openings and evacuation. These two processes must be closely coordinated. |
| H11 | Continue to participate in the Community Rating System (CRS) made available through the NFIP Program. This effort will involve continuing to provide detailed information regarding properties located within flood hazard areas as outlined under CRS Manual Section 322.a through 322.g. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 2.2 | PP | Hyde County Administration | Staff Time | General Fund, NCDPS | 2025-2030 | Carry Forward | Hyde County will continue to maintain its current Community Rating System program. The County's current rating will be reviewed and improved when feasible through the County's required five-year audit. |

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H12 | Acquire generators or other forms of redundant power supply to ensure that critical facilities and infrastructure remain operational where normal power supply is not available. | All Hazards | Med | 1.1, 3.2 | PP | Hyde County Emergency Services | To Be Determined | General Fund, NCDPS, FEMA | 2 to 5 years | Carry Forward | Hyde County will continue to look for opportunities to establish permanent pad mount generators in an effort to ensure a redundant power supply at critical and community facilities including but not limited to the Government Center, Emergency Operations Center, EMS Stations on the mainland and Ocracoke, the Ocracoke Community Center and Davis School. |
| H13 | Develop a Comprehensive Water Management Plan to monitor the County's water supply and impose water restriction measures as deemed necessary during extreme drought conditions. | Drought, Extreme Heat | High | 1.1 | NRP | Hyde County Soil & Water<br>Hyde County Administration, Hyde County Health, Hyde County Water Department, Cooperative Extension | Staff Time | General Fund | 2020-2025 | Carry Forward | No progress to report. Hyde County will begin to look closer at our public water supply and ways to protect that water supply for the future. |

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H14 | Actively working with Federal, State, local and private partners to identify mitigation measures and secure funding via grants to alleviate flooding. These efforts should focus on the following areas:<br>• Upgrade Fairfield Drainage District #17<br>• Improve Mattamuskeet Association Flood Protection System<br>• Continue to partner with local land owners to install drainage infrastructure through private funding and low interest loans<br>• Enlarge/replace culverts in Swan Quarter along town ditch<br>• Install stationary water pump on Landing Road as part of the Swan Quarter Watershed<br>• Contract for large scale stream snagging/clearing<br>• Continue to complete projects as adopted through the Resilient Coastal Communities Program through the NC Division of Coastal Management including but not limited to those outlined in the Ocracoke Stormwater Management Plan.<br>• Continue to work with a Community Action Team for the Lake Landing Community through the Resilient Coastal Communities Program through the NC Division of Coastal Management to develop a resiliency plan for those communities with a list of projects and goals for those areas. Hyde County will work with the CAT team to develop those goals and will then seek funding to carry those projects to fruition.<br>• Continue to address transportation needs to Ocracoke Island including issues related to the North End Ferry Terminal, Highway 12 and dredging of navigational channels.<br>• Continue to support all drainage districts and private landowners with technical assistance to complete drainage infrastructure projects.<br>• Continue to aggressively apply for housing elevations funds, critical facility funds, and telecommunication funding. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 1.3 | SP | Hyde County Administration, Hyde Soil and Water, Hyde Emergency Mgmt., Hyde County Grants Management | To Be Determined | General Fund, NCDPS, FEMA, NC Soil & Water | 5 years | Carry Forward | Hyde County will work with all available grant funding agencies along with our Congressional and State Delegations to apply for funding to carry out the projects indicated plus new projects that will increase resiliency across our communities. |

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H15 | Hyde County will work cooperatively with the Davis Ventures Nonprofit group, who currently holds a long-term lease for the Davis Building, owned by Hyde County and on the National Historic Preservation Registry, to create a Resiliency Hub. This Resiliency Hub will be a place where community information is disseminated through workshops and community events and will serve as a post disaster facility to supply the community with needs including but not limited to water, commodities, electrical charging stations, cool down stations, basic first aid, and volunteer organization outreach to aid in storm response and recovery. | Flooding, Hurricane & Tropical Storm, Dam & Levee Failure | High | 3.2, 4.2 | PIO | Hyde County Admin, Grants Mgmt, Emergency Mgmt, | To Be Determined | NCDPS, NC DEQ, CDBG | 2025-2030 | New | Hyde County has been working with the Davis Ventures group to restore the Davis Building for ten years and has most recently repaired the roof system, windows and building envelope through NCORR funding.<br>As this project concludes, a new focus will be given to restore the gymnasium and associated bathrooms to provide a space for a resiliency hub. |
| H16 | Hyde County will continue to address septic system and sanitary district capacity, operations and efficiency through partnerships and supplying technical resources and grant management support. Hyde County will work with NCDEQ to develop a Revolving Loan for Hyde County Property owners to receive no to low interest loans to replace and/or repair existing marginal systems. Marginal systems create dangerous and unsanitary conditions during storm events. Additionally, Hyde County will support its 3 Sanitary Districts with technical support and will partner with them on grant funded projects to increase their capacity and efficiency as well. | Flood, Hurricane & Tropical Storm | High | 1.1, 2.3 | PP, SP | Hyde County Admin, Grants Mgmt, Emergency Mgmt, Hyde County Health Dept., DEQ | To Be Determined | NC DEQ<br>CDBG<br>HMGP | 2025-2030 | New | Hyde County has been working with our Community Disaster Resiliency Zone staff through FEMA to develop this project in conjunction with NC DEQ. An application for funding has been submitted and Hyde is currently working with its partners to develop the program. Additionally, Hyde has partnered with DEQ to provide training to the Sanitary Districts and has added capacity to the Engelhard Sanitary District through CDBG Grant projects. |

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H17 | Hyde County will work with Motorola Solutions to provide pricing and a project plan to replace Hyde County's existing Hatteras-to-Ocracoke Point-to-Point (PTP) microwave backhaul network with a new Aviat Networks microwave backhaul system. This upgrade will significantly enhance the reliability, capacity, and resilience of the county's communications infrastructure, which supports critical services including public safety, emergency response, and VIPER system connectivity. Motorola has selected Aviat Networks due to their proven compliance with VIPER statewide P25 network specifications, strong product performance, and cost effectiveness. | Flooding, Hurricane & Coastal Hazards, Tornadoes & Thunderstorms | High | 3.2 | ES | Hyde County Admin, Sheriff's Office, Emergency Mgmt, NCDPS, NCEM | $1,088,108 | Hyde County General Fund, NCGA appropriations | 2025-2027 | New | The new system design features all-indoor Aviat microwave transceivers engineered to provide 99.999% end-to-end two-way annual reliability, meeting the data capacity requirements for both Hyde County and VIPER sites. The project includes engineering, installation, optimization, FCC coordination, licensing, and a first-year warranty, as well as new antenna and line installations on the Ocracoke Water Tank to support Hyde County's VHF Paging, Fire, and EMS repeaters. Field path studies and site walks will be conducted to confirm initial design profiles. The overall project will align Hyde County's network infrastructure with the state's broader VIPER and Dare County network topology, providing multiple redundant paths for future communication resilience. |

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H18 | Hyde County will continue to focus efforts on the Ocracoke Resilient Infrastructure Initiative which is outlined through a formal resolution by the BOC to address transportation and access to Ocracoke Island. Project components include but are not limited to dredging of channels, beach nourishment/sandbags/hard stabilization structures to fortify and protect the South Dock NCDOT Ferry Basin, NC Hwy 12 on the northern end of the island and long term strategic planning for roadway alternatives. | Flooding, Hurricane & Coastal Hazards, Tornadoes & Thunderstorms | High | 1.1, 2.3 | SP | Hyde County Administration/ Water and Flood Control | To Be Determined | NC General Assembly, US Congress, NC Div. of Coastal Management, NCDOT Hwy and Ferry Divisions, Federal Hwy Administration | 2025-2030 | New | The Resolution Requesting Immediate Action at Federal and State Levels to Provide Reliable and Sustainable Transportation to and from Ocracoke Island through Investment in Resilient Transportation Infrastructure urges coordinated action to secure long-term, dependable access for Ocracoke Island residents, businesses, and visitors. The resolution outlines the urgent need for resilient transportation solutions following repeated closures of NC Highway 12 and ferry route disruptions, including a seven-day access breach in March 2024. The Hyde County Board of Commissioners calls for federal and state investment in dredging and channel maintenance, completion of NCDOT's sandbag replacement project, initiation of a beach nourishment study and project for the Highway 12 "hot spot" area, and evaluation of roadway alternatives to improve long-term resilience. The resolution further requests investment in ferry vessels, ramps, and stabilization of the NCDOT South Dock Terminal, along with a coordinated feasibility analysis combining the South Dock and Highway 12 corridor to ensure a sustainable and comprehensive transportation network for Ocracoke Island. |
| H19 | Create or Update Community Wildfire Protection Plans in each fire district. | Wildfire | Med | 1.4 | P | Hyde County Emergency Services, Fire Departments, NC Forest Service | To Be Determined | Grant Funds | 5 years | New | N/A |

**Table 7.3 – Mitigation Action Plan, Martin County**

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M1 | Continue to develop a county-wide Geographic Information System (GIS). This system will include a comprehensive land use inventory that will be used for improving upon future hazard mitigation vulnerability analysis. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | All Hazards | Medium | 4.2, 3.1 | PP | Martin County Administration Martin County Emergency Management Municipal Administrations | Staff Time | General Fund | 2 to 3 years | Carry Forward | County GIS mapping is established and new data continues to be integrated to improve performance and information. |
| M2 | Monitor development rates and issues over the next five years. If the county feels that it is the appropriate time to establish either limited or county-wide zoning regulations, then this effort will be initiated. | Martin Co. | All Hazards | Low | 1.3, 2.2 | P | Martin County Board of Commissioners Martin County Administration | $70,000 | General Fund, NCDPS, NCDEQ | 3 to 5 years | Carry Forward | The County has and will continue to adopt ordinances influencing development in specific disciplines as the need becomes apparent. (ie: UDO adopted; Solar development ordinance currently in the works.) |
| M3 | Continue to monitor Flood Damage Prevention Ordinances and update as deemed necessary due to local conditions or as directed by FEMA and/or NCEM. Additionally, the county will consider increasing the freeboard requirement. | Martin Co., Bear Grass, Hamilton, Hassell, Jamesville, Oak City, Robersonville, Williamston | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 2.1 | P | Martin County Administration Municipal Administrations | Staff Time | General Fund, NCDPS | 2020-2025 | Carry Forward | Martin County will continue to review the County's Flood Damage Prevention Ordinance annually to address any necessary changes. |
| M4 | Work in conjunction with the Regional HMPC on dealing with county drainage issues. This effort will involve an inventory of stormwater "hot spots." Following identification of drainage concerns, the county will work to address each issue on a case-by-case basis. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 1.3 | SP | Martin County Administration Northeastern NC Regional HMPC | Staff Time | General Fund, NCDPS | 2020-2025 | Carry Forward | County has established drainage improvements of blue line streams through our local Soil & Water office, which uses grants to contract out clearing of these streams. |
| M5 | Continue to maintain a post-disaster debris management contract with a qualified service provider. The county will review this contract on an annual basis. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Flooding, Hurricanes & Coastal Hazards, Severe Winter Storm, Earthquake, Wildfire, Dam & Levee Failure, Severe Weather, Tornado | High | 3.2 | ES | Martin County Board of Commissioners Martin County Emergency Management Municipal Administrations | Staff Time | NCDPS, FEMA | 2020-2025 | Carry Forward | Martin County will continue to review annually the County's Post Disaster Debris Management Contract. The terms and provider will be reviewed and changes made when deemed necessary. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M6 | Work closely with county Emergency Management and the Regional HMPC to ensure that adequate evacuation procedures are in place. This effort will involve the establishment of a public outreach campaign to ensure that the public is aware of the proper procedures. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Flooding, Hurricanes & Coastal Hazards, Earthquake, Wildfire, Dam & Levee Failure, Tornado | High | 3.2, 4.2 | PIO | Martin County Emergency Management Municipal Administrations | Staff Time | General Fund | 1 year | Carry Forward | Martin County will establish a dialogue with the regional partners to improve upon evacuation and emergency notification protocols. |
| M7 | Maintain information on flood damage protection techniques for dissemination to citizens and property owners. Additionally, provide guidance to individuals looking for options relating to the elevation or retrofitting of homes. Make these materials available at the local library. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 4.2 | PIO | Martin County Building Inspections Municipal Administrations | Staff Time | General Fund, NCDPS | 2020-2025 | Carry Forward | The Martin County Planning and Inspections Department works closely with property owners and builders to retrofit homes in an effort to minimize future flood damages. |
| M8 | Work closely on addressing mitigation needs, including the identification of structural mitigation projects and the establishment of new mitigation policies and initiatives. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | All Hazards | High | 1.1, 2.3 | SP | Martin County Administration Municipal Administrations | Staff Time | General Fund, NCDPS | 2020-2025 | Carry Forward | Martin County will continue to identify projects that may be eligible for funding through either annual or post disaster mitigation funding. Projects for improvement have been identified through a local mitigation contractor with funding through CDBG |
| M9 | Seek grant funding for eligible mitigation opportunities which may include but are not limited to: acquisition/elevation (addressed above), mitigation/reconstruction, and wet/dry floodproofing to residential and non-residential structures. Funding may also be utilized for redundant power to critical facilities, wind retrofits to critical facilities, storm shelters and other activities that reduce the loss of life and property. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 1.1, 2.3 | PP, SP | Martin County Administration Municipal Administrations | To be determined | General Fund, NCDPS, FEMA | 2020-2025 | Carry Forward | Martin County, as well as participating municipal jurisdictions, will continue to maintain a listing of vulnerable and/or repetitive loss properties and work to identify treatment options as funding becomes available. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M10 | Work to implement all strategies and recommendations outlined within the Martin County Hurricane Matthew Resilient Redevelopment Plan. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Low | 1.1, 2.3 | PP, SP, P | Martin County Administration Municipal Administrations | To be determined | General Fund, NCDPS, NCDEQ, FEMA | 5 years | Carry Forward | Will continue to pursue implementation of relevant projects from this plan. |
| M11 | Acquire generators or other forms of redundant power supply to ensure that critical facilities and infrastructure remain operational where normal power supply is not available. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | All Hazards | Medium | 1.1 | PP | Martin County Emergency Management Municipal Administrations | To be determined | General Fund, NCDPS, FEMA | 2 to 3 years | Carry Forward | Generators currently needed for Central Receiving & Distribution point, Sheriff's maintenance shop, and EOC. |
| M12 | Continue to monitor water resources in an effort to mitigate the impacts of drought conditions. These efforts will include maintaining a local water shortage ordinance. This ordinance will be activated in coordination with all utility providers as the need arises. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Extreme Heat, Drought | High | 1.1 | NRP | Martin County Administration Municipal Administrations | Staff Time | General Fund | 2020-2025 | Carry Forward | Water shortage ordinance is under consideration. |
| M13 | Create or Update Community Wildfire Protection Plans in each fire district. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Wildfire | Med | 1.4 | P | Martin County Emergency Management, Fire Departments, NC Forest Service | To Be Determined | Grant Funds | 5 years | New | |

**Table 7.4 – Mitigation Action Plan, Tyrrell County**

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T1 | Maintain a policy of keeping branches and limbs from encroaching upon the right-of-way and power lines. The Town will assist in this effort through ensuring that this issue is properly addressed by utility providers. | Columbia | Flooding, Hurricanes & Coastal Hazards, Severe Winter Storm, Earthquake, Wildfire, Severe Weather, Tornado | High | 1.1 | P | Columbia Administration<br>Electric Service Providers | Staff Time | General Fund, Electric Service Providers | 2025-2030 | Carry Forward | The Town will coordinate with utility providers to minimize the impacts of natural hazard events on Town-wide infrastructure systems. |
| T2 | Monitor the county's equipment and facility needs with respect to mitigation and emergency management. Following a natural disaster, the county will utilize potential Hazard Mitigation Grant Program funds to acquire any identified needs. | Tyrrell Co., Columbia | All Hazards | High | 1.1 | PP, ES | Tyrrell County Emergency Management<br>Tyrrell County Board of Commissioners<br>Municipal Administration | Staff Time | General Fund, NCDPS | 1 year | Carry Forward | Current priority needs include swift water rescue equipment & training. |
| T3 | Mail a floodplain protection informational flyer to all county and town property owners a minimum of two times over the next five years. This effort will ensure that this critical information is being disseminated to a broad base of the population. | Tyrrell Co., Columbia | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 4.2 | PIO | Tyrrell County Administration<br>Tyrrell County Building Inspections<br>Municipal Administration | $4,000 | General Fund | 1 year | Carry Forward | Outreach was previously mailed but this effort needs to be reestablished once the County Floodplain Administrator position is filled. |
| T4 | Advertise the availability of federal flood insurance offered through the National Flood Insurance Program at least once annually through the county's website and/or social media. Additionally, the county will assist property owners in acquiring this insurance. | Tyrrell Co., Columbia | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 4.2 | PIO | Tyrell County Administration<br>Municipal Administration | $4,000 | General Fund | 2 years | Carry Forward | Action revised as Tyrrell County does not have a local newspaper but will use social media and website outreach to promote flood insurance. |
| T5 | Establish a long-range plan in conjunction with the US Army Corps of Engineers to clean out the arterial canals located throughout the county. | Tyrrell Co. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Medium | 1.3 | NRP | Tyrrell County Administration<br>US Army Corps of Engineers | To be determined | General Fund, NCDPS, NCDEQ | 2 to 3 years | Carry Forward | Soil & Water Conservation has been working to keep streams and canals clear. Currently working on several USACE permits. |
| T6 | Work towards a long-term solution to the flooding and drainage issues impacting the Alligator and Goat Neck communities within the county. | Tyrrell Co. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Medium | 1.3 | SP | Tyrrell County Administration<br>Tyrrell County Public Services | To be determined | General Fund, NCDPS, NCDEQ | 2 to 3 years | Carry Forward | Tyrrell County has been dealing with this issue for many years. The County will continue to seek out a long-term sustainable solution to this issue. Currently working on USACE permitting for a drainage improvement project. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T7 | Work to relocate all County service facilities to sites outside the flood hazard area. | Tyrrell Co. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Low | 1.1, 2.3 | PP | Tyrrell County Administration<br>Tyrrell County Board of Commissioners<br>Municipal Administration | To be determined | General Fund, NCDPS, FEMA, USDA Loan Program | 5 years | Carry Forward | No progress to report but this remains a priority goal. |
| T8 | Continue to utilize annual, as well as post disaster Federal (FEMA) and State mitigation funds, to both acquire and elevate structures impacted by excessive flooding. The following provides a summary of mitigation target areas established following Hurricane Matthew in 2016:<br>• Alligator Community<br>• Albemarle Sound Area<br>• Town of Columbia | Tyrrell Co., Columbia | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Low | 2.3 | PP | Tyrrell County Administration<br>Tyrrell County Emergency Management<br>Municipal Administration | To be determined | General Fund, NCDPS, NCDEQ, NCDOT | 5 years | Carry Forward | Completed one mitigation reconstruction project in Columbia. Post-Matthew target areas remain a priority. |
| T9 | Actively working with Federal, State, local and private partners to identify mitigation measures and secure funding via grants to alleviate flooding. These efforts should focus on the following areas:<br>• Drainage system – Grendle Hill Canal<br>• Drainage system – Alligator Canal<br>• Drainage system – South Fork Creek Canal<br>• Drainage system – Rider Creek Canal | Tyrrell Co., Columbia | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Low | 1.1, 2.3 | SP | Tyrrell County Administration<br>Tyrrell County Emergency Management<br>Municipal Administration | To be determined | General Fund, NCDPS, NCDEQ, NCDOT | 5 years | Carry Forward | County obligates funding to Soil & Water Conservation department and that department conducts drainage maintenance. This is an ongoing need. |
| T10 | Seek grant funding for eligible mitigation opportunities which may include but are not limited to: acquisition/elevation, mitigation/reconstruction, and wet/dry floodproofing to residential and non-residential structures. Funding may also be utilized for redundant power to critical facilities, wind retrofits to critical facilities, storm shelters and other activities that reduce the loss of life and property. | Tyrrell Co., Columbia | All Hazards | Medium | 1.1, 2.3 | SP, PP | Tyrrell County Administration<br>Tyrrell County Emergency Management<br>Municipal Administration | To be determined | General Fund, NCDPS, FEMA | 2020-2025 | Carry Forward | Completed one mitigation reconstruction project in Columbia. |
| T11 | Maintain, and where necessary, establish backup generators at all identified critical facilities. Additionally, County Emergency Services will evaluate the equipment on a regular basis to assure it continues to meet operational demands at county facilities. | Tyrrell Co., Columbia | All Hazards | Medium | 1.1, 4.1 | PP | Tyrrell County Emergency Management<br>Municipal Administration | To be determined | General Fund, NCDPS, FEMA | 2 to 3 years | Carry Forward | A new school is planned that will need backup power |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T12 | Create or Update Community Wildfire Protection Plans in each fire district. | Tyrrell Co., Columbia | Wildfire | Med | 1.4 | P | Tyrrell County Emergency Management, Fire Departments, NC Forest Service | To Be Determined | Grant Funds | 5 years | New | |

**Table 7.5 – Mitigation Action Plan, Washington County**

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W1 | Continue to seek funding for assistance in constructing a new dedicated EOC. The county's existing facility is adequate; however, there is a need for a new and dedicated facility. | Washington Co., Creswell, Plymouth, Roper | All Hazards | Low | 3.1, 3.2 | PP, ES | Washington County Planning & Safety<br>Washington County Board of Commissioners<br>Municipal Administrations | To be Determined | General Fund, NCDPS, FEMA | 5 years | Carry Forward | New EOC is under construction. Additional work remains to establish operations once construction is complete. |
| W2 | Continue to seek grant funding that will enable the removal of all critical infrastructure from the floodplain. This effort is currently underway; however, there is more to be accomplished. This effort will require assistance from the county Emergency Management Department. | Washington Co., Plymouth | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Low | 1.1, 2.3 | PP | Washington County Planning & Safety<br>Washington County Board of Commissioners<br>Municipal Administration | To be determined | General Fund, NCDPS, FEMA | 5 years | Carry Forward | No progress to report. The County will continue to look for opportunities to relocate or otherwise protect critical infrastructure. |
| W3 | Monitor all land development codes, including the county and town Flood Damage Prevention Ordinances, on an annual basis to ensure that they are up-to-date and address current issues and concerns. This review will also be conducted following substantial natural hazard events. | Washington Co., Creswell, Plymouth, Roper | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 2.2 | P | Washington County Planning & Safety<br>Washington County Inspections<br>Washington County Board of Commissioners<br>Municipal Administrations | Staff Time | General Fund, NCDPS | 2025-2030 | Carry Forward | Hazard mitigation will be incorporated into decisions regarding amendments to the County's land development regulations as opportunities arise. |
| W4 | Continue to work towards the development of a system to provide on-line offerings of permits, inspections, and taxes. This effort will streamline operations and provide for a more efficient flow of information. | Washington Co. | All Hazards | High | 3.1 | P | Washington County Inspections | $20,000 | General Fund | 2 years | Carry Forward | Washington County is still working to establish an online permit portal. This effort will also impact all participating municipal jurisdictions. |
| W5 | The Washington County Inspections office will aim to acquire a new permitting program that will be helpful in tracking floodplain development activity. | Washington Co., Creswell, Plymouth, Roper | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure, Severe Weather | High | 3.1 | P | Washington County Inspections<br>Municipal Administrations | $20,000 | General Fund | 2 years | Carry Forward | No progress to report, but this action remains a priority. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W6 | Mail a notice once annually to all property owners whose land is located within a special flood hazard area. The notice should clearly state that the recipient's property is susceptible to flooding and provide information pertinent to emergency evacuation and post-disaster recovery. Additionally, the county will notify all property owners once annually via mail, either through individual mailers or utility bill inserts, of the hazards associated with flooding and other hazards resulting from severe weather events. | Washington Co., Creswell, Plymouth, Roper | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 4.2 | PIO | Washington County Inspections<br>Municipal Administrations | $4,500 | General Fund, NCDPS | 2025-2030 | Carry Forward | This effort occurs annually and supports the County's ongoing CRS program. The County will continue to implement this action. |
| W7 | Maintain a map information service involving the following:<br>• Provide information relating to Flood Insurance Rate Maps (FIRM) to all inquirers, including providing information on whether a given property is located within a flood hazard area.<br>• Provide information regarding the flood insurance purchase requirement.<br>• Maintain historical and current FIRMs.<br>• Locally advertise once annually in the local newspaper.<br>• Provide information to inquirers about local floodplain management requirements. | Washington Co., Creswell, Plymouth, Roper | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 2.2, 4.2 | PIO | Washington County Inspections<br>Washington County Administration<br>Municipal Administrations | Staff Time | General Fund | 2025-2030 | Carry Forward | Washington County provides this service on a daily basis to property owners, builders, and contractors. This effort supports the County's CRS program and will continue to be implemented. |
| W8 | Work with local real estate agencies to ensure that agents are informing clients when property for sale is located within an SFHA. The county will provide these agencies with brochures documenting the concerns relating to development located within flood-prone areas and ways that homeowners may make their homes more disaster-resistant to strong winds, lightning, and heavy rains. | Washington Co., Creswell, Plymouth, Roper | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 2.2, 4.2 | PIO | Washington County Inspections<br>Municipal Administrations | Staff Time | General Fund, Municipal Administrations | 2025-2030 | Carry Forward | This effort occurs annually and supports the County's ongoing CRS program. The County will continue to implement this action. |
| W9 | Make information regarding hazards and development regulations within floodplains available through the following:<br>• Ensure that the local library maintains information relating to flooding and flood protection.<br>• Provide a link on county/town websites to FEMA resources addressing flooding and flood protection.<br>• Maintain information pertinent to local development conditions and make this information readily available to the public, including being posted at the local library. | Washington Co., Creswell, Plymouth, Roper | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 4.2 | PIO | Washington County Inspections<br>Washington County Administration<br>Municipal Administrations | Staff Time | General Fund, NCDPS, FEMA | 2025-2030 | Carry Forward | This effort is reviewed annually and supports the County's ongoing CRS program. The County will continue to implement this action. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W10 | Provide comprehensive services regarding planning and development activities within the defined SFHA and issues relating to the construction of disaster-resistant structures. These services will include:<br>• Provide site-specific flood and flood related information on an as-needed basis.<br>• Maintain a list of contractors with experience in floodproofing and retrofit techniques.<br>• Provide information on methods of windproofing construction methods for new and renovated structures.<br>• Maintain materials providing an overview of how to select a qualified contractor.<br>• Make site visits upon request to review occurrences of flooding, drainage problems, and sewer problems. If applicable, the inspector should provide one-on-one advice to the property owner.<br>• Provide advice and assistance regarding CRS Activity 530 (Flood Protection).<br>• Advertise the availability of this service in the local newspaper once annually.<br>• Maintain a log of all individuals assisted through this service, including all site visits. | Washington Co, Creswell, Plymouth, Roper | All Hazards | High | 2.3, 4.2 | PP, PIO | Washington County Inspections<br>Washington County Administration<br>Municipal Administrations | Staff Time | General Fund | 2025-2030 | Carry Forward | This effort is reviewed annually and supports the County's ongoing CRS program. The County will continue to implement this action. |
| W11 | Maintain a comprehensive Geographic Information System (GIS) with current FIRM panels in an effort to make this information readily available to county citizens. In addition to this digital data, bound copies of all historical and current FIRM panels will be maintained within Planning and Building Inspections Department. | Washington Co., Creswell, Plymouth, Roper | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Medium | 2.2, 3.1 | P, PIO | Washington County Tax Office<br>Washington County Inspections<br>Municipal Administrations | Staff Time | General Fund, NCDPS | 2 to 3 years | Carry Forward | Contract in place for ongoing updates as needed. Will continue to implement and need to establish an in-house GIS coordinator. |
| W12 | Seek grant funding for eligible mitigation opportunities which may include but are not limited to: acquisition/elevation, mitigation/reconstruction, and wet/dry floodproofing to residential and non-residential structures. Funding may also be utilized for redundant power to critical facilities, wind retrofits to critical facilities, storm shelters and other activities that reduce the loss of life and property. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 1.1, 2.3 | PP, SP | Washington County Administration<br>Municipal Administrations | Staff Time | General Fund, NCPDS, FEMA | 2020-2025 | Carry Forward | No completed projects to report. Washington County and municipal jurisdictions will continue to seek funding to implement property protection and structural projects as specific needs arise. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W13 | Work to implement all strategies and recommendations outlined within the Washington County Hurricane Matthew Resilient Redevelopment Plan. | Washington Co., Creswell, Plymouth, Roper | Flood, Hurricanes & Coastal Hazards, Dam & Levee Failure | Low | 1.1, 2.3 | SP, PP | Washington County Administrations<br>Municipal Administrations | To be Determined | General Fund, NCPDS, NCDEQ, FEMA | 5 years | Carry Forward | No progress to report. Remaining priority projects include residential elevations, a countywide drainage improvement study, retrofitting the county court house, retrofitting the Plymouth East Main St lift station, and elevating the entry road to the sewer treatment plant. |
| W14 | Promote and encourage the training of Community Emergency Response Teams (CERT) throughout the county. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.1, 4.2 | ES | Washington County Planning & Safety<br>Washington County Community Emergency Response Teams<br>Municipal Administrations | To be determined | General Fund, NCDPS, FEMA | 1 to 3 years | Carry Forward | No progress to report, but this action remains a priority. |
| W15 | Work to develop continuity of operations plans (COOP) for county/town departments, assisted living facilities, long-term care facilities, day care centers, etc. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.2 | ES | Washington County Planning & Safety<br>Municipal Administrations | To be determined | General Fund, NCDPS, FEMA | 1 to 3 years | Carry Forward | COOP plan in place but will be reassessed annually. |
| W16 | Acquire generators or other forms of redundant power supply and equipment such as backup water pumps and pump parts to ensure that critical facilities and infrastructure remain operational. | Washington Co., Creswell, Plymouth, Roper | All Hazards | Medium | 1.1, 2.3 | PP | Washington County Planning & Safety<br>Washington County Administration<br>Municipal Administrations | $10,000-$25,000 each | General Fund, NCDPS, FEMA | 2 to 3 years | Carry Forward | Action revised to incorporate other redundant infrastructure. Generator provided for county radio station. Additional needs remain. |
| W17 | Maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.2 | ES | Washington County Administration<br>Municipal Administrations | Staff Time | General Fund, NCDPS, FEMA | 2025-2030 | Carry Forward | Washington County will continue to maintain an on-call contract with a qualified post-disaster provider. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W18 | Annually review and update the County's Emergency Operations Plan (EOP) to ensure compliance with all NCEM and NCOEMS procedures and policies. Through these updates, the County will work closely with all participating municipalities to ensure that all jurisdictions continue to be educated and prepared for activation of the EOP in the event of a disaster event. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 2.1 | ES | Washington County Planning & Safety Municipal Administrations | Staff Time | General Fund, NCDPS, FEMA | 2025-2030 | Carry Forward | Washington County will continue to review the EOP annually. |
| W19 | Create or Update Community Wildfire Protection Plans in each fire district. | Washington Co., Creswell, Plymouth, Roper | Wildfire | Med | 1.4 | P | Washington County Planning & Safety, Fire Departments, NC Forest Service | To Be Determined | Grant Funds | 5 years | New | |
| W20 | Improve drainage conditions through the identification and implementation of capital improvements projects. | Washington Co., Creswell, Plymouth, Roper | Dam & Levee Failure, Flooding, Hurricane & Coastal Hazards | Med | 1.3 | SP | Washington County Planning & Safety Municipal Administrations | To Be Determined | Grant Funds | 2025-2030 | New | |
| W21 | Construct a new storage building at new EOC to house emergency supplies and response equipment. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.2 | ES | Washington County Planning & Safety | To Be Determined | General Fund, NCDPS, FEMA | 5 years | New | |
| W22 | Create an Assistant Emergency Manager/Planning Coordinator position to support emergency management responsibilities including mitigation planning and grant identification and application. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.1, 3.2 | P, ES | Washington County Planning & Safety, Washington County Administration | To Be Determined | General Fund, NCDPS, FEMA | 5 years | New | |
| W23 | Develop a security plan and conduct an initial emergency response exercise and ongoing exercises for the new school/hurricane shelter. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.2, 4.1 | ES | Washington County Planning & Safety | To Be Determined | General Fund, NCDPS, FEMA | 2-3 years | New | |
| W24 | Upgrade current message board and acquire at least two additional boards to be able to meet countywide needs for Plymouth, Creswell, and Roper zones. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.2, 4.1 | ES | Washington County Planning & Safety | To Be Determined | General Fund, NCDPS, FEMA | 2-3 years | New | |
| W25 | Establish a communications plan and a radio study to help implement new repeaters that may be needed for backup high-band communication. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.2, 4.1 | P, ES | Washington County Planning & Safety | To Be Determined | General Fund, NCDPS, FEMA | 2-3 years | New | |
| W26 | Establish satellite communications to support continuity of operations during hazard events. | Washington Co. | All Hazards | High | 3.3, 4.1 | ES | Washington County Planning & Safety | To Be Determined | General Fund, NCDPS, FEMA | 2-3 years | New | |

# 8 PLAN MAINTENANCE

**Requirement §201.6(c)(4): [The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.**

Implementation and maintenance of the plan is critical to the overall success of hazard mitigation planning. This section discusses how the Mitigation Action Plans will be implemented by participating jurisdictions and outlines the method and schedule for monitoring, updating, and evaluating the plan. This section also discusses incorporating the plan into existing planning mechanisms and how the public will continue to be involved in the planning process. It consists of the following three subsections:

8.1 Implementation
8.2 Monitoring, Evaluation, and Enhancement
8.3 Continued Public Involvement

## 8.1 IMPLEMENTATION

### *8.1.1 MITIGATION PLAN IMPLEMENTATION*

Each jurisdiction participating in this plan update is responsible for implementing specific mitigation actions as prescribed in their Mitigation Action Plan (found in Section 7). In each Mitigation Action Plan, every proposed action is assigned to a specific local department or agency to ensure responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their own unique mitigation action list as needed without altering the broader focus of the regional plan.

In addition to the assignment of a local lead department or agency, an implementation timeline or a specific implementation date or window has been assigned to each mitigation action to help assess whether reasonable progress is being made toward implementation. The participating jurisdictions will seek outside funding sources to implement mitigation projects in both the pre-disaster and post-disaster environments. When applicable, potential funding sources have been identified for proposed actions listed in the Mitigation Action Plan.

### *8.1.2 PLAN INTEGRATION*

An important implementation mechanism that is highly effective and low-cost is incorporation of the Hazard Mitigation Plan recommendations and their underlying principles into other plans and mechanisms. Where possible, plan participants will use existing plans and/or programs to implement the Mitigation Action Plan. It will be the responsibility of the HMPC representatives from each participating jurisdiction to determine and pursue opportunities for integrating the requirements of this plan with other local planning documents and ensure that the goals and strategies of new and updated local planning documents for their jurisdictions or agencies are consistent with the goals and actions of the Hazard Mitigation Plan and will not contribute to increased hazard vulnerability in the region. Methods for integration may include:

— Monitoring other planning/program agendas;

— Attending other planning/program meetings;
— Participating in other planning processes; and
— Monitoring community budget meetings for other community program opportunities.

Table 8.1 details each jurisdiction's integration of the 2021 Northeastern NC Regional Hazard Mitigation Plan into other local planning efforts as well as any identified opportunities for integration of this plan update.

**Table 8.1 – Integration Efforts**

| Jurisdiction | Integration of 2021 plan | Intended integration of this plan update |
|---|---|---|
| Bertie County | Bertie County participated in NC DCM's Resilient Coastal Communities Program (RCCP) and utilized components of the 2021 plan to develop a resilience strategy. | The County will continue to integrate findings and projects from this plan to guide future resilience efforts. |
| Askewville | No integration occurred. | Integration will be pursued as opportunities arise. |
| Aulander | Aulander participated in NC DCM's RCCP and utilized components of the 2021 plan to develop a resilience strategy. | The Town will continue to integrate findings and projects from this plan to guide future resilience efforts. |
| Colerain | As of 2025, the Town of Colerain is participating in NC DCM's RCCP and utilizing components of the 2021 plan to develop a resilience strategy. | Colerain will continue to integrate findings and projects from this plan to guide future resilience efforts. |
| Kelford | No integration occurred. | Integration will be pursued as opportunities arise. |
| Lewiston-Woodville | No integration occurred. | Integration will be pursued as opportunities arise. |
| Powellsville | No integration occurred. | Integration will be pursued as opportunities arise. |
| Roxobel | No integration occurred. | Integration will be pursued as opportunities arise. |
| Windsor | The Town of Windsor participated in NC DCM's RCCP and utilized components of the 2021 plan to develop a resilience strategy. | Windsor will continue to integrate findings and projects from this plan to guide future resilience efforts. |
| Hyde County | Hyde County is a current participant in NC DCM's RCCP and used components of the 2021 plan to develop a resilience strategy for Ocracoke. | In fall of 2025, Hyde County began working on a resilience strategy for the mainland and an update to the CAMA plan to incorporate resiliency. The County will continue to integrate findings and projects from this plan to guide these and other resilience efforts. This plan will also be used to support the county's CRS participation. |
| Martin County | Martin County established GIS mapping for the county and its municipal jurisdictions. GIS mapping is essential to an effective hazard mitigation plan. This was a key recommendation of the 2021 plan. | Martin County will continue to utilize the updated plan in relation to future decisions associated with land development policy and regulation. |

| Jurisdiction | Integration of 2021 plan | Intended integration of this plan update |
|---|---|---|
| Bear Grass | As noted above, Martin County efforts have included all municipal jurisdictions. | The Town of Bear Grass will continue to utilize the updated plan in relation to future decisions associated with land development policy and regulation |
| Everetts | As noted above, Martin County efforts have included all municipal jurisdictions. | The Town of Everetts will continue to utilize the updated plan in relation to future decisions associated with land development policy and regulation |
| Hamilton | As noted above, Martin County efforts have included all municipal jurisdictions. | The Town of Hamilton will continue to utilize the updated plan in relation to future decisions associated with land development policy and regulation |
| Hassell | As noted above, Martin County efforts have included all municipal jurisdictions. | The Town of Hassell will continue to utilize the updated plan in relation to future decisions associated with land development policy and regulation |
| Jamesville | As noted above, Martin County efforts have included all municipal jurisdictions. | The Town of Jamesville will continue to utilize the updated plan in relation to future decisions associated with land development policy and regulation |
| Oak City | As noted above, Martin County efforts have included all municipal jurisdictions. | The Town of Oak City will continue to utilize the updated plan in relation to future decisions associated with land development policy and regulation |
| Parmele | As noted above, Martin County efforts have included all municipal jurisdictions. | The Town of Parmele will continue to utilize the updated plan in relation to future decisions associated with land development policy and regulation |
| Robersonville | As noted above, Martin County efforts have included all municipal jurisdictions. | The Town of Robersonville will continue to utilize the updated plan in relation to future decisions associated with land development policy and regulation |
| Williamston | As noted above, Martin County efforts have included all municipal jurisdictions. | The Town of Williamston will continue to utilize the updated plan in relation to future decisions associated with land development policy and regulation |
| Tyrrell County | As of 2025, Tyrrell County is participating in NC DCM's RCCP and utilizing components of the 2021 plan to develop a resilience strategy. | Tyrrell County will continue to integrate findings and projects from this plan to guide future resilience efforts. |
| Columbia | No integration occurred. | Integration will be pursued as opportunities arise. |
| Washington County | Washington County participated in NC DCM's RCCP and utilized components of this plan to develop a resilience strategy. | The County will continue to integrate findings and projects from this plan to guide future resilience efforts. This plan will also be used to support the county's CRS participation. |

| Jurisdiction | Integration of 2021 plan | Intended integration of this plan update |
|---|---|---|
| Creswell | Creswell participated in NC DCM's RCCP and utilized components of this plan to develop a resilience strategy. | The Town will continue to integrate findings and projects from this plan to guide future resilience efforts. This plan will also be used to support the town's CRS participation. |
| Plymouth | Plymouth participated in NC DCM's RCCP and utilized components of this plan to develop a resilience strategy. | The Town will continue to integrate findings and projects from this plan to guide future resilience efforts. This plan will also be used to support the town's CRS participation. |
| Roper | No integration occurred. | Integration will be pursued as opportunities arise. This plan will also be used to support the town's CRS participation. |

Opportunities to integrate the requirements of this Plan into other local planning mechanisms shall continue to be identified through future meetings of the HMPC and through the five-year review process described herein. Although it is recognized that there are many possible benefits to integrating components of this plan into other local planning mechanisms, the development and maintenance of this stand-alone Hazard Mitigation Plan is deemed by the HMPC to be the most effective and appropriate method to implement local hazard mitigation actions at this time.

## 8.2 MONITORING, EVALUATION, AND ENHANCEMENT

### *8.2.1 ROLE OF HMPC IN IMPLEMENTATION, MONITORING AND MAINTENANCE*

With adoption of this plan, each jurisdiction will be responsible for the implementation and maintenance of their mitigation actions. The County Emergency Managers or County Managers will take the lead in all plan monitoring and update procedures. As such, the County Emergency Managers/County Managers agree to continue their relationship with the HMPC and:

- 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;
- Ensure hazard mitigation remains a consideration for community decision makers;
- Maintain a vigilant monitoring of multi-objective cost-share opportunities to help the communities implement the plan's recommended actions for which no current funding exists;
- Monitor and assist in implementation and update of this plan;
- Report on plan progress and recommended revisions to their County Boards of Commissioners;
- Support local jurisdictions in reporting on plan progress and recommended revisions to their local governing bodies; and
- Inform and solicit input from the public.

The HMPC's primary duty moving forward is to see the plan successfully carried out and report to the individual County Boards of Commissioners, Town and City Councils, NCEM, FEMA, and the public on the status of plan implementation and mitigation opportunities. Other duties include reviewing and promoting mitigation proposals, considering stakeholder concerns about flood mitigation, passing concerns on to appropriate entities, and providing relevant information for posting on each County and local community websites (and others as appropriate).

Simultaneous to these efforts, it will be important to maintain a constant monitoring of funding opportunities that can be leveraged to implement some of the costlier recommended actions. This task will include creating and maintaining a bank of ideas on how to meet local match or participation requirements. When funding does become available, the Region, individual counties, and participating jurisdictions will be positioned to capitalize on the opportunity. Funding opportunities to be monitored include special pre- and post-disaster funds, state and federal earmarked funds, benefit assessments, and other grant programs, including those that can serve or support multi-objective applications.

### 8.2.2 MAINTENANCE SCHEDULE

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. The County Emergency Managers/County Managers will reconvene the HMPC quarterly for regular reviews and plan maintenance. These meetings may be held in-person or via conference call or webinar. The HMPC will also convene to review the plan after significant hazard events. If determined appropriate or as requested, an annual report on the plan will be developed and presented to local governing bodies of participating jurisdictions to report on implementation progress and recommended changes.

The five-year written update to this plan will be submitted to the NCEM and FEMA Region IV, unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule. With this plan update anticipated to be adopted and fully approved by 2026, the next plan update for the Northeastern NC Region will be completed by 2031.

### 8.2.3 MAINTENANCE EVALUATION PROCESS

Evaluation of progress can be achieved by monitoring changes in vulnerabilities identified in the plan. Changes in vulnerability can be identified by noting:

- Decreased vulnerability as a result of implementing recommended actions;
- Increased vulnerability as a result of failed or ineffective mitigation actions; and/or
- Increased vulnerability as a result of new development (and/or annexation).

Updates to this plan will:

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

In order to best evaluate any changes in vulnerability as a result of plan implementation, the HMPC will follow the following process:

- The HMPC representatives from each jurisdiction will be responsible for tracking and reporting on their mitigation actions. Jurisdictional representatives should provide input on whether the action as implemented met the defined objectives and/or is likely to be successful in reducing vulnerabilities.
- If the action does not meet identified objectives, the jurisdictional representatives will determine what additional measures may be implemented and will make any required modifications to the plan.
- All monitoring and implementation information will be reported to the full HMPC, led by the County Emergency Managers/County Managers, during quarterly meetings. An annual plan maintenance report may be drafted as deemed necessary.

Changes will be made to the plan as needed to accommodate for actions that have failed or are not considered feasible after a review of their consistency with established criteria, time frame, community priorities, and/or funding resources. Actions that were not ranked high but were identified as potential mitigation activities will be reviewed during the monitoring and update of this plan to determine feasibility of future implementation. Updating of the mitigation action plans will be by written changes and submissions, as is appropriate and necessary, and as approved by the appropriate jurisdiction's local governing body.

Following a disaster declaration, the plan will be revised as necessary to reflect lessons learned, or to address specific issues and circumstances arising from the event. It will be the responsibility of the County Emergency Managers/County Managers to reconvene the HMPC and ensure the appropriate stakeholders are invited to participate in the plan revision and update process following declared disaster events.

## CRITERIA FOR QUARTERLY REVIEWS IN PREPARATION FOR 5-YEAR UPDATE

The criteria recommended in 44 CFR 201 and 206 will be utilized in reviewing and updating the plan. More specifically, quarterly reviews will monitor changes to the following information:

- Community growth or change in the past quarter.
- The number of substantially damaged or substantially improved structures by flood zone.
- The renovations to public infrastructure including water, sewer, drainage, roads, bridges, gas lines, and buildings.
- Natural hazard occurrences that required activation of the Emergency Operations Center (EOC) and whether the event resulted in a presidential disaster declaration.
- Natural hazard occurrences that were not of a magnitude to warrant activation of the EOC or a federal disaster declaration but were severe enough to cause damage in the community or closure of businesses, schools, or public services.
- The dates of hazard events descriptions.
- Documented damages due to the event.
- Closures of places of employment or schools and the number of days closed.
- Road or bridge closures due to the hazard and the length of time closed.
- Assessment of the number of private and public buildings damaged and whether the damage was minor, substantial, major, or if buildings were destroyed. The assessment will include residences, mobile homes, commercial structures, industrial structures, and public buildings, such as schools and public safety buildings.
- Review of any changes in federal, state, and local policies to determine the impact of these policies on the community and how and if the policy changes can or should be incorporated into the Hazard

Mitigation Plan. Review of the status of implementation of projects (mitigation strategies) including projects completed will be noted. Projects behind schedule will include a reason for delay of implementation.

## 8.3 CONTINUED PUBLIC INVOLVEMENT

Continued public involvement is imperative to the overall success of the plan's implementation. The quarterly review process will provide an opportunity to solicit participation from new and existing stakeholders and to publicize success stories from the plan implementation and seek additional public comment. Efforts to involve the public in the maintenance, evaluation, and revision process may include:

- Advertising HMPC meetings in the local newspaper, public bulletin boards and/or City and County office buildings;
- Designating willing citizens and private sector representatives as official members of the HMPC;
- Utilizing local media to update the public of any maintenance and/or review activities;
- Utilizing City and County websites to advertise any maintenance and/or review activities;
- Maintaining copies of the plan in public libraries or other appropriate venues;
- Posting annual progress reports on the Plan to County, City, and Town websites;
- Heavy publicity of the plan and potential ways for the public to be involved after significant hazard events, tailored to the event that has just happened;
- Keeping websites, social media outlets, etc. updated;
- Drafting articles for the local community newspapers/newsletters;
- Utilizing social media accounts (e.g. Twitter, Facebook).

### PUBLIC INVOLVEMENT FOR FIVE-YEAR UPDATE

When the HMPC reconvenes for the five-year update, they will coordinate with all stakeholders participating in the planning process—including those that joined the committee since the planning process began—to update and revise the plan. In reconvening, the HMPC will be responsible for coordinating the activities necessary to involve the greater public, including disseminating information through a variety of media channels detailing the plan update process. As part of this effort, public meetings will be held, and public comments will be solicited on the plan update draft.

# 9 PLAN ADOPTION

**Requirement §201.6(c)(5): [The plan shall include] documentation that the plan has been formally approved by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council).**

The purpose of formally adopting this plan is to secure buy-in, raise awareness of the plan, and formalize the plan's implementation. The adoption of this plan completes Planning Step 9 (Adopt the Plan) of the 10-step planning process, in accordance with the requirements of DMA 2000. FEMA Approval Letters and community adoption resolutions are provided below.

U.S. Department of Homeland Security
Region 4
3005 Chamblee Tucker Road
Atlanta, GA 30341

FEMA

April 15, 2026

Mr. Steve McGugan
State Hazard Mitigation Officer
Assistant Director / Mitigation Section Chief
Division of Emergency Management, NC Department of Public Safety
200 Park Offices Drive
Durham, NC 27713

Reference: Northeastern NC Regional Hazard Mitigation Plan

Dear Mr. McGugan:

We are pleased to inform you the Northeastern NC Regional Hazard Mitigation Plan update complies with the Federal hazard mitigation planning requirements resulting from the Disaster Mitigation Act of 2000, as contained in 44 CFR §201.6. FEMA approval does not include the review or approval of content that exceeds these applicable FEMA mitigation planning requirements. Effective April 15, 2026, the plan is approved for a period of five (5) years to April 14, 2031.

Enclosed is the status of all participating jurisdictions. Approved jurisdictions are eligible applicants through the State for the following mitigation grant programs administered by the Federal Emergency Management Agency (FEMA):

- Hazard Mitigation Grant Program (HMGP)
- Flood Mitigation Assistance (FMA)

Please note that all funding requests will be evaluated individually according to the program's specific eligibility requirements.

The State and all plan participants should be commended for their close coordination and communications with our office in the review and subsequent approval of the plan. If you or any plan participant need assistance, please do not hesitate to contact Kymberly Kudla, of my staff, at (202) 655-6712.

Sincerely,

Kristen M. Martinenza, P.E.
Risk Analysis Branch Chief

Enclosure

Enclosure: Plan Participant Status List

Attached is the list of participating jurisdictions in the referenced hazard mitigation plan.

| Community Name | Jurisdiction Status | Date Approved by FEMA |
|---|---|---|
| 1) Askewville town | APA | |
| 2) Aulander town | APA | |
| 3) Bear Grass town | APA | |
| 4) Bertie County | Approved | 4/15/26 |
| 5) Colerain town | APA | |
| 6) Columbia town | APA | |
| 7) Creswell town | APA | |
| 8) Everetts town | APA | |
| 9) Hamilton town | APA | |
| 10) Hassell town | APA | |
| 11) Hyde County | APA | |
| 12) Jamesville town | APA | |
| 13) Kelford town | APA | |
| 14) Lewiston Woodville town | APA | |
| 15) Martin County | APA | |
| 16) Oak City town | APA | |
| 17) Parmele town | APA | |
| 18) Plymouth town | APA | |
| 19) Powellsville town | APA | |
| 20) Robersonville town | APA | |
| 21) Roper town | APA | |
| 22) Roxobel town | APA | |
| 23) Tyrrell County | APA | |
| 24) Washington County | APA | |
| 25) Williamston town | APA | |
| 26) Windsor town | APA | |

U.S. Department of Homeland Security
Region 4
3005 Chamblee Tucker Road
Atlanta, GA 30341

FEMA

October 26, 2026

Mr. Steve McGugan
State Hazard Mitigation Officer
Assistant Director / Mitigation Section Chief
Division of Emergency Management, NC Department of Public Safety
200 Park Offices Drive
Durham, NC 27713

Reference: Northeastern NC Regional Hazard Mitigation Plan

Dear Mr. McGugan:

This is a follow-up to our previous correspondence of April 15, 2026, in which we approved the Northeastern NC Regional Hazard Mitigation Plan and all participating jurisdictions that originally submitted adoption resolutions. We have recently received and approved additional resolution(s) for inclusion. FEMA approval does not include the review or approval of content that exceeds the applicable FEMA mitigation planning requirements.

Enclosed is the status of all participating jurisdictions. Approved jurisdictions are eligible applicants through the State for the following mitigation grant programs administered by the Federal Emergency Management Agency (FEMA):

- Hazard Mitigation Grant Program (HMGP)
- Flood Mitigation Assistance (FMA)
- Building Resilient Infrastructure and Communities (BRIC)

Please note that all funding requests will be evaluated individually according to the program's specific eligibility requirements.

If you or any plan participant need assistance, please do not hesitate to contact Kymberly Kudla, of my staff, at (202) 655-6712.

Sincerely,

KRISTEN M MARTINENZA
Digitally signed by KRISTEN M MARTINENZA
Date: 2026.10.26 11:19:54 -04'00'

Kristen M. Martinenza, P.E.
Risk Analysis Branch Chief

Enclosure

Enclosure: Plan Participant Status List

Attached is the list of participating jurisdictions in the referenced hazard mitigation plan.

| Jurisdiction Name | Jurisdiction Status | Date Approved by FEMA |
|---|---|---|
| 1) Askewville town | Approved | 5/1/26 |
| 2) Aulander town | Approved | 8/10/26 |
| 3) Bear Grass town | Approved | 5/1/26 |
| 4) Bertie County | Approved | 4/15/26 |
| 5) Colerain town | Approved | 8/24/26 |
| 6) Columbia town | Approved | 5/1/26 |
| 7) Creswell town | Approved | 5/1/26 |
| 8) Everetts town | Approved | 7/1/26 |
| 9) Hamilton town | Approved | 5/1/26 |
| 10) Hassell town | Approved | 5/15/26 |
| 11) Hyde County | Approved | 6/16/26 |
| 12) Jamesville town | Approved | 5/1/26 |
| 13) Kelford town | Approved | 5/1/26 |
| 14) Lewiston Woodville town | Approved | 5/1/26 |
| 15) Martin County | Approved | 4/16/26 |
| 16) Oak City town | Approved | 6/11/26 |
| 17) Parmele town | Approved | 7/27/26 |
| 18) Plymouth town | Approved | 6/16/26 |
| 19) Powellsville town | Approved | 5/1/26 |
| 20) Robersonville town | Approved | 10/26/26 |
| 21) Roper town | Approved | 6/24/26 |
| 22) Roxobel town | Approved | 5/1/26 |
| 23) Tyrrell County | Approved | 4/16/26 |
| 24) Washington County | Approved | 5/1/26 |
| 25) Williamston town | Approved | 5/1/26 |
| 26) Windsor town | Approved | 5/1/26 |

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Bertie County are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, Bertie County desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five-year cycle; and

WHEREAS the (local government) has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Board of Commissioners of Bertie County to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

1

NOW, THEREFORE, be it resolved that the Board of Commissioners of Bertie County hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Bertie County Emergency Management with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Bertie County Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to Bertie County Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 2nd day of March 2026.

Corey Ballance, Sr., Chair
Bertie County Board of Commissioners

Attest:

Tonya R. Davis, Clerk
Bertie County Board of Commissioners

Certified by: Tonya R. Davis (SEAL)

Date: March 2, 2026

BERTIE COUNTY COMMISSIONERS NORTH CAROLINA 1968

2

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Askewville are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, Askewville desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five year cycle; and

WHEREAS Bertie County has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Town Council of Askewville to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

1

NOW, THEREFORE, be it resolved that the Board of Commissioners of Askewville hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Bertie County with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Bertie County to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Askewville Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 13th day of April 2026.

TOWN OF ASKEWVILLE SEAL ASKEWVILLE, N.C.

Gloria M. Bryant
Name, Mayor
Askewville Town Council

Attest:

Cheryl P White
Name, Clerk
Askewville Town Council

Certified by: Cheryl P White (SEAL)

Date: 4-13-26

2

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Town of Aulander are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS the Town of Aulander desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five-year cycle; and

WHEREAS, the Town of Aulander has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS it is the intent of the Board of Commissioners of the Town of Aulander to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

1

NOW, THEREFORE, be it resolved that the Board of Commissioners of the Town of Aulander hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Bertie County Emergency Management with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Bertie County Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Board of Commissioners for the Town of Aulander for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this on the 05th day of August 2026.

Bryan Morings, Mayor

Attest:

Lynne Conner, Town Clerk/Finance Officer

Certified by: Town of Aulander Lynne Conner (SEAL)

Date: 08/05/26

2

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Town of Colerain are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS the Town of Colerain desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five-year cycle; and

WHEREAS, the Town of Colerain has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS it is the intent of the Board of Commissioners of the Town of Colerain to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

1

NOW, THEREFORE, be it resolved that the Board of Commissioners of Colerain hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Bertie County Emergency Management with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Bertie County Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Board of Commissioners for the Town of Colerain for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this on the 16th day of June 2026.

Jacques Turner, Mayor

Attest:

Lynne Conner, Town Clerk/Finance Officer

Certified by: _____ (SEAL)

Date: _____

2

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Town of Kelford are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, the Town of Kelford desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five year cycle; and

WHEREAS the (local government) has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Board of Commissioners of Town of Kelford to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

NOW, THEREFORE, be it resolved that the Board of Commissioners of Town of

Kelford hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Bertie County Emergency Management with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Bertie County Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Town of Kelford Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 23rd day of February 2026.

Ahmad Vaughan Sr.

Mayor, Ahmad Vaughan, Sr.
Town of Kelford Board of Commissioners

Attest:

B. Marie Garris

B. Marie Garris, Clerk
Town of Kelford Board of Commissioners

Certified by: Town of Kelford (SEAL)

Date: 2-28-26

1

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Lewiston Woodville are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, the Town desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five year cycle; and

WHEREAS Lewiston Woodville has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of Lewiston Woodville to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

1

NOW, THEREFORE, be it resolved that the Lewiston Woodville Town Council hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests the County with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Bertie County Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Town Council for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 2nd day of March, 2026.

James Pugh, Mayor
Town of Lewiston Woodville

Attest:

Dianne Harrington, Town Clerk
Town of Lewiston Woodville

Certified by: _____ (SEAL)

Date: March 2, 2026

2

**TOWN OF POWELLSVILLE**
106 E MAIN STREET
P. 0 BOX 22, POWELLSVILLE NC 27967
*admin@townofpowellsville.net*

**RESOLUTION ADOPTING THE**
**NORTHEASTERN NC REGIONAL HAZARD MITIGATION PLAN**

**WHEREAS,** TOWN OF POWELLSVILLE is vulnerable to an array of natural hazards that can cause loss of life and damages to public and private property; and

**WHEREAS,** the TOWN OF POWELLSVILLE desires to seek ways to mitigate situations that may aggravate such circumstances; and

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

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

**WHEREAS,** it is also the intent of the TOWN OF POWELLSVILLE to fulfill its obligation under North Carolina General Statutes, Chapter 166A: North Carolina Emergency Management Act and Section 322: Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act to remain eligible to receive state and federal assistance in the event of a declared disaster affecting the TOWN OF POWELLSVILLE; and

**WHEREAS,** the TOWN OF POWELLSVILLE, in coordination with other jurisdictions participating in the Northeastern NC Region, has participated in the planning process and prepared a multi-jurisdictional hazard mitigation plan with input from the appropriate local and state officials;

**WHEREAS,** the North Carolina Division of Emergency Management and the Federal Emergency Management Agency have received the Northeastern NC Regional Hazard Mitigation Plan to review for legislative compliance and will approve the plan pending the completion of local adoption procedures.

**NOW, THEREFORE, BE IT RESOLVED** that the BOARD OF COMMISSIONERS of the TOWN OF POWELLSVILLE hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan; and
2. Agrees to take such other official action as may be reasonably necessary to carry out the proposed actions of the Plan.

ATTEST:

James Peele 3/3/2026
James Peele, *Mayor*

Danielle Simpson 3/3/2026
Danielle Simpson, *Town Clerk*

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Town of Roxobel are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience those certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, the Town of Roxobel desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five-year cycle; and

WHEREAS the (local government) has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Board of Commissioners of Town of Roxobel to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

1

NOW, THEREFORE, be it resolved that the Board of Commissioners of Town of Roxobel hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Bertie County Emergency Management with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Bertie County Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Town of Roxobel Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 25th day of February 2026.

Gary T. Johnson, Mayor
Town of Roxobel Board of Commissioners

Attest:

B. Marie Garris

B. Marie Garris, Clerk
Town of Roxobel Board of Commissioners

Certified by: Town of Roxobel (SEAL)

Date: 2-24-26

2

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within the Town of Windsor are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, the Town of Windsor desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five year cycle; and

WHEREAS the (local government) has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Board of Commissioners of the Town of Windsor to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

1

NOW, THEREFORE, be it resolved that the Board of Commissioners of the Town of Windsor hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests the Town Administrator with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints the Town Administrator to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Town Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 12th day of February, 2026.

Lewis Hoggard
Mayor

Attest:

L. Allen Castelloe
Town Clerk

Certified by: _____ (SEAL)

Date: 2/12/2026

2

**Board of Commissioners**
Randal Mathews., Chair
Shannon Swindell Vice-Chair
Jeffrey Berry
Jan Moore
Thomas Midgette

# COUNTY OF HYDE

30 Oyster Creek Road
PO Box 188
SWAN QUARTER, NORTH CAROLINA 27885
252-926-4400
252-926-3701 Fax

Kris Cahoon Nobl
County Manage

Franz Holsche
County Attorne

Richard Man
Clerk to the Boar

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Hyde County are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the region are particularly vulnerable to drought, excessive heat, hurricane and coastal hazards, thunderstorm, tornado, winter weather, flooding, wildfire, hazardous substances, cyber threat, terrorism, and infrastructure failure; and

WHEREAS, Hyde County desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency pursuant to the Disaster Mitigation Act of 2002, P.L. 106-390, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and.

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five year cycle; and

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WHEREAS, Hyde County has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management.

WHEREAS, it is the intent of the Board of Commissioners of Hyde County to fulfill this obligation in order that the Hyde County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

NOW, THEREFORE, be it resolved that the Board of Commissioners of Hyde County hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Hyde County with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Hyde County Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Hyde County Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 11th day of June, 2026.

Randal Mathews, Chair
Hyde County Board of Commissioners

Attest:

Richard Mann IV, Clerk
Hyde County Board of Commissioners

Certified by: _____ (SEAL)




2

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Martin County are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, Martin County desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five-year cycle; and

WHEREAS the (local government) has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Board of Commissioners of Martin County to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

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NOW, THEREFORE, be it resolved that the Board of Commissioners of Martin County hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Martin County Emergency Management with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Martin County Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Martin County Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 12th day of February 2026.

Joe R. Ayers, Chairman
Martin County Board of Commissioners

Attest:

Julia S. Rease, Clerk to the Board
Martin County Board of Commissioners

Certified by: Julia S. Rease (SEAL)

Date: February 12th, 2026




2

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within the Town of Bear Grass are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, the Town of Bear Grass desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five year cycle; and

WHEREAS the Martin County Government/Town of Bear Grass has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Board of Commissioners of the Town of Bear Grass to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

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NOW, THEREFORE, be it resolved that the Board of Commissioners of the Town of Bear Grass hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Martin County Emergency Management with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Martin County Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Bear Grass Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 12th day of February of 2026.

Charlotte B. Griffin, Mayor
Town of Bear Grass

Attest:

Calvin Owens, Clerk
Bear Grass Board of Commissioners

Certified by: _____ (SEAL)

Date: _____

2

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within the Town of Everetts are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, the Town of Everetts desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five year cycle; and

WHEREAS the Town of Everetts has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Board of Commissioners of Town of Everetts to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

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NOW, THEREFORE, be it resolved that the Board of Commissioners of Town of Everetts hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Martin County Agency/Emergency Management with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Martin County Agency/Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Town of Everetts Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 29th day of June 2026.

Ray Deans
Mayor Town of Everetts

Attest:

Wanda Murphy, Finance Officer
Everetts Board of Commissioners

Certified by: _____ (SEAL)

Date: 6/29/2026

2

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within County/Town are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, the County/Town desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five year cycle; and

WHEREAS the (local government) has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Board of Commissioners of County/Town to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

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NOW, THEREFORE, be it resolved that the Board of Commissioners of The Town of Hamilton hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests The Town of Hamilton Northeastern NC Hazard Mitigation Plan with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints The Town of Hamilton Northeastern NC Hazard Mitigation Plan to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to The Town of Hamilton Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this on the 5th day of March 2026.

Name, Chair
Mayor Ervin Williams, Board of Commissioners

Attest:

Name, Clerk
Town Clerk & Finance Officer Allison Roebuck

Certified by: (SEAL)

Date:

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**TOWN OF HASSELL RESOLUTION**

ADOPTING NORTHEASTERN NC REGIONAL

HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within the Town of **Hassell** are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the region are particularly vulnerable to drought, excessive heat, hurricane and coastal hazards, thunderstorm, tornado, winter weather, flooding, wildfire, hazardous substances, cyber threat, terrorism, and infrastructure failure; and

WHEREAS, the Town of **Hassell** desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (State emergency assistance funds) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency pursuant to the Disaster Mitigation Act of 2002, P.L. 106-390, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and.

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five year cycle; and

WHEREAS, the Town of **Hassell** has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management.

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WHEREAS, it is the intent of the Board of Commissioners of **Hassell** to fulfill this obligation in order that the Town of **Hassell** be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

NOW, THEREFORE, be it resolved that the Board of Commissioners of **Hassell** hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests **Hassell** with the responsibility, authority, and the means to:

(a) Inform all concerned parties of this action.

(b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Town of **Hassell** Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the **Hassell** Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this on the 15th day of ~~May~~ April 2026.

Michelle Sledge, Mayor

***Name, Chair***

Hassell Board of Commissioners

Attest:

_____

***Name, Clerk***

Hassell Board of Commissioners

Certified by: _____ (SEAL)

Date: _____

-Town Clerk/F: NPA CT Officer

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Town of Jamesville are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, the Town of Jamesville desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five year cycle; and

WHEREAS the Town of Jamesville has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Jamesville Board of Commissioners to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

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NOW, THEREFORE, be it resolved that the Board of Commissioners of the Town of Jamesville hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Jamesville Town Board with assistance from Martin County Emergency Management with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Martin County Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Jamesville Town Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 13th day of April, 2026.

Betty Moore Williams
Mayor, Town of Jamesville

Attest:

Kimberly Cockrell, Town Clerk
Town of Jamesville

Certified by:

Date: 4-14-26

(SEAL)

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Martin County are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the region are particularly vulnerable to drought, excessive heat, hurricane and coastal hazards, thunderstorm, tornado, winter weather, flooding, wildfire, hazardous substances, cyber threat, terrorism, and infrastructure failure; and

WHEREAS, Town of Oak City desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency pursuant to the Disaster Mitigation Act of 2002, P.L. 106-390, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and.

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five year cycle; and

WHEREAS, the Town of Oak City has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management.

WHEREAS, it is the intent of the Board of Commissioners of Martin County to fulfill this obligation in order that the Town of Oak City will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

NOW, THEREFORE, be it resolved that the Board of Commissioners of the Town of Oak City hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

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2. Vests Martin County with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Martin County Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Town of Oak City Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 4th day of May, 2026.

Name, Mayor
Town of Oak City

Attest:

Name, Town Clerk
Town of Oak City

(SEAL)

Date: 5/4/26

TOWN OF PARMELE
RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Town of Parmele are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, the Town of Parmele desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five year cycle; and

WHEREAS the Town of Parmele has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Board of Commissioners of the Town of Parmele to fulfill this obligation in order that the County will be eligible for federal and

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state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

NOW, THEREFORE, be it resolved that the Board of Commissioners of the Town of Parmele hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Martin County/Town of Parmele/Emergency Management with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Martin County/Town of Parmele/Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Town of Parmele Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 30th day of June 2026.

Jerry M. McCrary, Mayor
Town of Parmele

Attest:

April O. Wishall, Clerk
Town of Parmele

Certified by: April O. Wishall (SEAL)

Date: 6/30/26

TOWN OF PARMELE SEAL PARMELE, N.C.

ROBERSONVILLE
martin county

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Town of Robersonville are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the region are particularly vulnerable to drought, excessive heat, hurricane and coastal hazards, thunderstorm, tornado, winter weather, flooding, wildfire, hazardous substances, cyber threat, terrorism, and infrastructure failure; and

WHEREAS, the Town of Robersonville desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency pursuant to the Disaster Mitigation Act of 2002, P.L. 106-390, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and.

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five year cycle; and

WHEREAS, the Town of Robersonville has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management.

WHEREAS, it is the intent of the Board of Commissioners of Town of Robersonville to fulfill this obligation in order that the Town of Robersonville will be

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ROBERSONVILLE
martin county

eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

NOW, THEREFORE, be it resolved that the Board of Commissioners of Town of Robersonville hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Town of Robersonville with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Town of Robersonville Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Martin County Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this on the 4th day of September, 2026.

Mayor, Tina M. Brown

Attest:

Town Clerk, Wynesha Crandell

TOWN OF ROBERSONVILLE SEAL ROBERSONVILLE, N.C.

Certified by: Sherrida Staton (SEAL)

Date: September 4, 2026

2

**RESOLUTION 2026-06**
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within the Town of Williamston are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, the Town of Williamston Board of Commissioners desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, N.C. Gen. Stat. § 166A-19.41, outlining the authority of the Governor to make available State emergency assistance funds, provides that if a state of emergency is declared pursuant to N.C. Gen. Stat. § 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, an eligible entity must have a hazard mitigation plan approved pursuant to the Stafford Act;

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five-year cycle; and

WHEREAS the Town of Williamston has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Board of Commissioners of the Town of Williamston to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

NOW, THEREFORE, be it resolved that the Board of Commissioners of Town of Williamston hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests the Town Administrator with responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints the Town Administrator to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Town of Williamston Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 2ND th day of MARCH, 2026.

Dean McCall MAYOR

The Honorable Dean McCall
Mayor

Attest:

Jaqueline Escobar

Jackie Escobar
Town Clerk

Certified by: Jaqueline Escobar (SEAL)

Date: 3/2/26

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Tyrrell County are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, Tyrrell County desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five-year cycle; and

WHEREAS, Tyrrell County has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Board of Commissioners of Tyrrell County to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

NOW, THEREFORE, be it resolved that the Board of Commissioners of Tyrrell County hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Tyrrell County Emergency Management Agency with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Tyrrell County Emergency Management Agency to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Tyrrell County Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 17th day of February, 2026.

Jordan R. Davis, Chairman
Tyrrell County Board of Commissioners

Attest:

Penny Rhodes Owens, Clerk
Tyrrell County Board of Commissioners

Certified by: _____ (SEAL)

Date: _____

2

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Town of Columbia are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, the Town of Columbia desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five-year cycle; and

WHEREAS the (local government) has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Board of Aldermen of Town of Columbia to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

1

NOW, THEREFORE, be it resolved that the Board of Aldermen of Town of Columbia hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Town of Columbia, Tyrrell County Emergency Management with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Town of Columbia, Tyrrell County Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Town of Columbia Board of Aldermen for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 17th day of February, 2026.

Sandra S. Owens
Name, Mayor
Sandra S. Owens, Mayor

Attest:

Monica N. Mauffray
Name, Clerk
Monica N. Mauffray, Manager

Certified by: Monica Mauffray (SEAL)

Date: 2-17-2026

2

# RESOLUTION 2026-007

## ADOPTING NORTHEASTERN NC REGIONAL HAZARD MITIGATION PLAN

**WHEREAS**, the citizens and property within Washington County are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

**WHEREAS**, Washington County desires to seek ways to mitigate the impact of identified hazard risks; and

**WHEREAS**, NCGS 160D-501 (*Plans)* authorizes local governments to prepare and adopt certain plans including without hazard mitigation plans; and

**WHEREAS**, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

**WHEREAS**, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five-year cycle; and

**WHEREAS,** Washington County together with either neighboring jurisdictions in our region have performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and

**WHEREAS**, it is the intent of the Board of Commissioners of Washington County to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

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

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan dated December 2025 consisting of approximately 685 pages in full which are collectively incorporated herein by reference. A copy of the full plan will be retained by both the Clerk to the Board and Washington County Planning Department for public inspection and may otherwise be publicly available together with other resources at: www.northeasternhmp.com

2. Vests Washington County Emergency Management with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State, and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Washington County Emergency Management to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Washington County Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

**ADOPTED** this the 2nd day of March, 2026.

John Spruill, Chair
Washington County Board of Commissioners

ATTEST:

Julie J. Bennett, MMC, NCMCC
Clerk to the Washington County Board of Commissioners

PLYMOUTH · ROPER · CRESWELL
Board of Commissioners
Washington County, NC
BEAR-OLINA

Certified by: Julie J. Bennett (SEAL)

Date: March 3, 2026

Washington County Resolution 2026-007

Page **2** of **2**

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Town of Creswell are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, the Town of Creswell desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five year cycle; and

WHEREAS the (local government) has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Board of Commissioners of the Town of Creswell to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

1

NOW, THEREFORE, be it resolved that the Board of Commissioners of the Town of Creswell hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests the Town of Creswell with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints the Town of Creswell to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Town of Creswell Board of Commissioners for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 9th day of February, 2026.

Alfredia Williams, Mayor
Town Board of Commissioners

Attest:

Penny Chapman, Town Clerk
Town Board of Commissioners

2

# A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF PLYMOUTH, NC ADOPTING NORTHEASTERN NC REGIONAL HAZARD MITIGATION PLAN

## RESOLUTION 2026-05

**WHEREAS**, the citizens and property within the Town of Plymouth are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storms, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

**WHEREAS,** the Town of Plymouth desires to seek ways to mitigate the impact of identified hazard risks; and

**WHEREAS**, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

**WHEREAS,** the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

**WHEREAS,** Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five-year cycle; and

**WHEREAS,** the (local government) has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

**WHEREAS,** it is the intent of the Board of Commissioners of the Town of Plymouth to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

**NOW, THEREFORE**, be it resolved that the Town Council of the Town of Plymouth hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.
2. Vests all Town of Plymouth staff with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State, and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints the Town Manager or their designee to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Plymouth Town Council for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

**ADOPTED** this the 9th day of March, 2026 upon motion by Councilmember Williams and seconded by Councilmember Rhodes with unanimous approval.

ATTESTED TO:

Dorenda Wallace
Town Clerk

Crystal Davis
Mayor

Certified by: Dorenda Wallace Town Clerk

Date: March 9, 2026

RESOLUTION
ADOPTING NORTHEASTERN NC REGIONAL
HAZARD MITIGATION PLAN

WHEREAS, the citizens and property within Town of Roper are subject to the effects of natural hazards that pose threats to lives and cause damage to property, and with the knowledge and experience that certain areas of the county are particularly vulnerable to dam & levee failure, drought, excessive heat, flooding, hurricane and tropical storm, thunderstorms, tornadoes, winter storm and freeze, hazardous material incident, and wildfire; and

WHEREAS, the Town of Roper desires to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Article 5, Section 160D-501 of Chapter 160D of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has enacted General Statute Section 166A-19.41 (*State emergency assistance funds*) which provides that for a state of emergency declared pursuant to G.S. 166A-19.20(a) after the deadline established by the Federal Emergency Management Agency, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000, as amended, states that local governments must develop an All-Hazards Mitigation Plan in order to be eligible to receive future Hazard Mitigation Grant Program Funds and other disaster-related assistance funding and that said Plan must be updated and adopted within a five-year cycle; and

WHEREAS the Town of Roper has performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and has updated the said plan as required under regulations and at 44 CFR Part 201 and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management, and that the plans have been updated in accordance with federal laws including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; the National Dam Safety Program Act, as amended; as required under regulations at 44 CFR Part 201, and according to guidance issued by the Federal Emergency Management Agency and the North Carolina Division of Emergency Management; and

WHEREAS, it is the intent of the Council of Town of Roper to fulfill this obligation in order that Town of Roper will be eligible for federal and state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

1

NOW, THEREFORE, be it resolved that the Council of Town of Roper hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan.

2. Vests Town of Roper with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map and identify floodplain areas, and cooperate with neighboring communities with respect to management of adjoining floodplain areas in order to prevent exacerbation of existing hazard impacts.

3. Appoints Town of Roper to assure that the Hazard Mitigation Plan is reviewed annually and every five years as specified in the Plan to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Town of Roper Council for consideration.

4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Adopted this the 22nd day of June 2026.

Marquitta Denise Blount, Mayor

Attest:

Stacy Chesson, Clerk

Certified by: _____ (SEAL)

Date: _____

2

# ANNEX A. BERTIE COUNTY

## A.1 ASSET INVENTORY

Bertie County and the HMPC provided a local inventory of critical facilities and community lifelines, which are a priority for mitigation planning and emergency management. Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. Table A.1 through Table A.9 provide a count of critical facilities by FEMA lifeline category by jurisdiction in Bertie County. Figure A.1 through Figure A.9 show the locations of all critical facilities by jurisdiction in Bertie County.

Table A.10 provides a detailed inventory of the critical facilities in Bertie County, indicating each facility's FEMA lifeline category, flood zone, 1% annual chance flood depth, minimum storm surge category, and wildfire risk. More information on hazard vulnerability is provided in Section A.2.

**Table A.1 – Critical Facilities by Type, Unincorporated Bertie County**

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 85 | $140,634,873 |
| Hazardous Materials | 4 | $575,803 |
| Health and Medical | 2 | $109,748 |
| Safety and Security | 4 | $784,344 |
| Transportation | 0 | $- |
| Water Systems | 23 | $31,884,425 |
| **Total** | **118** | **$173,989,193** |

**Table A.2 – Critical Facilities by Type, Town of Askewville**

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 1 | $1,824,150 |
| Hazardous Materials | 0 | $- |
| Health and Medical | 1 | $93,315 |
| Safety and Security | 1 | $93,315 |
| Transportation | 0 | $- |
| Water Systems | 0 | $- |
| **Total** | **3** | **$2,010,780** |

### Table A.3 – Critical Facilities by Type, Town of Aulander

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 0 | $- |
| Hazardous Materials | 0 | $- |
| Health and Medical | 1 | $2,756 |
| Safety and Security | 2 | $491,665 |
| Transportation | 0 | $- |
| Water Systems | 1 | $4,800 |
| **Total** | **4** | **$499,221** |

### Table A.4 – Critical Facilities by Type, Town of Colerain

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 2 | $5,110,094 |
| Hazardous Materials | 0 | $- |
| Health and Medical | 1 | $234,081 |
| Safety and Security | 1 | $50,754 |
| Transportation | 0 | $- |
| Water Systems | 0 | $- |
| **Total** | **4** | **$5,394,929** |

### Table A.5 – Critical Facilities by Type, Town of Kelford

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 0 | $- |
| Hazardous Materials | 0 | $- |
| Health and Medical | 0 | $- |
| Safety and Security | 1 | $54,090 |
| Transportation | 0 | $- |
| Water Systems | 0 | $- |
| **Total** | **1** | **$54,090** |

### Table A.6 – Critical Facilities by Type, Town of Lewiston-Woodville

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 0 | $- |
| Hazardous Materials | 0 | $- |
| Health and Medical | 1 | $154,202 |
| Safety and Security | 2 | $308,404 |
| Transportation | 0 | $- |
| Water Systems | 0 | $- |
| **Total** | **3** | **$462,606** |

### Table A.7 – Critical Facilities by Type, Town of Powellsville

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 0 | $- |
| Hazardous Materials | 0 | $- |
| Health and Medical | 1 | $178,149 |
| Safety and Security | 1 | $178,149 |
| Transportation | 0 | $- |
| Water Systems | 1 | $8,323 |
| **Total** | **3** | **$364,621** |

### Table A.8 – Critical Facilities by Type, Town of Roxobel

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 0 | $- |
| Hazardous Materials | 0 | $- |
| Health and Medical | 0 | $- |
| Safety and Security | 1 | $149,237 |
| Transportation | 0 | $- |
| Water Systems | 0 | $- |
| **Total** | **1** | **$149,237** |

### Table A.9 – Critical Facilities by Type, Town of Windsor

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 6 | $20,239,332 |
| Hazardous Materials | 0 | $- |
| Health and Medical | 4 | $1,785,620 |
| Safety and Security | 6 | $7,636,482 |
| Transportation | 0 | $- |
| Water Systems | 4 | $159,217 |
| **Total** | **20** | **$29,820,651** |

## Figure A.1 – Critical Facilities, Unincorporated Bertie County

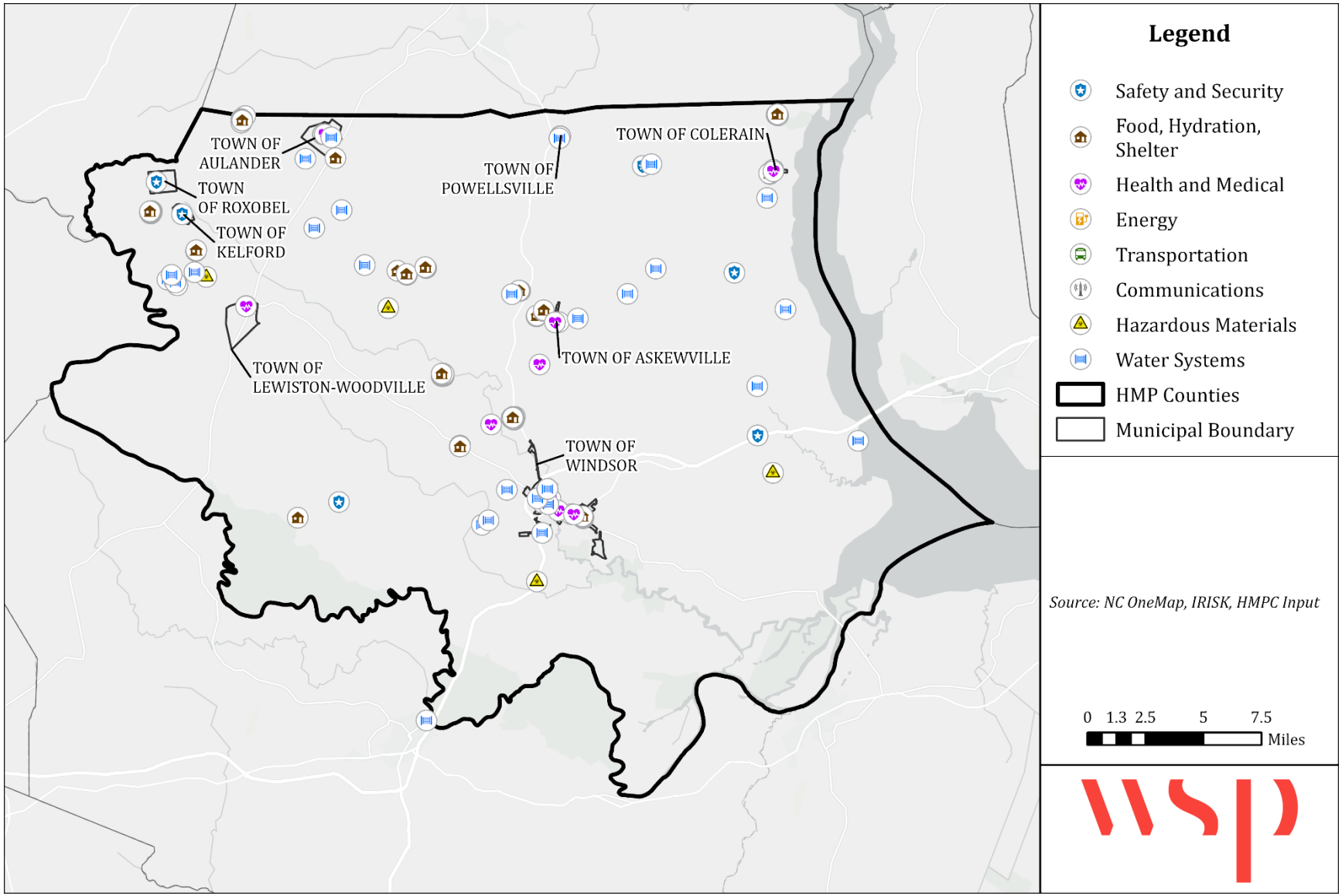
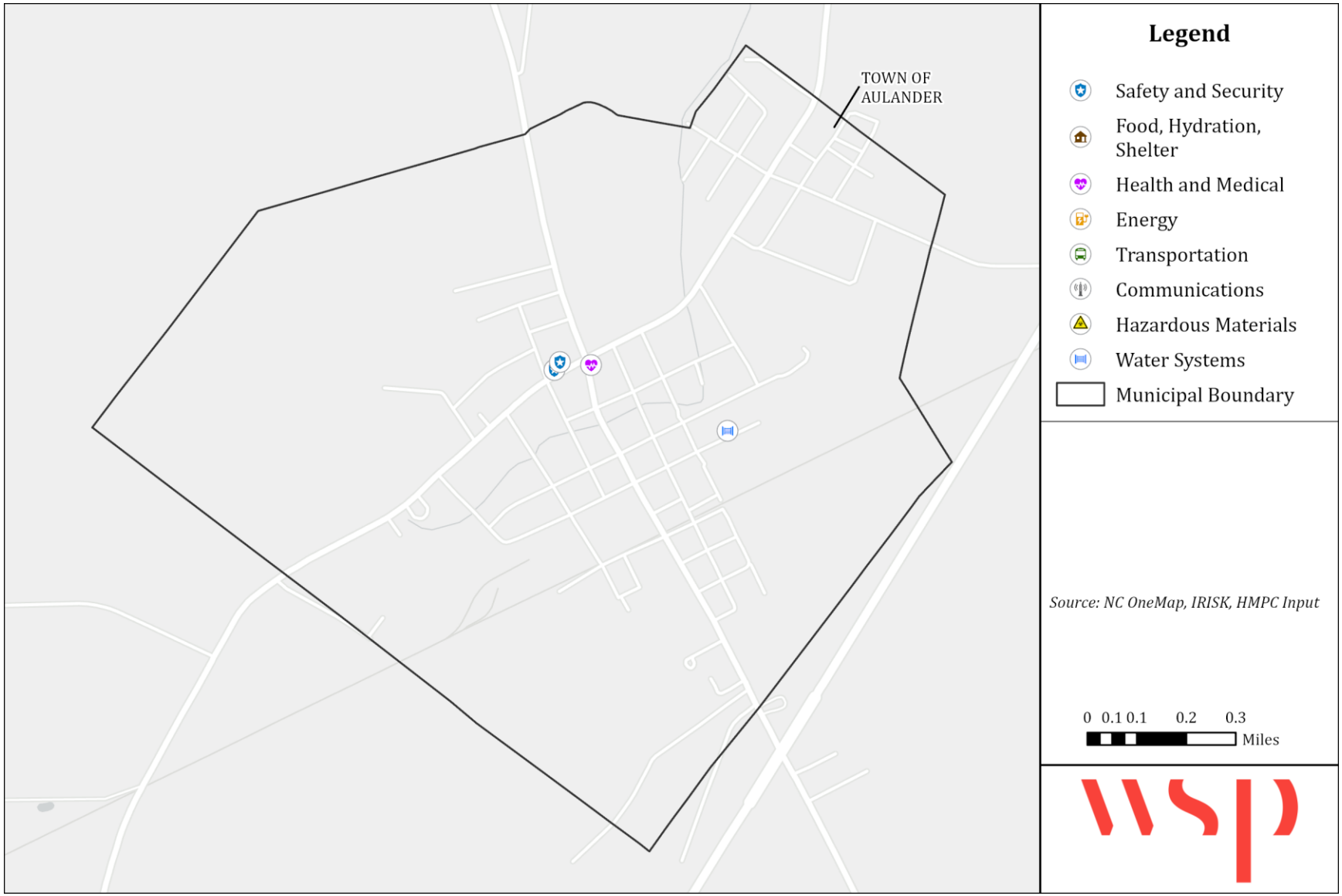


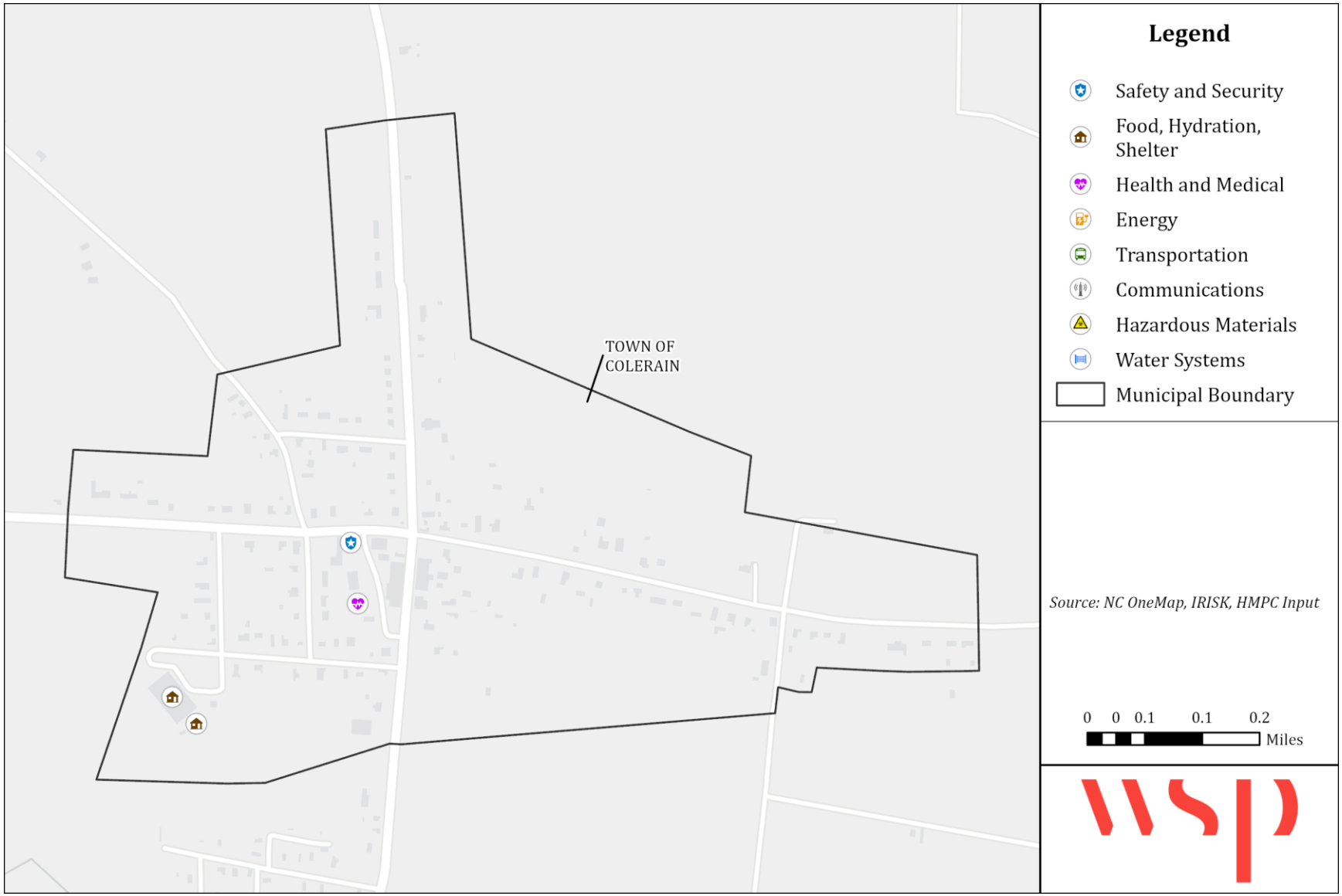
**Figure A.2 – Critical Facilities, Town of Askewville**



## Figure A.3 – Critical Facilities, Town of Aulander



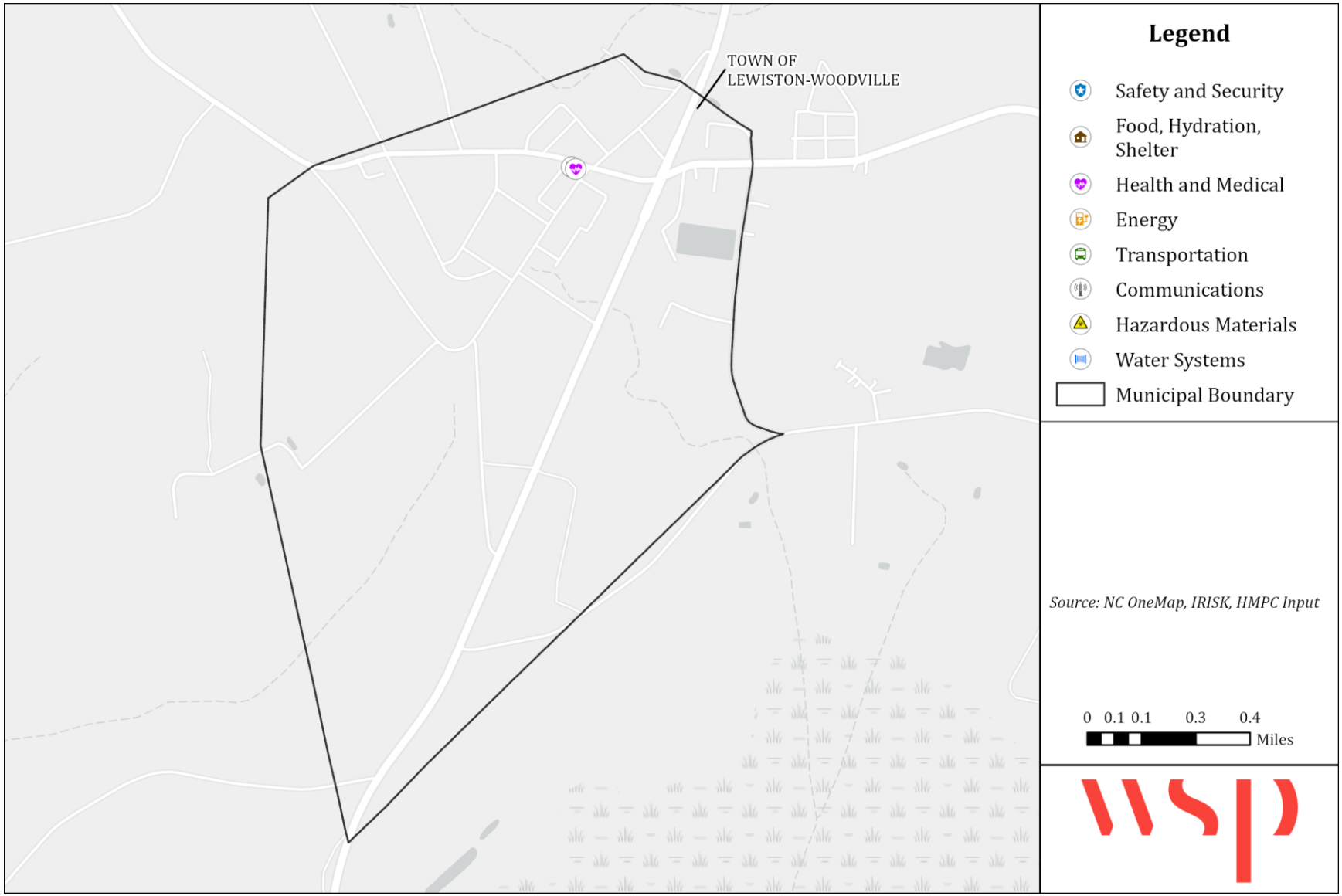
## Figure A.4 – Critical Facilities, Town of Colerain



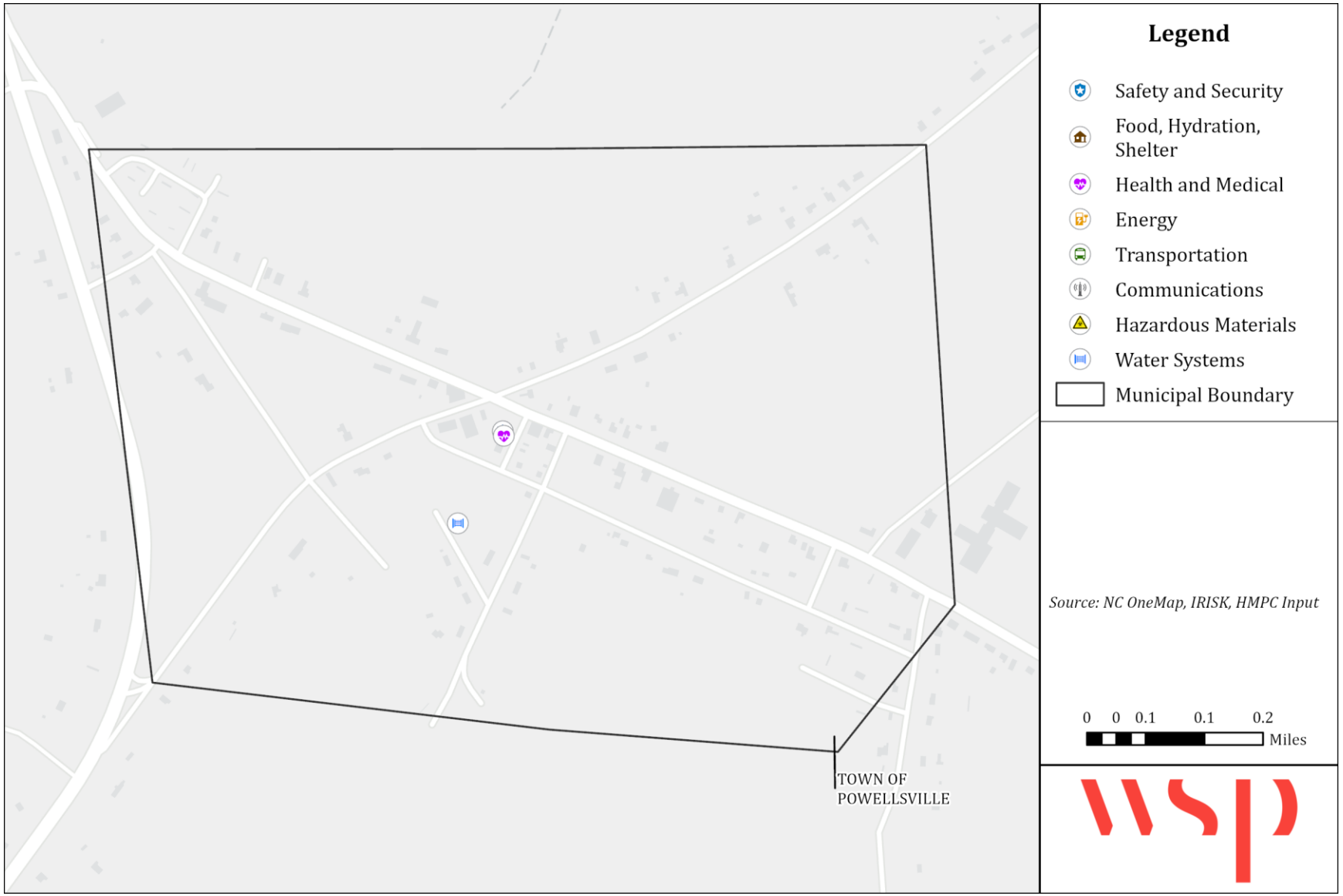
## Figure A.5 – Critical Facilities, Town of Kelford



## Figure A.6 – Critical Facilities, Town of Lewiston-Woodville



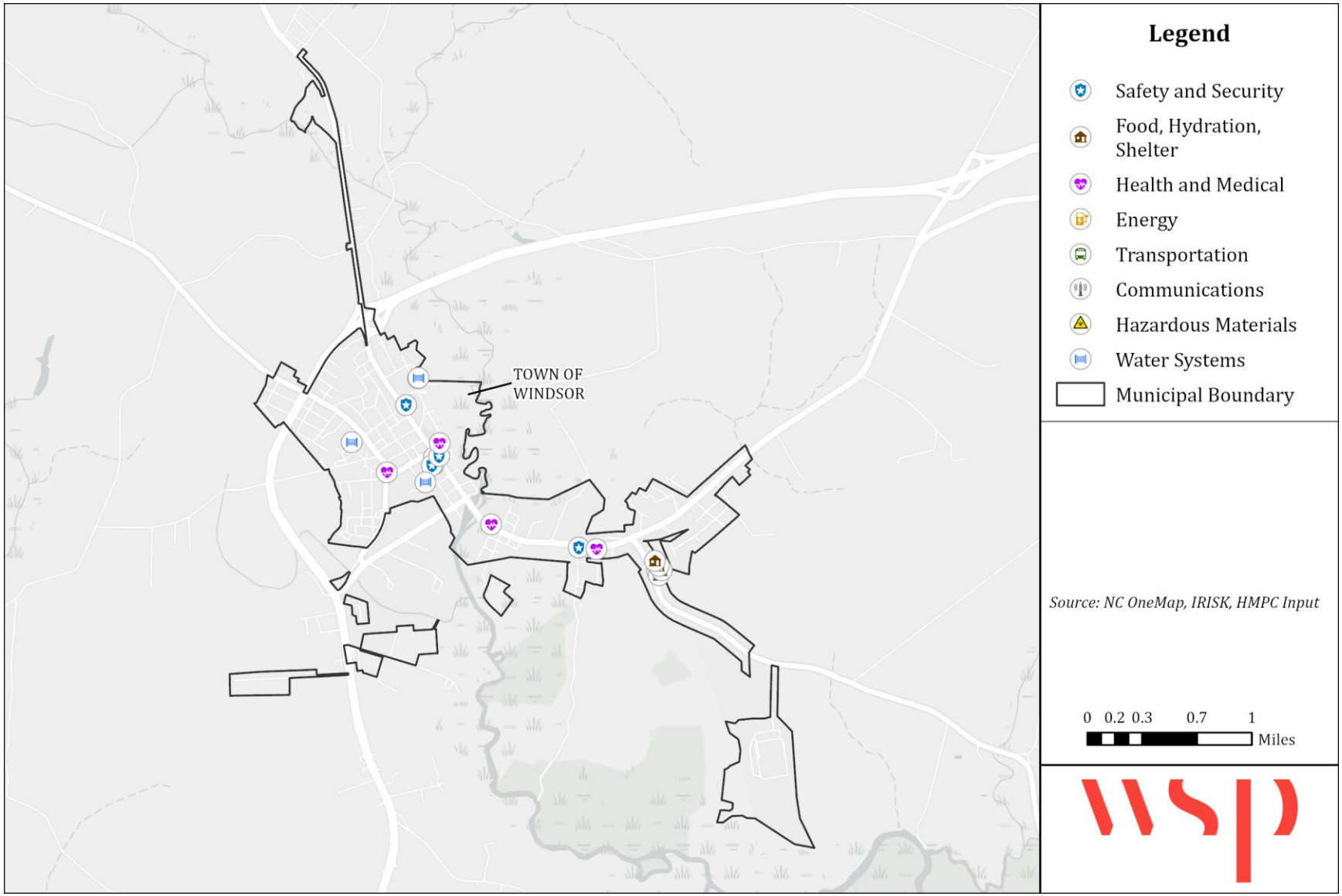
## Figure A.7 – Critical Facilities, Town of Powellsville



## Figure A.8 – Critical Facilities, Town of Roxobel



## Figure A.9 – Critical Facilities, Town of Windsor



## Table A.10 – Bertie County Critical Facilities Inventory

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|
| **Unincorporated Bertie County** | | | | | | | | |
| Safety and Security | Blue Jay Volunteer Fire Company, Inc. | 1653 Indianwoods Rd | $96,899 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Safety and Security | Merry Hill-Midway Volunteer Fire Department | 109 NC 45 N | $82,477 | 0 | X Unshaded | N/A | Direct Exposure | 2 |
| Safety and Security | Perrytown Fire Department, Incorporated | 848 Perrytown Rd | $408,960 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Safety and Security | Trap Volunteer Fire Department, Inc. | 1404 Meadow Rd | $196,008 | 0 | X Unshaded | N/A | Direct Exposure | 2 |
| Food, Hydration, Shelter | Bertie HS | 715 US 13 N | $4,575,839 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Health and Medical | White Oak Medical Transport | 446 White Oak Road | $109,748 | 0 | X Unshaded | N/A | Direct Exposure | 0 |
| Health and Medical | Medi-Port Incorporated | 344 School Road | - | 0 | X Unshaded | N/A | Direct Exposure | 2.5 |
| Hazardous Materials | Avoca, Incorporated | Avoca Farm Road | - | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Hazardous Materials | Bill Clough Ford Inc | US 13 N | - | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Hazardous Materials | Perdue Farms Inc | Governors Rd | - | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Water Systems | Windsor, Town Of | 128 South King Street | $3,500 | 0 | X Unshaded | N/A | Sources of Ember Load to Buildings | 2 |
| Water Systems | Aulander, Town Of | 119 S Commerce St | $58,500 | 0 | X Unshaded | N/A | Direct Exposure | 1 |
| Water Systems | Clearwater Valley Water Assoc | 516 Grabtown Rd | $400 | 0 | X Unshaded | N/A | Direct Exposure | 2.5 |
| Water Systems | Bertie County Regional Water | 106 Dundee St | $10,000 | 0 | X Unshaded | N/A | Critical Fireshed | 2 |
| Water Systems | Bertie County Regional Water | 106 Dundee St | $10,000 | 0 | X Unshaded | N/A | Sources of Ember Load to Buildings | 2 |
| Water Systems | Bertie County Regional Water | 106 Dundee St | $5,851 | 0 | X Unshaded | N/A | Critical Fireshed | 0 |
| Water Systems | Bertie County Regional Water | 106 Dundee St | $12,500 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|
| Water Systems | Bertie County Regional Water | 106 Dundee St | $10,726 | 0 | X Unshaded | N/A | Critical Fireshed | 0 |
| Water Systems | Bertie County Regional Water | 106 Dundee St | $23,419 | 0 | X Unshaded | N/A | Critical Fireshed | 0 |
| Water Systems | Bertie County Regional Water | 106 Dundee St | $10,675 | 0 | X Unshaded | N/A | Critical Fireshed | 0 |
| Water Systems | Bertie County Regional Water | 106 Dundee St | $10,000 | 0 | X Unshaded | N/A | Sources of Ember Load to Buildings | 2.5 |
| Water Systems | Bertie County Regional Water | 106 Dundee St | $160,765 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Water Systems | Bertie County Regional Water | 106 Dundee St | $16,500 | 0 | X Unshaded | N/A | Critical Fireshed | 2 |
| Water Systems | Bertie County Regional Water | 106 Dundee St | $260,500 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Water Systems | Bertie County Regional Water | 106 Dundee St | $262,700 | 0 | X Unshaded | N/A | Sources of Ember Load to Buildings | 3 |
| Water Systems | Bertie County Regional Water | 106 Dundee St | $10,408 | 0 | X Unshaded | N/A | Critical Fireshed | 2 |
| Water Systems | Perdue Foods Llc | - | - | 0 | X Unshaded | N/A | Critical Fireshed | 2 |
| Water Systems | Perdue Foods Llc | - | $7,746,228 | 0 | X Unshaded | N/A | Critical Fireshed | 0 |
| Water Systems | Perdue Foods Llc | - | $7,746,228 | 0 | X Unshaded | N/A | Critical Fireshed | 0 |
| Water Systems | Perdue Foods Llc | - | $7,746,228 | 0 | X Unshaded | N/A | Critical Fireshed | 2.5 |
| Water Systems | Perdue Foods Llc | - | $7,746,228 | 0 | X Unshaded | N/A | Critical Fireshed | 0 |
| Water Systems | Perdue Foods Llc | - | - | 0 | X Unshaded | N/A | Critical Fireshed | 2 |
| Water Systems | Bertie Beach | 243 Bal Gra Road | $33,069 | 0 | X Unshaded | N/A | Critical Fireshed | 3 |
| Food, Hydration, Shelter | Kelford Hog Farm | 222 Kelford Farms Rd (1138) | - | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | Farm 35 & 33 | 721 Buck Branch Rd (1213) | $1,249,140 | 0 | X Unshaded | N/A | Sources of Ember Load to Buildings | 2.5 |
| Food, Hydration, Shelter | Tri G Farms | 1335 NC 305 | $325 | 0 | X Unshaded | N/A | Critical Fireshed | 1 |
| Food, Hydration, Shelter | Tri-G3 Farm | OFF 1236 NC 305 | $12,016 | 0 | X Unshaded | N/A | Direct Exposure | 0 |
| Food, Hydration, Shelter | Indian Woods | 603 Billip Club Rd (1123) | $4,579 | 0 | X Unshaded | N/A | Critical Fireshed | 0 |
| Food, Hydration, Shelter | Republican Sow Farm | 352 Spruill Farm Rd | $1,941,392 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|
| Hazardous Materials | East Carolina Environmental Regional Landfill | 1922 Republican Rd (1225) | $575,803 | 0 | X Unshaded | N/A | Critical Fireshed | 0 |
| Food, Hydration, Shelter | - | 811 GOVERNORS RD (NC 308) | $1,839,603 | 0 | X Unshaded | N/A | Direct Exposure | 1 |
| Food, Hydration, Shelter | - | 811 GOVERNORS RD (NC 308) | $1,839,603 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 811 GOVERNORS RD (NC 308) | $1,839,603 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 230 Kelford Farms Rd | $32,173 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 Buck Branch Rd (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 Buck Branch Rd (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 Buck Branch Rd (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 Buck Branch Rd (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 Buck Branch Rd (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 Buck Branch Rd (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Shaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Shaded | N/A | Direct Exposure | 0 |
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 811 GOVERNORS RD (NC 308) | $1,839,603 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 352 Spruill Farm Rd | $1,941,392 | 0 | X Unshaded | N/A | Direct Exposure | 2 |
| Food, Hydration, Shelter | - | 352 Spruill Farm Rd | $1,941,392 | 0 | X Unshaded | N/A | Direct Exposure | 1 |
| Food, Hydration, Shelter | - | 352 Spruill Farm Rd | $1,941,392 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 352 Spruill Farm Rd | $1,941,392 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 352 Spruill Farm Rd | $1,941,392 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|
| Food, Hydration, Shelter | - | 352 Spruill Farm Rd | $1,941,392 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 352 Spruill Farm Rd | $1,941,392 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 352 Spruill Farm Rd | $1,941,392 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 352 Spruill Farm Rd | $1,941,392 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 352 Spruill Farm Rd | $1,941,392 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 352 Spruill Farm Rd | $1,941,392 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 BUCK BRANCH RD (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 BUCK BRANCH RD (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 BUCK BRANCH RD (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 BUCK BRANCH RD (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 BUCK BRANCH RD (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 BUCK BRANCH RD (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 BUCK BRANCH RD (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 BUCK BRANCH RD (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 721 BUCK BRANCH RD (1213) | $1,249,140 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 713 US 13N | $4,575,839 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | Unknown | - | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 246 Askewville Rd | $435,005 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 246 Askewville Rd | $435,005 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 246 Askewville Rd | $435,005 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 117 Askewville Mizelle St | $403,940 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 117 Askewville Mizelle St | $403,940 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 117 Askewville Mizelle St | $403,940 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 230 Kelford Farms Rd | $32,173 | 0 | X Unshaded | N/A | Direct Exposure | 2 |
| Food, Hydration, Shelter | - | 230 Kelford Farms Rd | $32,173 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 230 Kelford Farms Rd | $32,173 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 230 Kelford Farms Rd | $32,173 | 0 | X Unshaded | N/A | Direct Exposure | 2.5 |
| Food, Hydration, Shelter | - | 230 Kelford Farms Rd | $32,173 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 230 Kelford Farms Rd | $32,173 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 230 Kelford Farms Rd | $32,173 | 0 | X Unshaded | N/A | Direct Exposure | 2 |
| Food, Hydration, Shelter | - | 230 Kelford Farms Rd | $32,173 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 230 Kelford Farms Rd | $32,173 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 230 Kelford Farms Rd | $32,173 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 2513 NC 305 | $2,123,945 | 0 | X Unshaded | N/A | Direct Exposure | 2.5 |
| Food, Hydration, Shelter | - | OFF 1845 US 13N | $1,268,434 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | OFF 1845 US 13N | $1,268,434 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | OFF 1845 US 13N | $1,268,434 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | OFF 1845 US 13N | $1,268,434 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 1239 NC 305 | $289,102 | 0 | X Unshaded | N/A | Direct Exposure | 2 |
| Food, Hydration, Shelter | - | 1239 NC 305 | $289,102 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 1239 NC 305 | $289,102 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|
| Food, Hydration, Shelter | - | OFF 1236 NC 305 | $12,016 | 0 | X Unshaded | N/A | Direct Exposure | 2.5 |
| Food, Hydration, Shelter | - | OFF 1236 NC 305 | $12,016 | 0 | X Unshaded | N/A | Direct Exposure | 0 |
| Food, Hydration, Shelter | - | 3736 GOVERNORS RD | $2,901,708 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 3736 GOVERNORS RD | $2,901,708 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | Unknown | - | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | Unknown | - | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | Unknown | - | 0 | X Unshaded | N/A | Direct Exposure | 2 |
| **Town of Askewville** | | | | | | | | |
| Safety and Security | Askewville Volunteer Fire Department, Inc. | 105 S Railroad St | $93,315 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Health and Medical | Askewville Volunteer Fire Department Incorporated | 105 Askewville South Railroad Street | $93,315 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 119 E Askewville St | $1,824,150 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| **Town of Aulander** | | | | | | | | |
| Safety and Security | Aulander Fire Department | 124 W. Main St. | $118,908 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Safety and Security | Aulander Police Department | 124 West Main Street | $372,757 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Health and Medical | Preferred Medical Transport | 105 South Commerce Street | $2,756 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Water Systems | Aulander, Town Of | 119 S Commerce St | $4,800 | 1.1 | AE | N/A | Indirect Exposure | 0 |
| **Town of Colerain** | | | | | | | | |
| Safety and Security | Colerain Fire Department | 110 Winton Street | $50,754 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Health and Medical | Colerain Rescue Squad | 110 Winton Street | $234,081 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 204 N Academy St | $2,555,047 | 0 | X Unshaded | N/A | Direct Exposure | 2 |
| Food, Hydration, Shelter | - | 204 N Academy St | $2,555,047 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| **Town of Kelford** | | | | | | | | |
| Safety and Security | Kelford Volunteer Fire Dept. Inc. | 106 N. Main St | $54,090 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|
| **Town of Lewiston-Woodville** | | | | | | | | |
| Safety and Security | Lewiston Woodville Volunteer Fire Department, Inc. | 103 W. Church Street | $154,202 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Safety and Security | Lewiston Woodville Police Department | 103 West Church Street | $154,202 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Health and Medical | Lewiston Woodville Volunteer Fire and EMS | 103 West Church Street | $154,202 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| **Town of Powellsville** | | | | | | | | |
| Safety and Security | Powellsville Volunteer Fire Department, Inc. | 106 Curtis St. | $178,149 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Health and Medical | Powellsville Volunteer Fire Department Incorporated | 105 Curtis St. | $178,149 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Water Systems | Powellsville, Town Of | 106 E Main St | $8,323 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| **Town of Roxobel** | | | | | | | | |
| Safety and Security | Roxobel Volunteer Fire Department, Inc. | 204 S Main St | $149,237 | 0 | X Unshaded | N/A | Direct Exposure | 2 |
| **Town of Windsor** | | | | | | | | |
| Safety and Security | Windsor Fire Department | 501 N King St. | $435,341 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Safety and Security | Windsor Police Department | 128 South King Street | $33,592 | 0 | X Shaded | Category 4 | Indirect Exposure | 0 |
| Safety and Security | Bertie County Sheriffs Office | 104 Dundee Street | $3,003,272 | 0 | X Shaded | Category 4 | Indirect Exposure | 0 |
| Safety and Security | North Carolina State Bureau Of Investigation | 108 Dundee Street | $3,003,272 | 0 | X Shaded | Category 4 | Indirect Exposure | 0 |
| Health and Medical | Coastal Medical Transport Incorporated | 101 South Granville Street | $1,302,973 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Health and Medical | Bertie County Rescue Squad | 208 East Granville Street | $137,846 | 2.9 | AE | Category 3 | Direct Exposure | 2.5 |
| Health and Medical | Bertie Ambulance Service Incorporated | 601 South King Street | $344,801 | 2.7 | AE | Category 4 | Indirect Exposure | 0 |
| Health and Medical | Vidant-Bertie Hospital | 1403 South King Street | - | 0 | X Unshaded | N/A | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|
| Safety and Security | Bertie County Health Department Albemarle District | 102 Rhodes Avenue | $849,365 | 0 | X Shaded | Category 4 | Indirect Exposure | 0 |
| Water Systems | Windsor, Town Of | 128 South King Street | $88,417 | 0 | X Shaded | Category 4 | Indirect Exposure | 0 |
| Water Systems | Windsor, Town Of | 128 South King Street | $70,800 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Water Systems | Windsor, Town Of | 128 South King Street | - | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Water Systems | Windsor, Town Of | 128 South King Street | - | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 104 Cooper Hill Rd | $3,373,222 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 104 Cooper Hill Rd | $3,373,222 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 104 Cooper Hill Rd | $3,373,222 | 0 | X Unshaded | N/A | Direct Exposure | 2 |
| Food, Hydration, Shelter | - | 104 Cooper Hill Rd | $3,373,222 | 0 | X Unshaded | N/A | Direct Exposure | 0 |
| Food, Hydration, Shelter | - | 104 Cooper Hill Rd | $3,373,222 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | - | 104 Cooper Hill Rd | $3,373,222 | 0 | X Unshaded | N/A | Indirect Exposure | 0 |
| Safety and Security | - | 128 S King St | $311,640 | 0 | X Shaded | Category 4 | Indirect Exposure | 0 |

# A.2 RISK ASSESSMENT

This section contains a summary of the County's asset inventory as well as hazard profile and vulnerability assessment for those hazards that are spatially defined and have variations in risk that could be evaluated quantitatively on a jurisdictional level. The hazards included in this section are: Flooding, Hurricanes & Coastal Hazards, and Wildfire.

## *A.2.1 FLOODING*

Table A.11 details the acreage of Bertie County's total area by jurisdiction and flood zone on the Effective DFIRM. Per this assessment, at 27 percent, unincorporated Bertie County has the largest portion of land area within the mapped 1%-annual-chance floodplain. Conversely, the Towns of Colerain and Powellsville are entirely outside the SFHA.

**Table A.11 – Flood Zone Acreage by Jurisdiction, Bertie County**

| Flood Zone | Acreage | Percent of Total |
|---|---|---|
| **Unincorporated Bertie County** | | |
| Zone AE | 120,324.0 | 25.7% |
| Zone AO | 0.3 | 0.0% |
| Zone VE | 6,031.3 | 1.3% |
| Zone X Shaded | 4,513.9 | 1.0% |
| Zone X Unshaded | 322,662.3 | 68.8% |
| Open Water | 15,129.2 | 3.2% |
| **Total** | **468,661.0** | - |
| **Askewville** | | |
| Zone AE | 2.6 | 0.7% |
| Zone X Unshaded | 363.0 | 99.3% |
| **Total** | **365.6** | - |
| **Aulander** | | |
| Zone AE | 142.7 | 13.7% |
| Zone X Shaded | 55.5 | 5.3% |
| Zone X Unshaded | 842.2 | 80.9% |
| **Total** | **1,040.4** | - |
| **Colerain** | | |
| Zone X Unshaded | 173.0 | 100.0% |
| **Total** | **173.0** | - |
| **Kelford** | | |
| Zone AE | 43.8 | 13.4% |
| Zone X Unshaded | 284.1 | 86.6% |
| **Total** | **327.9** | - |
| **Lewiston-Woodville** | | |
| Zone AE | 58.1 | 4.6% |
| Zone X Shaded | 12.0 | 1.0% |
| Zone X Unshaded | 1,187.6 | 94.4% |
| **Total** | **1,257.7** | - |

| Flood Zone | Acreage | Percent of Total |
|---|---|---|
| **Powellsville** | | |
| Zone X Unshaded | 215.6 | 100.0% |
| **Total** | **215.6** | - |
| **Roxobel** | | |
| Zone AE | 11.5 | 1.7% |
| Zone X Shaded | 1.1 | 0.2% |
| Zone X Unshaded | 654.1 | 98.1% |
| **Total** | **666.7** | - |
| **Windsor** | | |
| Zone AE | 387.1 | 22.6% |
| Zone X Shaded | 166.7 | 9.8% |
| Zone X Unshaded | 1,155.2 | 67.6% |
| **Total** | **1,709.0** | - |
| **Bertie County Total** | | |
| Zone AE | 120,582.8 | 25.5% |
| Zone AO | 0.3 | 0.0% |
| Zone VE | 6,031.3 | 1.3% |
| Zone X Shaded | 4,582.5 | 1.0% |
| Zone X Unshaded | 326,381.8 | 69.0% |
| Open Water | 15,129.2 | 3.2% |
| **Total** | **472,707.8** | - |

Source: FEMA Effective DFIRM

Figure A.10 through Figure A.16 reflect the effective mapped flood hazard zones for all jurisdictions in Bertie County with land in or near the SFHA, and Figure A.17 through Figure A.23 display the depth of flooding estimated to occur in these areas during the 1%-annual-chance flood.

Table A.12 provides building counts and values for critical facilities by flood zone in Bertie County and participating jurisdictions.

**Table A.12 – Critical Facilities Exposed to Flooding by Event and Jurisdiction**

| Flood Zone | Critical Facility Count | Structure Value |
|---|---|---|
| **Unincorporated Bertie County** | | |
| Zone X (500-year) | 2 | $9,151,678 |
| Zone X (unshaded) | 116 | $164,837,515 |
| **Total** | **118** | **$173,989,193** |
| **Askewville** | | |
| Zone X (unshaded) | 3 | $2,010,780 |
| **Total** | **3** | **$2,010,780** |
| **Aulander** | | |
| Zone AE | 1 | $4,800 |
| Zone X (unshaded) | 3 | $494,421 |
| **Total** | **4** | **$499,221** |
| **Colerain** | | |
| Zone X (unshaded) | 4 | $5,394,929 |
| **Total** | **4** | **$5,394,929** |

| Flood Zone | Critical Facility Count | Structure Value |
|---|---|---|
| **Kelford** | | |
| Zone X (unshaded) | 1 | $54,090 |
| **Total** | **1** | **$54,090** |
| **Lewiston-Woodville** | | |
| Zone X (unshaded) | 3 | $462,606 |
| **Total** | **3** | **$462,606** |
| **Powellsville** | | |
| Zone X (unshaded) | 3 | $364,621 |
| **Total** | **3** | **$364,621** |
| **Roxobel** | | |
| Zone X (unshaded) | 1 | $149,237 |
| **Total** | **1** | **$149,237** |
| **Windsor** | | |
| Zone AE | 2 | $482,647 |
| Zone X (500-year) | 6 | $7,289,558 |
| Zone X (unshaded) | 12 | $22,048,446 |
| **Total** | **20** | **$29,820,651** |
| **Bertie County Total** | | |
| Zone AE | 3 | $487,447 |
| Zone X (500-year) | 8 | $16,441,236 |
| Zone X (unshaded) | 146 | $195,816,645 |
| **Total** | **157** | **$212,745,328** |

Source: FEMA Effective DFIRM, HMPC

## Figure A.10 – FEMA Flood Hazard Areas, Unincorporated Bertie County

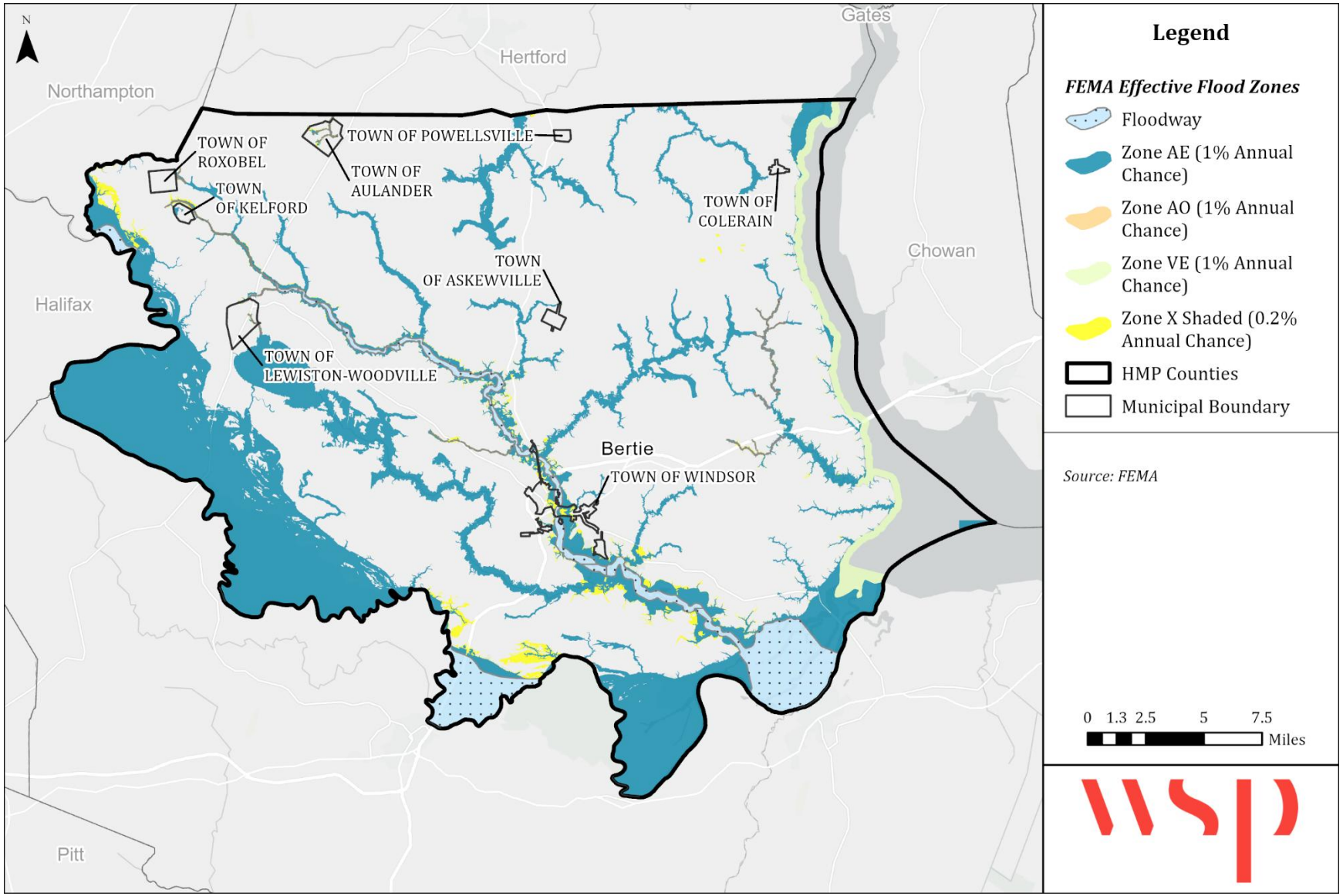


**Figure A.11 – FEMA Flood Hazard Areas, Town of Askewville**



**Figure A.12 – FEMA Flood Hazard Areas, Town of Aulander**

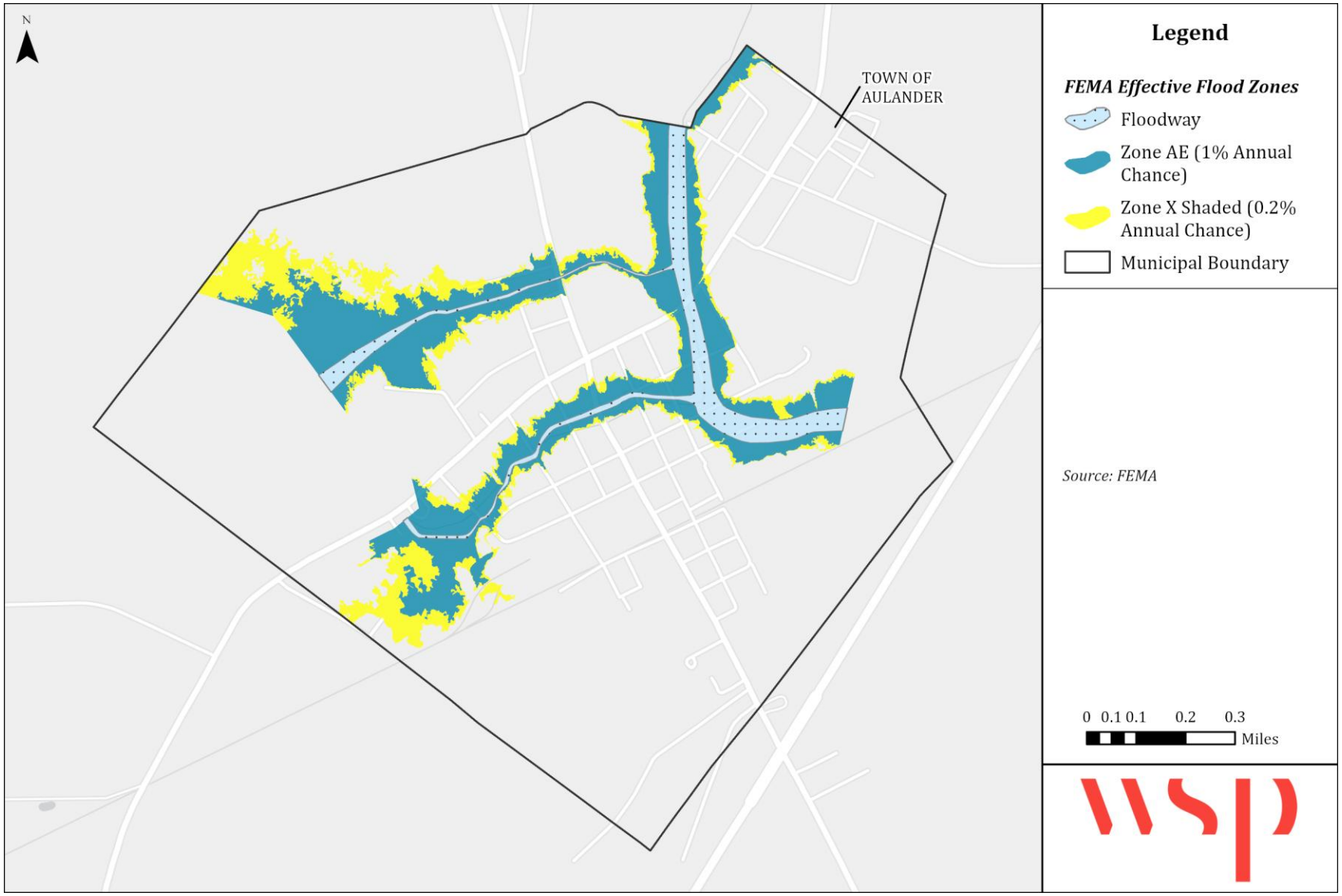


**Figure A.13 – FEMA Flood Hazard Areas, Town of Kelford**



**Figure A.14 – FEMA Flood Hazard Areas, Town of Lewiston-Woodville**



**Figure A.15 – FEMA Flood Hazard Areas, Town of Roxobel**



**Figure A.16 – FEMA Flood Hazard Areas, Town of Windsor**

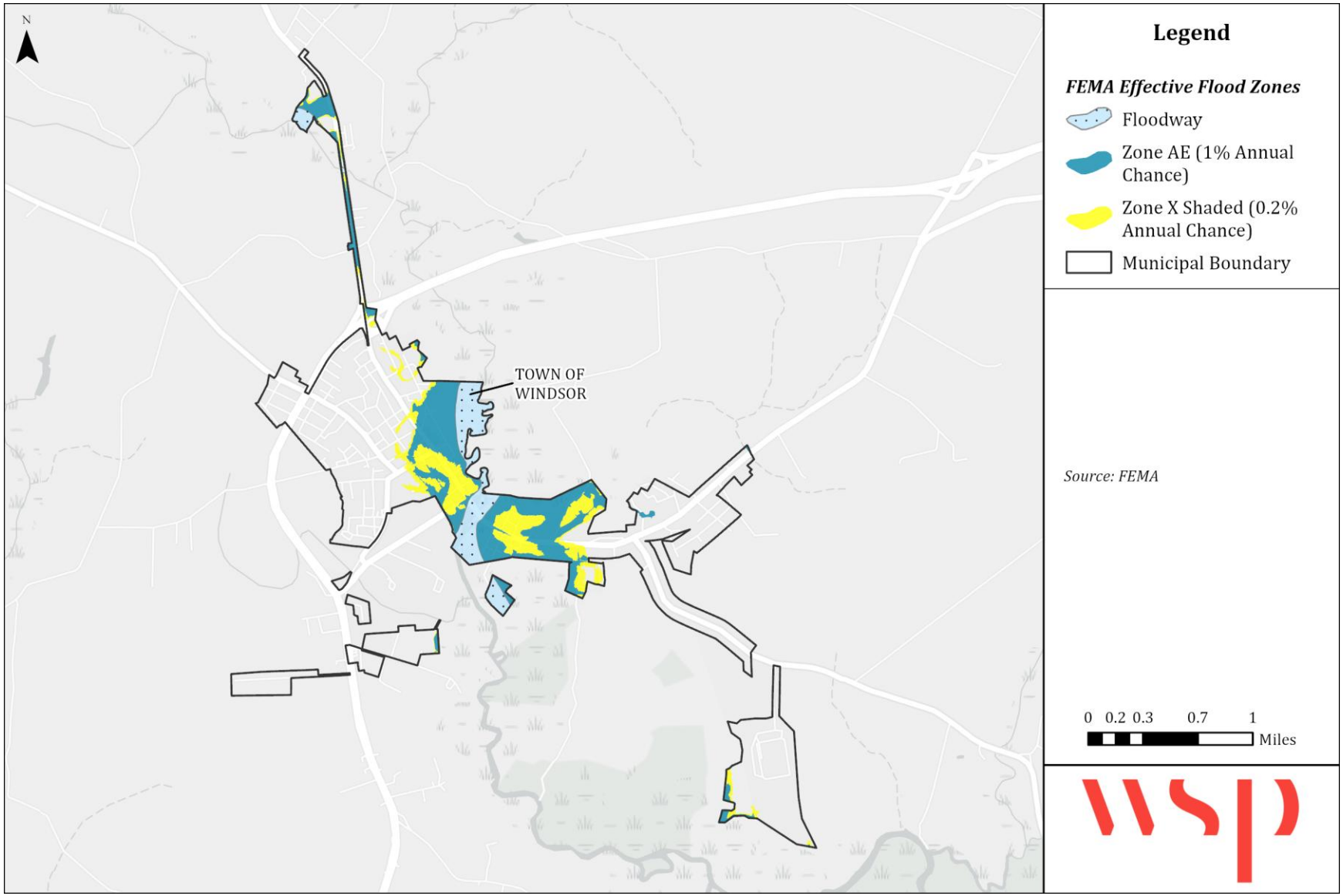


**Figure A.17 – Flood Depth, 1%-Annual-Chance Floodplain, Unincorporated Bertie County**

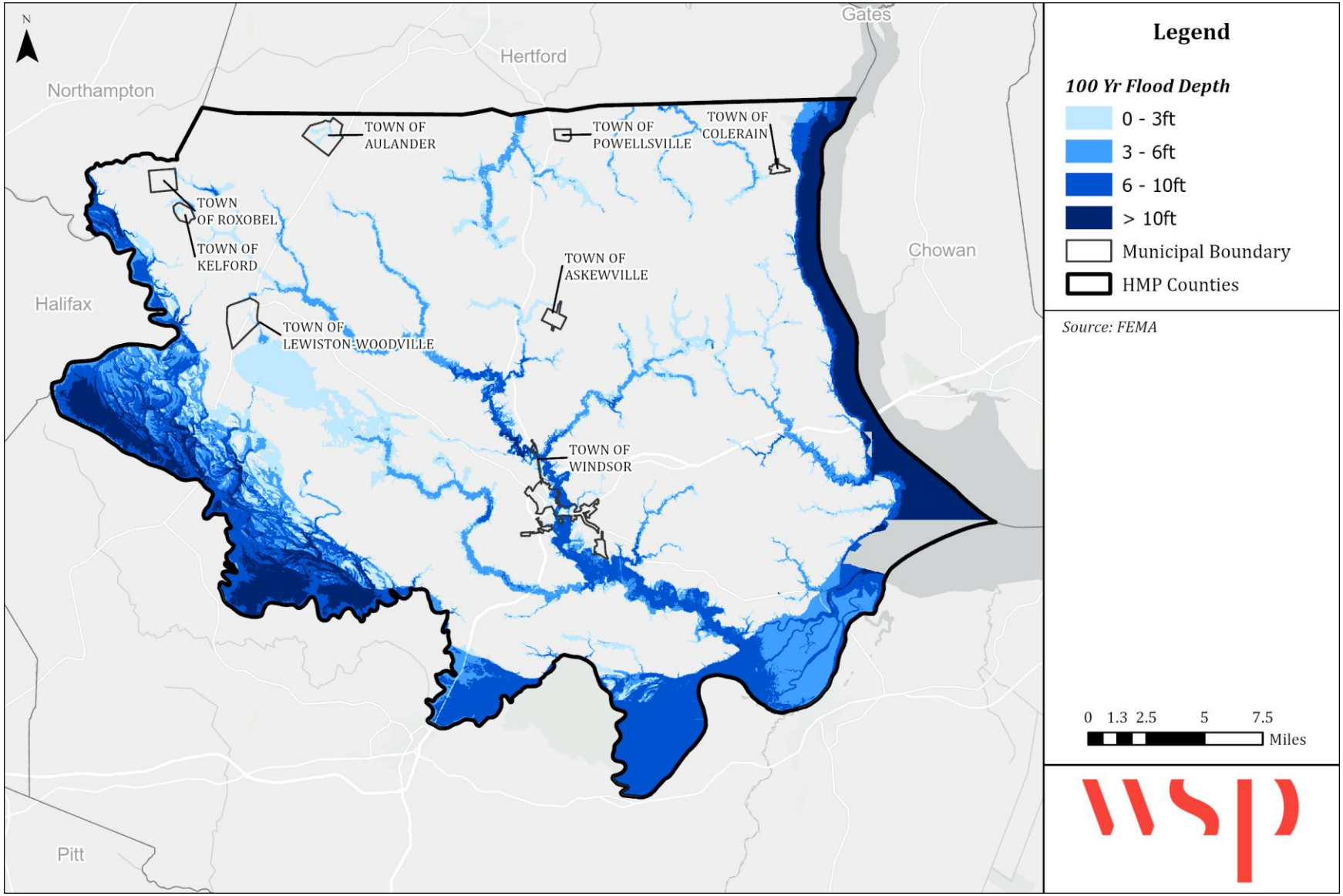


**Figure A.18 – Flood Depth, 1%-Annual-Chance Floodplain, Town of Askewville**



**Figure A.19 – Flood Depth, 1%-Annual-Chance Floodplain, Town of Aulander**

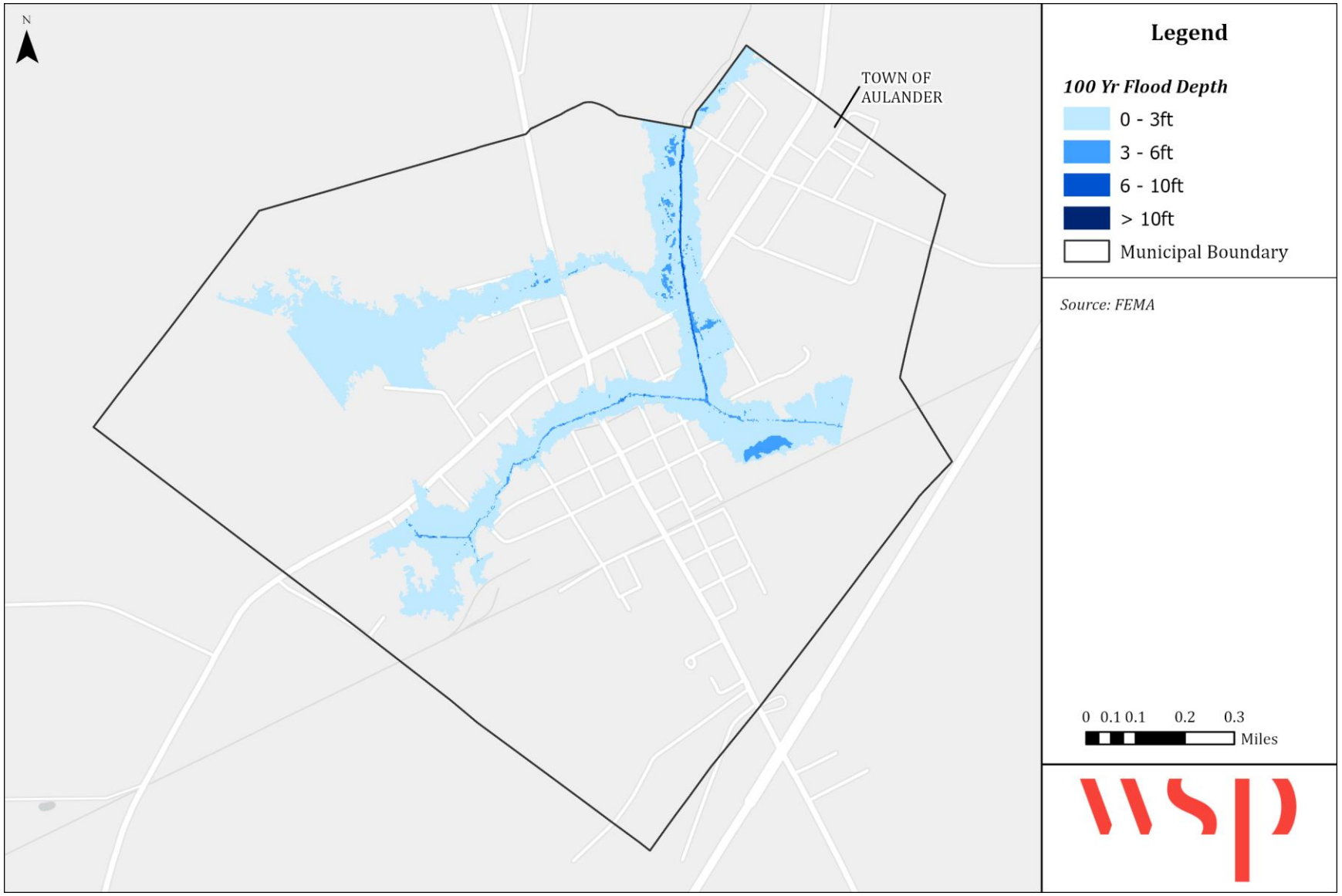


**Figure A.20 – Flood Depth, 1%-Annual-Chance Floodplain, Town of Kelford**

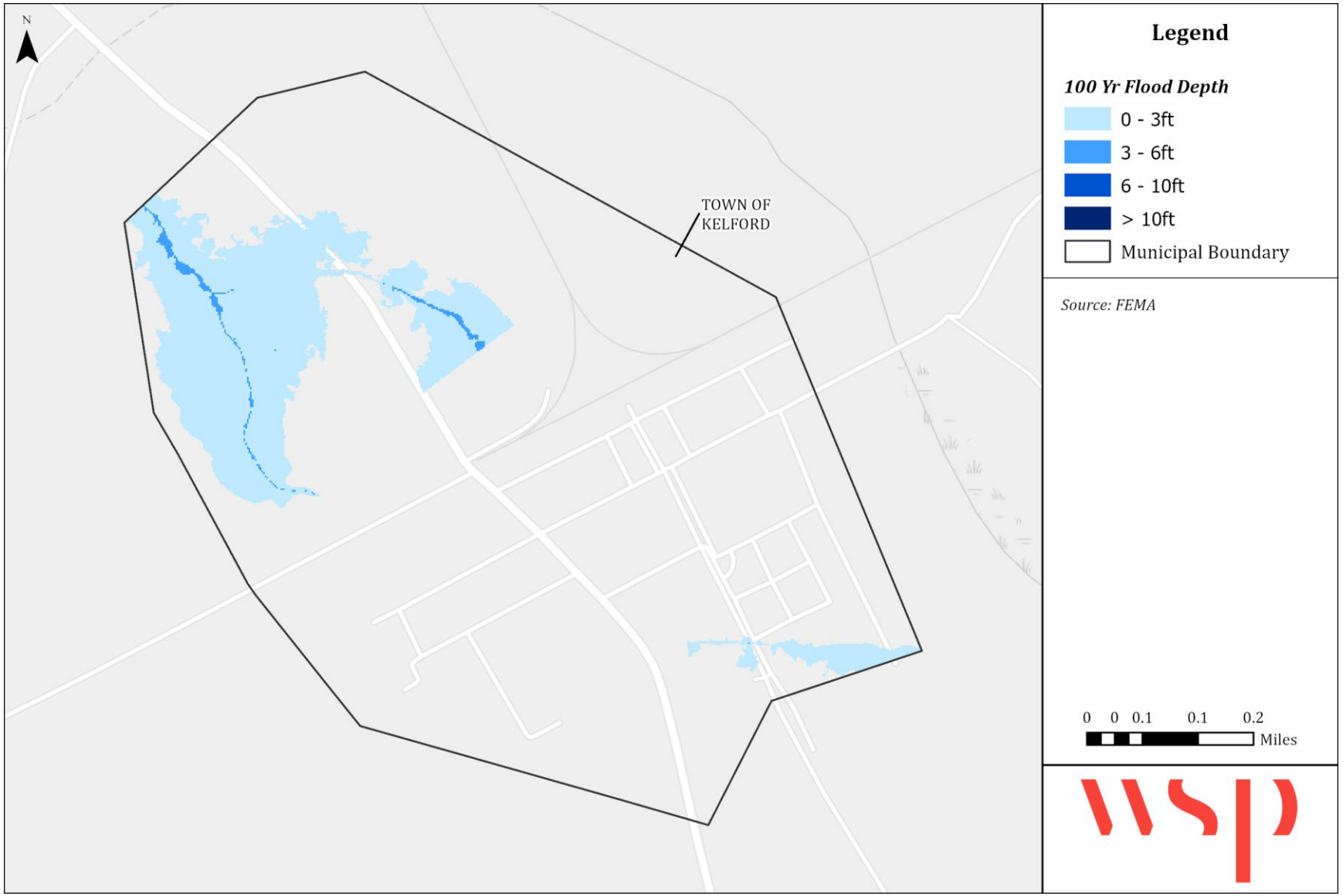


**Figure A.21 – Flood Depth, 1%-Annual-Chance Floodplain, Town of Lewiston-Woodville**

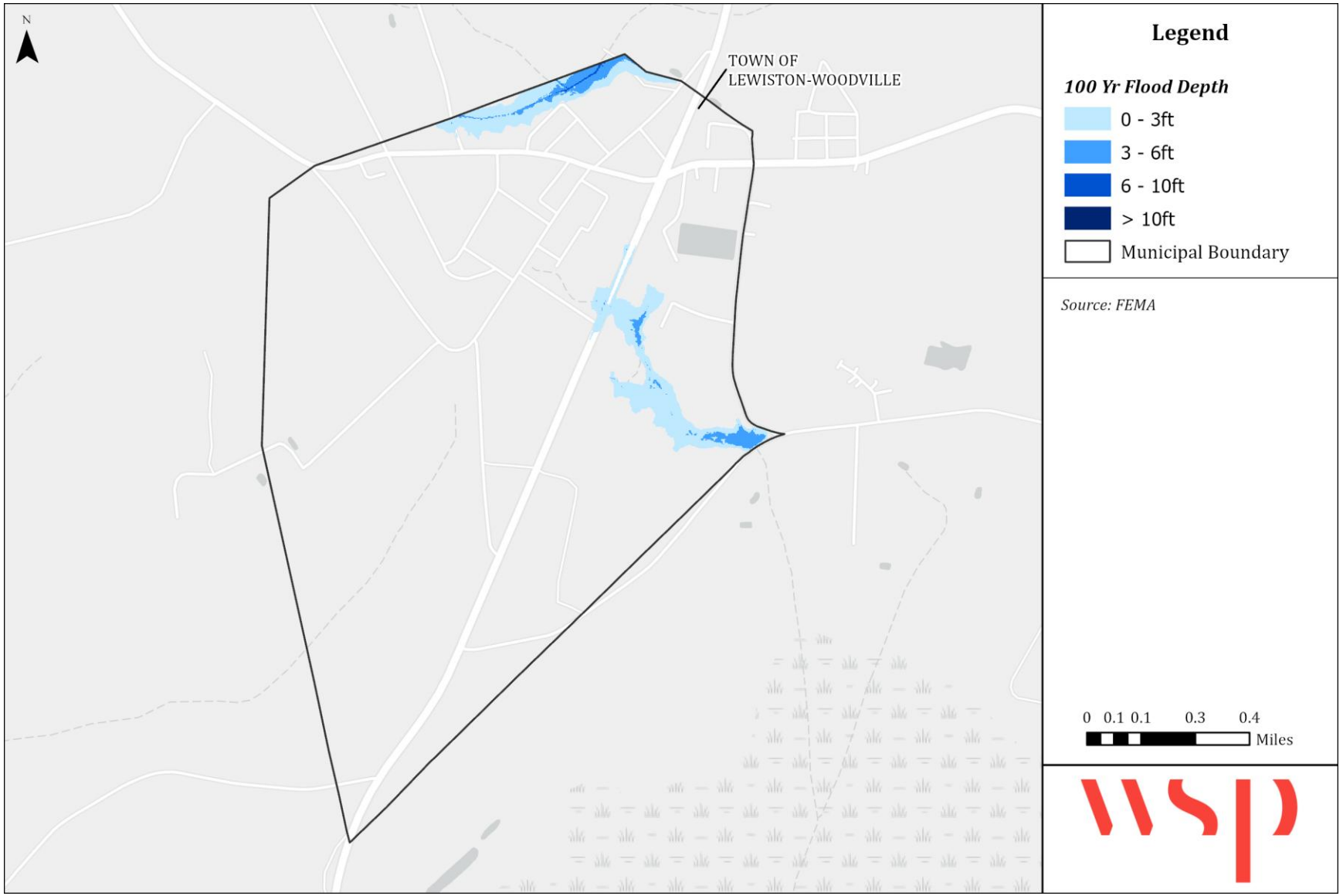


**Figure A.22 – Flood Depth, 1%-Annual-Chance Floodplain, Town of Roxobel**

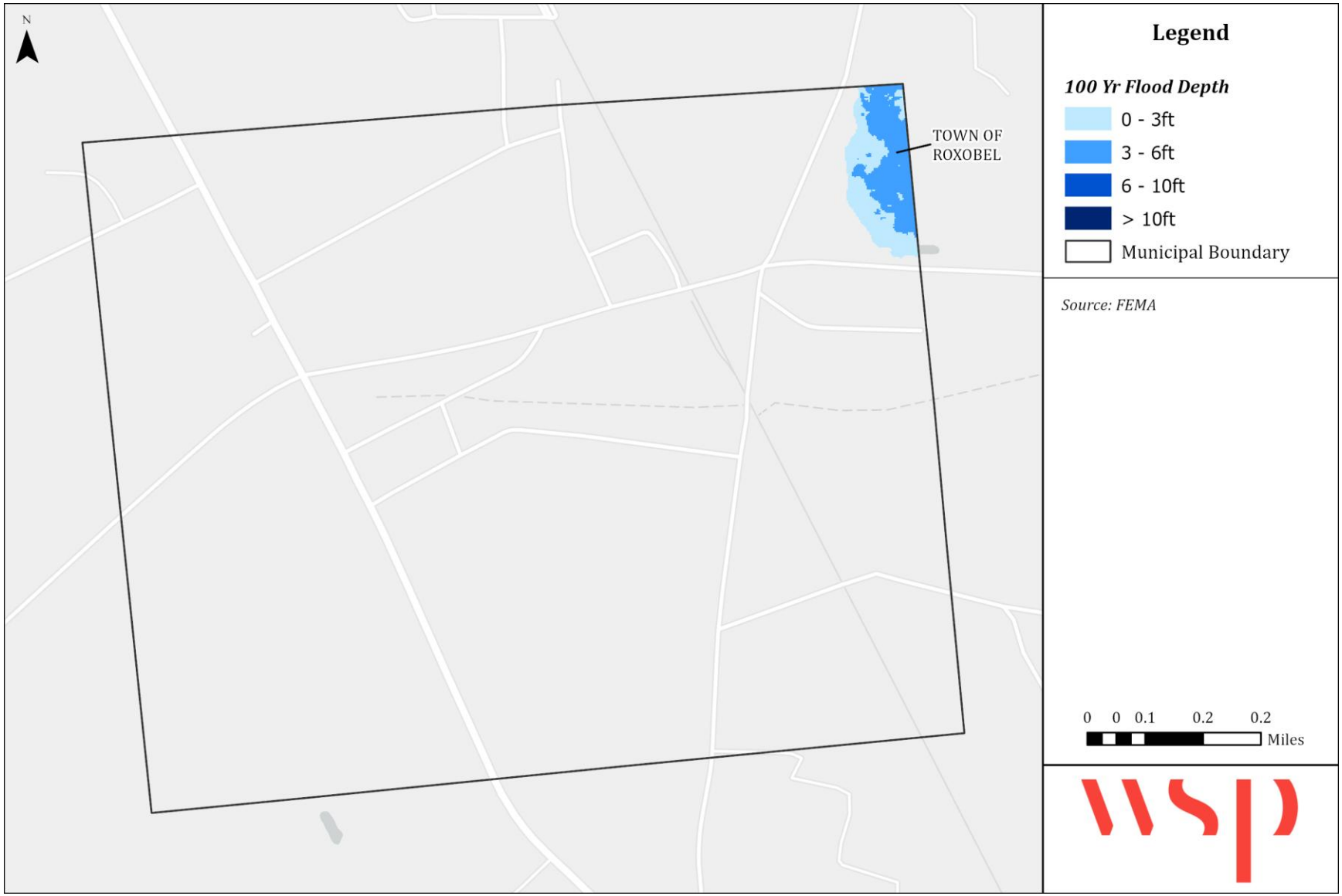
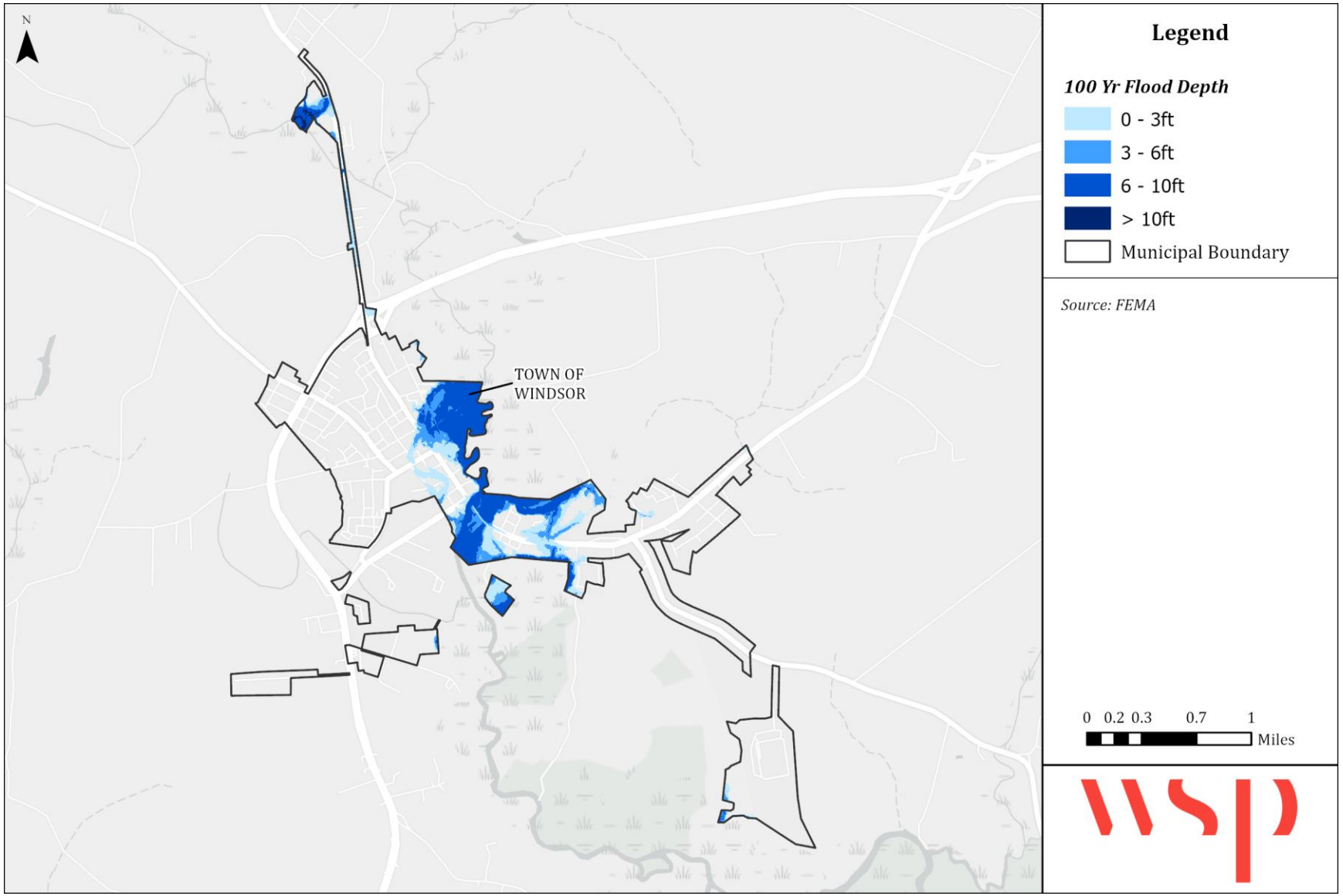


**Figure A.23 – Flood Depth, 1%-Annual-Chance Floodplain, Town of Windsor**



## FLOODPLAIN MANAGEMENT

The following tables reflect NFIP policy and claims data for Bertie County and incorporated areas categorized by structure type, flood zone, Pre-FIRM and Post-FIRM. Note that the Towns of Askewville, Lewiston-Woodville, and Powellsville do not participate in the NFIP. The Town of Roxobel participates in the NFIP but has no active policies or past paid claims.

**Table A.13 – NFIP Policy and Claims Data by Structure Type**

| Structure Type | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Bertie County Unincorporated Area** | | | | | |
| Single Family | 38 | $29,122 | $9,317,000 | 89 | $1,942,478.83 |
| Non Residential | 6 | $5,789 | $923,000 | 12 | $577,342.39 |
| **Total** | **44** | **$34,911** | **$10,240,000** | **101** | **$2,519,821.22** |
| **Town of Aulander** | | | | | |
| Single Family | 5 | $3,122 | $512,000 | 9 | $70,371.52 |
| **Total** | **5** | **$3,122** | **$512,000** | **9** | **$70,371.52** |
| **Town of Colerain** | | | | | |
| Single Family | 1 | $767 | $350,000 | 0 | $0.00 |
| **Total** | **1** | **$767** | **$350,000** | **0** | **$0.00** |
| **Town of Kelford** | | | | | |
| Single Family | 1 | $492 | $70,000 | 0 | $0.00 |
| **Total** | **1** | **$492** | **$70,000** | **0** | **$0.00** |
| **Town of Windsor** | | | | | |
| Single Family | 29 | $17,690 | $5,801,000 | 177 | $5,304,002.96 |
| 2-4 Family | 0 | $0 | $0 | 2 | $17,578.36 |
| All Other Residential | 0 | $0 | $0 | 1 | $4,440.81 |
| Non Residential | 34 | $28,120 | $5,011,000 | 125 | $5,370,450.90 |
| **Total** | **63** | **$45,810** | **$10,812,000** | **305** | **$10,696,473.03** |

Source: FEMA Community Information System, accessed December 2025

**Table A.14 – NFIP Policy and Claims Data by Flood Zone**

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Bertie County Unincorporated Area** | | | | | |
| A01-30 & AE Zones | 27 | $23,799 | $6,005,000 | 56 | $1,726,865.77 |
| A Zones | 0 | $0 | $0 | 5 | $50,455.18 |
| B, C & X Zone | | | | | |
| Standard | 17 | $11,112 | $4,235,000 | 13 | $365,921.48 |
| Preferred | 0 | $0 | $0 | 25 | $348,675.18 |
| **Total** | **44** | **$34,911** | **$10,240,000** | **99** | **$2,491,917.61** |
| **Town of Aulander** | | | | | |
| A01-30 & AE Zones | 4 | $2,674 | $442,000 | 3 | $22,459.49 |
| B, C & X Zone | | | | | |
| Standard | 1 | $448 | $70,000 | 3 | $33,271.18 |
| Preferred | 0 | $0 | $0 | 1 | $3,290.55 |
| **Total** | **5** | **$3,122** | **$512,000** | **7** | **$59,021.22** |

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Town of Colerain** | | | | | |
| A01-30 & AE Zones | 1 | $767 | $350,000 | 0 | $0.00 |
| **Total** | **1** | **$767** | **$350,000** | **0** | **$0.00** |
| **Town of Kelford** | | | | | |
| A01-30 & AE Zones | 1 | $492 | $70,000 | 0 | $0.00 |
| **Total** | **1** | **$492** | **$70,000** | **0** | **$0.00** |
| **Town of Windsor** | | | | | |
| A01-30 & AE Zones | 44 | $30,366 | $6,857,000 | 231 | $8,004,879.28 |
| A Zones | 0 | $0 | $0 | 8 | $300,910.66 |
| B, C & X Zone | | | | | |
| Standard | 19 | $15,444 | $3,955,000 | 40 | $1,233,850.49 |
| Preferred | 0 | $0 | $0 | 26 | $1,156,832.60 |
| **Total** | **63** | **$45,810** | **$10,812,000** | **305** | **$10,696,473.03** |

Source: FEMA Community Information System, accessed December 2025

**Table A.15 – NFIP Policy and Claims Data Pre-FIRM**

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Bertie County Unincorporated Area** | | | | | |
| A01-30 & AE Zones | 7 | $6,854 | $1,591,000 | 41 | $1,002,107.42 |
| A Zones | 0 | $0 | $0 | 5 | $50,455.18 |
| B, C & X Zone | 10 | $5,803 | $2,120,000 | 25 | $663,396.97 |
| Standard | 10 | $5,803 | $2,120,000 | 9 | $346,588.52 |
| Preferred | 0 | $0 | $0 | 16 | $316,808.45 |
| **Total** | **17** | **$12,657** | **$3,711,000** | **71** | **$1,715,959.57** |
| **Town of Aulander** | | | | | |
| A01-30 & AE Zones | 4 | $2,674 | $442,000 | 3 | $22,459.49 |
| B, C & X Zone | 1 | $448 | $70,000 | 4 | $36,561.73 |
| Standard | 1 | $448 | $70,000 | 3 | $33,271.18 |
| Preferred | 0 | $0 | $0 | 1 | $3,290.55 |
| **Total** | **5** | **$3,122** | **$512,000** | **7** | **$59,021.22** |
| **Town of Kelford** | | | | | |
| A01-30 & AE Zones | 1 | $492 | $70,000 | 0 | $0.00 |
| **Total** | **1** | **$492** | **$70,000** | **0** | **$0.00** |
| **Town of Windsor** | | | | | |
| A01-30 & AE Zones | 36 | $23,767 | $4,886,000 | 184 | $6,033,835.62 |
| A Zones | 0 | $0 | $0 | 6 | $297,783.65 |
| B, C & X Zone | 12 | $8,994 | $2,421,000 | 48 | $1,611,083.87 |
| Standard | 12 | $8,994 | $2,421,000 | 29 | $773,048.97 |
| Preferred | 0 | $0 | $0 | 19 | $838,034.90 |
| **Total** | **48** | **$32,761** | **$7,307,000** | **238** | **$7,942,703.14** |

Source: FEMA Community Information System, accessed December 2025

**Table A.16 – NFIP Policy and Claims Data Post-FIRM**

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Bertie County Unincorporated Area** | | | | | |
| A01-30 & AE Zones | 20 | $16,945 | $4,414,000 | 15 | $724,758.35 |
| B, C & X Zone | 7 | $5,309 | $2,115,000 | 13 | $51,199.69 |
| Standard | 7 | $5,309 | $2,115,000 | 4 | $19,332.96 |
| Preferred | 0 | $0 | $0 | 9 | $31,866.73 |
| **Total** | **27** | **$22,254** | **$6,529,000** | **28** | **$775,958.04** |
| **Town of Colerain** | | | | | |
| A01-30 & AE Zones | 1 | $767 | $350,000 | 0 | $0.00 |
| **Total** | **1** | **$767** | **$350,000** | **0** | **$0.00** |
| **Town of Windsor** | | | | | |
| A01-30 & AE Zones | 8 | $6,599 | $1,971,000 | 47 | $1,971,043.66 |
| A Zones | 0 | $0 | $0 | 2 | $3,127.01 |
| B, C & X Zone | 7 | $6,450 | $1,534,000 | 18 | $779,599.22 |
| Standard | 7 | $6,450 | $1,534,000 | 11 | $460,801.52 |
| Preferred | 0 | $0 | $0 | 7 | $318,797.70 |
| **Total** | **15** | **$13,049** | **$3,505,000** | **67** | **$2,753,769.89** |

Source: FEMA Community Information System, accessed December 2025

## *A.2.2 HURRICANES AND COASTAL HAZARDS*

Figure A.24 on the following page shows the estimated extent of storm surge by storm category according to NOAA SLOSH data that would occur in unincorporated Bertie County and all participating jurisdictions. Much of southeastern Bertie County near the Albemarle Sound, Roanoke River, and along the Cashie River is at the highest risk to storm surge. Unincorporated Bertie County and the Town of Windsor could experience direct impacts from storm surge.

Figure A.25 shows the estimated inundation extents of 1 foot, 2 feet, and 3 feet of sea level rise that may occur in Bertie County and participating jurisdictions. Sea level rise is likely to impact land adjacent to the Albemarle Sound, Roanoke River, and Cashie River. Unincorporated Bertie County and the Town of Windsor could experience direct impacts from sea level rise.

**Figure A.24 – Storm Surge Extent by Storm Category**

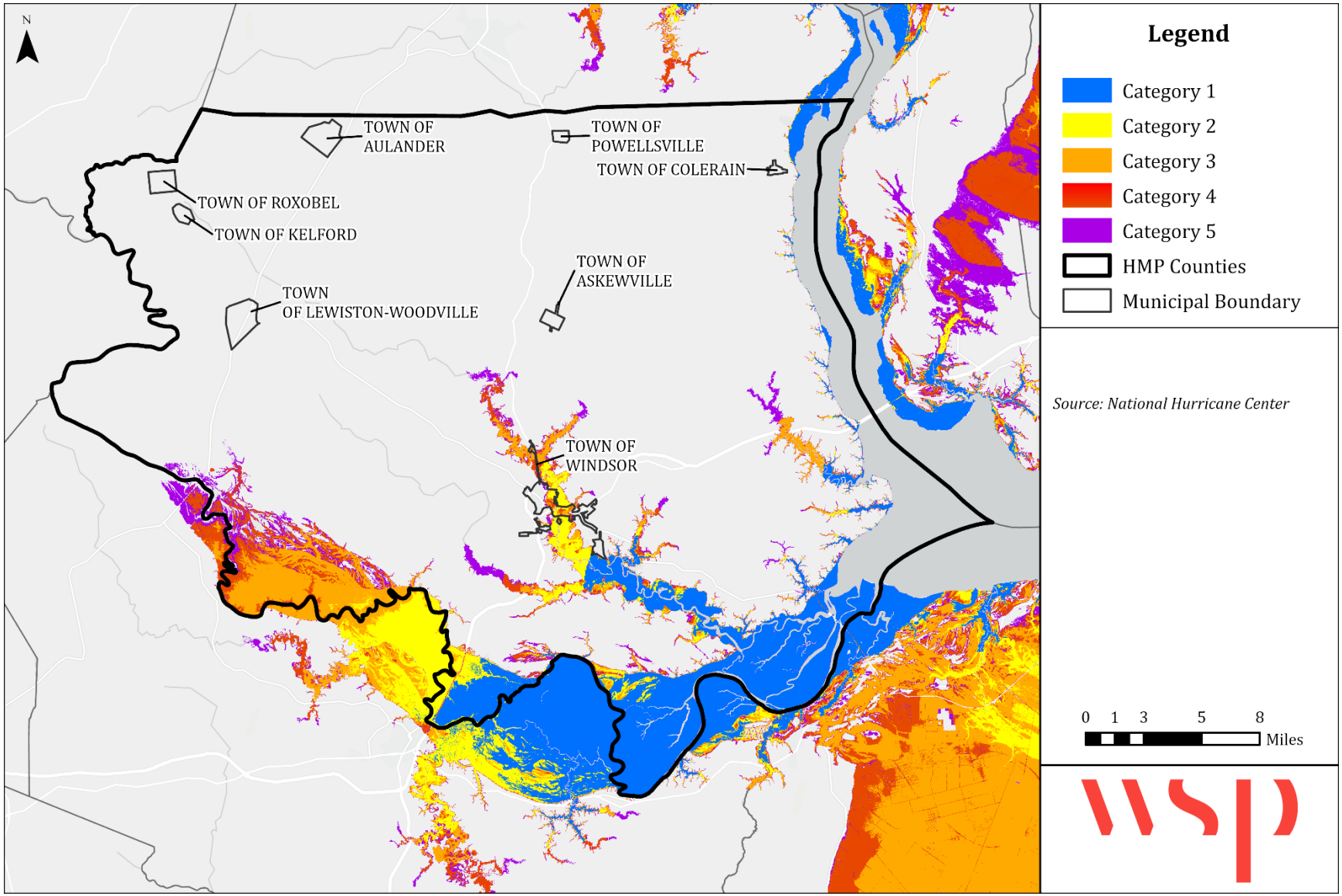
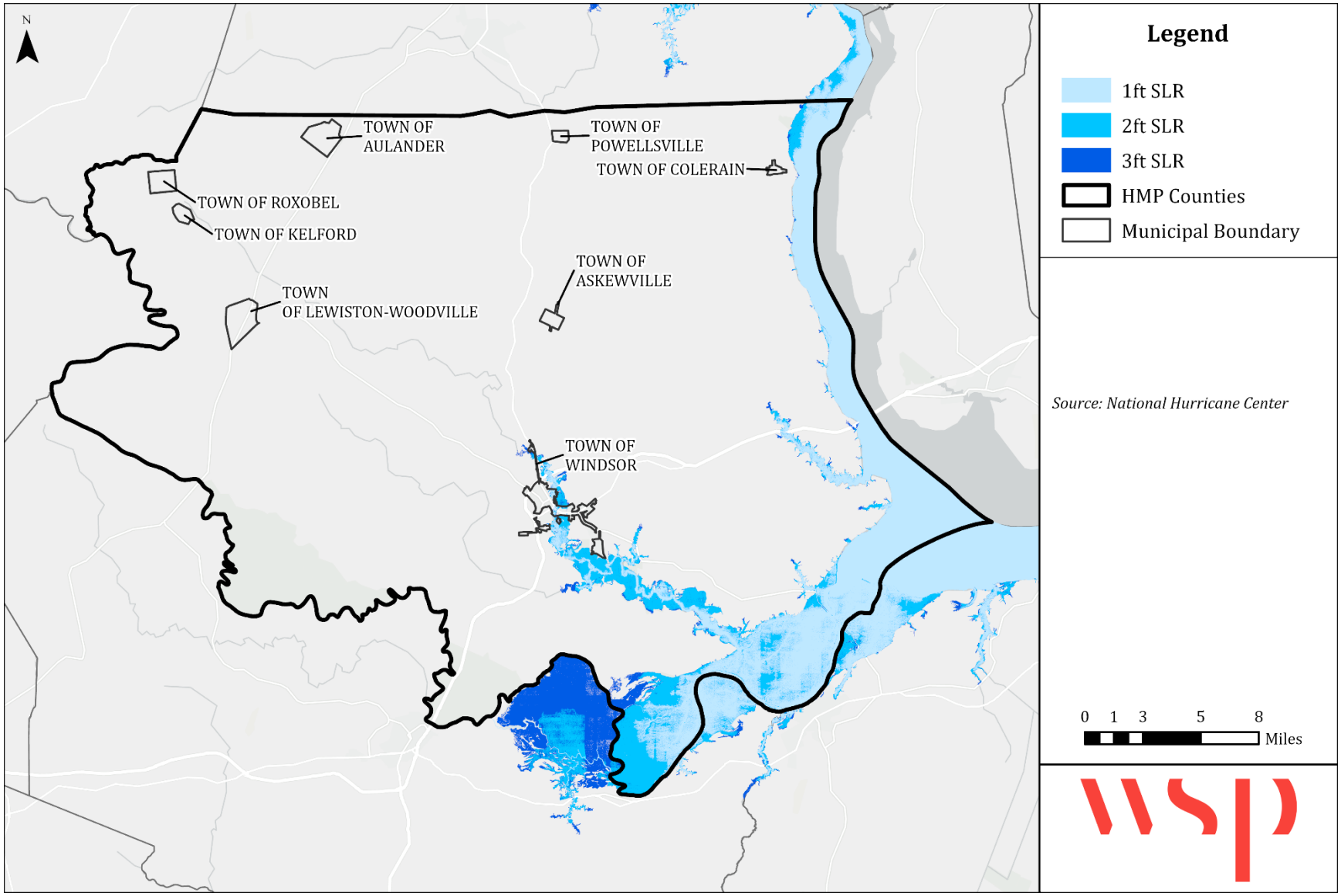


**Figure A.25 – Sea Level Rise Extent**



## A.2.3 WILDFIRE

summarizes the acreage in unincorporated Bertie County that falls within the Functional Wildland Urban Interface (WUI), categorized into zones that describe the wildfire risk mitigation activities appropriate for each zone. Areas in the Functional WUI are those areas where development and building structures may intermix with burnable land cover. Approximately, 3 percent of unincorporated Bertie County is categorized as having direct exposure to wildfire risk and 82 percent is located within the critical fireshed of the Functional WUI. summarizes the acreage in unincorporated Bertie County that falls within the Functional Wildland Urban Interface (WUI), categorized into zones that describe the wildfire risk mitigation activities appropriate for each zone. Areas in the Functional WUI are those areas where development and building structures may intermix with burnable land cover. Approximately, 3 percent of unincorporated Bertie County is categorized as having direct exposure to wildfire risk and 82 percent is located within the critical fireshed of the Functional WUI.

**Table A.17 – Functional Wildland Urban Interface Acreage, Unincorporated Bertie County**

| | Functional Wildland Urban Interface (WUI) Category | Acres | Percent |
|---|---|---|---|
| | Direct Exposure | 13,031 | 3% |
| | Indirect Exposure | 11,264 | 3% |
| | Critical Fireshed | 369,241 | 82% |
| | Sources of Ember Load to Buildings | 41,391 | 9% |
| | Little to No Exposure | 0 | 0% |
| | Water | 13,442 | 3% |
| | **Total** | **448,369** | **100%** |

Source: Southern Wildfire Risk Assessment

Figure A.26 through Figure A.34 depicts the Functional WUI for unincorporated Bertie County and all participating jurisdictions. Figure A.35 through Figure A.43 depict the Fire Intensity Scale, which indicates the potential severity of fire based on fuel loads, topography, and other factors. Figure A.44 through Figure A.52 depicts Burn Probability based on landscape conditions, percentile weather, historical ignition patterns, and historical prevention and suppression efforts.

Functional WUI areas with direct exposure to wildfire are distributed throughout the county, with gaps on the southern and western edges of the county along the Roanoke River and its floodplain. Areas of moderate to high potential fire intensity also occur throughout the county, with the lowest potential intensity along the Roanoke River. However, burn probability is very low throughout the county with the exception of a small cluster of moderate burn probability northeast of Windsor and throughout the center region of the county.

Table A.18 provides building counts and values for critical facilities by FEMA lifeline that are located in areas categorized with direct exposure to wildfire risk on the Functional WUI scale. Note that not all jurisdictions within Bertie County contain critical facilities that have exposure to direct exposure.

**Table A.18 – Critical Facilities Exposed to Wildfire by Jurisdiction, Bertie County**

| Type | Critical Facility Count | Structure Value |
|---|---|---|
| **Bertie County Unincorporated Area** | | |
| Food, Hydration, Shelter | 13 | $12,843,840 |
| Health and Medical | 2 | $109,748 |
| Safety and Security | 2 | $278,485 |
| Water Systems | 2 | $58,900 |
| **All Categories** | **19** | **$13,290,973** |
| **Town of Colerain** | | |
| Food, Hydration, Shelter | 1 | $2,555,047 |
| **All Categories** | **1** | **$2,555,047** |
| **Town of Roxobel** | | |
| Safety and Security | 1 | $149,237 |
| **All Categories** | **1** | **$149,237** |
| **Town of Windsor** | | |
| Food, Hydration, Shelter | 2 | $6,746,444 |
| Health and Medical | 1 | $137,846 |
| **All Categories** | **3** | **$6,884,290** |
| **County Total** | **24** | **$22,879,547** |

**Figure A.26 – Functional Wildland Urban Interface, Unincorporated Bertie County**

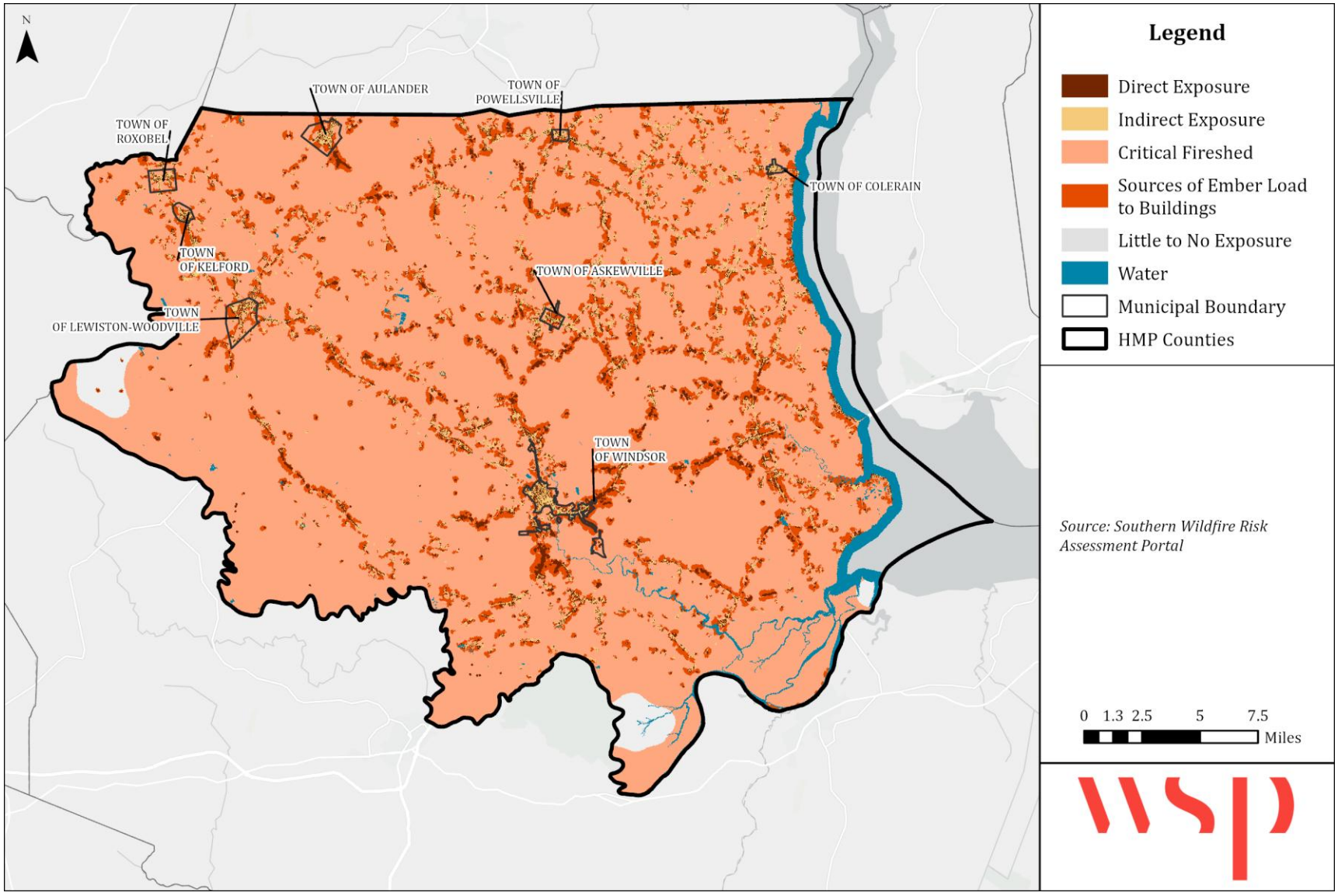


**Figure A.27 – Functional Wildland Urban Interface, Town of Askewville**

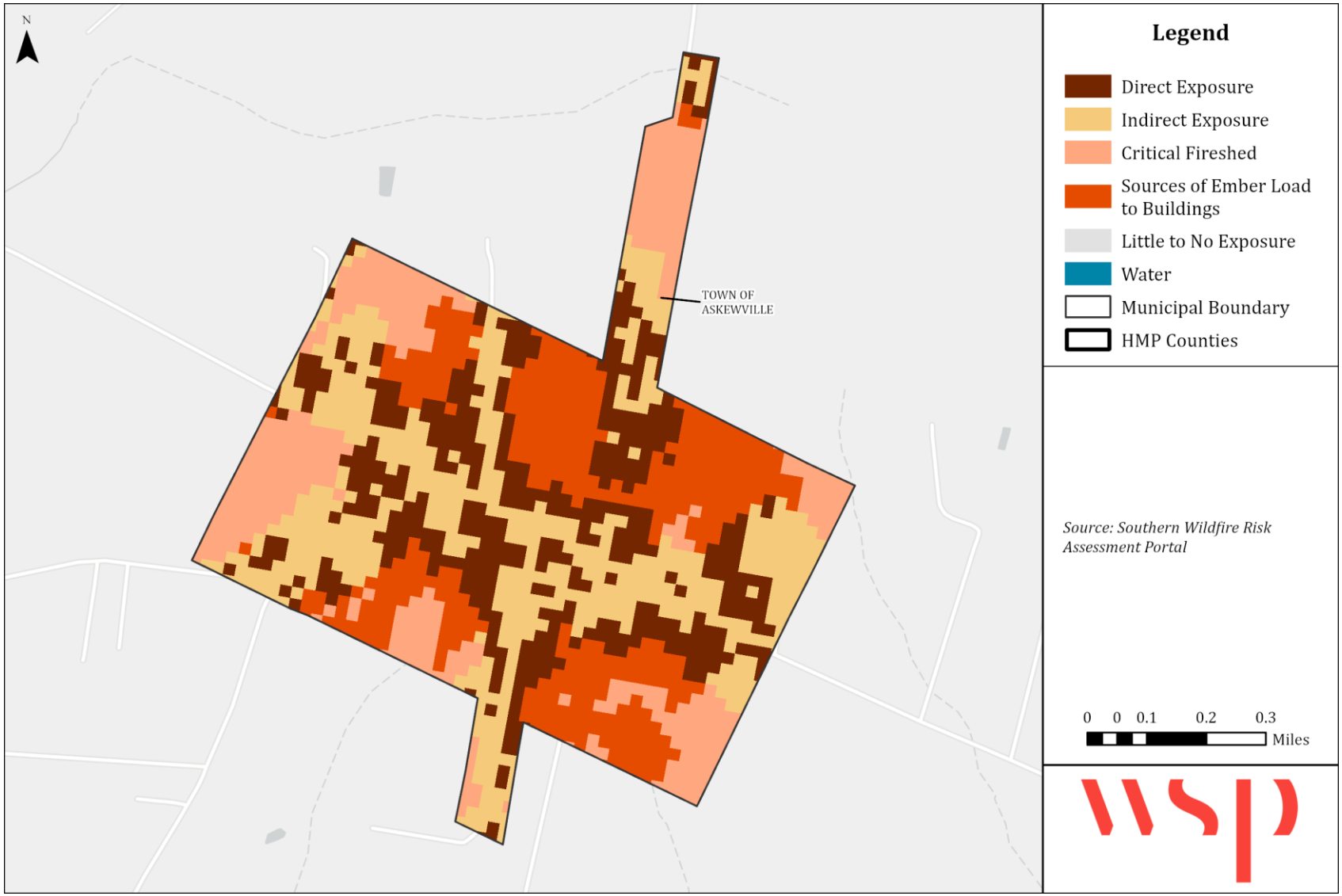


**Figure A.28 – Functional Wildland Urban Interface, Town of Aulander**

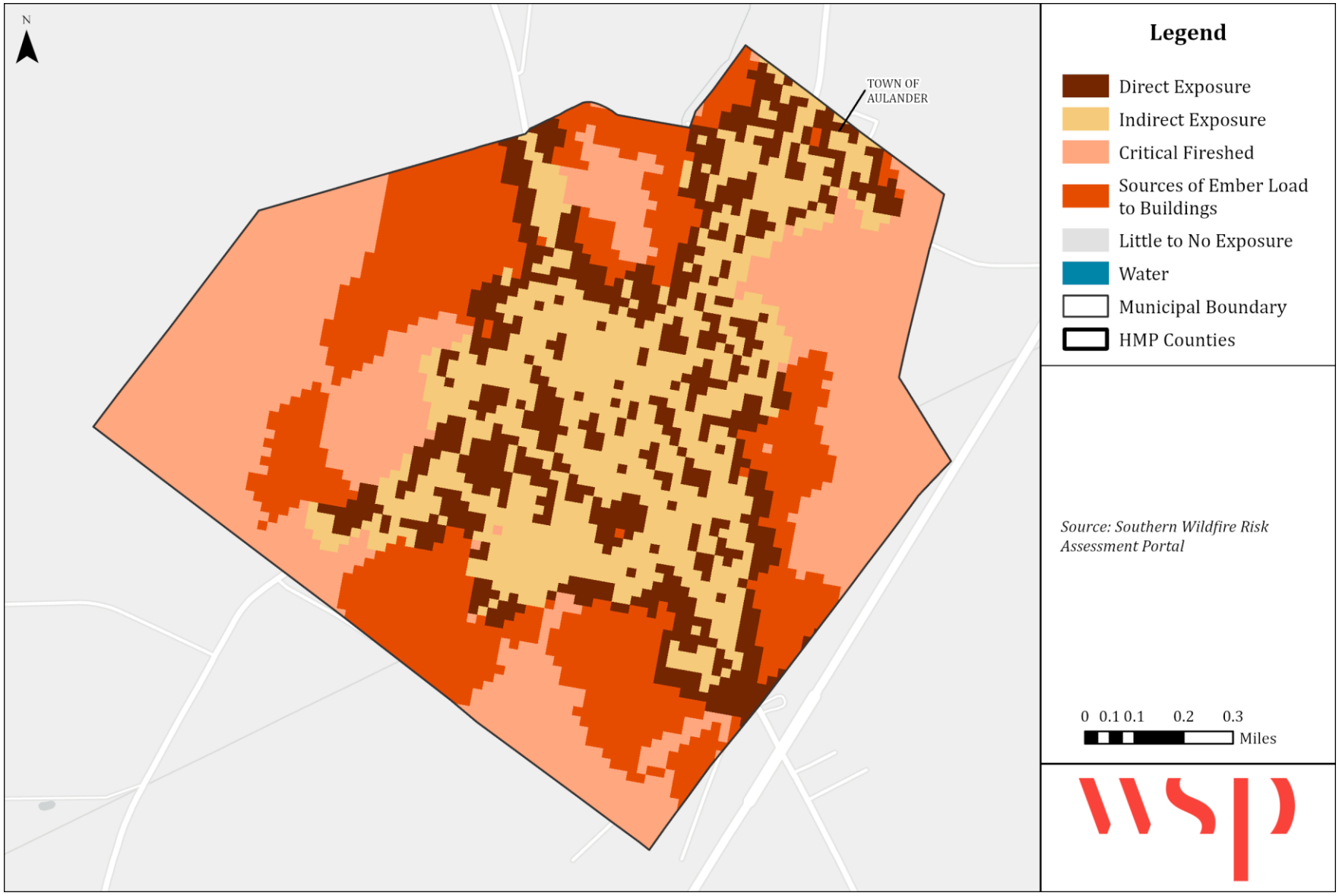


**Figure A.29 – Functional Wildland Urban Interface, Town of Colerain**

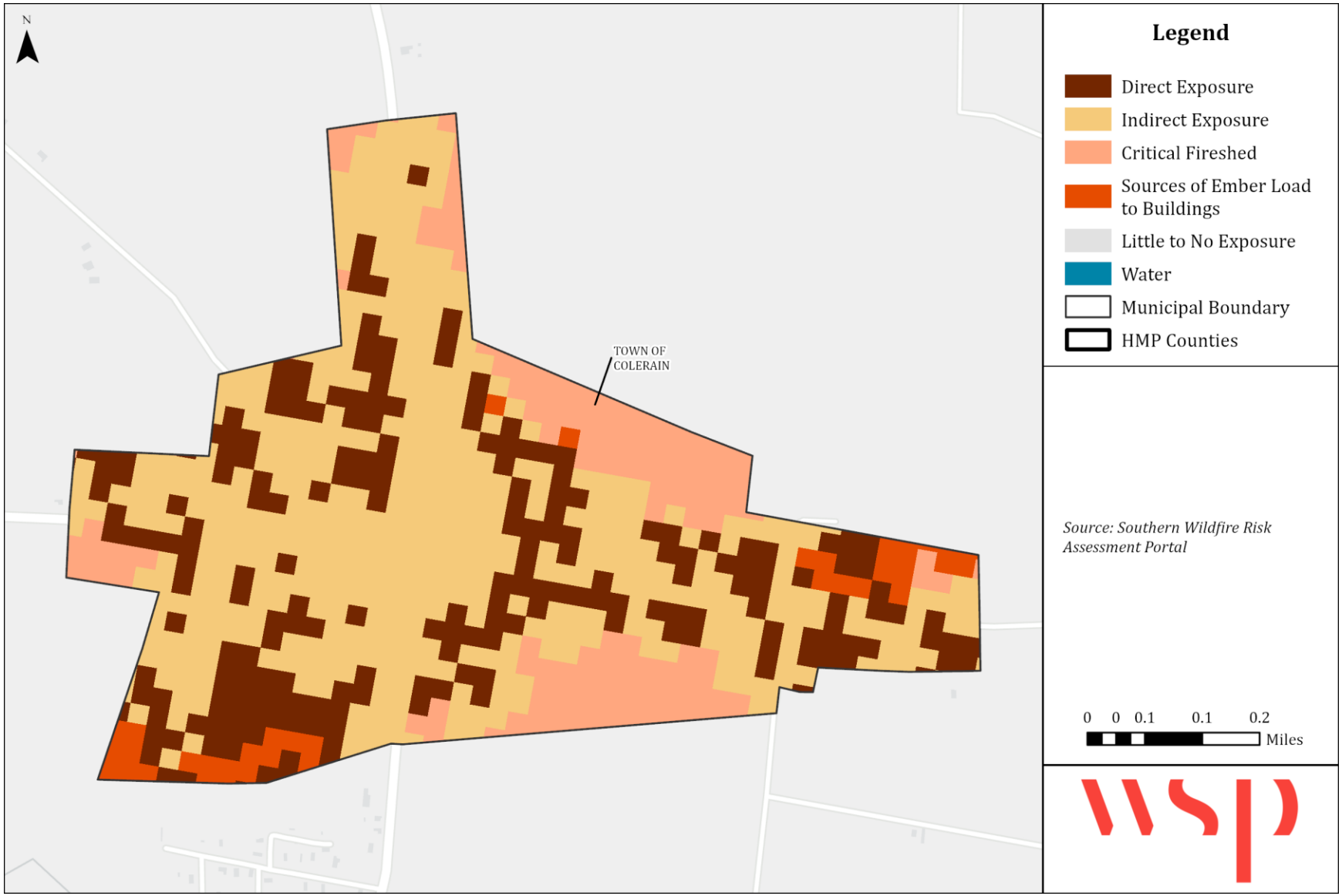


**Figure A.30 – Functional Wildland Urban Interface, Town of Kelford**

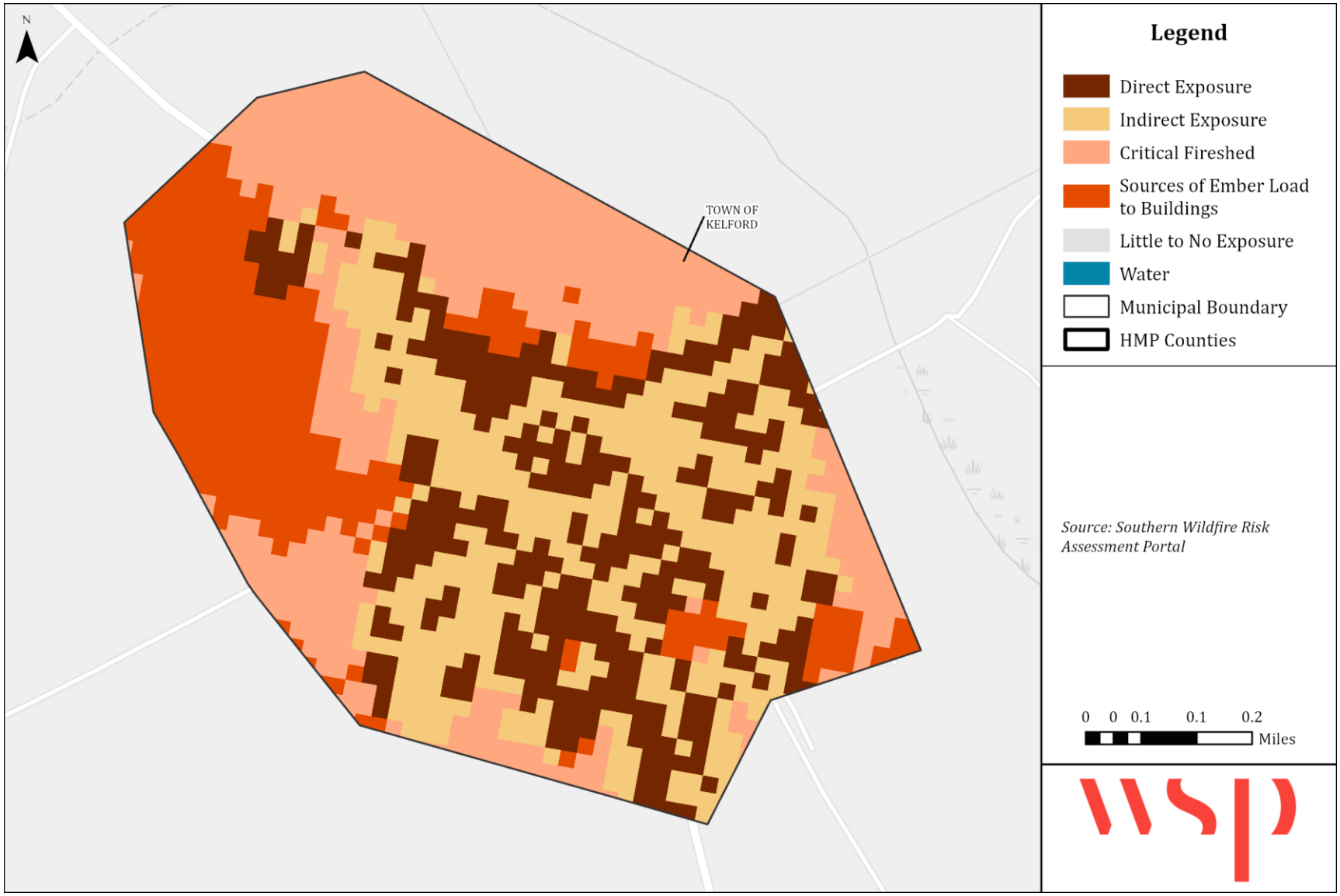


**Figure A.31 – Functional Wildland Urban Interface, Town of Lewiston-Woodville**

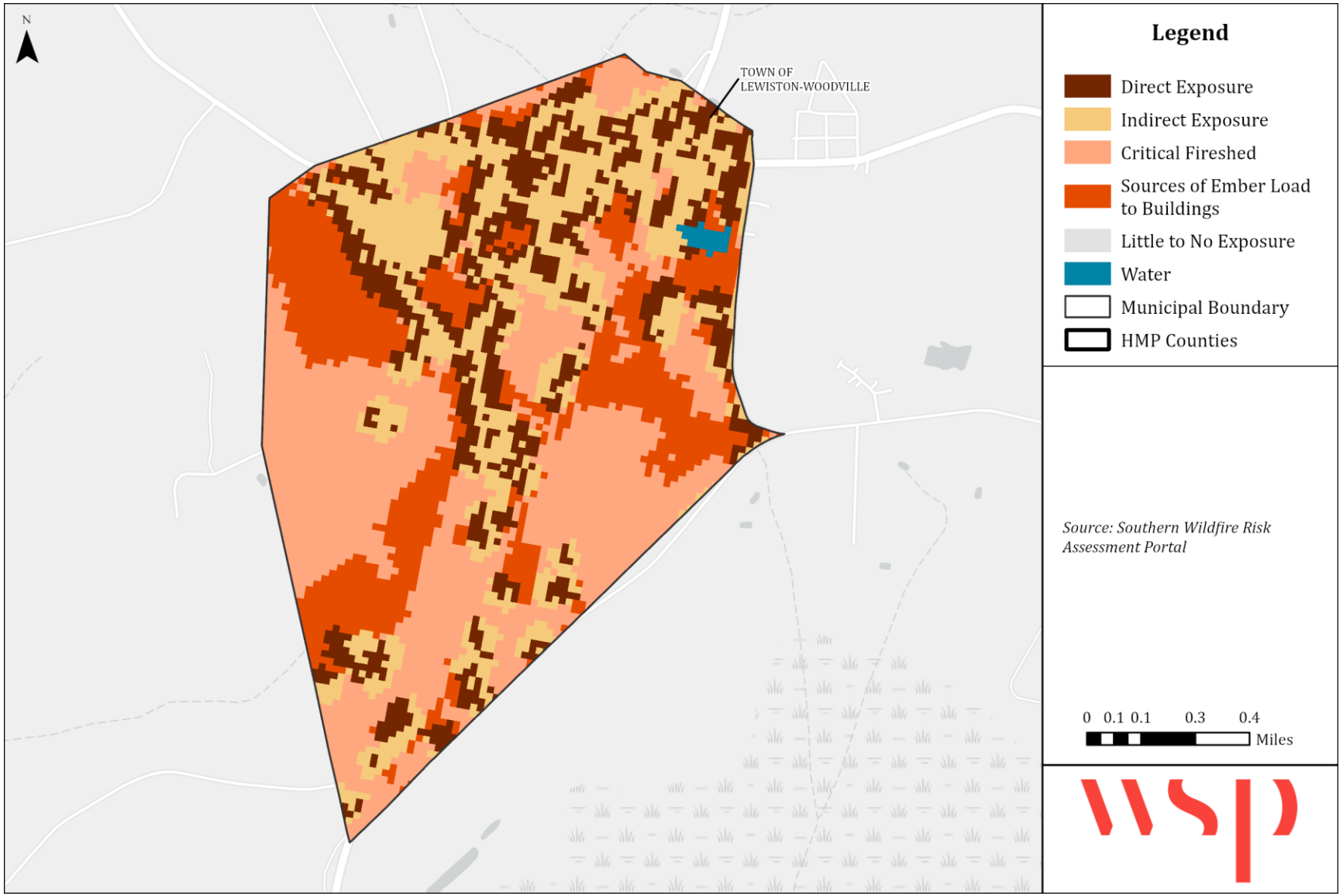


**Figure A.32 – Functional Wildland Urban Interface, Town of Powellsville**

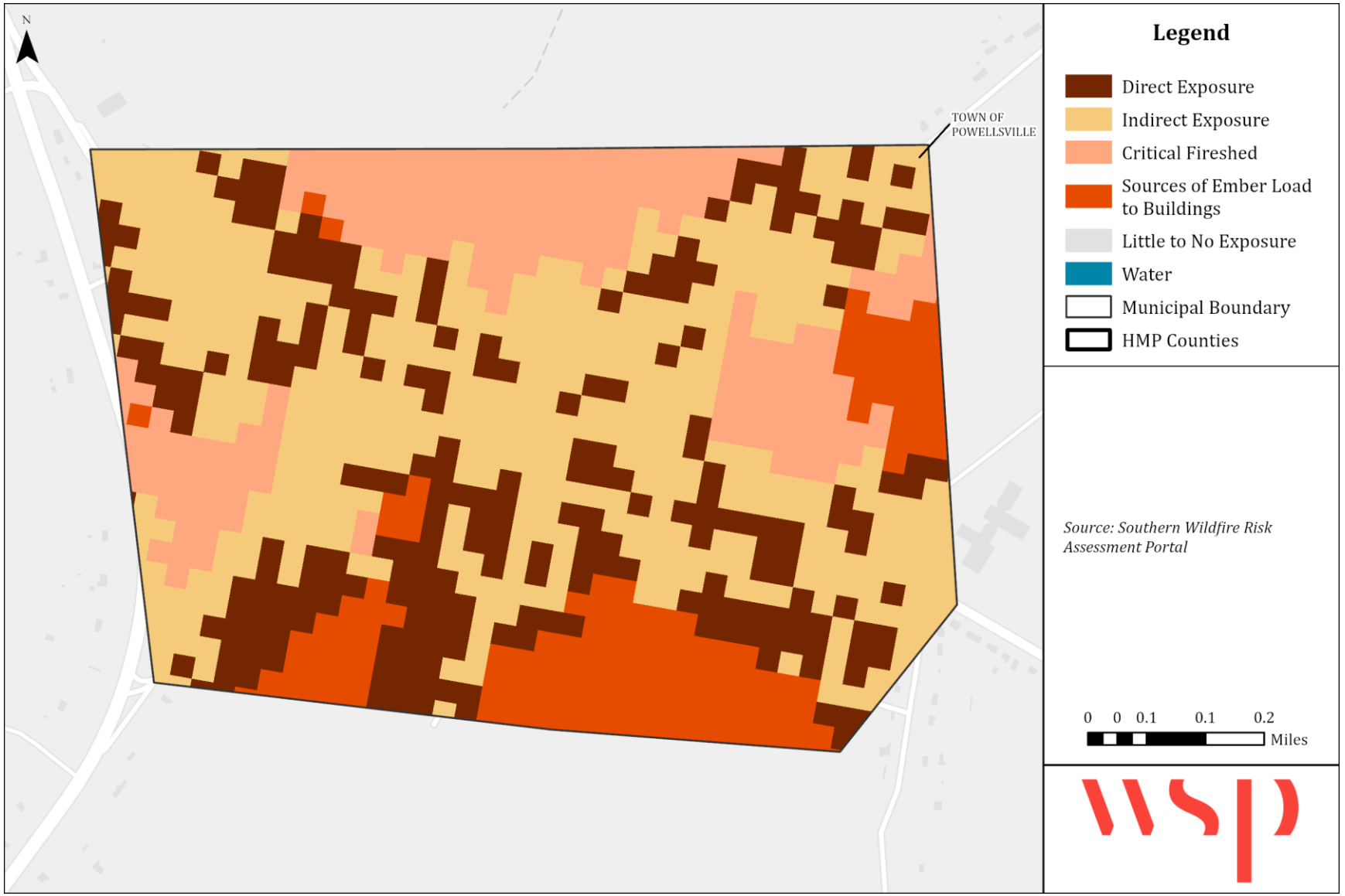


**Figure A.33 – Functional Wildland Urban Interface, Town of Roxobel**

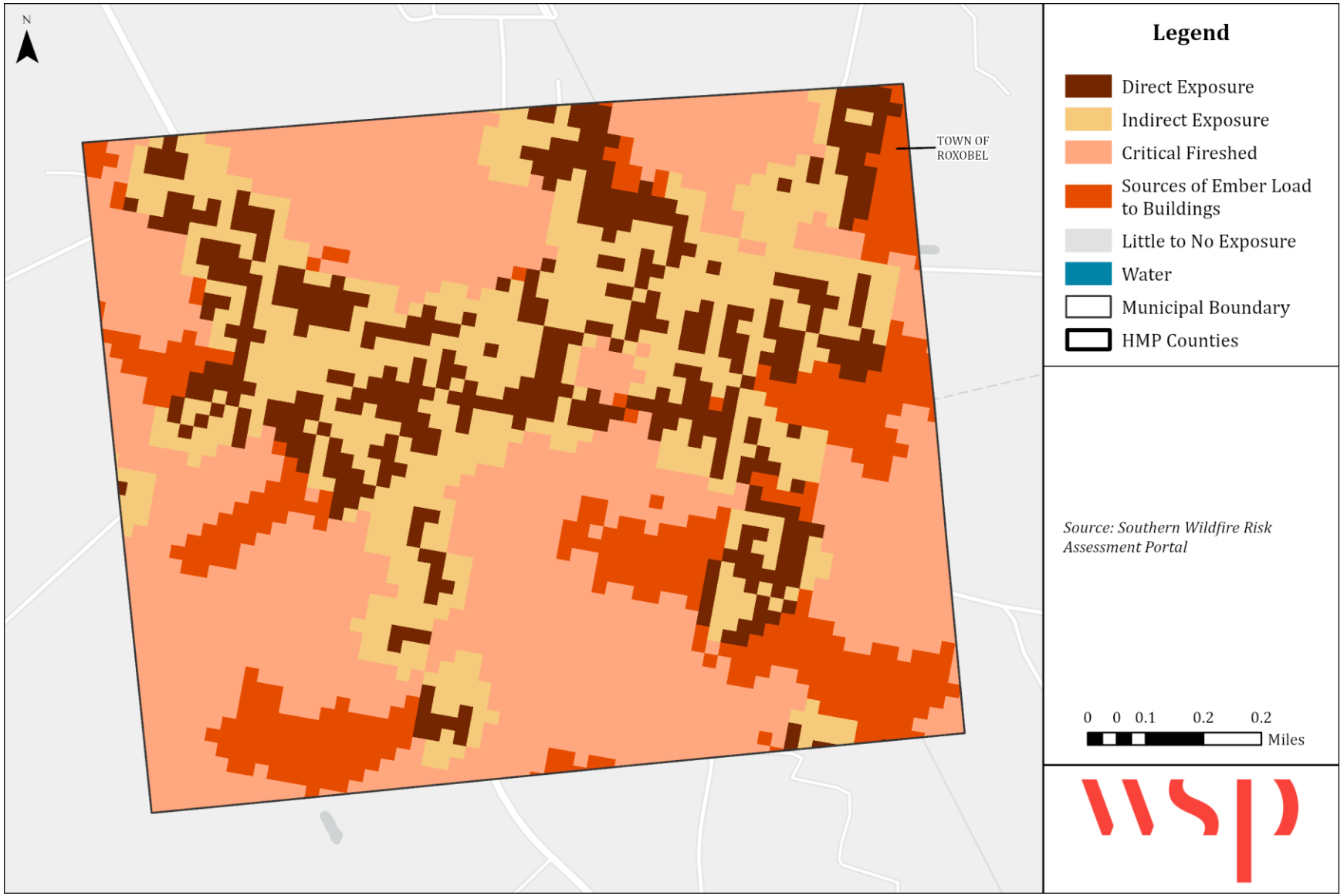


**Figure A.34 – Functional Wildland Urban Interface, Town of Windsor**

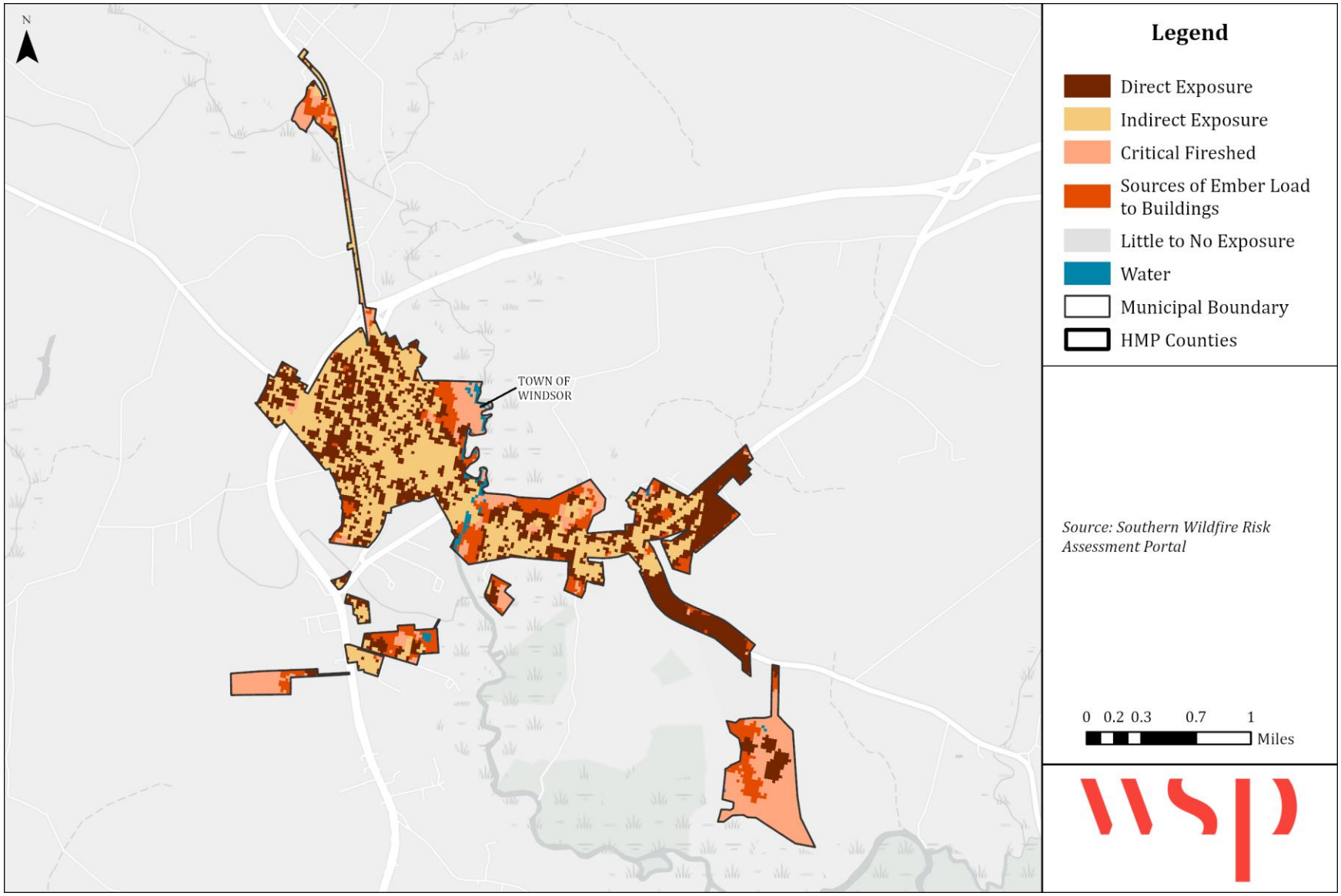


**Figure A.35 – Fire Intensity Scale, Unincorporated Bertie County**

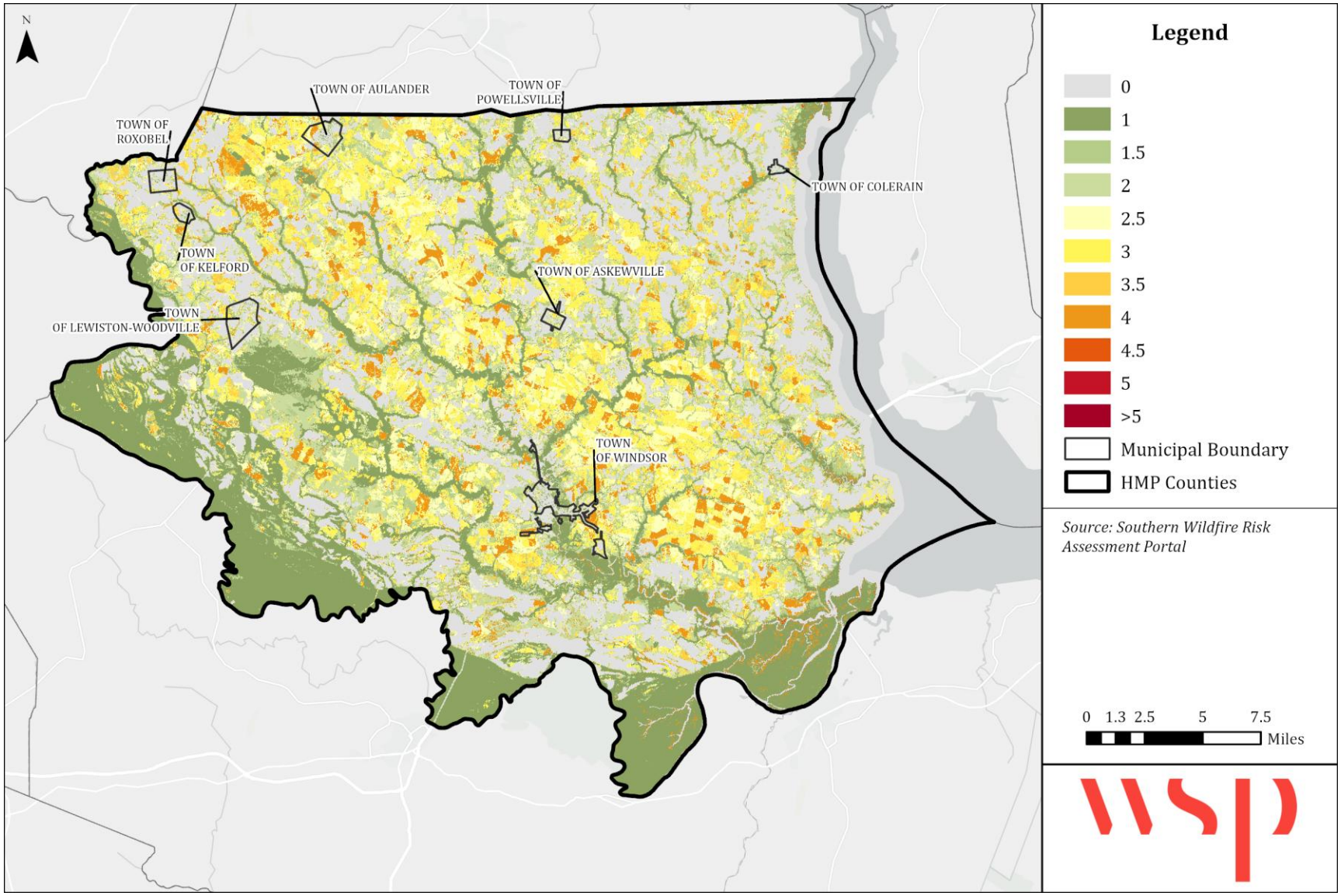


**Figure A.36 – Fire Intensity, Town of Askewville**

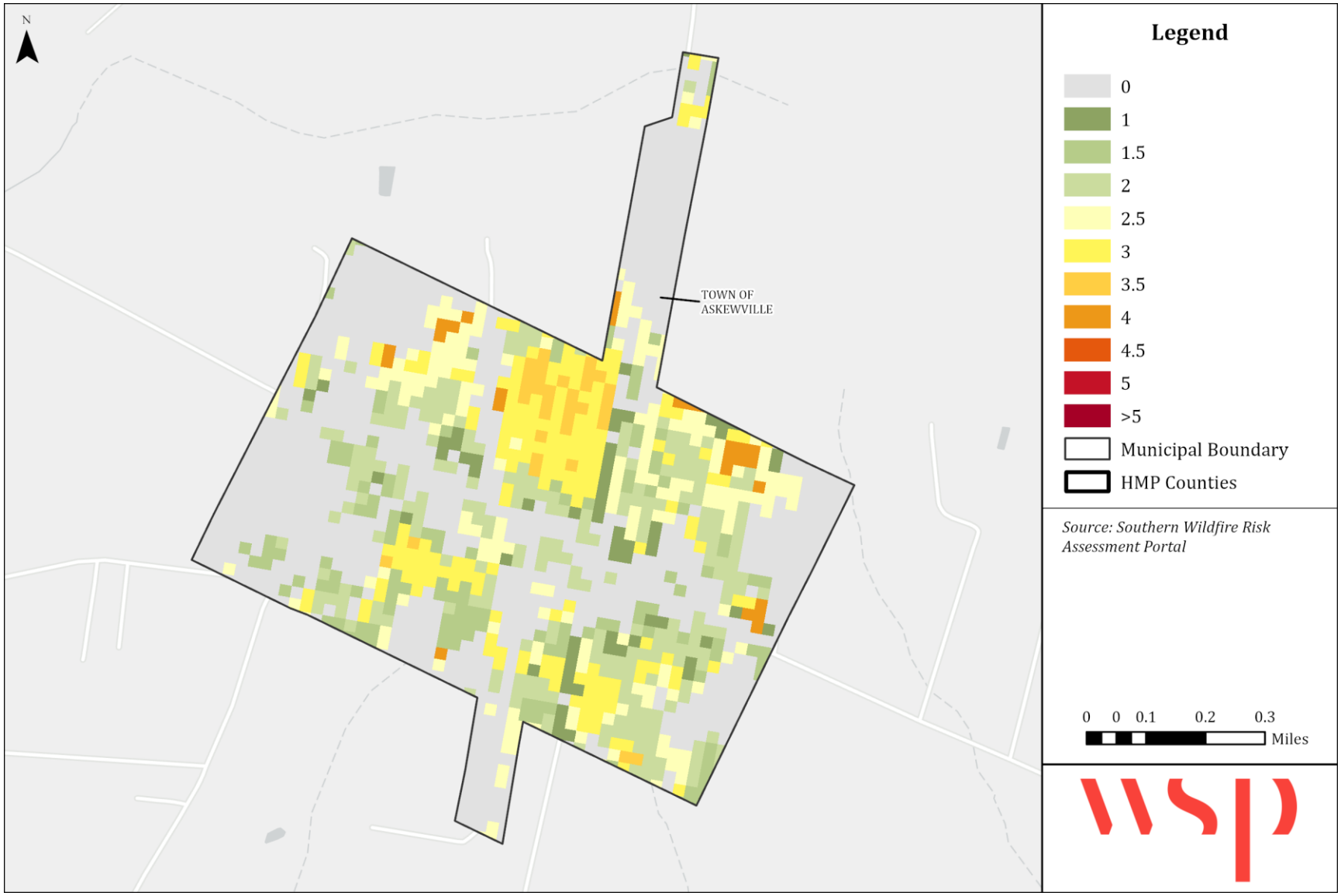


**Figure A.37 – Fire Intensity, Town of Aulander**

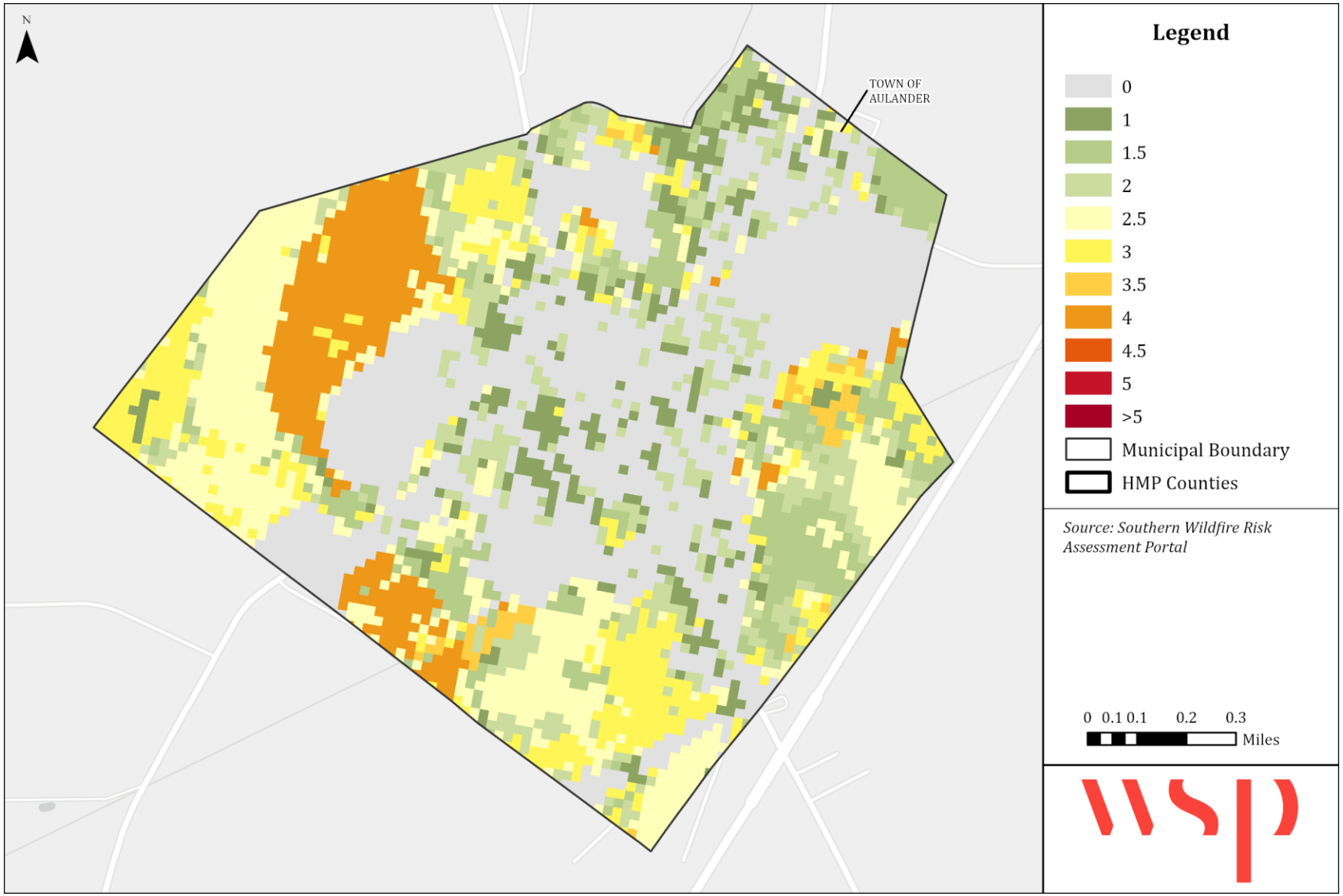


**Figure A.38 – Fire Intensity, Town of Colerain**

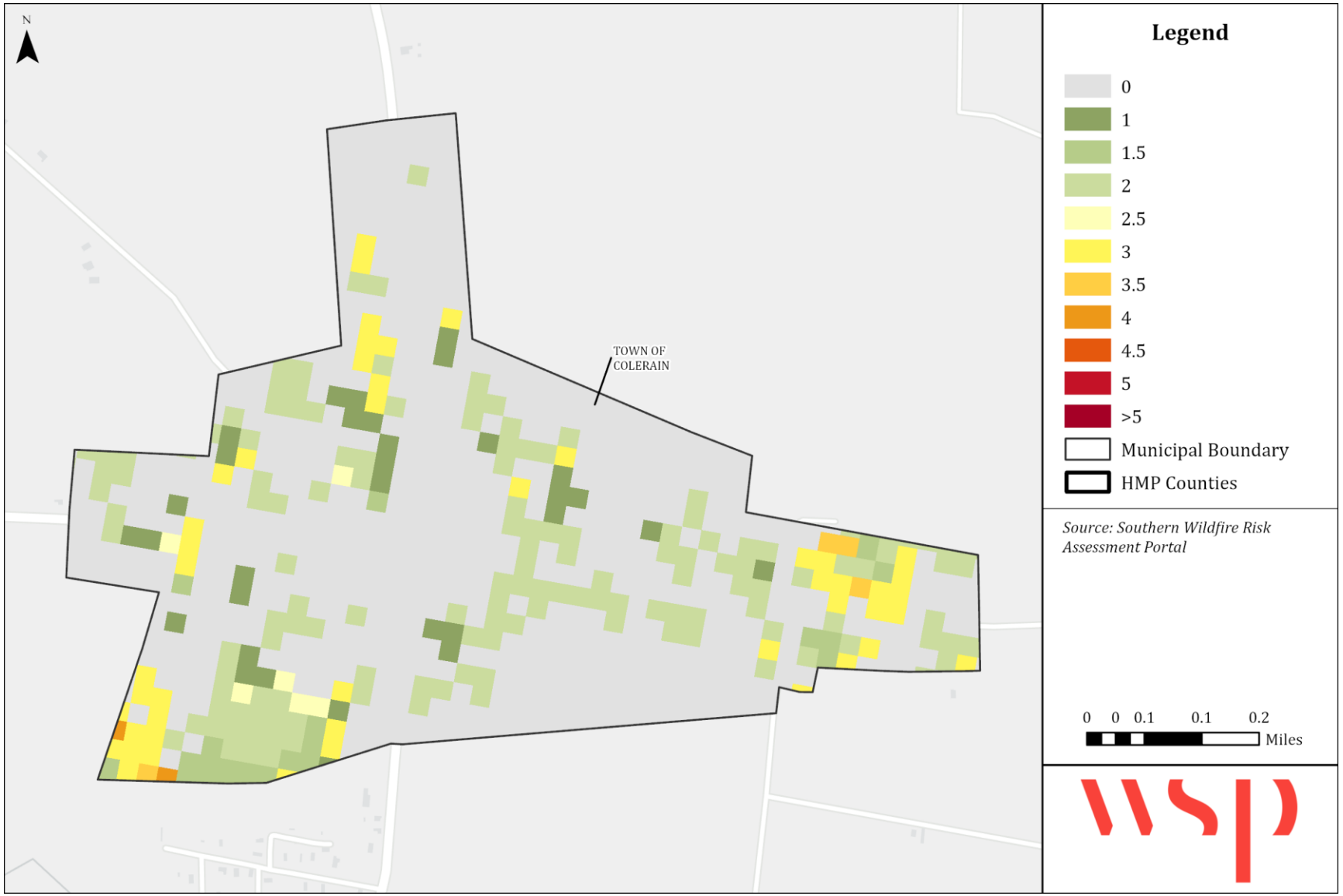


**Figure A.39 – Fire Intensity, Town of Kelford**

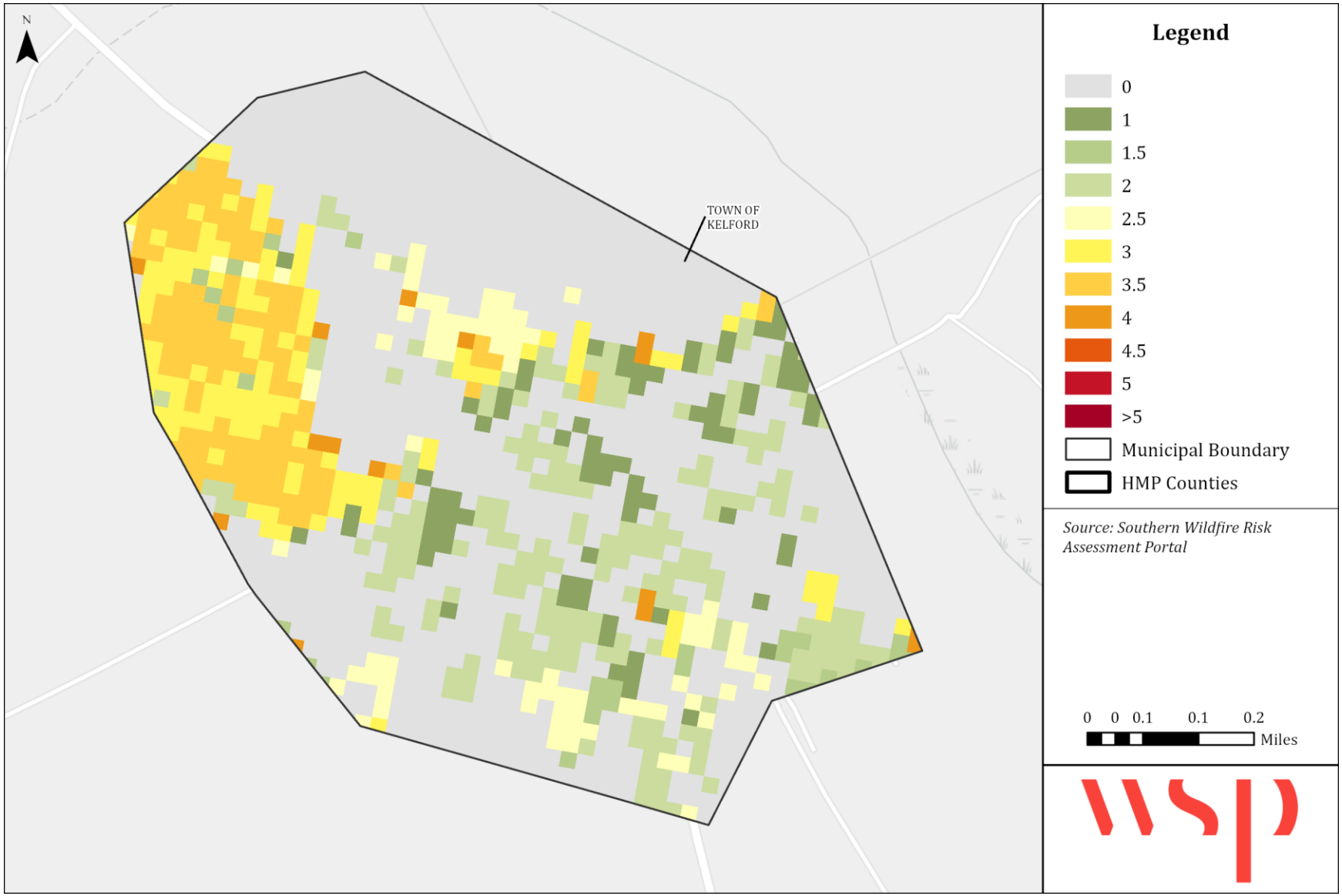


**Figure A.40 – Fire Intensity, Town of Lewiston-Woodville**

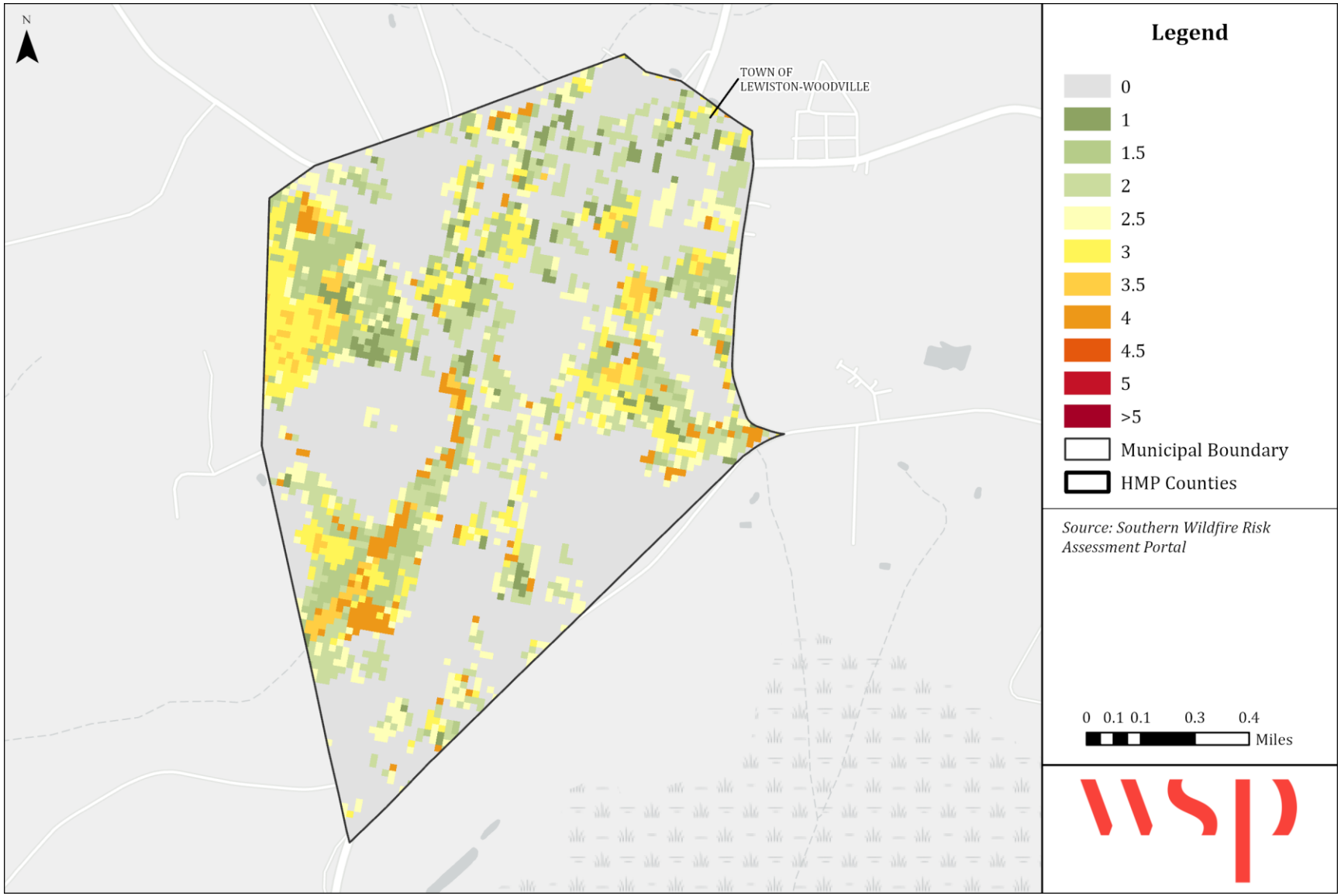


**Figure A.41 – Fire Intensity, Town of Powellsville**

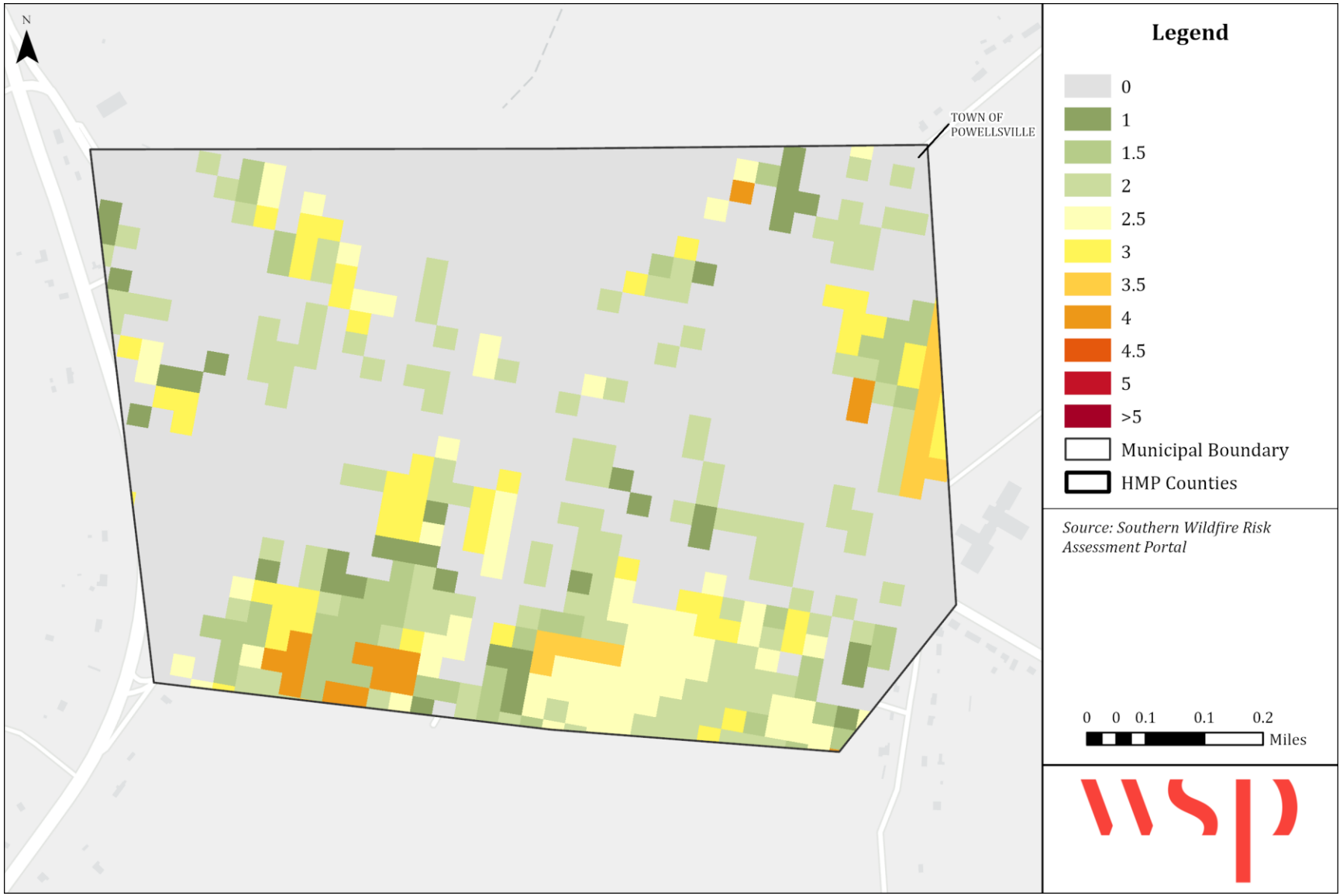
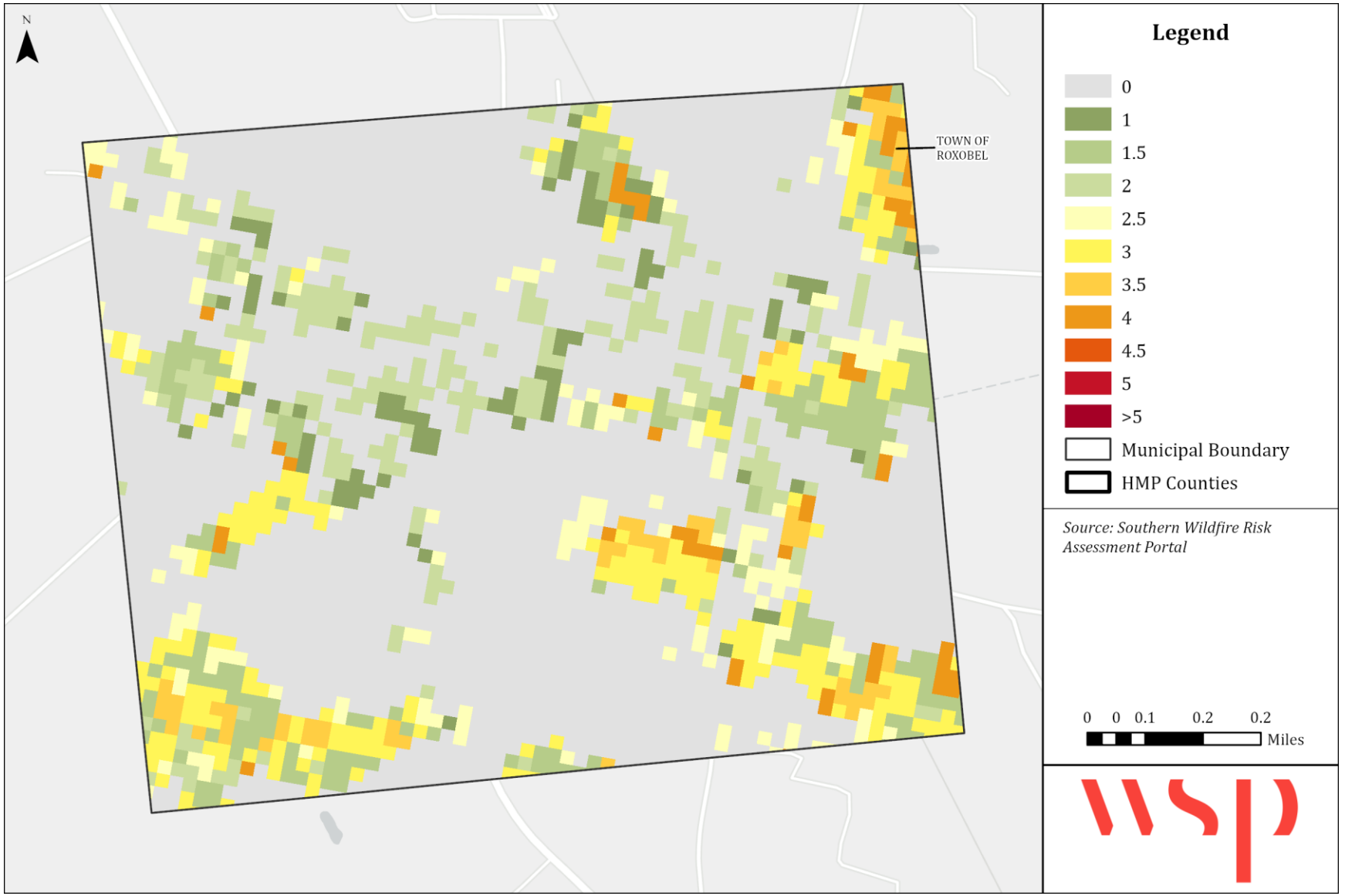


**Figure A.42 – Fire Intensity, Town of Roxobel**



## Figure A.43 – Fire Intensity, Town of Windsor

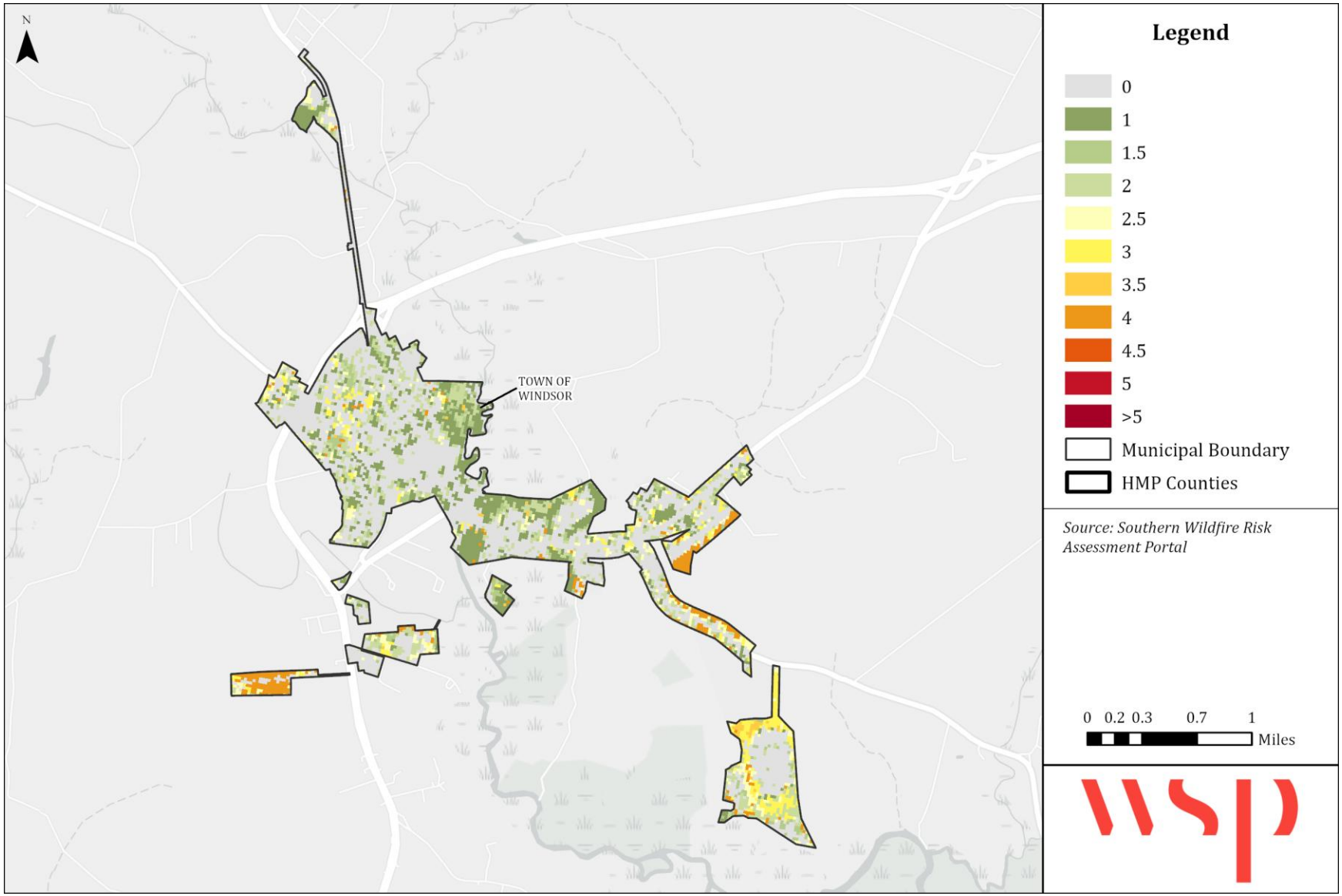


**Figure A.44 – Burn Probability, Unincorporated Bertie County**

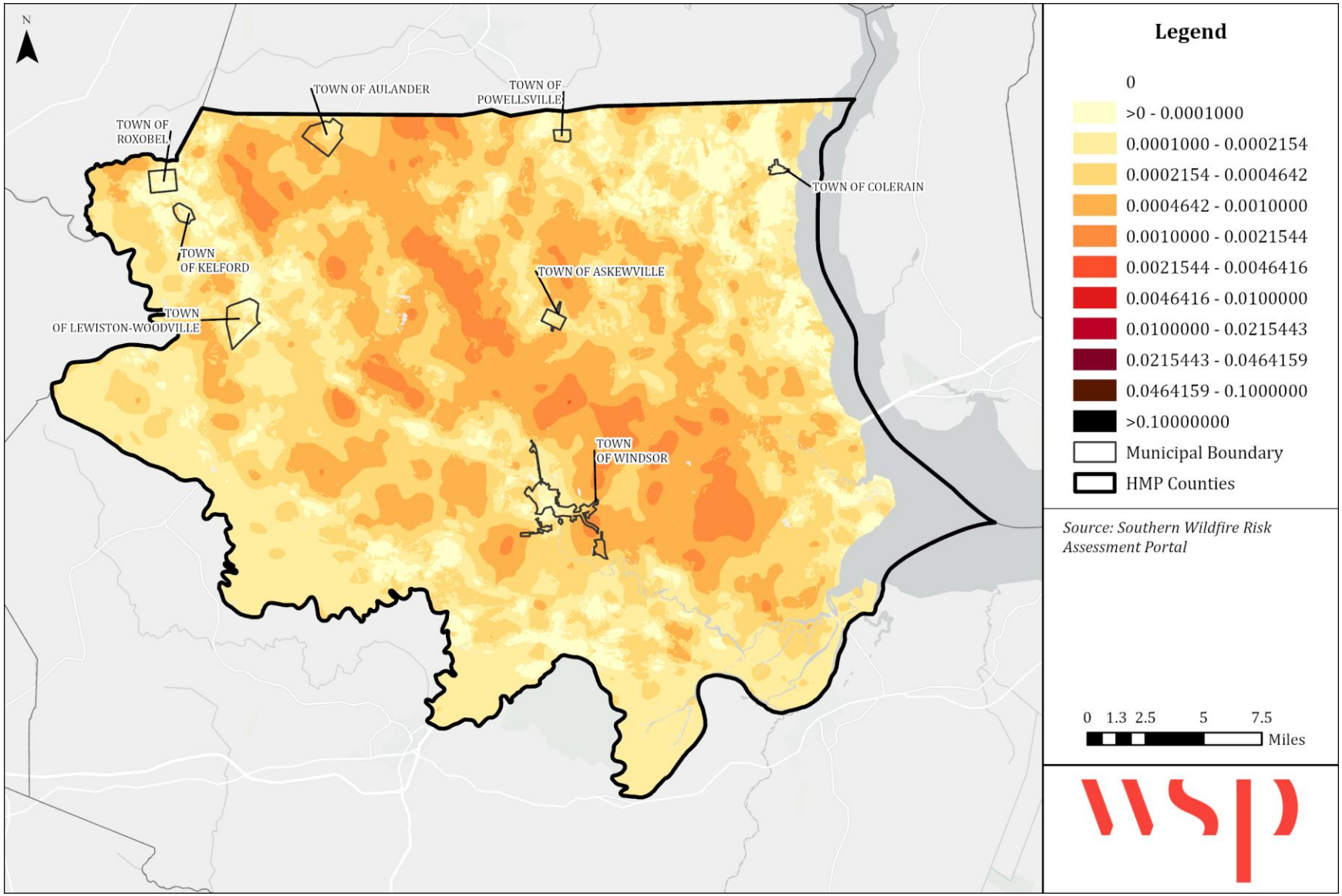


**Figure A.45 – Burn Probability, Town of Askewville**

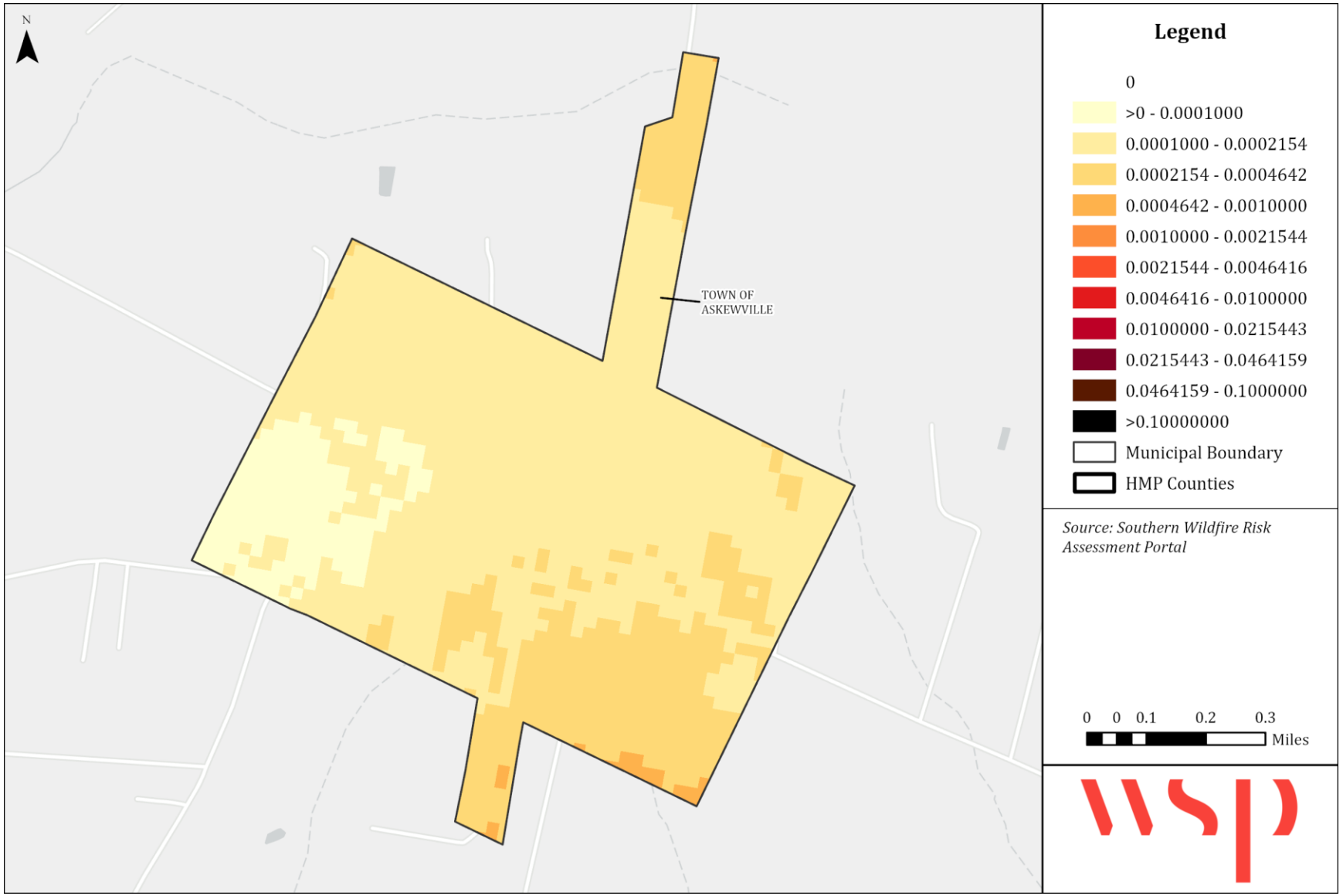


**Figure A.46 – Burn Probability, Town of Aulander**

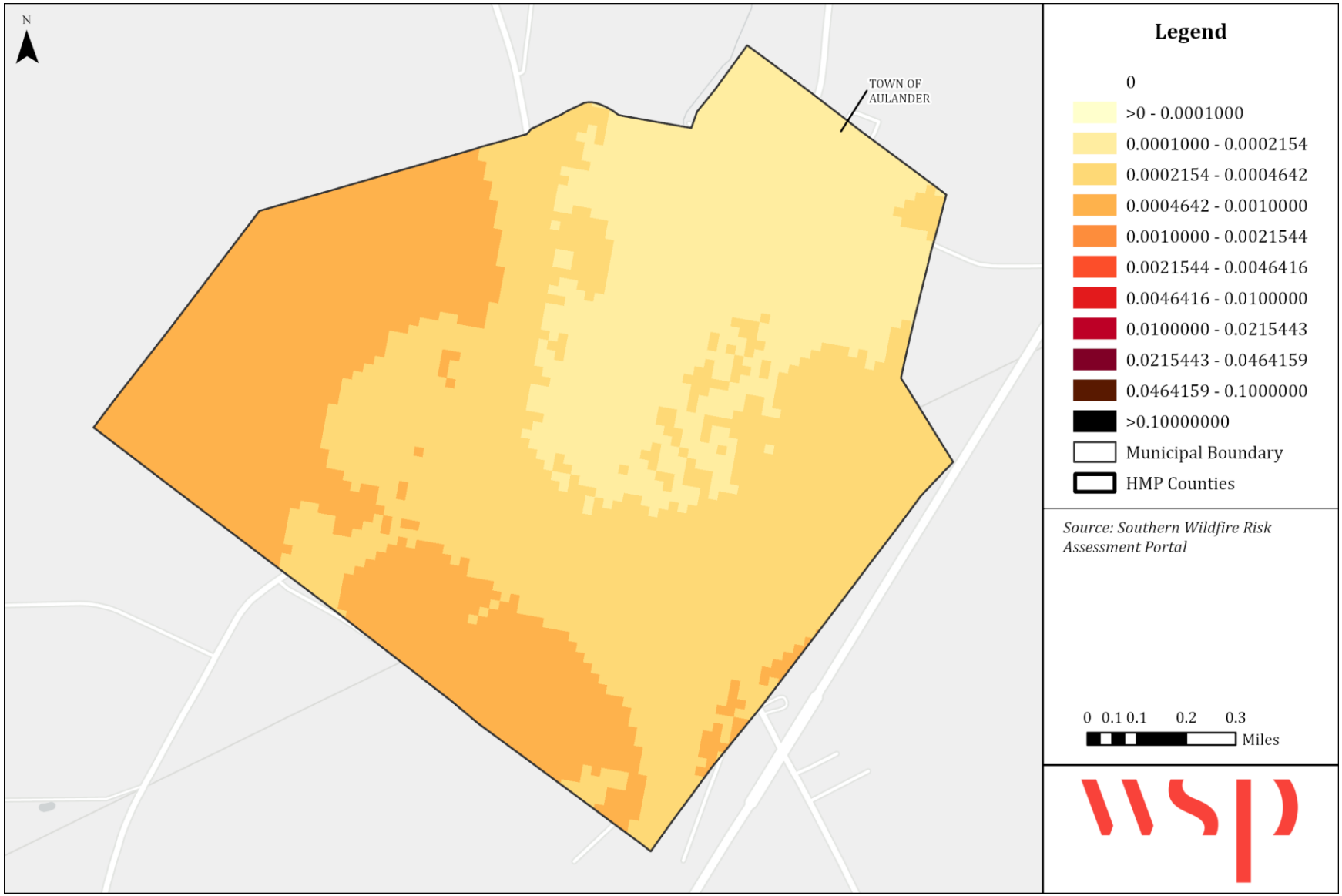


**Figure A.47 – Burn Probability, Town of Colerain**

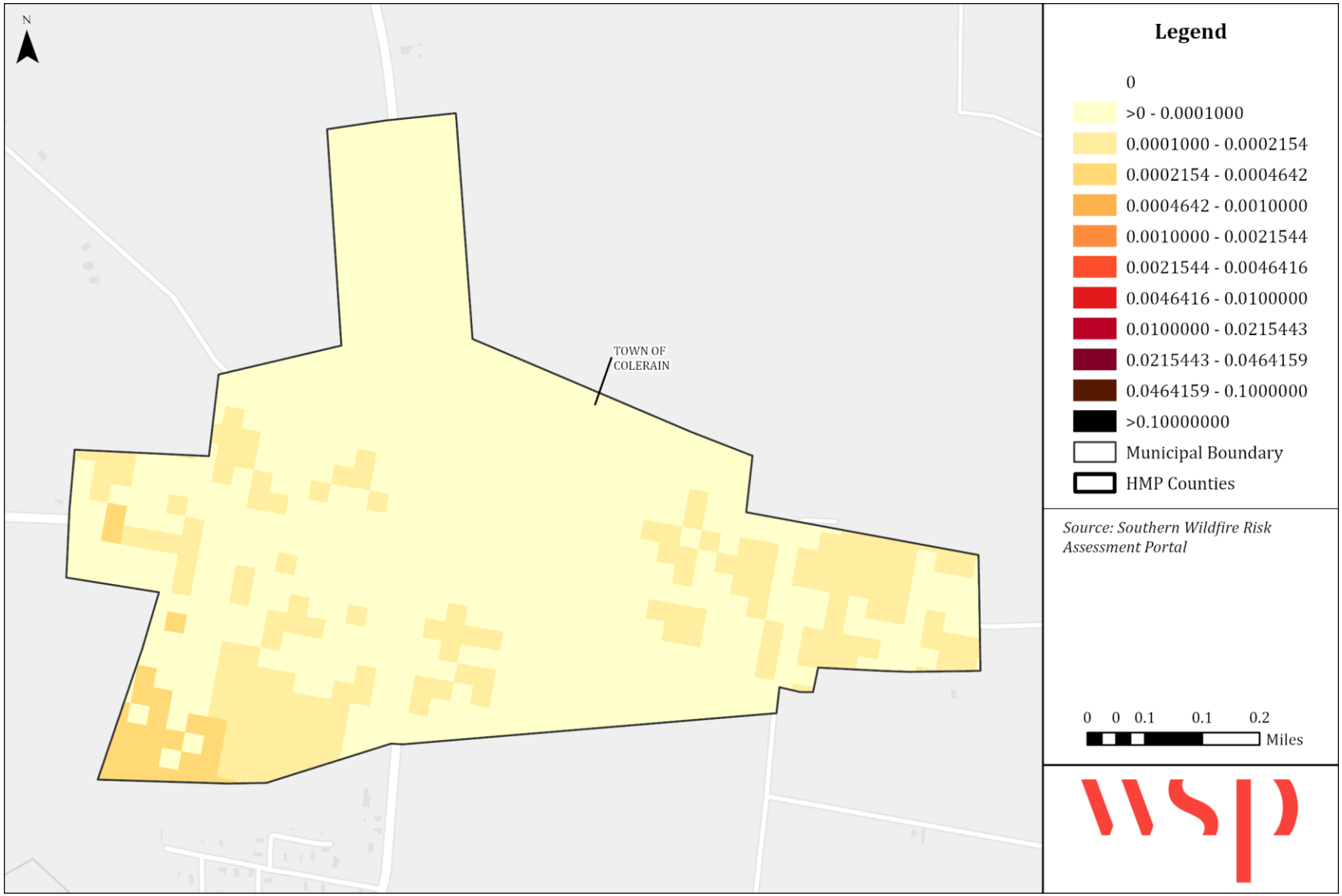


**Figure A.48 – Burn Probability, Town of Kelford**

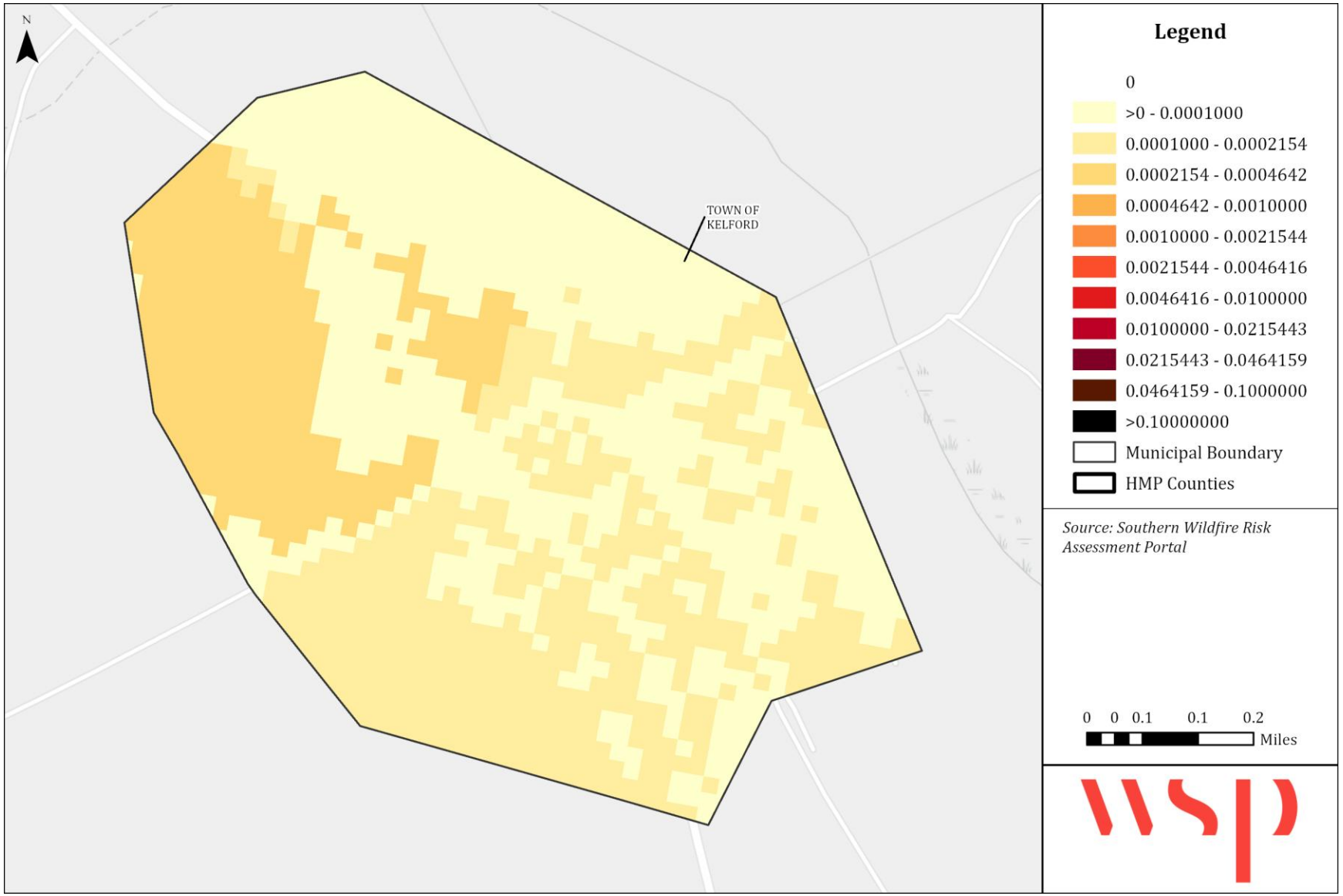


**Figure A.49 – Burn Probability, Town of Lewiston-Woodville**

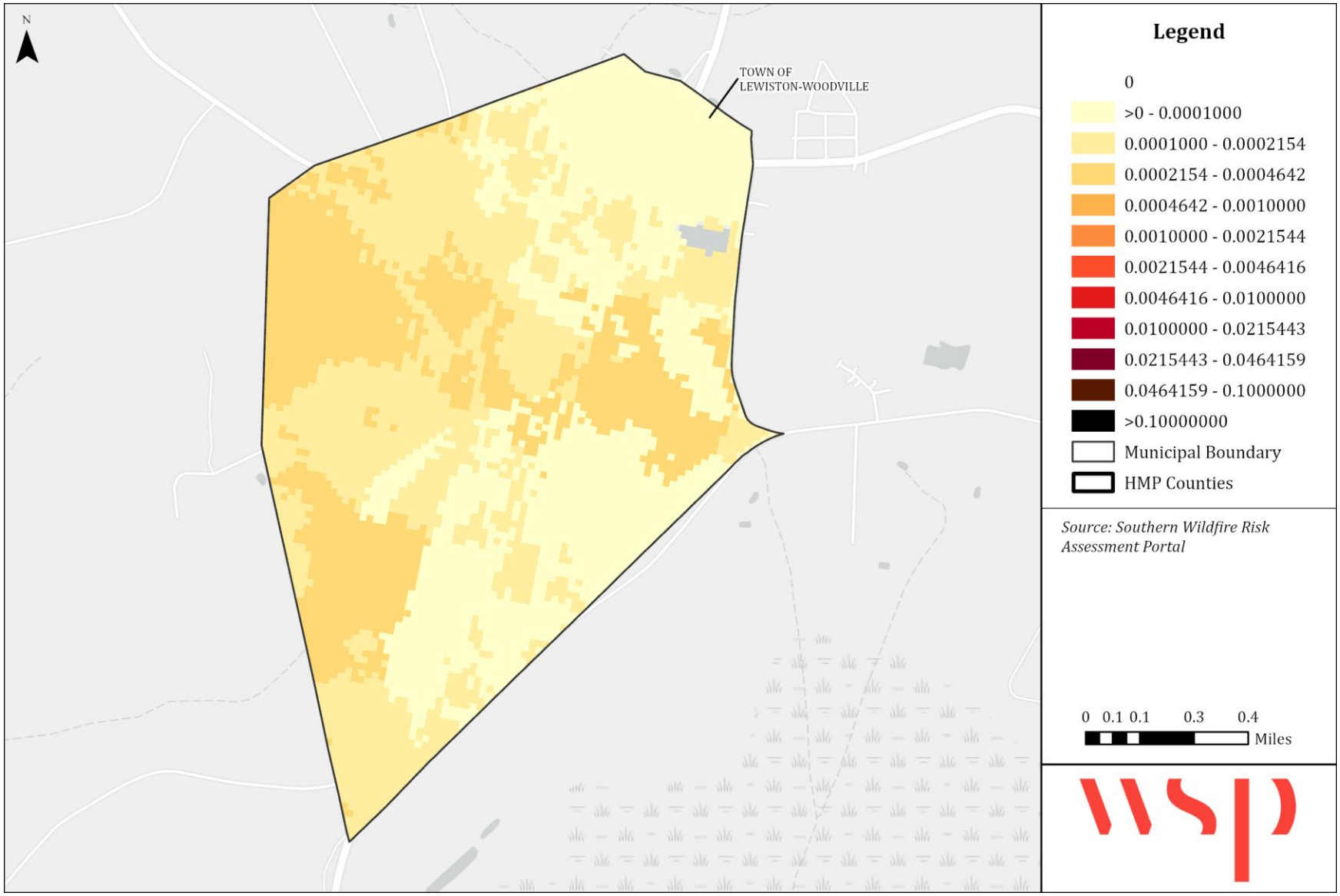


**Figure A.50 – Burn Probability, Town of Powellsville**

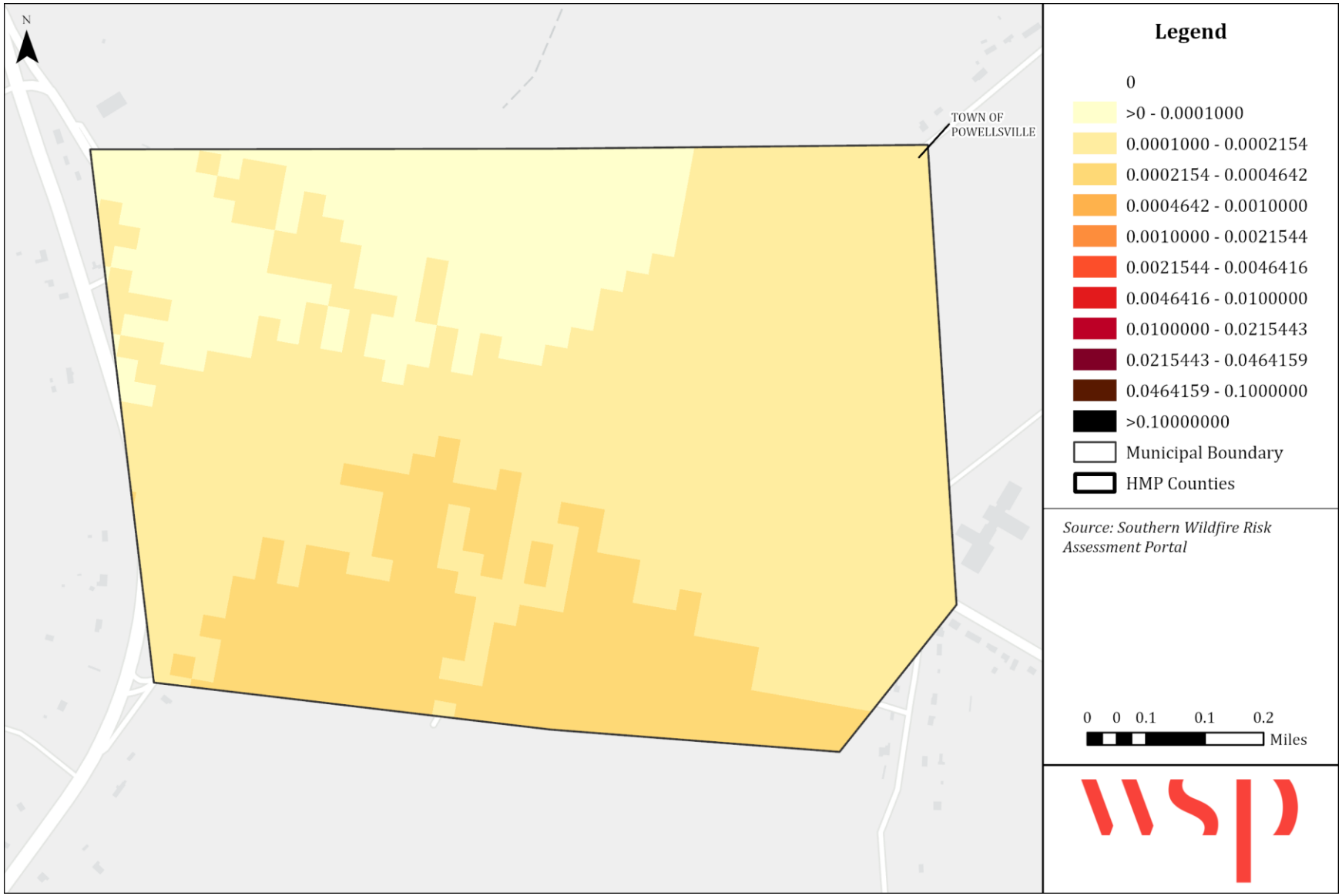


**Figure A.51 – Burn Probability, Town of Roxobel**

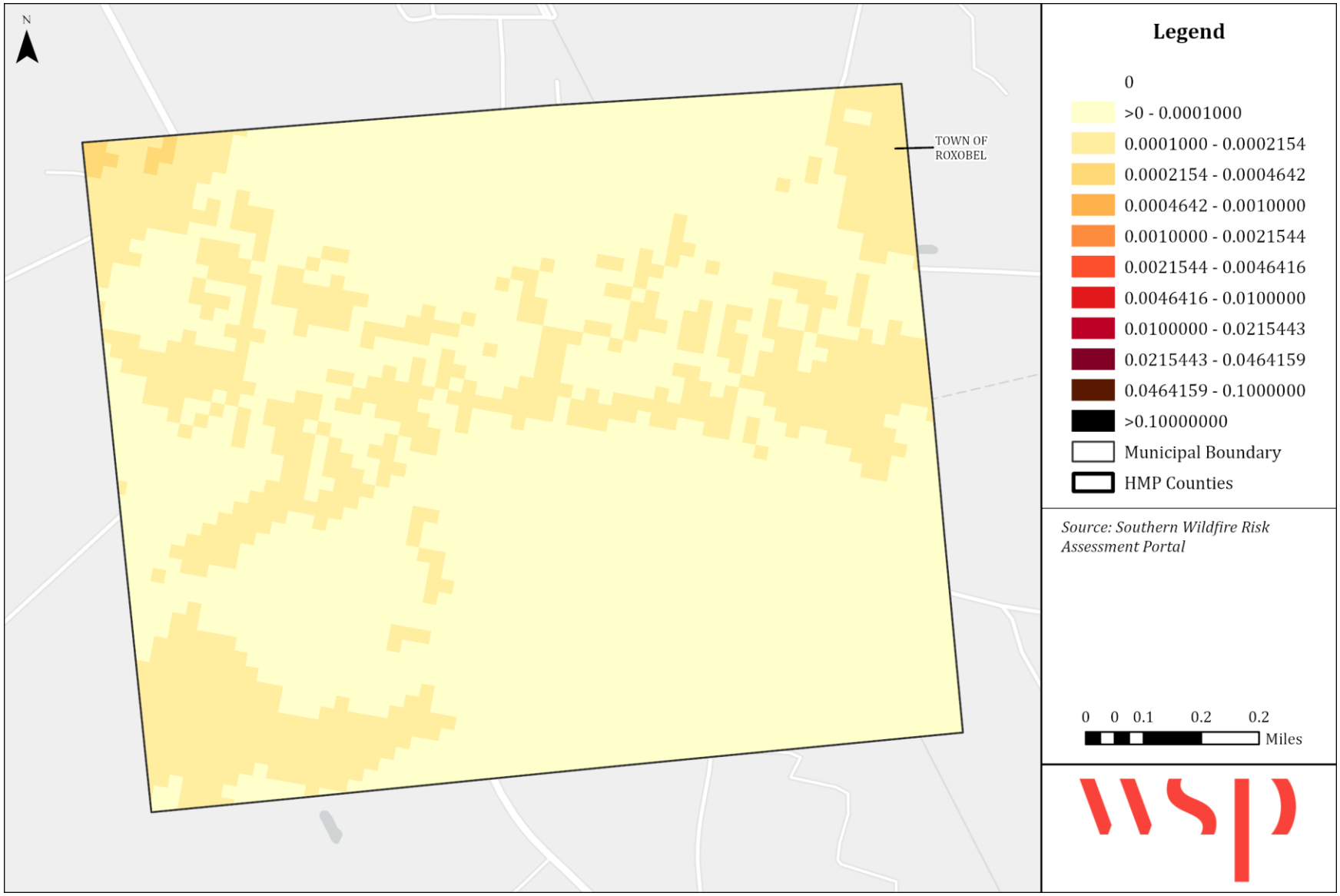
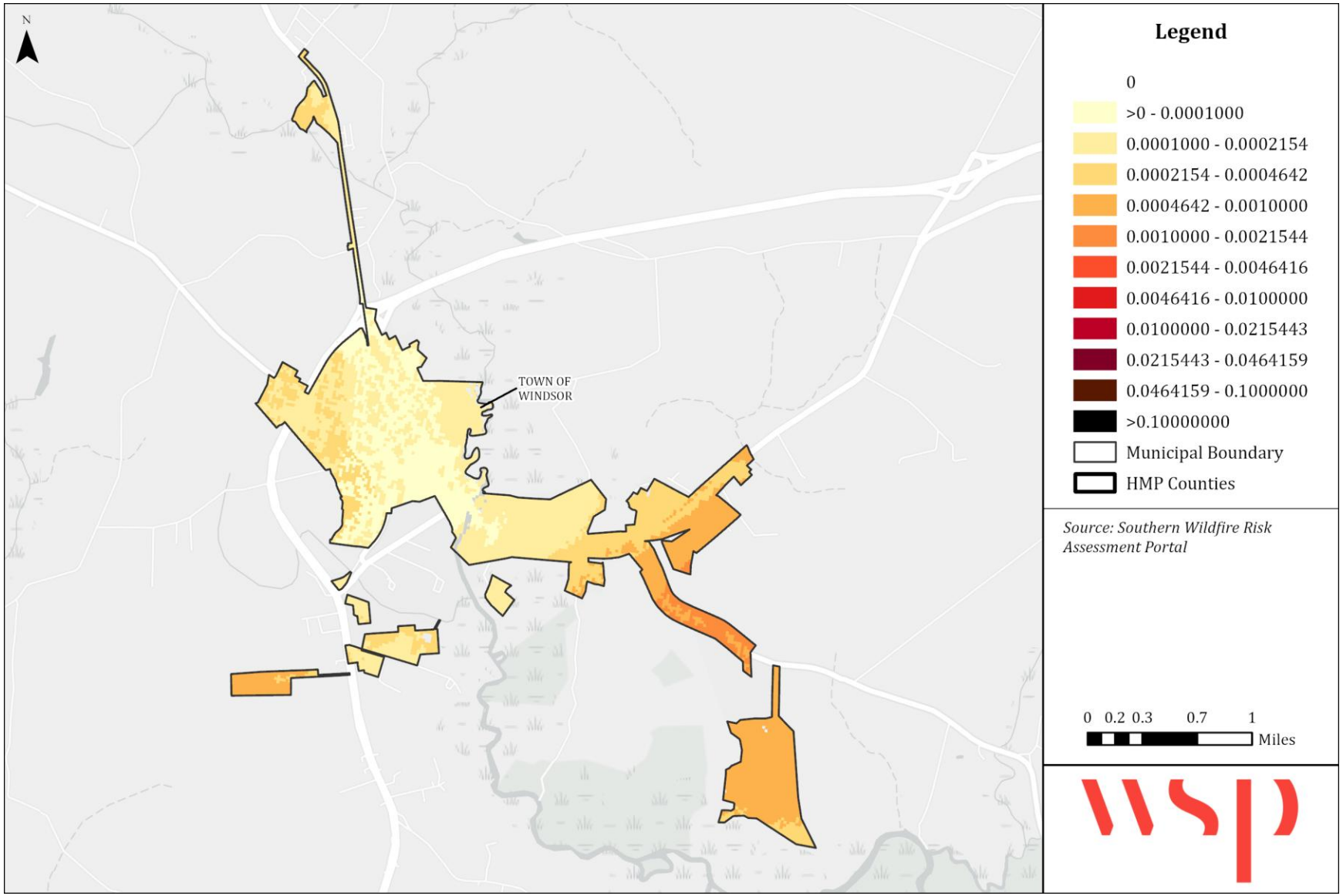


**Figure A.52 – Burn Probability, Town of Windsor**



## A.3 MITIGATION STRATEGY

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B1 | Continue to develop a Geographic Information System (GIS) to map current land uses and to map proposed future land uses (CAMA Land Use Plan Update) as an aid in assessing community vulnerability. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | All Hazards | Med | 2.2, 3.1 | P | Bertie County Planning Department<br>Bertie County Emergency Management<br>Municipal Administrations | Staff Time | General Fund, NCDPS | 2 to 3 years | Carry Forward | Updated flood data has been included in County GIS system, as have utility lines, fire districts, and fire stations. Remains a priority to develop a GIS layer for land use. |
| B2 | Accomplish the following during the next CAMA Land Use Plan update:<br>• Establish more specific growth guidelines and policies and specifically delineate sensitive environmental areas for protection;<br>• Adopt a more limited policy on the types of uses allowed within flood hazard areas;<br>• Adopt a policy to not extend public services and utilities into flood hazard or other environmentally sensitive areas to discourage growth. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | All Hazards | Med | 2.2, 1.1, 1.2 | PP | Bertie County Planning Department<br>Bertie County Administration<br>Municipal Administrations | $45,000 | General Fund, NCDPS, NCDEQ | 3 to 5 years | Carry Forward | No progress to report. This remains a priority and Bertie County is still seeking funding to update the CAMA Land Use Plan. |
| B3 | Consider adopting a zoning ordinance that:<br>• Establishes zoning districts and sets standards for future development.<br>• Includes standards for clustering of residential lot development to help preserve flood hazard areas from development.<br>• Includes a flood hazard overlay zone to ensure that inappropriate development is adequately controlled. | Bertie County | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Med | 1.2 | PP | Bertie County Planning Department<br>Bertie County Board of Commissioners | $75,000 | General Fund | 3 to 5 years | Carry Forward | Bertie County is still considering developing and adopting Countywide zoning regulations but would like to update the CAMA Land Use Plan first to inform this. ECU students prepared a study and draft ordinance for the Highway 17 area. |
| B4 | Identify repetitive flood loss properties and other high risk properties for acquisition and relocation. Seek Federal and State funding (voluntary program). | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Med | 2.3, 1.2 | SP | Bertie County Administration<br>Bertie County Board of Commissioners<br>Municipal Administrations | Staff Time | General Fund, NCDPS | 2025-2030 | Carry Forward | Bertie County and Town of Windsor have completed HMGP grants for acquisitions and elevations. Will continue to look for opportunities to protect additional properties. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B5 | Establish a countywide Stormwater Management Program to improve and maintain stormwater drainage systems countywide. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 1.3 | SP | Bertie County Administration<br>Municipal Administrations | To Be Determined | General Fund, NCDPS | 1 year | Carry Forward | Coordinating committee not established and drainage needs to be addressed on a countywide level. Specific drainage issues have been identified. Bertie County and Town of Windsor have received a grant to address drainage improvements in Hoggard Mill Pond. |
| B6 | Maintain a coordinated debris inspection and removal program. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Flooding, Hurricanes & Tropical Storm, Severe Winter Storm, Extreme Heat, Earthquake, Wildfire, Dam & Levee Failure, Severe Weather, Tornado | High | 3.2 | ES | Bertie County Board of Commissioners<br>Bertie County Emergency Management<br>Municipal Administrations | Staff Time | General Fund, NCDPS, FEMA | 2025-2030 | Carry Forward | Bertie County will continue to maintain a post disaster debris management contractor. The County will review this contract and update it annually prior to hurricane season. |
| B7 | Advise/assist property owners in retrofitting homes and businesses. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 4.2 | PIO | Bertie County Planning Department<br>Municipal Administrations | Staff Time | General Fund | 2025-2030 | Carry Forward | The Bertie County Planning and Inspection Department works closely with property owners and builders to retrofit homes to minimize future flood damages. County coordinates with NRCS to offer advice on drainage issues. |
| B8 | Acquire generators or other forms of redundant power supply to ensure that critical facilities and infrastructure remain operational where normal power supply is not available. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | All Hazards | High | 1.1 | PP | Bertie County Emergency Management<br>American Red Cross<br>Bertie County School System<br>Municipal Administrations | To Be Determined | General Fund, NCDPS | 1 to 3 years | Carry Forward | Priority facilities in need of backup generators include: County Admin Building, two EMS substations, all schools, all fire departments, and new 911 Center |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B9 | Work to improve the emergency notification system in an effort to increase awareness regarding the locations of shelters and evacuation routes during natural hazard events. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | All Hazards | High | 4.1 | PIO | Bertie County Emergency Management<br>Municipal Administrations | Staff Time | General Fund | 2025-2030 | Carry Forward | Bertie County, along with other counties in the region, uses HyperReach emergency notification system. Additional improvements to support emergency notifications will be pursued as funding becomes available. |
| B10 | Seek grant funding for eligible mitigation opportunities which may include but are not limited to: acquisition/elevation (addressed above), mitigation/reconstruction, and wet/dry floodproofing to residential and non-residential structures. Funding may also be utilized for redundant power to critical facilities, wind retrofits to critical facilities, storm shelters and other activities that reduce the loss of life and property. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Med | 1.1, 2.3 | PP, SP | Bertie County Administration<br>Municipal Administrations | To Be Determined | NCDPS, FEMA | 2025-2030 | Carry Forward | County has received grants for drainage improvements and property protection. County has contracted with a consultant to identify and apply for grant funding. |
| B11 | Work to implement all strategies and recommendations outlined within the Bertie County Hurricane Matthew Resilient Redevelopment Plan. | Bertie County | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Low | 2.3, 1.1 | SP | Bertie County Administration<br>Municipal Administrations | To Be Determined | General Fund, NCDPS, FEMA | 5 years | Carry Forward | Drainage study completed. County will work to identify and implement other projects that are still a priority. |
| B12 | Create or Update Community Wildfire Protection Plans in each fire district. | Bertie County, Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor | Wildfire | Med | 1.4 | P | Bertie County Emergency Management,<br>Fire Departments,<br>NC Forest Service | To Be Determined | Grant Funds | 5 years | New | |
| B13 | Acquire additional emergency response equipment to support emergency management operations, including lights, command trailer, and portable generators. | Bertie County | All Hazards | High | 3.4, 4.1 | ES | Bertie County Emergency Management | To Be Determined | General Fund, NCDPS, FEMA | 5 years | New | |

# ANNEX B. HYDE COUNTY

## B.1 ASSET INVENTORY

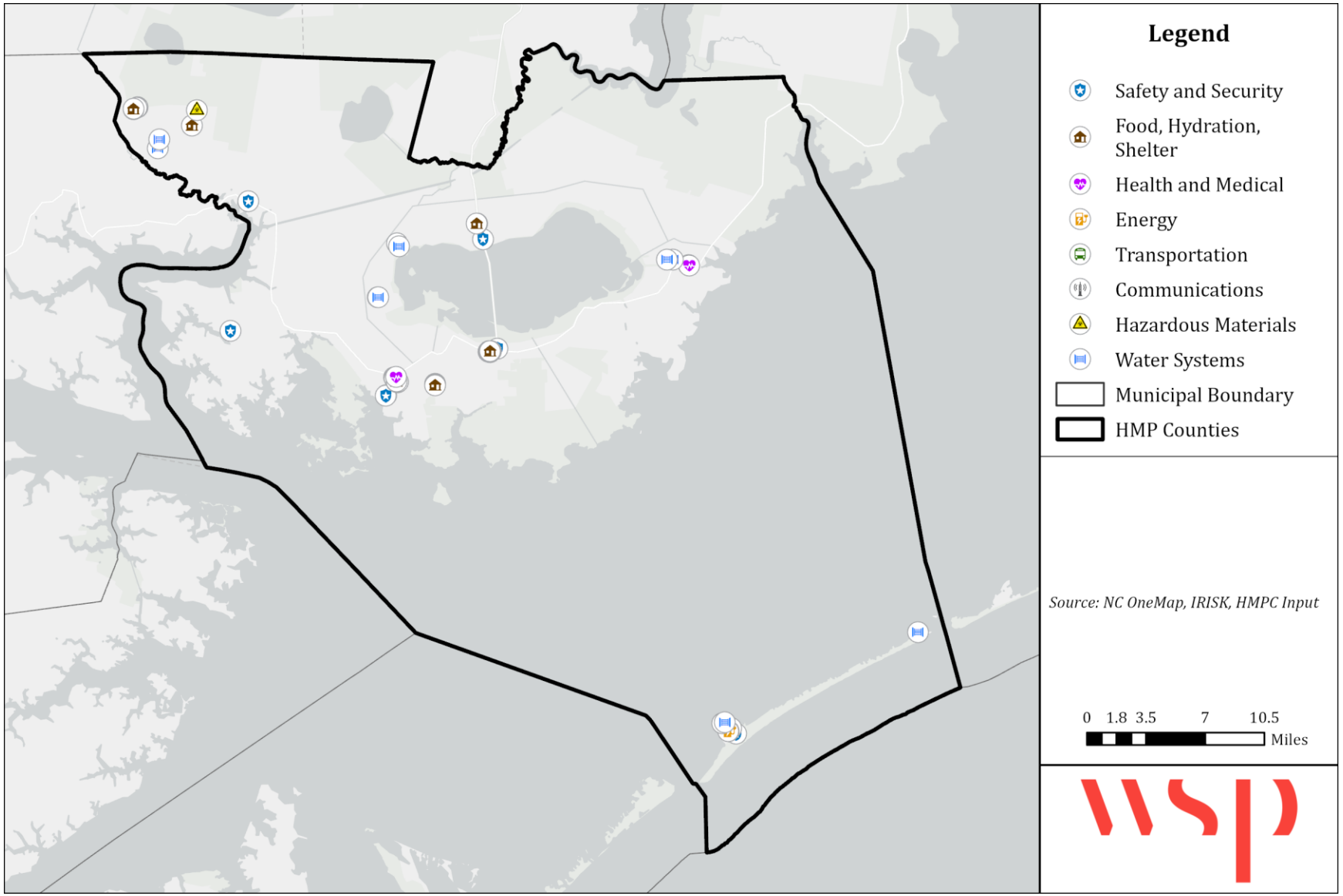
Hyde County and the HMPC provided a local inventory of critical facilities and community lifelines, which are a priority for mitigation planning and emergency management. Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. Table B.1 provides a count of critical facilities by FEMA lifeline category in Hyde County. Figure B.1 shows the locations of all critical facilities in Hyde County.

Table B.2 provides a detailed inventory of the critical facilities in Hyde County, indicating each facility's FEMA lifeline category, flood zone, 1% annual chance flood depth, minimum storm surge category, and wildfire risk. More information on hazard vulnerability is provided in Section B.2.

**Table B.1 – Critical Facilities by Type, Hyde County**

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 3 | $- |
| Food, Hydration, Shelter | 40 | $22,333,359 |
| Hazardous Materials | 1 | $- |
| Health and Medical | 4 | $2,125,741 |
| Safety and Security | 12 | $8,557,677 |
| Transportation | 0 | $- |
| Water Systems | 12 | $479,754 |
| **Total** | **72** | **$33,496,531** |

## Figure B.1 – Critical Facilities, Hyde County



## Table B.2 – Hyde County Critical Facilities Inventory

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|---|
| Safety and Security | Engelhard Volunteer Fire Department, Inc. | 34545 US 264 | $99,170 | 2.2 | AE | 2ft SLR | Category 1 | Indirect Exposure | 0 |
| Safety and Security | Fairfield Volunteer Fire Department | 6680 NC 94 | $39,704 | 1.2 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Safety and Security | Ocracoke Fire Protection Association, Inc. | 822 Irvin Garrish Highway | $204,365 | 2.0 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Safety and Security | Ponzer Volunteer Fire & Rescue, Inc. | 40186 US 264 E | $104,134 | 0.0 | X Unshaded | N/A | Category 3 | Direct Exposure | 0 |
| Safety and Security | Scranton Volunteer Fire Department, Inc. | 5224 Sladesville-Credle Rd | - | 1.1 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Safety and Security | Swan Quarter Volunteer Fire Department, Inc. | 25 Oyster Creek Rd | $356,080 | 0.2 | AE | N/A | Category 1 | Indirect Exposure | 0 |
| Safety and Security | Swan Quarter Volunteer Fire Department, Inc. | 149 NC 94 | - | 0.5 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Safety and Security | Hyde County Sheriffs Office - Ocracoke Island Station | 1140 Irvin S Garrish Highway | $115,262 | 1.4 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Safety and Security | National Park Service - Cape Hatteras National Seashore - Ocracoke Island Ranger Station | 49 Pilot Town Circle | - | 1.5 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Safety and Security | Hyde County Sheriffs Office/Hyde County Jail | 1223 Main Street | $2,256,956 | 1.0 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Health and Medical | Ocracoke Volunteer Fire Department | 215 Back Road | $70,271 | 2.7 | AE | 2ft SLR | Category 1 | Indirect Exposure | 0 |
| Health and Medical | Engelhard Volunteer Fire Department Incorporated | 34545 United States Highway 264 | $99,170 | 3.1 | AE | 1ft SLR | Category 1 | Indirect Exposure | 0 |
| Health and Medical | Hyde County Emergency Medical Services | 1223 Main Street | $54,830 | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|---|
| Health and Medical | Ocracoke Island Emergency Medical Services District 2 | 305 Back Road | $1,901,470 | 2.1 | AE | 2ft SLR | Category 1 | Indirect Exposure | 0 |
| Hazardous Materials | Rose Acre Farms | 1560 Hyde Park Canal Road | - | 0.0 | X Unshaded | N/A | Category 3 | Critical Fireshed | 1 |
| Safety and Security | Hyde County Health Department | 1151 Main Street | $2,256,956 | 0.0 | X Unshaded | N/A | Category 1 | Indirect Exposure | 0 |
| Water Systems | Hyde County Water System | - | - | 1.4 | AE | N/A | Category 1 | Direct Exposure | 2 |
| Water Systems | Hyde County Water System | - | - | 2.1 | AE | N/A | Category 1 | Sources of Ember Load to Buildings | 3 |
| Water Systems | Hyde County Water System | - | $142,264 | 0.1 | AE | N/A | Category 2 | Direct Exposure | 2 |
| Water Systems | Hyde County Water System | - | $142,264 | 0.0 | X Shaded | N/A | Category 2 | Critical Fireshed | 0 |
| Water Systems | Hyde County Water System | - | $82,097 | 0.0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Water Systems | Hyde County Water System | - | $82,097 | 0.0 | X Unshaded | N/A | Category 2 | Critical Fireshed | 0 |
| Water Systems | Ocracoke Sanitary District | 159 Water Plant Rd | - | 1.5 | AE | N/A | Category 1 | Indirect Exposure | 0 |
| Water Systems | Ocracoke Sanitary District | 159 Water Plant Rd | - | 0.0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Water Systems | Ocracoke Sanitary District | 159 Water Plant Rd | - | 0.0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Water Systems | Dot-Hatteras Ferry South Dock | - | $31,032 | 0.0 | X Shaded | 3ft SLR | Category 1 | Direct Exposure | 4 |
| Food, Hydration, Shelter | Hyde County Egg Farm | 1560 Hyde Park Canal | $2,455,918 | 0.0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | Hyde County Egg Farm | 1560 Hyde Park Canal | $2,455,918 | 0.0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | Rodlee Pork Inc. | 600 Refuge Rd | $12,500 | 0.0 | X Unshaded | N/A | Category 3 | Direct Exposure | 3 |
| Food, Hydration, Shelter | | 1054 Main St | - | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|---|
| Food, Hydration, Shelter | | 1054 Main St | - | 0.6 | AE | N/A | Category 1 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | 1054 Main St | - | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 1054 Main St | - | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 1054 Main St | - | 2.1 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 1054 Main St | - | 0.7 | AE | N/A | Category 1 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | Unknown | - | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | - | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | - | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | - | 0.0 | X Shaded | N/A | Category 2 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | Unknown | - | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 7681 NC 94 HWY | - | 3.9 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 7681 NC 94 HWY | - | 3.7 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 1054 MAIN ST | - | 0.0 | X Shaded | N/A | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 20418 US 2 / US 264 HWY | $2,079,863 | 0.0 | X Shaded | N/A | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 20392 US 2 / US 264 HWY | - | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 20392 US 2 / US 264 HWY | - | 0.4 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 20392 US 2 / US 264 HWY | - | 0.6 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 20392 US 2 / US 264 HWY | - | 0.5 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|---|
| Food, Hydration, Shelter | | 20392 US 2 / US 264 HWY | - | 0.2 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 20392 US 2 / US 264 HWY | - | 0.2 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 20392 US 2 / US 264 HWY | - | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 20418 US 2 20418 US 264 HWY | $2,079,863 | 0.5 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Safety and Security | | 10 Oyster Creek Rd | $3,125,050 | 1.4 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 215 Back Rd | $1,901,470 | 2.1 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 215 Back Rd | $1,901,470 | 1.8 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 215 Back Rd | $1,901,470 | 1.5 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Energy | | Unknown | - | 1.5 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Energy | | Unknown | - | 2.1 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Energy | | Unknown | - | 1.3 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 20392 US 2 / US 264 HWY | - | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 20392 US 2 / US 264 HWY | - | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $652,649 | 0.0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 20418 US 2 / US 264 HWY | $2,079,863 | 0.0 | X Shaded | N/A | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 20418 US 2 / US 264 HWY | $2,079,863 | 0.0 | X Shaded | N/A | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $652,649 | 0.0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 20418 US 2 / US 264 HWY | $2,079,863 | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|---|
| Food, Hydration, Shelter | | 560 Refuge Rd | - | 0.0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 560 Refuge Rd | - | 0.0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | - | 0.0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | - | 0.0 | X Unshaded | N/A | Category 3 | Direct Exposure | 2 |
| Water Systems | | 567 Prison Rd | - | 0.0 | X Shaded | N/A | Category 1 | Direct Exposure | 0 |
| Water Systems | | 567 Prison Rd | - | 0.0 | X Shaded | N/A | Category 1 | Indirect Exposure | 0 |

# B.2 RISK ASSESSMENT

This section contains a summary of the County's asset inventory as well as hazard profile and vulnerability assessment for those hazards that are spatially defined and have variations in risk that could be evaluated quantitatively on a jurisdictional level. The hazards included in this section are: Flooding, Hurricanes & Coastal Hazards, and Wildfire.

## *B.2.1 FLOODING*

Table B.3 details the acreage of Hyde County's total area by flood zone on the Effective DFIRM. Per this assessment, nearly 43 percent of Hyde County is within the SFHA.

**Table B.3 – Flood Zone Acreage, Hyde County**

| Flood Zone | Acreage | Percent of Total (%) |
|---|---|---|
| Zone A | 5,362.0 | 0.6% |
| Zone AE | 372,295.2 | 42.2% |
| Zone AO | 73.5 | 0.0% |
| Zone VE | 2,837.5 | 0.3% |
| Zone X Shaded | 15,848.5 | 1.8% |
| Zone X Unshaded | 90,762.2 | 10.3% |
| Open Water | 396,083.0 | 44.8% |
| **Total** | **883,262.0** | -- |

Source: FEMA Effective DFIRM

| Flood Zone | Critical Facility Count | Structure Value |
|---|---|---|
| Zone AE | 34 | $16,194,035 |
| Zone X (500-year) | 22 | $8,547,578 |
| Zone X (unshaded) | 16 | $8,754,918 |
| **Total** | **72** | **$33,496,531** |

Source: FEMA Effective DFIRM, HMPC

Figure B.2Figure B.2 reflects the effective mapped flood hazard zones for all jurisdictions in Hyde County, and Figure B.3 displays the depth of flooding estimated to occur in these areas during the 1%-annual-chance flood.

Table B.4 provides building counts and values for critical facilities by flood zone in Hyde County and participating jurisdictions.

**Table B.4 – Critical Facilities Exposed to Flooding by Event, Hyde County**

| Flood Zone | Critical Facility Count | Structure Value |
|---|---|---|
| Zone AE | 34 | $16,194,035 |
| Zone X (500-year) | 22 | $8,547,578 |
| Zone X (unshaded) | 16 | $8,754,918 |
| **Total** | **72** | **$33,496,531** |

Source: FEMA Effective DFIRM, HMPC

**Figure B.2 – FEMA Flood Hazard Areas, Hyde County**

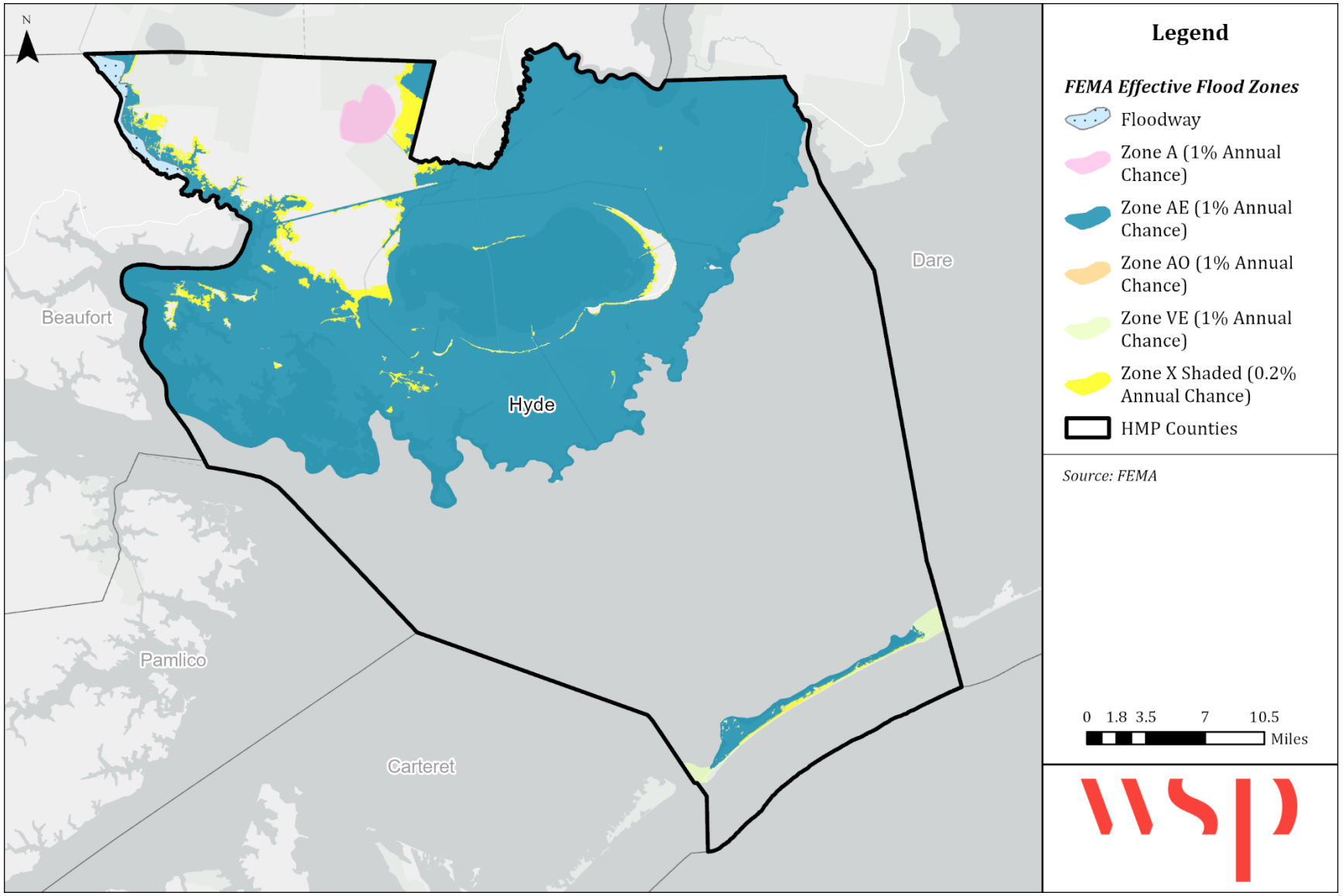
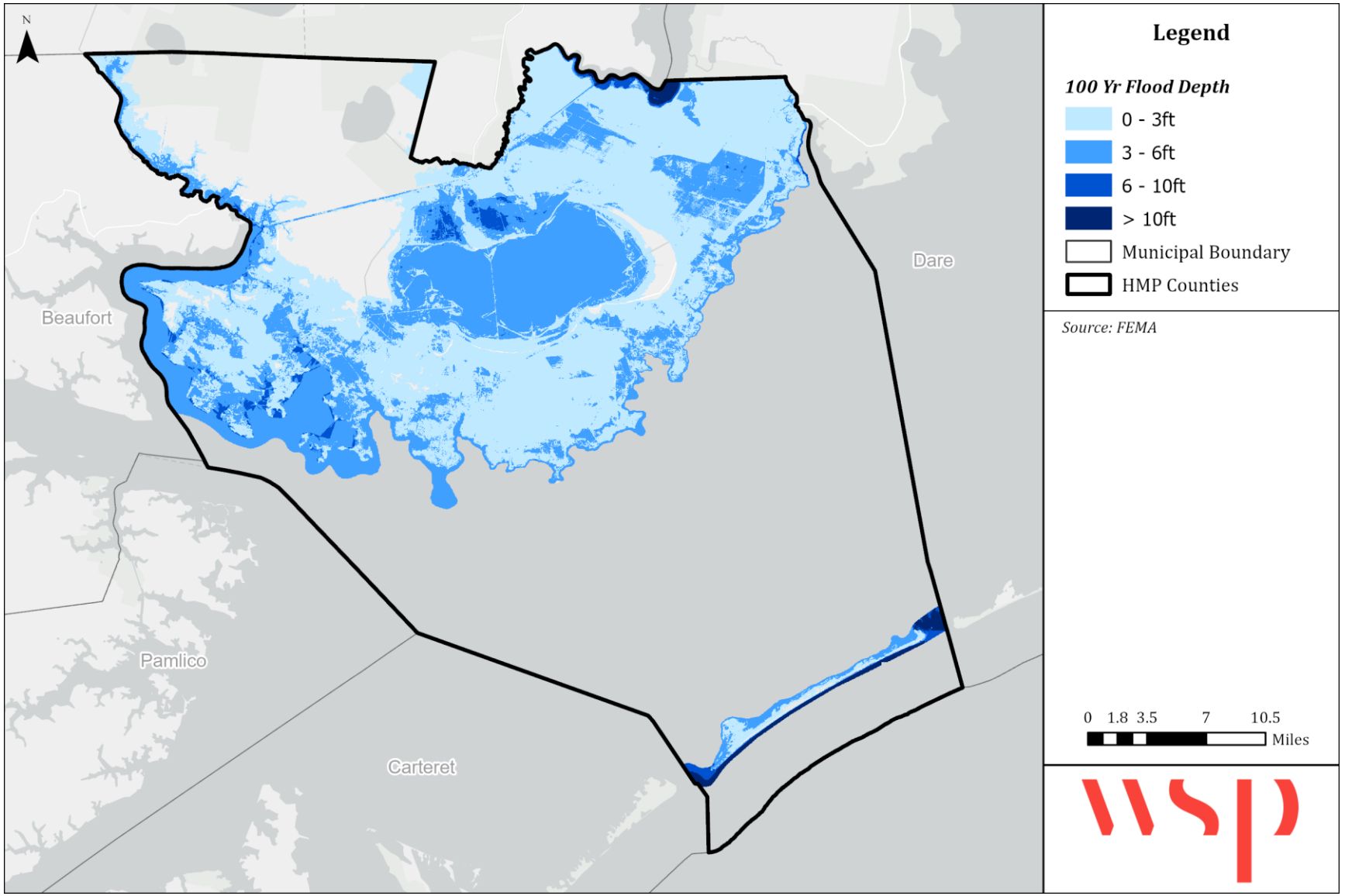


**Figure B.3 – Flood Depth, 1%-Annual-Chance Floodplain, Hyde County**



## FLOODPLAIN MANAGEMENT

Hyde County entered the NFIP on February 4, 1987. The following tables reflect NFIP policy and claims data for Hyde County categorized by structure type, flood zone, Pre-FIRM and Post-FIRM.

**Table B.5 – NFIP Policy and Claims Data by Structure Type, Hyde County**

| Structure Type | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| Single Family | 656 | $390,410 | $140,833,000 | 1,466 | $30,906,360.86 |
| 2-4 Family | 27 | $15,332 | $6,686,000 | 14 | $301,399.01 |
| All Other Residential | 44 | $16,734 | $11,173,000 | 11 | $707,561.02 |
| Non Residential | 85 | $130,867 | $30,767,000 | 274 | $12,954,374.84 |
| **Total** | **812** | **$553,343** | **$189,459,000** | **1,765** | **$44,869,695.73** |

Source: FEMA Community Information System, accessed December 2025

**Table B.6 – NFIP Policy and Claims Data by Flood Zone, Hyde County**

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| A01-30 & AE Zones | 769 | $522,633 | $178,531,000 | 1,673 | $43,800,816.83 |
| A Zones | 0 | $0 | $0 | 27 | $309,602.50 |
| V01-30 & VE Zones | 0 | $0 | $0 | 6 | $57,377.11 |
| B, C & X Zone | | | | | |
| Standard | 43 | $30,710 | $10,928,000 | 11 | $428,721.88 |
| Preferred | 0 | $0 | $0 | 3 | $1,942.17 |
| **Total** | **812** | **$553,343** | **$189,459,000** | **1,720** | **$44,598,460.49** |

Source: FEMA Community Information System, accessed December 2025

**Table B.7 – NFIP Policy and Claims Data Pre-FIRM, Hyde County**

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| A01-30 & AE Zones | 330 | $241,707 | $67,728,000 | 1,136 | $32,224,550.96 |
| A Zones | 0 | $0 | $0 | 27 | $309,602.50 |
| V01-30 & VE Zones | 0 | $0 | $0 | 6 | $57,377.11 |
| B, C & X Zone | 28 | $19,893 | $6,657,000 | 7 | $182,788.05 |
| Standard | 28 | $19,893 | $6,657,000 | 4 | $180,845.88 |
| Preferred | 0 | $0 | $0 | 3 | $1,942.17 |
| **Total** | **358** | **$261,600** | **$74,385,000** | **1,176** | **$32,774,318.62** |

Source: FEMA Community Information System, accessed December 2025

**Table B.8 – NFIP Policy and Claims Data Post-FIRM, Hyde County**

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| A01-30 & AE Zones | 439 | $280,926 | $110,803,000 | 537 | $11,576,265.87 |
| B, C & X Zone | 15 | $10,817 | $4,271,000 | 7 | $247,876.00 |

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| Standard | 15 | $10,817 | $4,271,000 | 7 | $247,876.00 |
| Preferred | 0 | $0 | $0 | 0 | $0.00 |
| **Total** | **454** | **$291,743** | **$115,074,000** | **544** | **$11,824,141.87** |

Source: FEMA Community Information System, accessed December 2025

## B.2.2 HURRICANES AND COASTAL HAZARDS

Figure B.4 on the following page shows the estimated extent of surge by storm category according to NOAA SLOSH data that would occur in Hyde County. Due to its coastal location and low elevation, the majority of Hyde County is at risk to storm surge.

Figure B.5 shows the estimated inundation extents of 1 foot, 2 feet, and 3 feet of sea level rise that may occur in Hyde County. Sea level rise is likely to impact Hyde County from the Pamlico Sound and up the Pungo River and Alligator River.

**Figure B.4 – Storm Surge Extent by Storm Category**

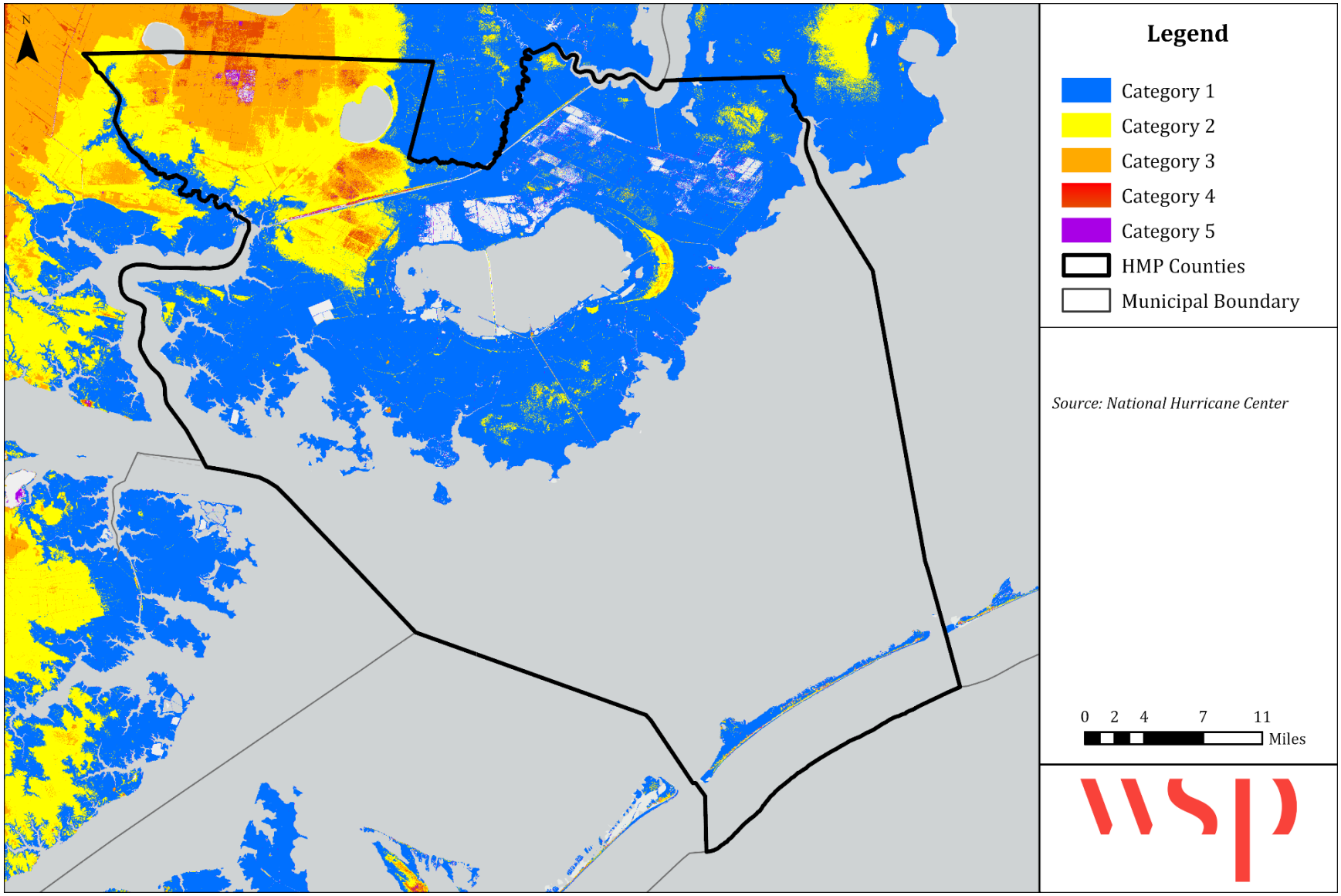
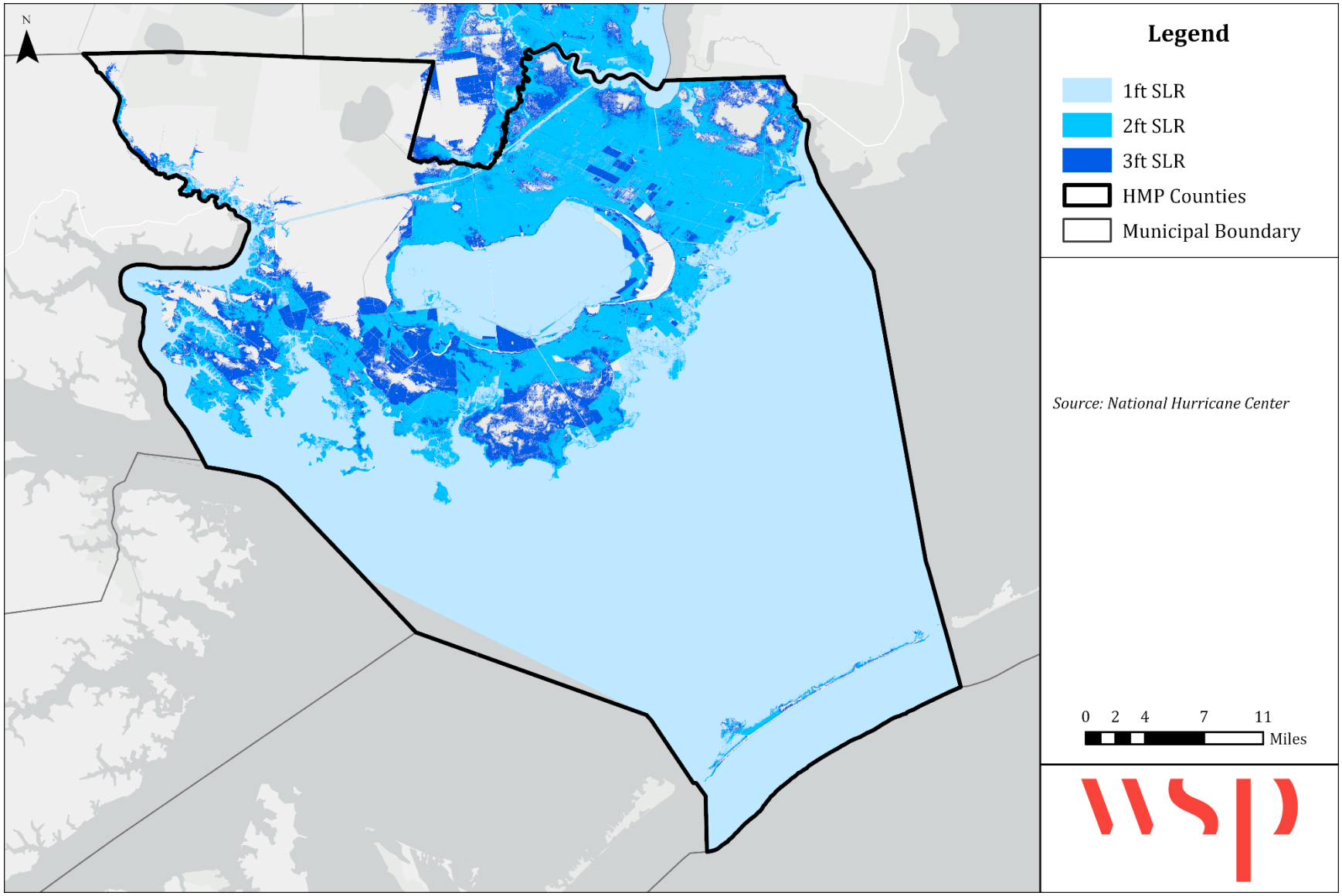


**Figure B.5 – Sea Level Rise Extent**



## B.2.3 WILDFIRE

Table B.9 summarizes the acreage in Hyde County that falls within the Functional Wildland Urban Interface (WUI), categorized into zones that describe the wildfire risk mitigation activities appropriate for each zone. Areas in the Functional WUI are those areas where development and building structures may intermix with burnable land cover. Approximately, 1 percent of Hyde County is categorized as having direct exposure to wildfire risk and 61 percent is located within the critical fireshed of the Functional WUI.

**Table B.9 – Functional Wildland Urban Interface Acreage, Hyde County**

| | Functional Wildland Urban Interface (WUI) Category | Acres | Percent |
|---|---|---|---|
| | Direct Exposure | 3,789 | 1% |
| | Indirect Exposure | 5,301 | 1% |
| | Critical Fireshed | 220,779 | 61% |
| | Sources of Ember Load to Buildings | 22,302 | 6% |
| | Little to No Exposure | 0 | 0% |
| | Water | 111,404 | 31% |
| | **Total** | **363,575** | **100%** |

Source: Southern Wildfire Risk Assessment

Figure B.6 depicts the Functional WUI for Hyde County. Figure B.7 depicts the Fire Intensity Scale, which indicates the potential severity of fire based on fuel loads, topography, and other factors. Figure B.8 depicts Burn Probability based on landscape conditions, percentile weather, historical ignition patterns, and historical prevention and suppression efforts.

Potential fire intensity is moderate to high across much of Hyde County, especially along the Pamlico Sound and the county boundaries. Burn probability is also moderate to high in these areas. However, function WUI areas with direct exposure to wildfire are very limited in Hyde County, and in general they correspond with lower fire intensity and burn probability. Therefore, exposure of buildings and people to severe wildfire impacts is minimal.

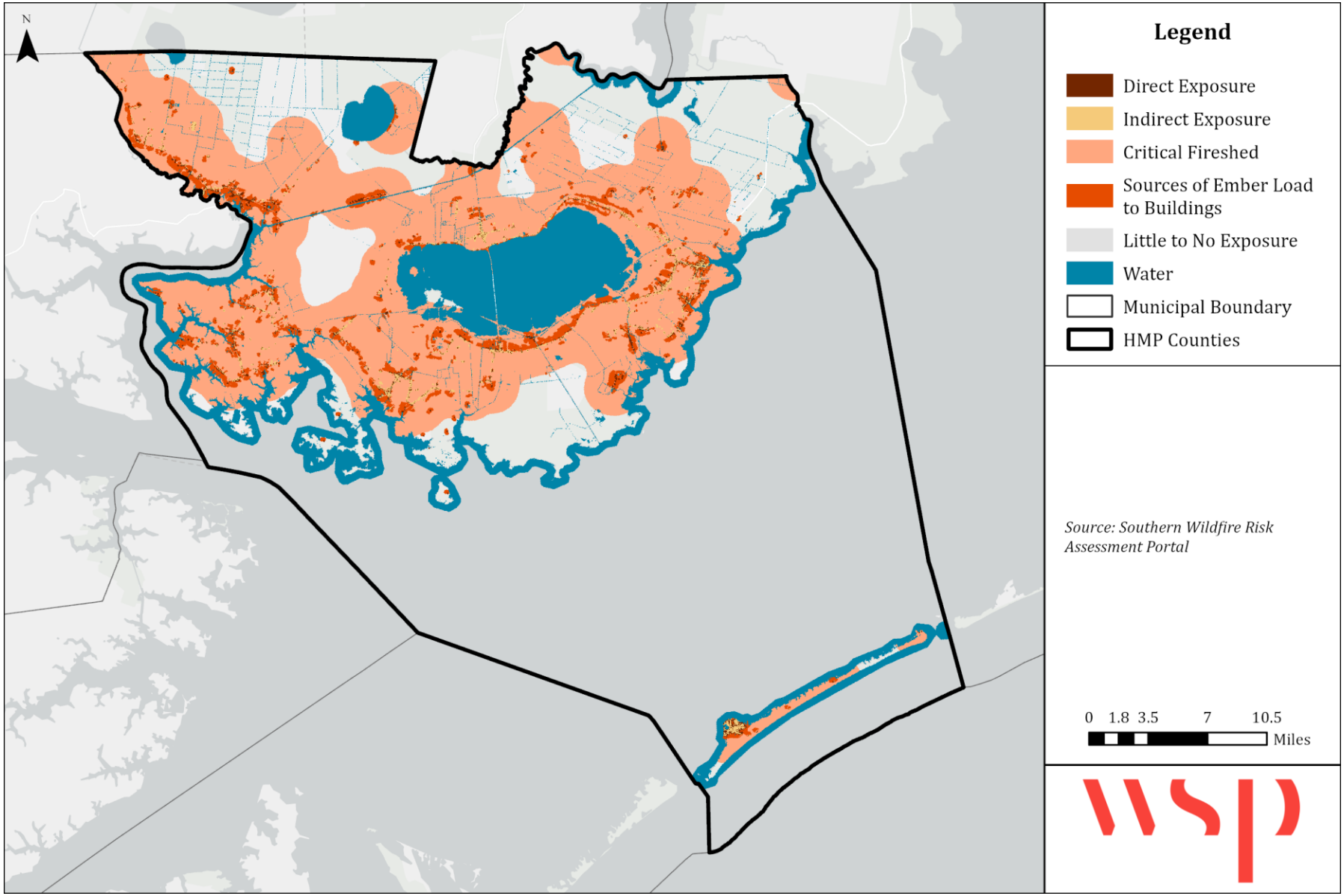
Table B.10 provides building counts and values for critical facilities by FEMA lifeline that are located in areas with direct exposure to wildfire risk on the Functional WUI scale.

**Table B.10 – Critical Facilities Exposed to Wildfire by Jurisdiction, Hyde County**

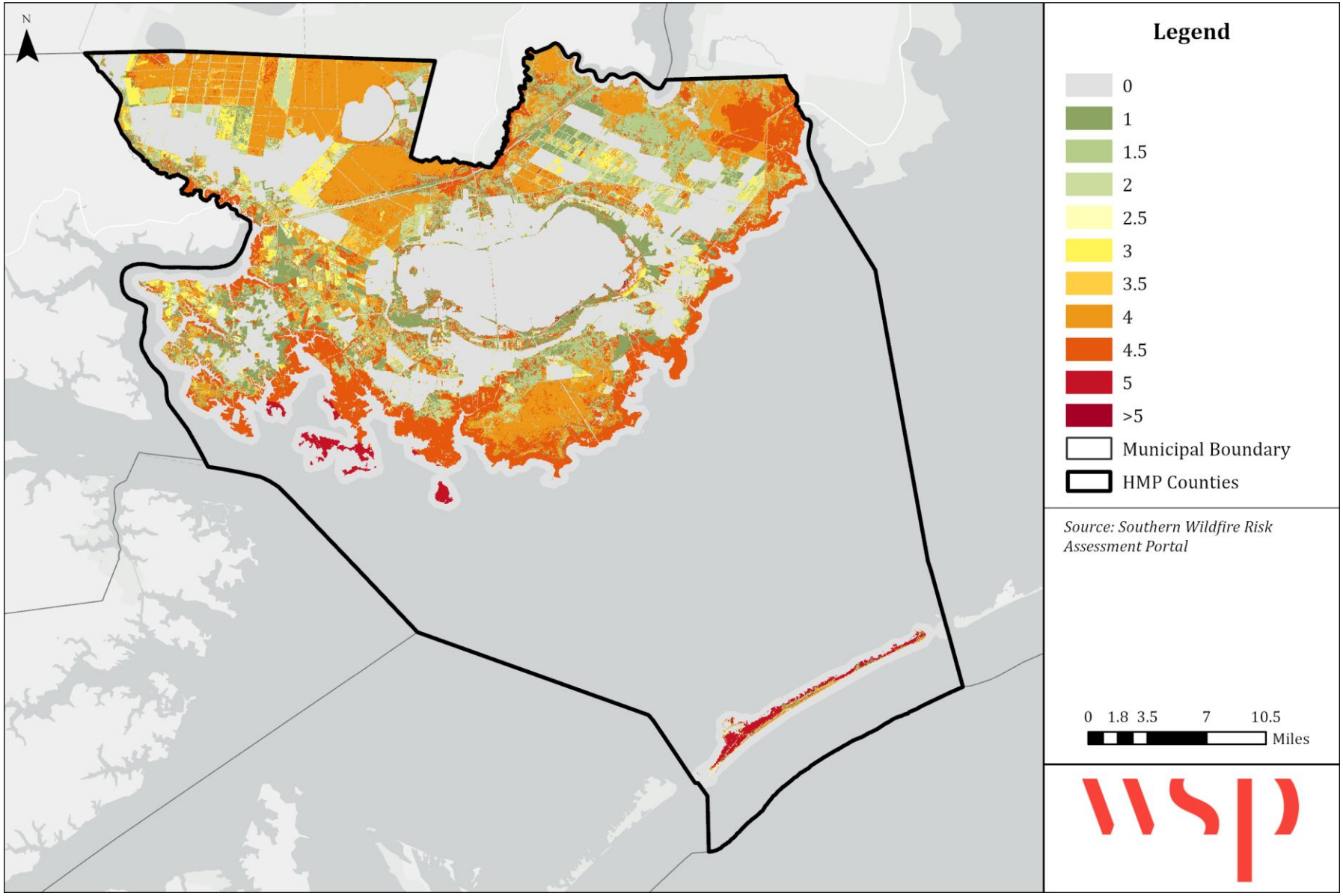
| Type | Critical Facility Count | Structure Value |
|---|---|---|
| Food, Hydration, Shelter | 5 | $12,500 |
| Safety and Security | 1 | $104,134 |
| Water Systems | 4 | $173,296 |
| **All Categories** | **10** | **$289,930** |

Source: Southern Wildfire Risk Assessment

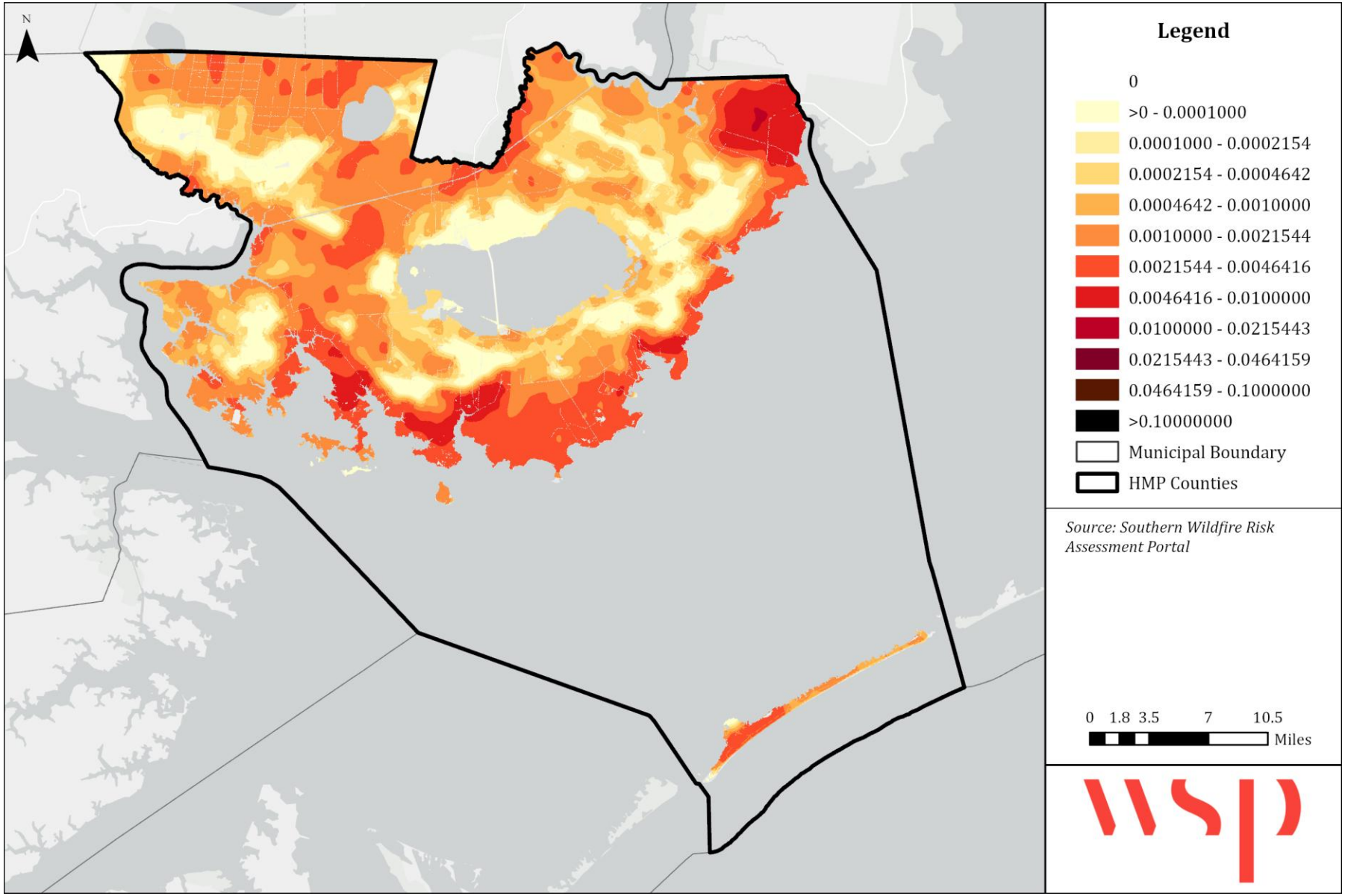
## Figure B.6 – Functional Wildland Urban Interface, Hyde County


N
Legend
Direct Exposure
Indirect Exposure
Critical Fireshed
Sources of Ember Load to Buildings
Little to No Exposure
Water
Municipal Boundary
HMP Counties
Source: Southern Wildfire Risk Assessment Portal
0 1.8 3.5 7 10.5
Miles

## Figure B.7 – Fire Intensity Scale, Hyde County


N
Legend
0
1
1.5
2
2.5
3
3.5
4
4.5
5
>5
Municipal Boundary
HMP Counties
Source: Southern Wildfire Risk Assessment Portal
0 1.8 3.5 7 10.5
Miles
wsp

## Figure B.8 – Burn Probability, Hyde County


N
Legend
0
>0 - 0.0001000
0.0001000 - 0.0002154
0.0002154 - 0.0004642
0.0004642 - 0.0010000
0.0010000 - 0.0021544
0.0021544 - 0.0046416
0.0046416 - 0.0100000
0.0100000 - 0.0215443
0.0215443 - 0.0464159
0.0464159 - 0.1000000
>0.10000000
Municipal Boundary
HMP Counties
Source: Southern Wildfire Risk Assessment Portal
0 1.8 3.5 7 10.5
Miles

## B.3 MITIGATION STRATEGY

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H1 | Promote the availability of flood insurance available through the National Flood Insurance Program (NFIP) using the following means:<br>• Post on county website<br>• Provide information on building permit applications<br>• Make available at the library on the mainland in Engelhard and on Ocracoke Island. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Med | 4.2 | PIO | Hyde County Administration, Hyde County Building Inspections | Staff Time | General Fund, NCDPS | 2025-2030 | Carry Forward | Hyde County continues to promote the availability of federally subsidized flood insurance available to all County residents. Particular attention is given to those citizens that are not located within the defined special flood hazard area but are still potentially subject to flood damage. |
| H2 | Continue to maintain, operate, and carry out all activities outlined within the Swan Quarter Watershed Project Operation and Maintenance Checklist. This effort includes ensuring functionality of the Swan Quarter Dike. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 1.3 | PP, SP | Hyde County Administration, Hyde County Soil & Water, Hyde County Water & Flood Control Manager, SQ Watershed Steering Committee | Staff Time | General Fund, NCDPS, HMGP | 2025-2030 | Carry Forward | Hyde County continues to monitor the status of the Swan Quarter flood control system and associated maintenance protocols.<br>In addition, Hyde County continues to apply for grant and private funding to improve the functionality of the flood control system through the installation of additional pumps and culvert resizing and replacement for feeder canals.<br>Pre-storm and post-storm assessments of the flood-control system will continue to be standard protocol as outlined in our SQ Watershed Operations and Maintenance Plan. |
| H3 | Continue to maintain and map GIS-based data related to floodplain management and mitigation. These efforts will involve maintaining the most recent Flood Insurance Rate Maps (FIRMS), as well as GIS locations for each property either acquired or mitigated under through current and past Mitigation Grant Projects. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Med | 4.2, 2.2 | PIO | Hyde County Administration | Staff Time | General Fund | 2 to 3 years | Carry Forward | Hyde County has the most current FIRMS mapped within its GIS system and will continue to update the GIS database, to work in concert with the information provided in this plan, to be utilized for guidance regarding development policy and regulation. |
| H4 | Make a variety of materials related to flood insurance, flood protection, floodplain management, increased cost of compliance coverage, information on floodplains, and listings of qualified contractors familiar with floodproofing and elevation techniques, available through various methods including:<br>• Placing materials in the county library<br>• Disseminating information to local contractors | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Med | 4.2 | PIO | Hyde County Administration | Staff Time | General Fund, NCDPS | 2025-2030 | Carry Forward | The Hyde County Building Inspections Department continues to maintain materials associated with floodplain protection that are available to County residents. |

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H5 | Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLPs) and high risk properties from future flooding events. The county will continue maintaining a list of RLPs, and on an annual basis, will apply for funding for all structures that meet cost-benefit thresholds as defined by FEMA. The priority will be for the elevation of structures. Hyde County will also work with homeowners in marginalized communities to address living conditions and provide housing repairs as needed to fortify existing structures until elevation funding is made available. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 1.1, 2.3 | PP | Hyde County Administration and Grants Management, Planning & Economic Development | Staff Time | General Fund, NCDPS, FEMA, CDBG, NC Housing Finance, HMGP | 2025-2030 | Carry Forward | Hyde County continues to utilize funding to address the treatment of repetitive loss properties through both annual funding cycles, as well as through post disaster funding. Hyde will also continue to apply for CDBG funding, NCFA Urgent Repair Program funds and any other available funding sources. |
| H6 | Review the vulnerability of all critical facilities identified in this plan as a component of annual county Emergency Operations Plan updates. This effort will involve an assessment of whether facilities are readily accessible before, during, or after a natural hazard event has transpired. The county will also consider all information and data outlined in this plan when making determinations on the location of all future critical facilities. | All Hazards | High | 4.1, 3.2 | ES | Hyde County Emergency Services<br>Hyde County Administration | Staff Time | General Fund | 1 to 3 years | Carry Forward | Hyde County continues to work to fortify all critical facilities with elevations and generators. Hyde County will update their Emergency Operations Plan, as well as hold annual tabletop exercises and other trainings. |
| H7 | Continue to participate in and support the Disaster Assistance Working Group (DAWG). This effort includes maintaining a mutual aid agreement with DAWG, which makes all available Hyde County resources available to participating counties in the event of a disaster. Coordination of all county resources in concert with DAWG will be handled through the group's E-Plan web based portal. All resources are updated as a component of the NC State Resource Management System. | All Hazards | High | 3.2 | ES | Hyde County Emergency Services<br>Disaster Assistance Working Group | Staff Time | General Fund, NCDPS | 2025-2030 | Carry Forward | Hyde County continues to support the efforts of the Disaster Assistance Working Group and the group's efforts to further emergency service effectiveness throughout the region. |

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H8 | Continue to support the efforts of Tideland Electric and NCDOT in maintaining the county's right-of-ways and utility easements. This effort involves the trimming and pruning of trees that pose an imminent threat to the county's limited infrastructure system as well as supporting Tideland and NCDOT across Hatteras Inlet and NC DOT Hwy 12 which is the supply of Ocracoke Island's electricity, telecommunications and transportation to the mainland. Maintaining clear access into and out of the county, as well as protection of the county's electrical and communications networks, is critical to effective response during natural hazard events. | Flooding, Hurricanes & Coastal Hazards, Severe Winter Storm, Earthquake, Wildfire, Dam & Levee Failure, Severe Weather, Tornado | High | 1.1 | P | Hyde County Emergency Services<br>Electric Service Providers | Staff Time | General Fund, Electric Service Providers | 2025-2030 | Carry Forward | Hyde County continues to work closely with all utility providers to ensure that right of ways and utility easements are properly maintained in an effort to minimize damage associated with natural hazard events. Additionally, utility providers attend the Control Group meetings before and after natural disasters and are involved with long term resilience planning related to access to Ocracoke Island via the North End from Hatteras for transportation, utilities and telecommunications. |
| H9 | In an effort to inform and educate citizens about county efforts to increase public safety and mitigate private property losses and other government functions, Hyde County will hold an annual Citizen Hyde class for interested individuals. Presenters include but are not limited to Sheriff, EMS, Building Inspections, Emergency Management and Grants Management. Additionally, Emergency Mgmt, EMS, Sheriff and Administration staff will present information related to students in the local schools. | All Hazards | High | 4.2 | PIO | Hyde County Emergency Services<br>Hyde County Administration | Staff Time | General Fund | 2025-2030 | Carry Forward | Action revised. Hyde County will continue to disseminate information associated with emergency services through their Citizen Hyde academy. |
| H10 | Continue to work closely with NCDPS, NCDOT, the American Red Cross, and DAWG in addressing emergency evacuation and sheltering needs throughout the county. Due to limited resources and high vulnerability, Hyde County must often rely on resources available throughout the region. This effort is bolstered by the regional coordination efforts available through DAWG. | All Hazards | High | 4.1 | ES | Hyde County Emergency Services | Staff Time | General Fund, American Red Cross | 2025-2030 | Carry Forward | Hyde County continues to work closely with the American Red Cross to address the issue of shelter openings and evacuation. These two processes must be closely coordinated. |
| H11 | Continue to participate in the Community Rating System (CRS) made available through the NFIP Program. This effort will involve continuing to provide detailed information regarding properties located within flood hazard areas as outlined under CRS Manual Section 322.a through 322.g. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 2.2 | PP | Hyde County Administration | Staff Time | General Fund, NCDPS | 2025-2030 | Carry Forward | Hyde County will continue to maintain its current Community Rating System program. The County's current rating will be reviewed and improved when feasible through the County's required five-year audit. |

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H12 | Acquire generators or other forms of redundant power supply to ensure that critical facilities and infrastructure remain operational where normal power supply is not available. | All Hazards | Med | 1.1, 3.2 | PP | Hyde County Emergency Services | To Be Determined | General Fund, NCDPS, FEMA | 2 to 5 years | Carry Forward | Hyde County will continue to look for opportunities to establish permanent pad mount generators in an effort to ensure a redundant power supply at critical and community facilities including but not limited to the Government Center, Emergency Operations Center, EMS Stations on the mainland and Ocracoke, the Ocracoke Community Center and Davis School. |
| H13 | Develop a Comprehensive Water Management Plan to monitor the County's water supply and impose water restriction measures as deemed necessary during extreme drought conditions. | Drought, Extreme Heat | High | 1.1 | NRP | Hyde County Soil & Water<br>Hyde County Administration, Hyde County Health, Hyde County Water Department, Cooperative Extension | Staff Time | General Fund | 2020-2025 | Carry Forward | No progress to report. Hyde County will begin to look closer at our public water supply and ways to protect that water supply for the future. |

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H14 | Actively working with Federal, State, local and private partners to identify mitigation measures and secure funding via grants to alleviate flooding. These efforts should focus on the following areas:<br>• Upgrade Fairfield Drainage District #17<br>• Improve Mattamuskeet Association Flood Protection System<br>• Continue to partner with local land owners to install drainage infrastructure through private funding and low interest loans<br>• Enlarge/replace culverts in Swan Quarter along town ditch<br>• Install stationary water pump on Landing Road as part of the Swan Quarter Watershed<br>• Contract for large scale stream snagging/clearing<br>• Continue to complete projects as adopted through the Resilient Coastal Communities Program through the NC Division of Coastal Management including but not limited to those outlined in the Ocracoke Stormwater Management Plan.<br>• Continue to work with a Community Action Team for the Lake Landing Community through the Resilient Coastal Communities Program through the NC Division of Coastal Management to develop a resiliency plan for those communities with a list of projects and goals for those areas. Hyde County will work with the CAT team to develop those goals and will then seek funding to carry those projects to fruition.<br>• Continue to address transportation needs to Ocracoke Island including issues related to the North End Ferry Terminal, Highway 12 and dredging of navigational channels.<br>• Continue to support all drainage districts and private landowners with technical assistance to complete drainage infrastructure projects.<br>• Continue to aggressively apply for housing elevations funds, critical facility funds, and telecommunication funding. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 1.3 | SP | Hyde County Administration, Hyde Soil and Water, Hyde Emergency Mgmt., Hyde County Grants Management | To Be Determined | General Fund, NCDPS, FEMA, NC Soil & Water | 5 years | Carry Forward | Hyde County will work with all available grant funding agencies along with our Congressional and State Delegations to apply for funding to carry out the projects indicated plus new projects that will increase resiliency across our communities. |

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H15 | Hyde County will work cooperatively with the Davis Ventures Nonprofit group, who currently holds a long-term lease for the Davis Building, owned by Hyde County and on the National Historic Preservation Registry, to create a Resiliency Hub. This Resiliency Hub will be a place where community information is disseminated through workshops and community events and will serve as a post disaster facility to supply the community with needs including but not limited to water, commodities, electrical charging stations, cool down stations, basic first aid, and volunteer organization outreach to aid in storm response and recovery. | Flooding, Hurricane & Tropical Storm, Dam & Levee Failure | High | 3.2, 4.2 | PIO | Hyde County Admin, Grants Mgmt, Emergency Mgmt, | To Be Determined | NCDPS, NC DEQ, CDBG | 2025-2030 | New | Hyde County has been working with the Davis Ventures group to restore the Davis Building for ten years and has most recently repaired the roof system, windows and building envelope through NCORR funding.<br>As this project concludes, a new focus will be given to restore the gymnasium and associated bathrooms to provide a space for a resiliency hub. |
| H16 | Hyde County will continue to address septic system and sanitary district capacity, operations and efficiency through partnerships and supplying technical resources and grant management support. Hyde County will work with NCDEQ to develop a Revolving Loan for Hyde County Property owners to receive no to low interest loans to replace and/or repair existing marginal systems. Marginal systems create dangerous and unsanitary conditions during storm events. Additionally, Hyde County will support its 3 Sanitary Districts with technical support and will partner with them on grant funded projects to increase their capacity and efficiency as well. | Flood, Hurricane & Tropical Storm | High | 1.1, 2.3 | PP, SP | Hyde County Admin, Grants Mgmt, Emergency Mgmt, Hyde County Health Dept., DEQ | To Be Determined | NC DEQ<br>CDBG<br>HMGP | 2025-2030 | New | Hyde County has been working with our Community Disaster Resiliency Zone staff through FEMA to develop this project in conjunction with NC DEQ. An application for funding has been submitted and Hyde is currently working with its partners to develop the program. Additionally, Hyde has partnered with DEQ to provide training to the Sanitary Districts and has added capacity to the Engelhard Sanitary District through CDBG Grant projects. |

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H17 | Hyde County will work with Motorola Solutions to provide pricing and a project plan to replace Hyde County's existing Hatteras-to-Ocracoke Point-to-Point (PTP) microwave backhaul network with a new Aviat Networks microwave backhaul system. This upgrade will significantly enhance the reliability, capacity, and resilience of the county's communications infrastructure, which supports critical services including public safety, emergency response, and VIPER system connectivity. Motorola has selected Aviat Networks due to their proven compliance with VIPER statewide P25 network specifications, strong product performance, and cost effectiveness. | Flooding, Hurricane & Coastal Hazards, Tornadoes & Thunderstorms | High | 3.2 | ES | Hyde County Admin, Sheriff's Office, Emergency Mgmt, NCDPS, NCEM | $1,088,108 | Hyde County General Fund, NCGA appropriations | 2025-2027 | New | The new system design features all-indoor Aviat microwave transceivers engineered to provide 99.999% end-to-end two-way annual reliability, meeting the data capacity requirements for both Hyde County and VIPER sites. The project includes engineering, installation, optimization, FCC coordination, licensing, and a first-year warranty, as well as new antenna and line installations on the Ocracoke Water Tank to support Hyde County's VHF Paging, Fire, and EMS repeaters. Field path studies and site walks will be conducted to confirm initial design profiles. The overall project will align Hyde County's network infrastructure with the state's broader VIPER and Dare County network topology, providing multiple redundant paths for future communication resilience. |

| Action # | Description | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H18 | Hyde County will continue to focus efforts on the Ocracoke Resilient Infrastructure Initiative which is outlined through a formal resolution by the BOC to address transportation and access to Ocracoke Island. Project components include but are not limited to dredging of channels, beach nourishment/sandbags/hard stabilization structures to fortify and protect the South Dock NCDOT Ferry Basin, NC Hwy 12 on the northern end of the island and long term strategic planning for roadway alternatives. | Flooding, Hurricane & Coastal Hazards, Tornadoes & Thunderstorms | High | 1.1, 2.3 | SP | Hyde County Administration/ Water and Flood Control | To Be Determined | NC General Assembly, US Congress, NC Div. of Coastal Management, NCDOT Hwy and Ferry Divisions, Federal Hwy Administration | 2025-2030 | New | The Resolution Requesting Immediate Action at Federal and State Levels to Provide Reliable and Sustainable Transportation to and from Ocracoke Island through Investment in Resilient Transportation Infrastructure urges coordinated action to secure long-term, dependable access for Ocracoke Island residents, businesses, and visitors. The resolution outlines the urgent need for resilient transportation solutions following repeated closures of NC Highway 12 and ferry route disruptions, including a seven-day access breach in March 2024. The Hyde County Board of Commissioners calls for federal and state investment in dredging and channel maintenance, completion of NCDOT's sandbag replacement project, initiation of a beach nourishment study and project for the Highway 12 "hot spot" area, and evaluation of roadway alternatives to improve long-term resilience. The resolution further requests investment in ferry vessels, ramps, and stabilization of the NCDOT South Dock Terminal, along with a coordinated feasibility analysis combining the South Dock and Highway 12 corridor to ensure a sustainable and comprehensive transportation network for Ocracoke Island. |
| H19 | Create or Update Community Wildfire Protection Plans in each fire district. | Wildfire | Med | 1.4 | P | Hyde County Emergency Services, Fire Departments, NC Forest Service | To Be Determined | Grant Funds | 5 years | New | N/A |

# ANNEX C. MARTIN COUNTY

## C.1 ASSET INVENTORY

Martin County and the HMPC provided a local inventory of critical facilities and community lifelines, which are a priority for mitigation planning and emergency management. Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. Table C.1 through Table C.6 provide a count of critical facilities by FEMA lifeline category by jurisdiction in Martin County. Figure C.1 through Figure C.6 show the locations of all critical facilities by jurisdiction in Martin County. It is important to note that structure value data for the critical facilities was not available for Martin County and the Towns of Bear Grass, Everetts, Hassell, and Parmele do not have any critical facilities within their jurisdictional boundaries.

Table C.7 provides a detailed inventory of the critical facilities in Martin County, indicating each facility's FEMA lifeline category, flood zone, 1% annual chance flood depth, minimum storm surge category, and wildfire risk. More information on hazard vulnerability is provided in Section C.2.

**Table C.1 – Critical Facilities by Type, Unincorporated Martin County**

| Facility Type | Count of Facility Type |
|---|---|
| Communications | 0 |
| Energy | 0 |
| Food, Hydration, Shelter | 8 |
| Hazardous Materials | 2 |
| Health and Medical | 2 |
| Safety and Security | 3 |
| Transportation | 0 |
| Water Systems | 18 |
| **Total** | **33** |

**Table C.2 – Critical Facilities by Type, Town of Hamilton**

| Facility Type | Count of Facility Type |
|---|---|
| Communications | 0 |
| Energy | 0 |
| Food, Hydration, Shelter | 0 |
| Hazardous Materials | 0 |
| Health and Medical | 2 |
| Safety and Security | 1 |
| Transportation | 0 |
| Water Systems | 1 |
| **Total** | **4** |

### Table C.3 – Critical Facilities by Type, Town of Jamesville

| Facility Type | Count of Facility Type |
|---|---|
| Communications | 0 |
| Energy | 0 |
| Food, Hydration, Shelter | 0 |
| Hazardous Materials | 0 |
| Health and Medical | 1 |
| Safety and Security | 1 |
| Transportation | 0 |
| Water Systems | 2 |
| **Total** | **4** |

### Table C.4 – Critical Facilities by Type, Town of Oak City

| Facility Type | Count of Facility Type |
|---|---|
| Communications | 0 |
| Energy | 0 |
| Food, Hydration, Shelter | 0 |
| Hazardous Materials | 0 |
| Health and Medical | 1 |
| Safety and Security | 1 |
| Transportation | 0 |
| Water Systems | 0 |
| **Total** | **2** |

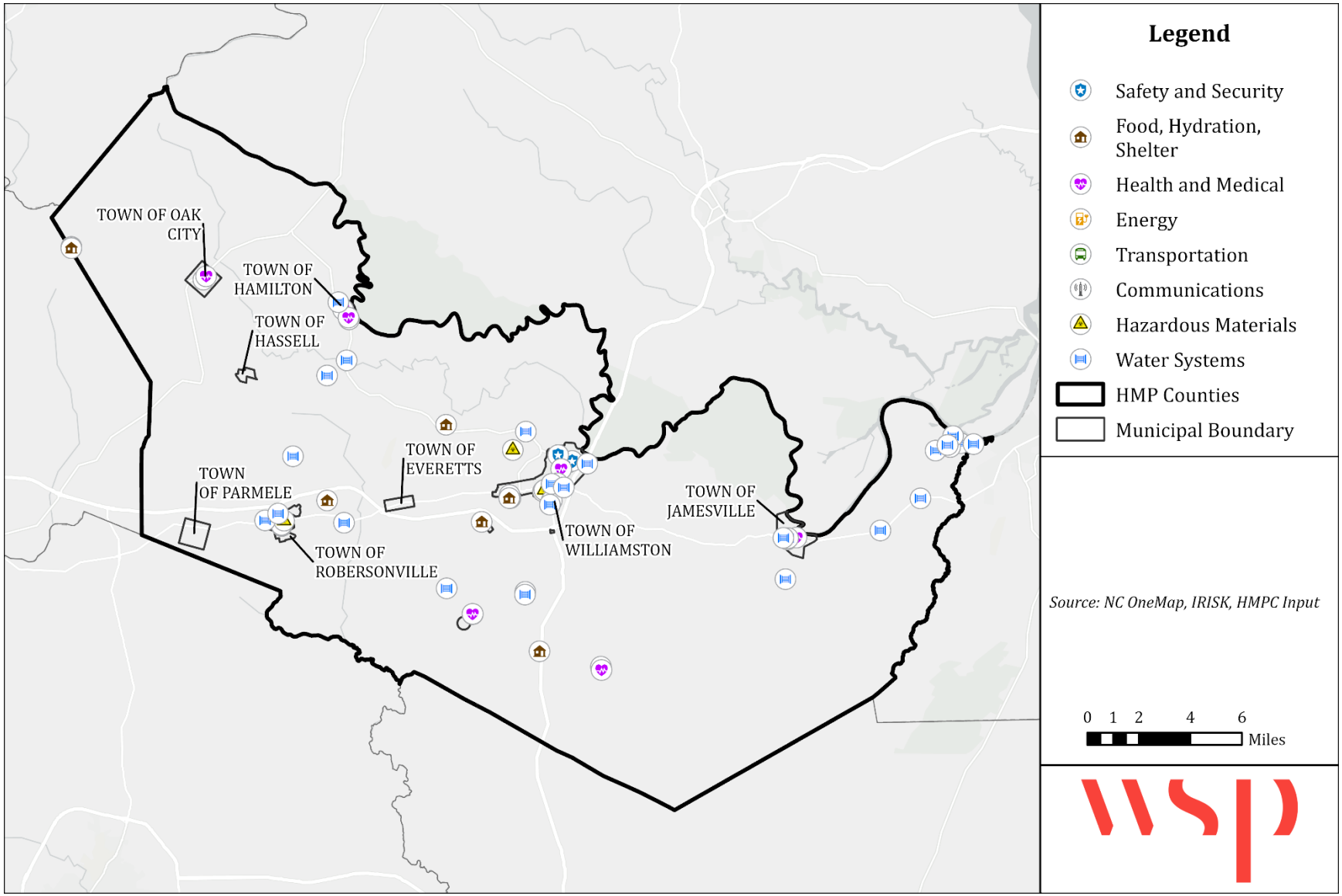
### Table C.5 – Critical Facilities by Type, Town of Robersonville

| Facility Type | Count of Facility Type |
|---|---|
| Communications | 0 |
| Energy | 0 |
| Food, Hydration, Shelter | 0 |
| Hazardous Materials | 1 |
| Health and Medical | 1 |
| Safety and Security | 2 |
| Transportation | 0 |
| Water Systems | 2 |
| **Total** | **6** |

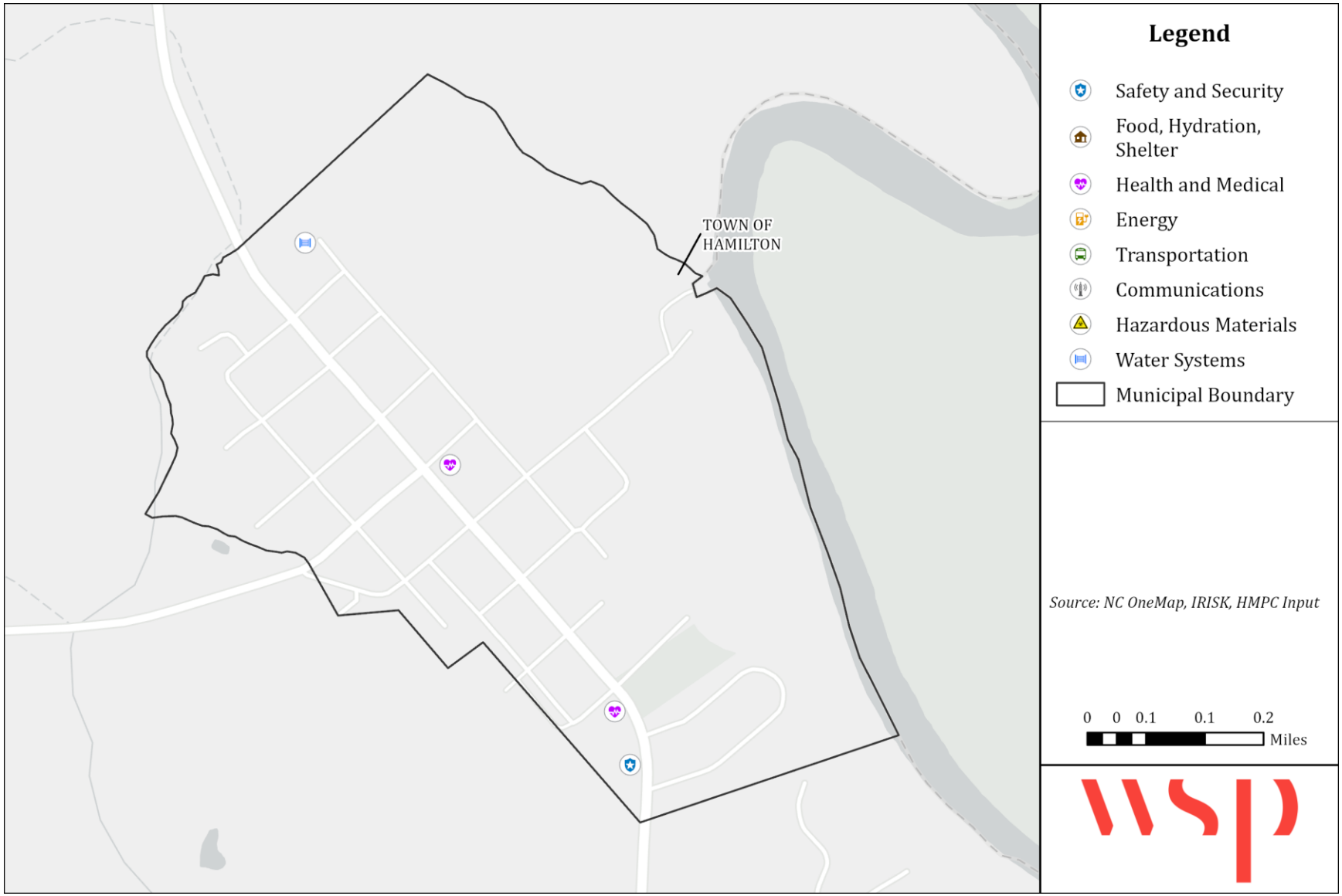
### Table C.6 – Critical Facilities by Type, Town of Williamston

| Facility Type | Count of Facility Type |
|---|---|
| Communications | 0 |
| Energy | 0 |
| Food, Hydration, Shelter | 1 |
| Hazardous Materials | 1 |
| Health and Medical | 4 |
| Safety and Security | 4 |
| Transportation | 0 |
| Water Systems | 4 |
| **Total** | **14** |

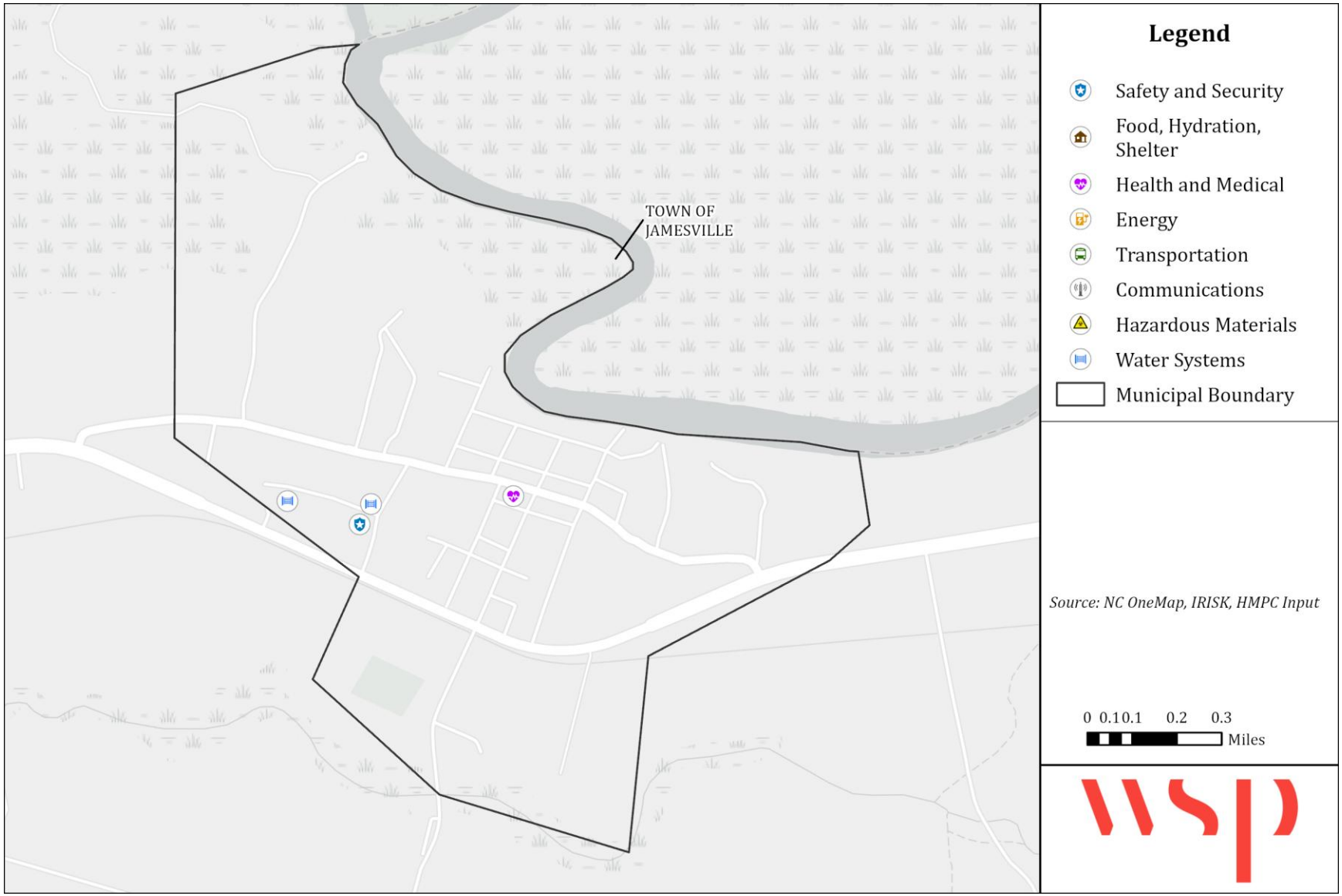
## Figure C.1 – Critical Facilities, Unincorporated Martin County



## Figure C.2 – Critical Facilities, Town of Hamilton



## Figure C.3 – Critical Facilities, Town of Jamesville



## Figure C.4 – Critical Facilities, Town of Oak City

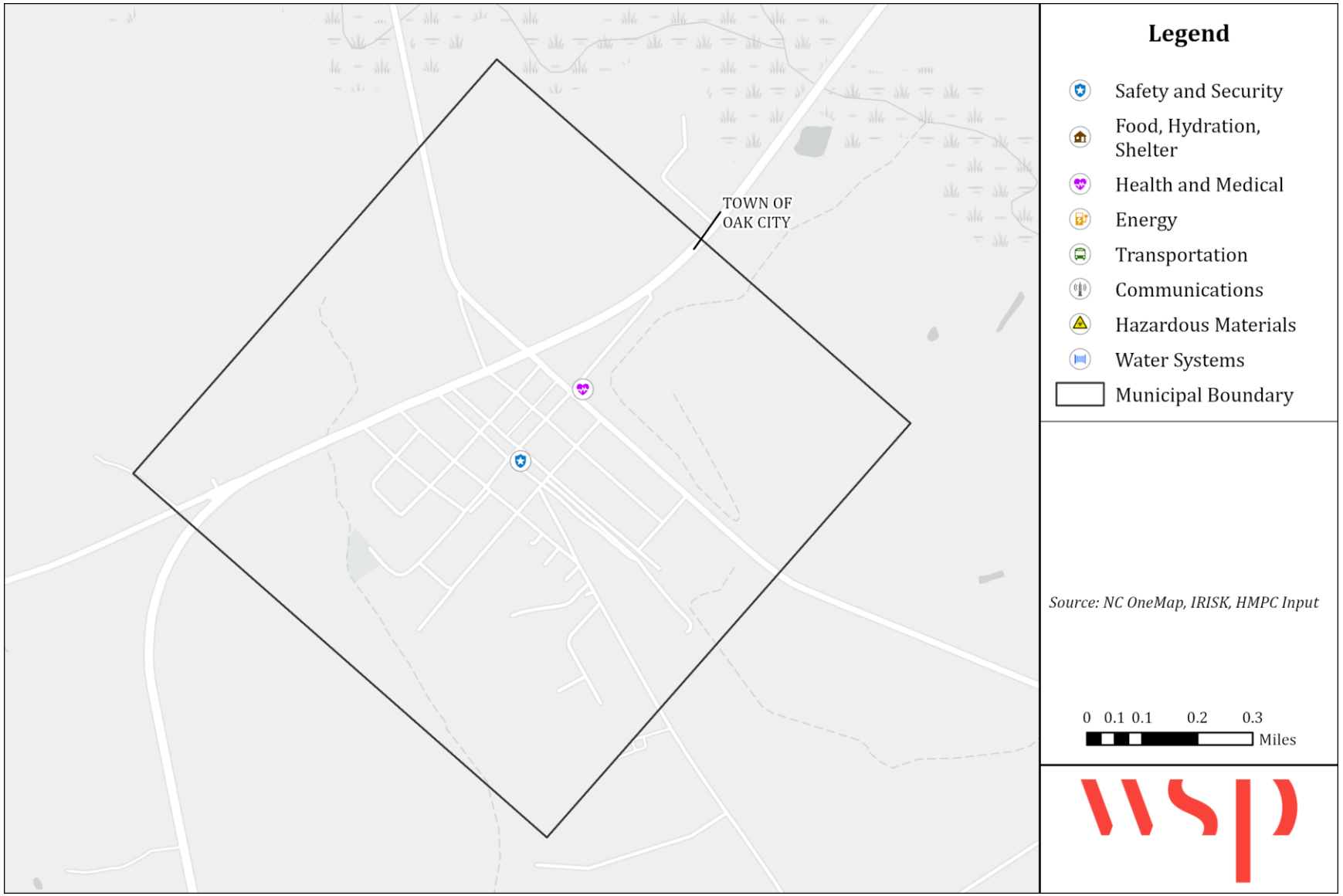
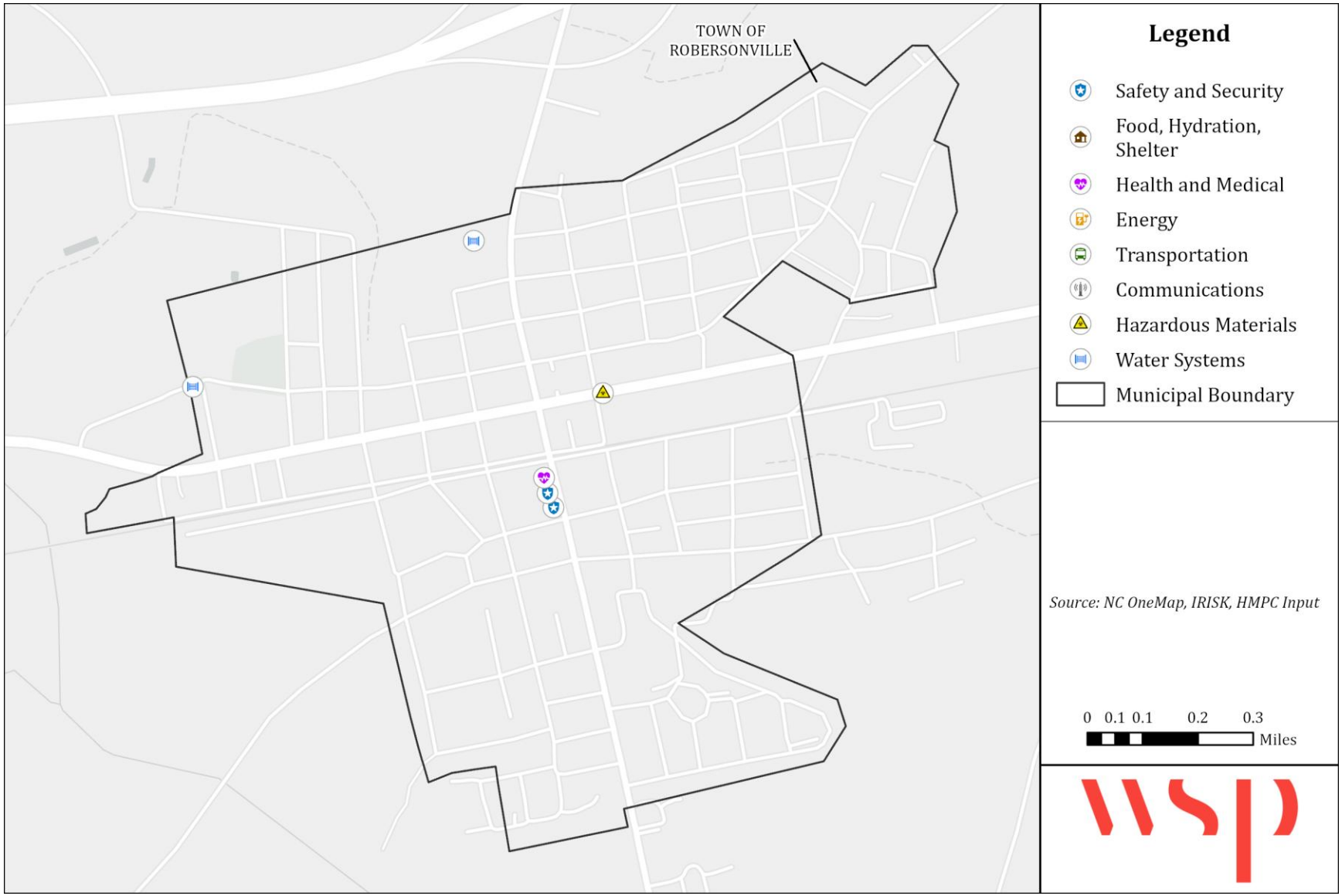
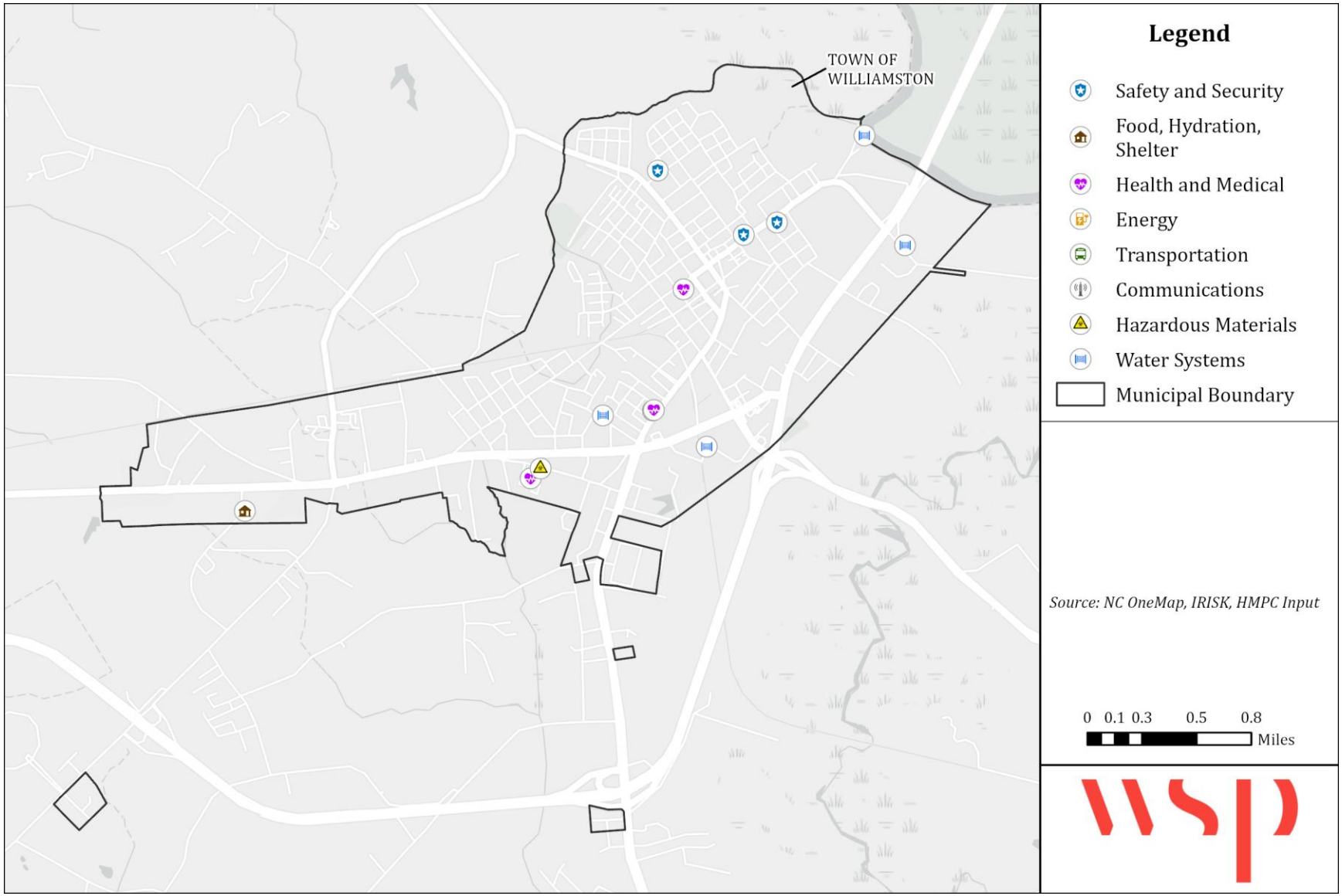


**Figure C.5 – Critical Facilities, Town of Robersonville**



## Figure C.6 – Critical Facilities, Town of Williamston



## Table C.7 – Martin County Critical Facilities Inventory

| FEMA Lifeline | Facility Name | Address | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|
| **Unincorporated Martin County** | | | | | | | | |
| Safety & Security | Bear Grass Fire Rescue, Inc. | 6005 Bear Grass Road | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Safety & Security | Griffins Township Fire Department, Inc. | 5120 Fire Department Rd | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Safety & Security | Martin Community College Campus Police | 1161 Kehukee Park Rd | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Health & Medical | Griffins Township Fire Department Incorporated | 5217 Fire Department Rd | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Health & Medical | Bear Grass Fire Rescue Incorporated | 6005 Bear Grass Road | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Hazardous Materials | Walmart Supercenter #1641 | Washington St | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | Williamston, Town Of | 602 Tank Street | 0.0 | X Unshaded | N/A | N/A | Direct Exposure | 2 |
| Water Systems | Robersonville, Town Of | 109 South Main St | 0.0 | X Unshaded | N/A | N/A | Direct Exposure | 3 |
| Water Systems | Ross Motel | 1700 US HWY 17 | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | Cedar Branch Baptist Church | 2407 NC HWY 171 | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | Domtar Paper Company - Pulp & Paper | - | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Water Systems | Domtar Paper Company - Pulp & Paper | - | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Water Systems | Green Acres Campground | - | 0.0 | X Unshaded | N/A | N/A | Direct Exposure | 2 |
| Water Systems | Green Acres Campground | - | 0.0 | X Unshaded | N/A | N/A | Direct Exposure | 2 |
| Water Systems | Robersonville County Club | 20720 NC 903 | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | Gospel Light Ch Of Christ | 3337 OLD US 64 | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | Weyerhaeuser-Southern Lumber | - | 0.1 | AE | N/A | Category 2 | Critical Fireshed | 0 |
| Water Systems | Domtar Paper Company - Wood Yard | NC HWY 149 NORTH | 0.1 | AE | N/A | Category 3 | Critical Fireshed | 2 |

| FEMA Lifeline | Facility Name | Address | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|
| Water Systems | Domtar Paper Company - Rec/Picnic Hut | NC HWY 149 NORTH | 1.4 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Water Systems | Martin Co Water & Sewer Dist I | 305 East Main Street | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | Martin Co Water & Sewer Dist 2 | 305 East Main St | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | Mackey's Ferry Peanuts & Gifts | 30871 US 64 EAST | 0.0 | X Unshaded | N/A | N/A | Direct Exposure | 2.5 |
| Water Systems | Domtar Paper Co - Mobile Equipment | NC HWY 149 N | 0.1 | AE | N/A | Category 3 | Indirect Exposure | 0 |
| Water Systems | Martin Co. Regional Wasa Authority Well | 1001 Park Street | 0.0 | X Unshaded | N/A | N/A | Critical Fireshed | 4 |
| Food, Hydration, Shelter | Robersonville Boar Stud Farm | 3257 C L Keel Rd | 0.0 | X Unshaded | N/A | N/A | Critical Fireshed | 3 |
| Food, Hydration, Shelter | Williamston Boar Stud Farm | 20145 NC 125 | 0.0 | X Unshaded | N/A | N/A | Direct Exposure | 3 |
| Food, Hydration, Shelter | Senator Bob Martin Eastern Agricultural Center | 2900 Prison Camp Rd | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Hazardous Materials | Martin County C&D Landfill | 1445 Landfill Rd | 0.0 | X Unshaded | N/A | N/A | Critical Fireshed | 0 |
| Food, Hydration, Shelter | | 1083 Red Oak Fork Rd | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 1083 Red Oak Fork Rd | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 1083 Red Oak Fork Rd | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 1161 Kehukee Park Rd | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | Macedonia Church | 7640 US 17 | 0.0 | X Unshaded | N/A | N/A | Direct Exposure | 2 |
| **Town of Hamilton** | | | | | | | | |
| Safety & Security | Hamilton District Volunteer Fire-Ems Dept., Inc. | 408 S. Front St. | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Health & Medical | Midway Medical Transport Incorporated | 107 East Liberty Street | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|
| Health & Medical | Hamilton District Volunteer Fire and EMS Department | 408 South Front Street | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | Hamilton, Town Of | 101 N. Front St. | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| **Town of Jamesville** | | | | | | | | |
| Safety & Security | Jamesville Community Volunteer Fire Department, Inc. | 1035 Hayes St | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Health & Medical | Jamesville Community EMS and Rescue | 1116 WASHINGTON STREET | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | Jamesville, Town Of | 1211 Wtr St | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | Jamesville, Town Of | 1211 Wtr St | 0.0 | X Unshaded | N/A | N/A | Critical Fireshed | 0 |
| **Town of Oak City** | | | | | | | | |
| Safety & Security | The Oak City Volunteer Fire Department, Inc. | 100 Commerce Street | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Health & Medical | Oak City Rescue Squad | 100 Commerce Street | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| **Town of Robersonville** | | | | | | | | |
| Safety & Security | Robersonville Fire Department | 119 S. Main Street | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Safety & Security | Robersonville Police Department | 119 South Main Street | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Health & Medical | Robersonville Rescue Squad and EMS | 119 South Main Street | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Hazardous Materials | NCDSCA 059-0001 (WILLIFORD CLEANERS) | E ACADEMY ST, STE 100 | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | ROBERSONVILLE, TOWN OF | 109 South Main St | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | ROBERSONVILLE, TOWN OF | 109 South Main St | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| **Town of Williamston** | | | | | | | | |
| Safety & Security | Williamston Fire/Rescue/EMS | 901 Washington St. | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|
| Safety & Security | Williamston Police Department | 106 East Main Street | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | Martin Co Regional WASA | 1001 Park Street | 5.1 | AE | 1ft SLR | N/A | Water | 0 |
| Safety & Security | Martin County Sheriffs Department/Detention Center | 305 East Main Street | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Health & Medical | Williamston Rescue Squad | 901 Washington Street | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Health & Medical | Coastal Medical Transport Incorporated | 108 South Pearl Street | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Health & Medical | Williamston Fire and Rescue EMS | 901 Washington Street | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Health & Medical | Martin General Hospital | 310 South McCaskey Rd | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | Martin Community College | 1161 Kehukee Pk Rd | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Safety & Security | Martin Tyrrell Washington District Health Department | 210 West Liberty Street | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Hazardous Materials | Martin General Hospital | S Mccaskey Rd | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | Williamston, Town Of | 602 Tank Street | 0.0 | X Unshaded | N/A | N/A | Direct Exposure | 2 |
| Water Systems | Williamston, Town Of | 602 Tank Street | 0.0 | X Unshaded | N/A | N/A | Direct Exposure | 2 |
| Water Systems | Williamston, Town Of | 602 Tank Street | 0.0 | X Shaded | N/A | Category 3 | Direct Exposure | 2 |

Note: Structure value was not available for critical facilities in Martin County

# C.2 RISK ASSESSMENT

This section contains a summary of the County's asset inventory as well as hazard profile and vulnerability assessment for those hazards that are spatially defined and have variations in risk that could be evaluated quantitatively on a jurisdictional level. The hazards included in this section are: Flooding, Hurricanes & Coastal Hazards, and Wildfire.

## *C.2.1 FLOODING*

Table C.8 details the acreage of Martin County's total area by jurisdiction and flood zone on the Effective DFIRM. Per this assessment, at nearly 27 percent, the Town of Jamesville has the largest portion of land area within the mapped 1%-annual-chance floodplain. Conversely, the Towns of Bear Grass, Everetts, Hassell, Parmele, and Robersonville are entirely outside the SFHA.

**Table C.8 – Flood Zone Acreage by Jurisdiction, Martin County**

| Flood Zone | Acreage | Percent of Total (%) |
|---|---|---|
| **Bear Grass** | | |
| Zone X Unshaded | 125.2 | 100.0% |
| **Total** | **125.2** | -- |
| **Everetts** | | |
| Zone X Unshaded | 304.4 | 100.0% |
| **Total** | **304.4** | -- |
| **Hamilton** | | |
| Zone AE | 18.5 | 5.7% |
| Zone X Unshaded | 304.4 | 94.3% |
| **Total** | **322.9** | -- |
| **Hassell** | | |
| Zone X Unshaded | 173.7 | 100.0% |
| **Total** | **173.7** | -- |
| **Jamesville** | | |
| Zone AE | 236.6 | 26.9% |
| Zone X Shaded | 27.9 | 3.2% |
| Zone X Unshaded | 614.9 | 69.9% |
| **Total** | **879.4** | -- |
| **Oak City** | | |
| Zone AE | 0.1 | 0.0% |
| Zone X Unshaded | 635.7 | 100.0% |
| **Total** | **635.8** | -- |
| **Parmele** | | |
| Zone X Unshaded | 637.9 | 100.0% |
| **Total** | **637.9** | -- |
| **Robersonville** | | |
| Zone X Unshaded | 727.3 | 100.0% |
| **Total** | **727.3** | -- |

| Flood Zone | Acreage | Percent of Total (%) |
|---|---|---|
| **Williamston** | | |
| Zone AE | 242.3 | 9.5% |
| Zone X Shaded | 169.0 | 6.6% |
| Zone X Unshaded | 2,144.9 | 83.9% |
| **Total** | **2,556.2** | -- |
| **Unincorporated Martin County** | | |
| Zone AE | 62,927.1 | 22.0% |
| Zone X Shaded | 1,704.9 | 0.6% |
| Zone X Unshaded | 221,300.0 | 77.4% |
| **Total** | **285,932.0** | -- |
| **Martin County Total** | | |
| Zone AE | 63,424.6 | 21.7% |
| Zone X Shaded | 1,901.8 | 0.7% |
| Zone X Unshaded | 226,968.4 | 77.7% |
| **Total** | **292,294.8** | -- |

Source: FEMA Effective DFIRM

Figure C.7 through Figure C.10 reflect the effective mapped flood hazard zones for all jurisdictions that have land in the Special Flood Hazard Area in Martin County, and Figure C.11 through Figure C.14 displays the depth of flooding estimated to occur in these areas during the 1%-annual-chance flood.

Table C.9 provides building counts for critical facilities by flood zone in Martin County and participating jurisdictions. It is important to note that structure value for critical facilities in Martin County was not available.

**Table C.9 – Critical Facilities Exposed to Flooding by Event and Jurisdiction**

| Flood Zone | Critical Facility Count |
|---|---|
| **Unincorporated Martin County** | |
| Zone AE | 4 |
| Zone X (500-year) | 2 |
| Zone X (unshaded) | 27 |
| **Total** | **33** |
| **Hamilton** | |
| Zone X (unshaded) | 4 |
| **Total** | **4** |
| **Jamesville** | |
| Zone X (unshaded) | 4 |
| **Total** | **4** |
| **Oak City** | |
| Zone X (unshaded) | 2 |
| **Total** | **2** |
| **Robersonville** | |
| Zone X (unshaded) | 6 |
| **Total** | **6** |
| **Williamston** | |
| Zone AE | 1 |
| Zone X (500-year) | 1 |

| Flood Zone | Critical Facility Count |
|---|---|
| Zone X (unshaded) | 12 |
| **Total** | **14** |
| **Martin County Total** | |
| Zone AE | 5 |
| Zone X (500-year) | 3 |
| Zone X (unshaded) | 55 |
| **Total** | **63** |

Source: FEMA Effective DFIRM, HMPC

**Figure C.7 – FEMA Flood Hazard Areas, Unincorporated Martin County**

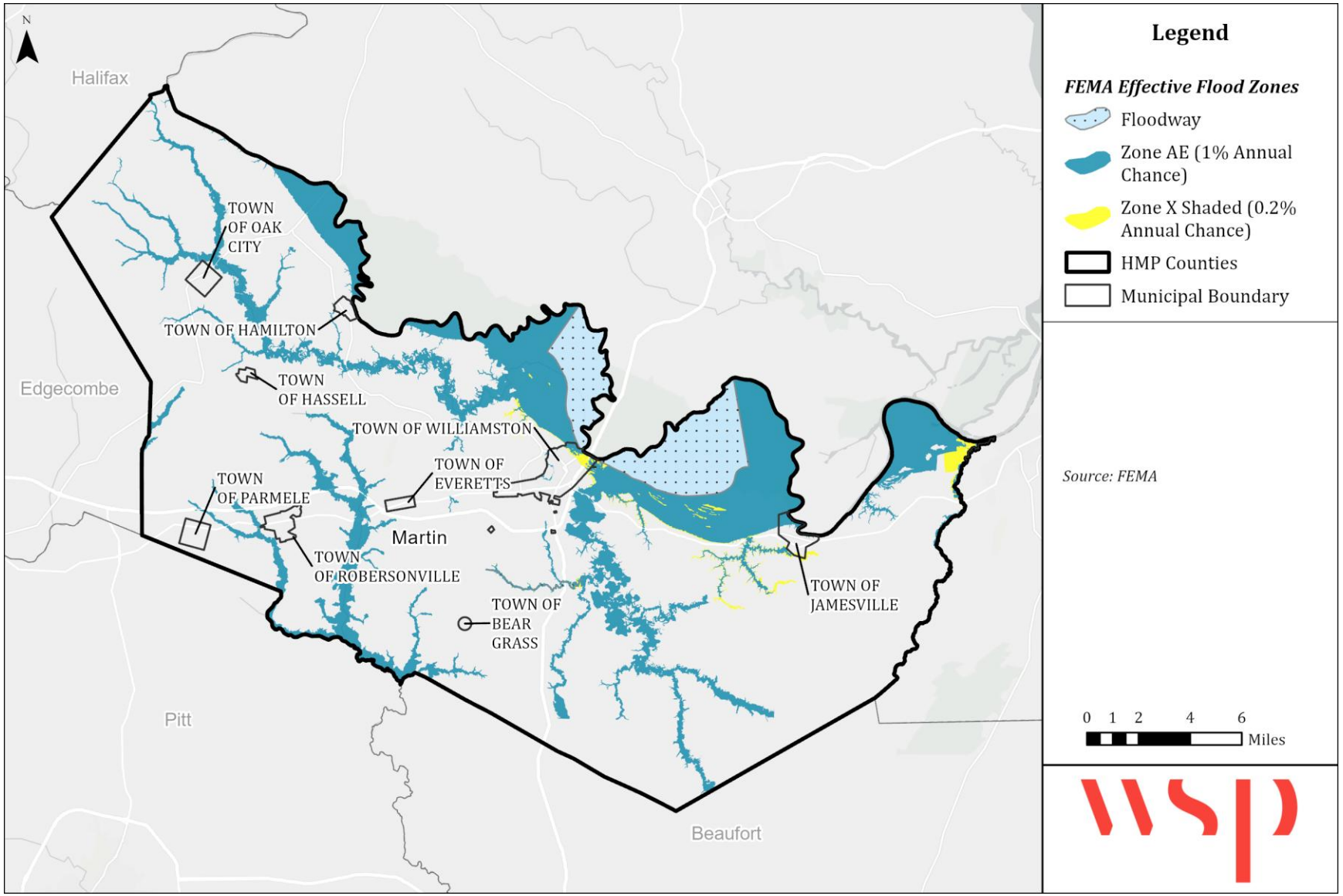


**Figure C.8 – FEMA Flood Hazard Areas, Town of Hamilton**



**Figure C.9 – FEMA Flood Hazard Areas, Town of Jamesville**

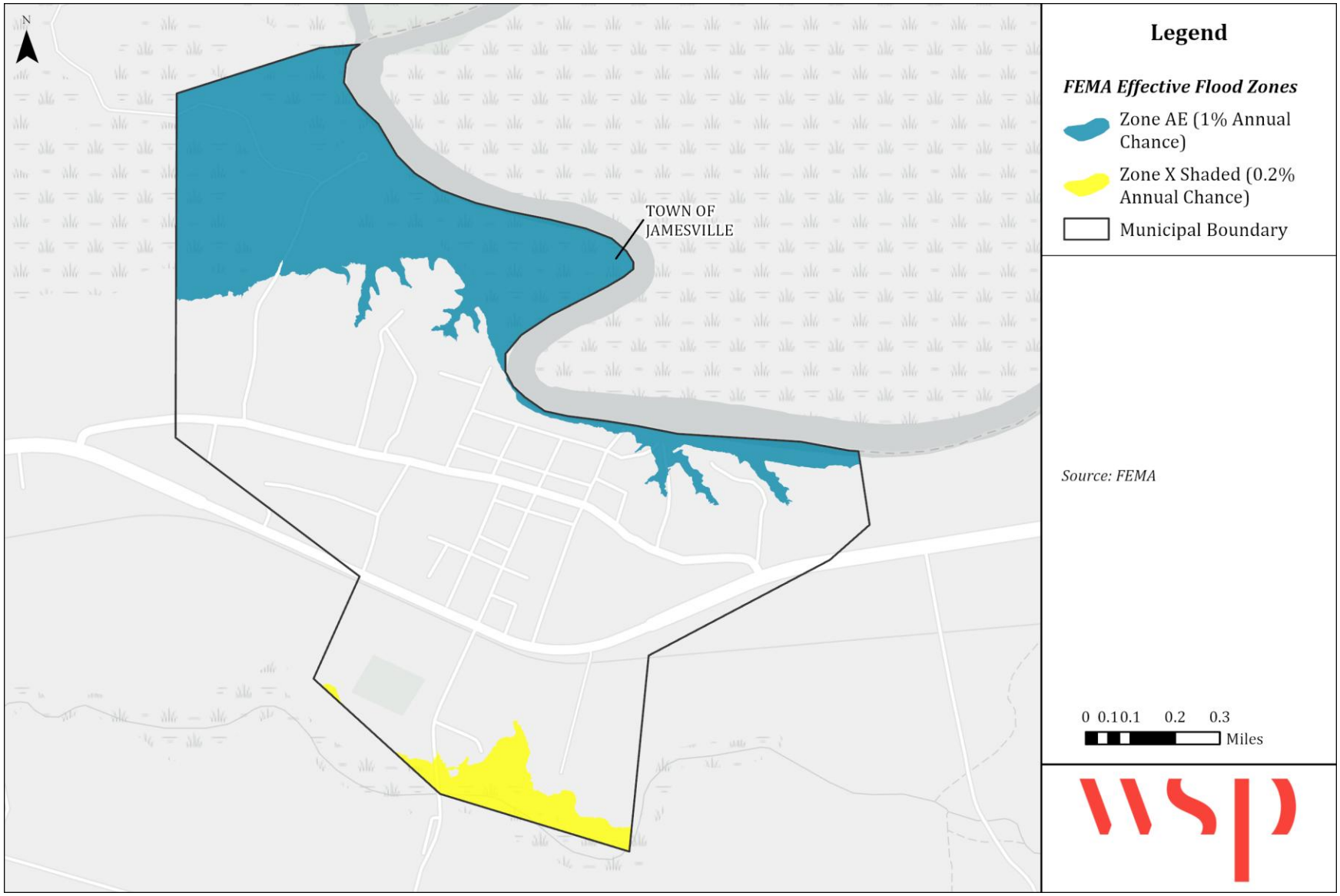


**Figure C.10 – FEMA Flood Hazard Areas, Town of Williamston**

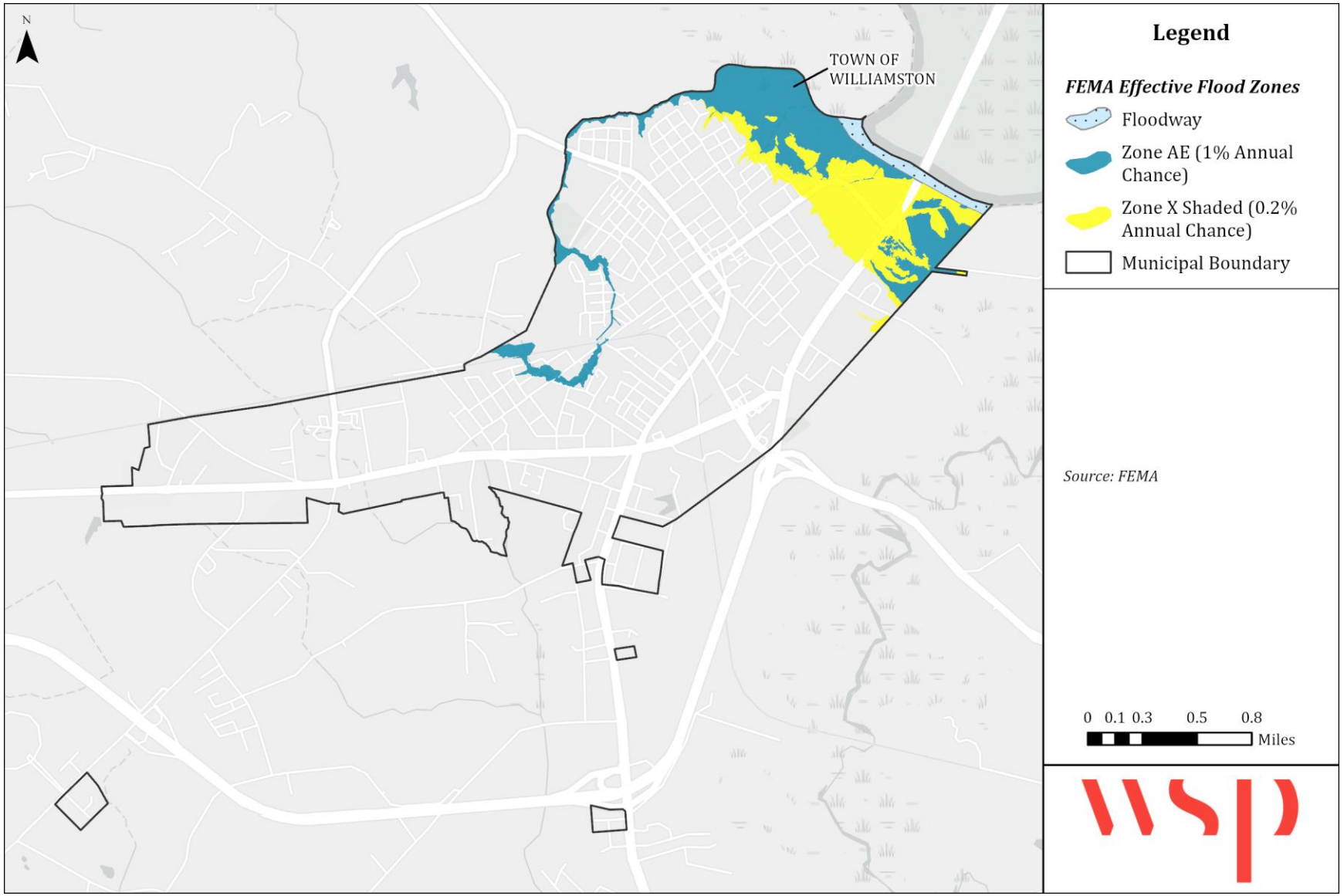


**Figure C.11 – Flood Depth, 1%-Annual-Chance Floodplain, Unincorporated Martin County**

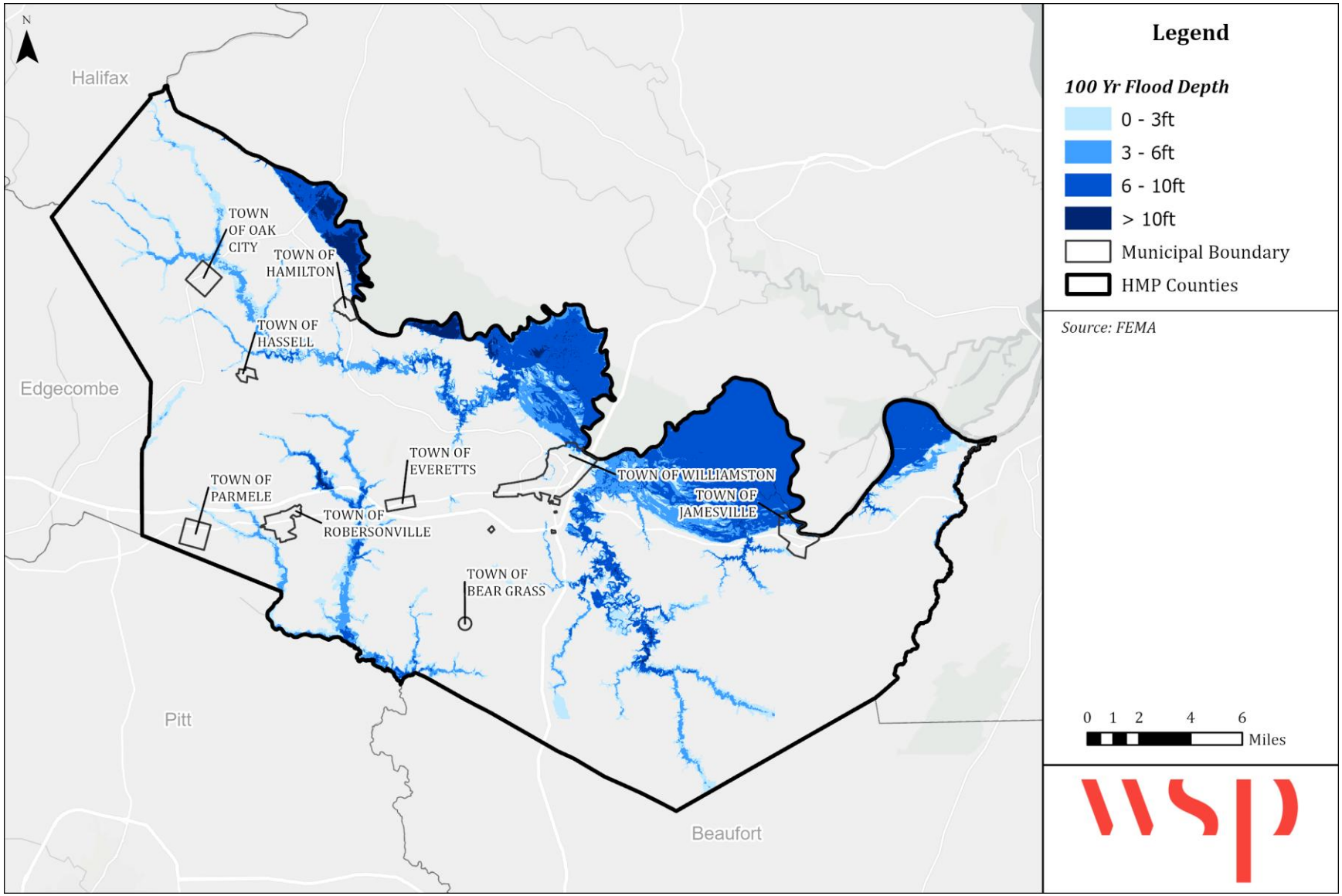


**Figure C.12 – Flood Depth, 1%-Annual-Chance Floodplain, Town of Hamilton**

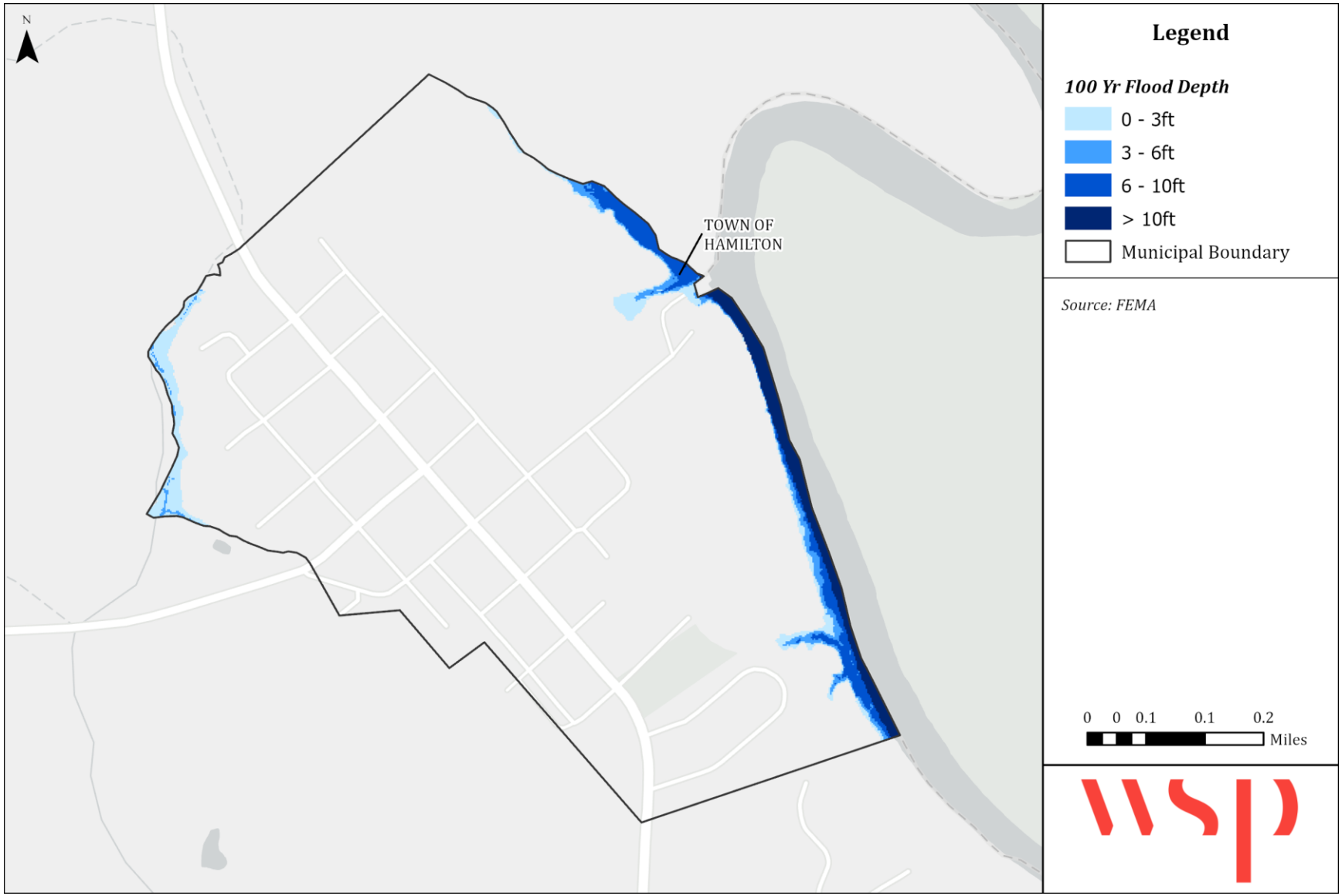


**Figure C.13 – Flood Depth, 1%-Annual-Chance Floodplain, Town of Jamesville**

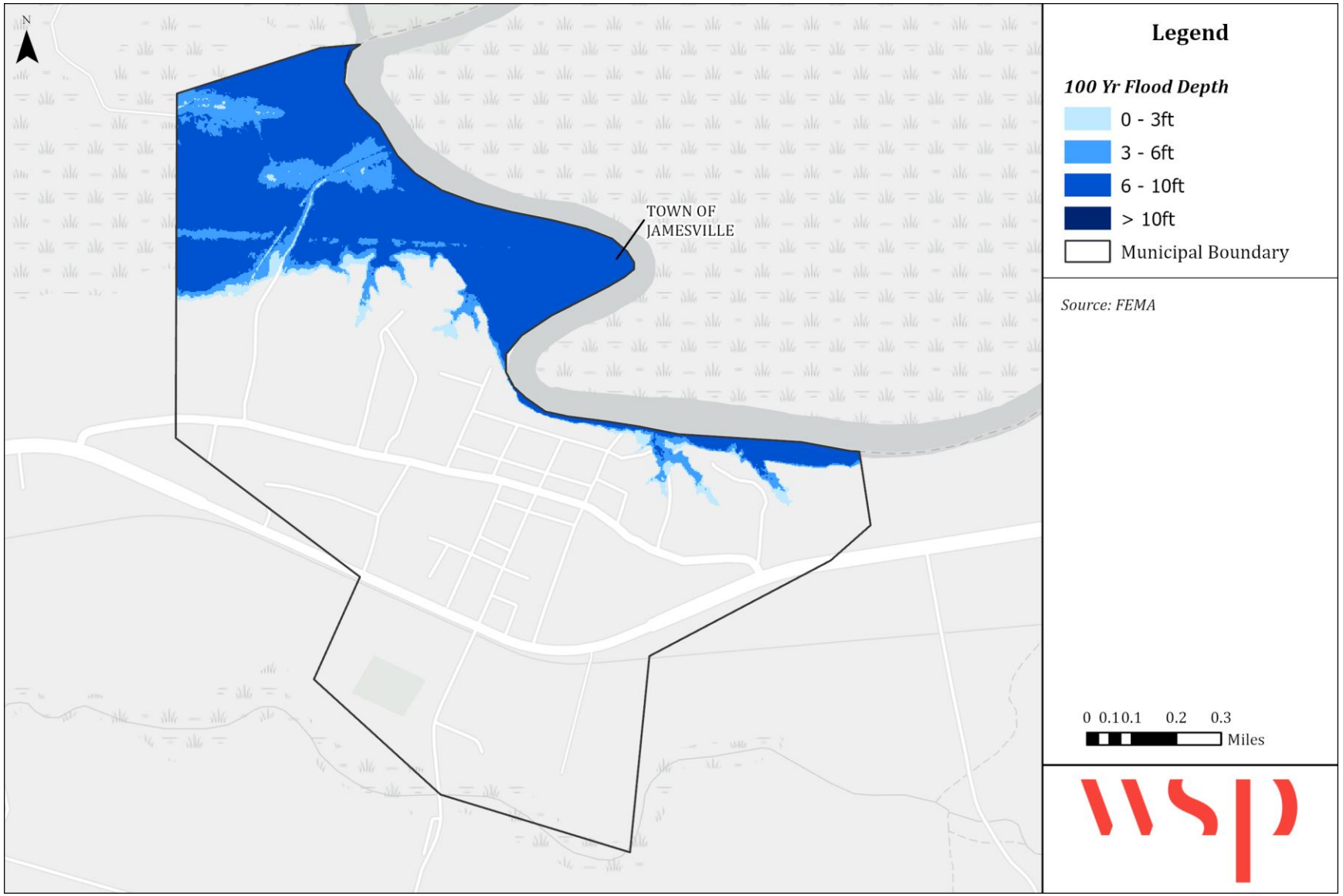
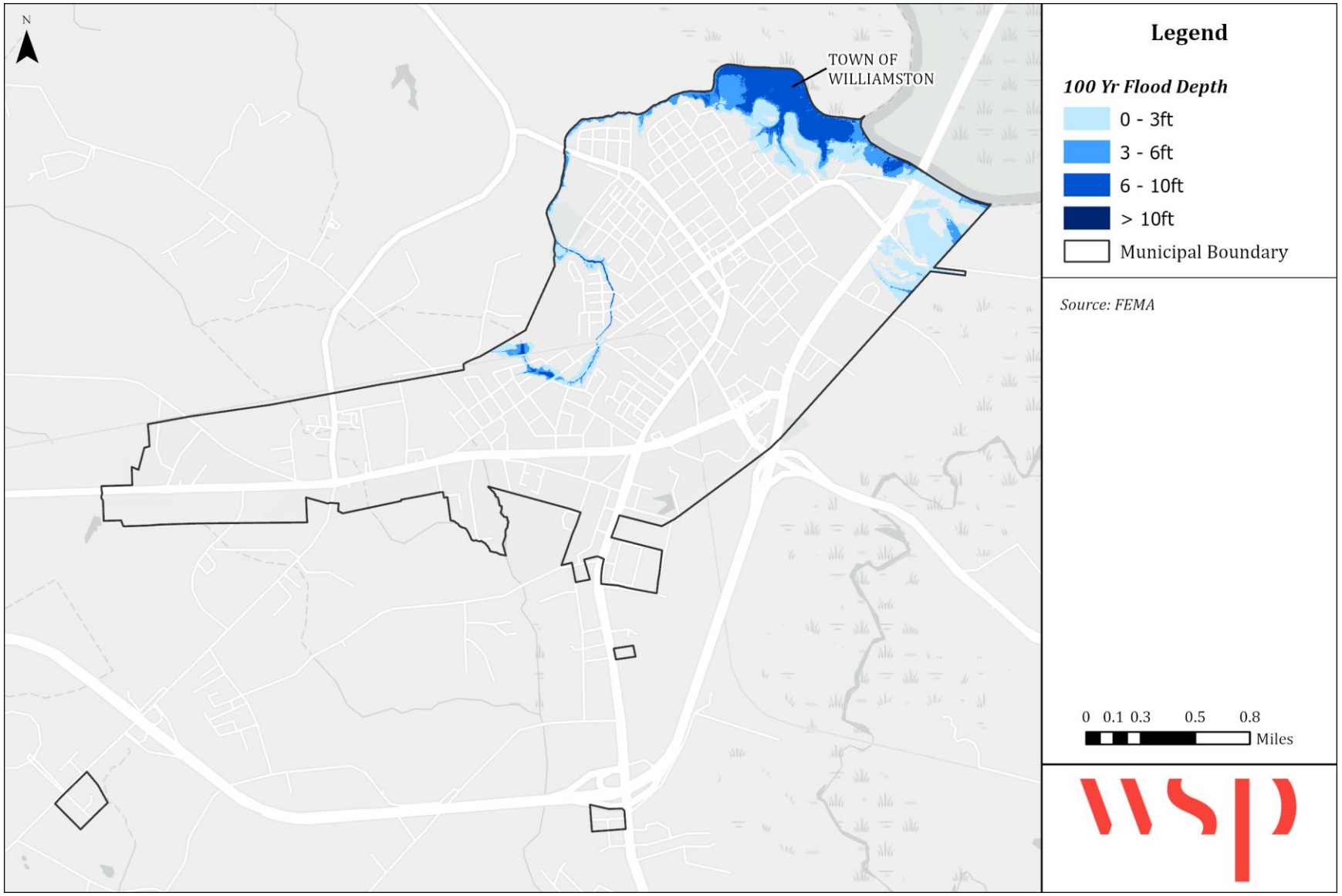


**Figure C.14 – Flood Depth, 1%-Annual-Chance Floodplain, Town of Williamston**



## FLOODPLAIN MANAGEMENT

The following tables reflect NFIP policy and claims data for Martin County and incorporated communities categorized by structure type, flood zone, Pre-FIRM and Post-FIRM. Note that the Town of Everetts and the Town of Parmele are not participating in the NFIP. The Towns of Bear Grass, Hassell, Jamesville, and Oak City do not have any active policies or past paid claims.

**Table C.10 – NFIP Policy and Claims Data by Structure Type**

| Structure Type | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Martin County Unincorporated Area** | | | | | |
| Single Family | 27 | $19,864 | $6,687,000 | 18 | $261,581.48 |
| Non-Residential | 1 | $1,229 | $137,000 | 4 | $8,498.10 |
| **Total** | 28 | $21,093 | $6,824,000 | 22 | $270,079.58 |
| **Town of Hamilton** | | | | | |
| Single Family | 0 | $0 | $0 | 1 | $26,019.60 |
| **Total** | **0** | **$0** | **$0** | **1** | **$26,019.60** |
| **Town of Robersonville** | | | | | |
| Single Family | 4 | $1,987 | $1,187,000 | 4 | $32,886.38 |
| **Total** | 4 | $1,987 | $1,187,000 | 5 | $39,838.28 |
| **Town of Williamston** | | | | | |
| Single Family | 16 | $11,733 | $3,018,000 | 8 | $27,699.39 |
| 2-4 Family | 9 | $6,955 | $2,385,000 | 0 | $0.00 |
| Non Residential | 7 | $10,245 | $1,794,000 | 6 | $201,649.64 |
| **Total** | **32** | **$28,933** | **$7,197,000** | **14** | **$229,349.03** |

Source: FEMA Community Information System, accessed December 2025

**Table C.11 – NFIP Policy and Claims Data by Flood Zone**

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Martin County Unincorporated Area** | | | | | |
| A01-30 & AE Zones | 16 | $12,822 | $3,232,000 | 6 | $152,659.56 |
| A Zones | 0 | $0 | $0 | 6 | $64,924.20 |
| B, C & X Zone | | | | | |
| Standard | 12 | $8,271 | $3,592,000 | 0 | $0.00 |
| Preferred | 0 | $0 | $0 | 7 | $48,550.43 |
| **Total** | **28** | **$21,093** | **$6,824,000** | **19** | **$266,134.19** |
| **Town of Hamilton** | | | | | |
| A Zones | 0 | $0 | $0 | 1 | $26,019.60 |
| **Total** | **0** | **$0** | **$0** | **1** | **$26,019.60** |
| **Town of Robersonville** | | | | | |
| B, C & X Zone | | | | | |
| Standard | 4 | $1,987 | $1,187,000 | 3 | $33,986.13 |
| Preferred | 0 | $0 | $0 | 2 | $5,852.15 |
| **Total** | **4** | **$1,987** | **$1,187,000** | **5** | **$39,838.28** |

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Town of Williamston** | | | | | |
| A01-30 & AE Zones | 11 | $13,287 | $2,222,000 | 3 | $33,616.67 |
| A Zones | 0 | $0 | $0 | 1 | $359.00 |
| B, C & X Zone | | | | | |
| Standard | 21 | $15,646 | $4,975,000 | 5 | $62,743.44 |
| Preferred | 0 | $0 | $0 | 4 | $131,457.87 |
| **Total** | **32** | **$28,933** | **$7,197,000** | **13** | **$228,176.98** |

Source: FEMA Community Information System, accessed December 2025

### Table C.12 – NFIP Policy and Claims Data Pre-FIRM

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Martin County Unincorporated Area** | | | | | |
| A01-30 & AE Zones | 8 | $6,672 | $1,274,000 | 5 | $152,489.97 |
| A Zones | 0 | $0 | $0 | 4 | $43,396.01 |
| B, C & X Zone | 9 | $6,526 | $2,957,000 | 6 | $44,603.90 |
| Standard | 9 | $6,526 | $2,957,000 | 0 | $0.00 |
| Preferred | 0 | $0 | $0 | 6 | $44,603.90 |
| **Total** | **17** | **$13,198** | **$4,231,000** | **15** | **$240,489.88** |
| **Town of Hamilton** | | | | | |
| A Zones | 0 | $0 | $0 | 1 | $26,019.60 |
| **Total** | **0** | **$0** | **$0** | **1** | **$26,019.60** |
| **Town of Robersonville** | | | | | |
| B, C & X Zone | 4 | $1,987 | $1,187,000 | 3 | $33,986.13 |
| Standard | 4 | $1,987 | $1,187,000 | 3 | $33,986.13 |
| Preferred | 0 | $0 | $0 | 0 | $0.00 |
| **Total** | **4** | **$1,987** | **$1,187,000** | **3** | **$33,986.13** |
| **Town of Williamston** | | | | | |
| A01-30 & AE Zones | 8 | $11,263 | $1,776,000 | 3 | $33,616.67 |
| A Zones | 0 | $0 | $0 | 1 | $359.00 |
| B, C & X Zone | 17 | $13,239 | $4,522,000 | 9 | $194,201.31 |
| Standard | 17 | $13,239 | $4,522,000 | 5 | $62,743.44 |
| Preferred | 0 | $0 | $0 | 4 | $131,457.87 |
| **Total** | **25** | **$24,502** | **$6,298,000** | **13** | **$228,176.98** |

Source: FEMA Community Information System, accessed December 2025

### Table C.13 – NFIP Policy and Claims Data Post-FIRM

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Martin County Unincorporated Area** | | | | | |
| A01-30 & AE Zones | 8 | $6,150 | $1,958,000 | 1 | $169.59 |

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| A Zones | 0 | $0 | $0 | 2 | $21,528.19 |
| B, C & X Zone | 3 | $1,745 | $635,000 | 1 | $3,946.53 |
| Standard | 3 | $1,745 | $635,000 | 0 | $0.00 |
| Preferred | 0 | $0 | $0 | 1 | $3,946.53 |
| **Total** | **11** | **$7,895** | **$2,593,000** | **4** | **$25,644.31** |
| **Town of Robersonville** | | | | | |
| B, C & X Zone | 0 | $0 | $0 | 2 | $5,852.15 |
| Preferred | 0 | $0 | $0 | 2 | $5,852.15 |
| **Total** | **0** | **$0** | **$0** | **2** | **$5,852.15** |
| **Town of Williamston** | | | | | |
| A01-30 & AE Zones | 3 | $2,024 | $446,000 | 0 | $0.00 |
| B, C & X Zone | 4 | $2,407 | $453,000 | 0 | $0.00 |
| Standard | 4 | $2,407 | $453,000 | 0 | $0.00 |
| Preferred | 0 | $0 | $0 | 0 | $0.00 |
| **Total** | **7** | **$4,431** | **$899,000** | **0** | **$0.00** |

Source: FEMA Community Information System, accessed December 2025

## C.2.2 HURRICANES AND COASTAL HAZARDS

Figure C.15 on the following page show the estimated extent of surge by storm category according to NOAA SLOSH data that would occur in unincorporated Martin County and all participating jurisdictions. Much of the northeastern edge of Martin County along the Roanoke River and near the Albemarle Sound is at the highest risk to storm surge.

Figure C.16 show the estimated inundation extents of 1 foot, 2 feet, and 3 feet of sea level rise that may occur in Martin County and participating jurisdictions. Sea level rise is likely to impact land adjacent to the Roanoke River.

**Figure C.15 – Storm Surge Extent by Storm Category**

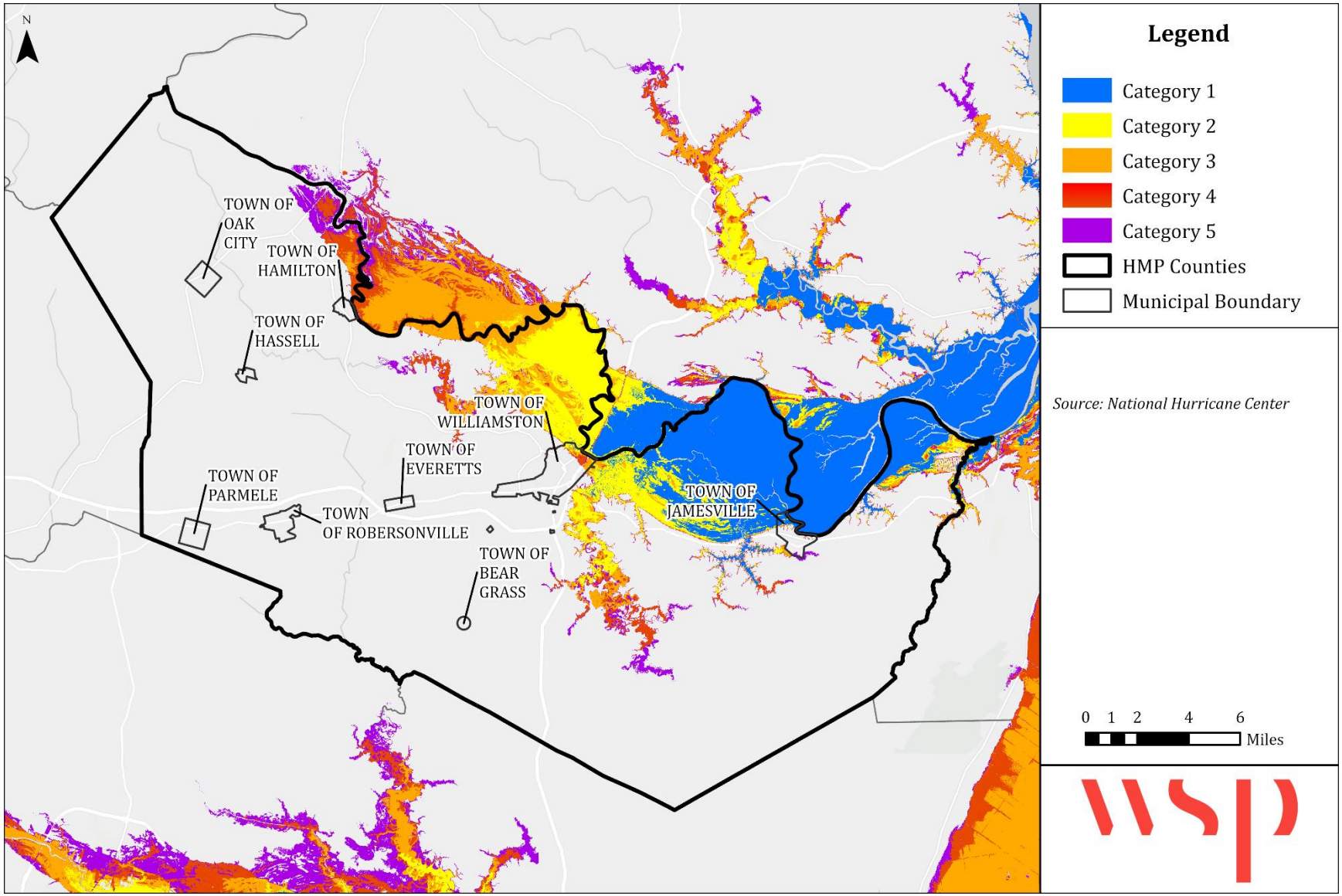
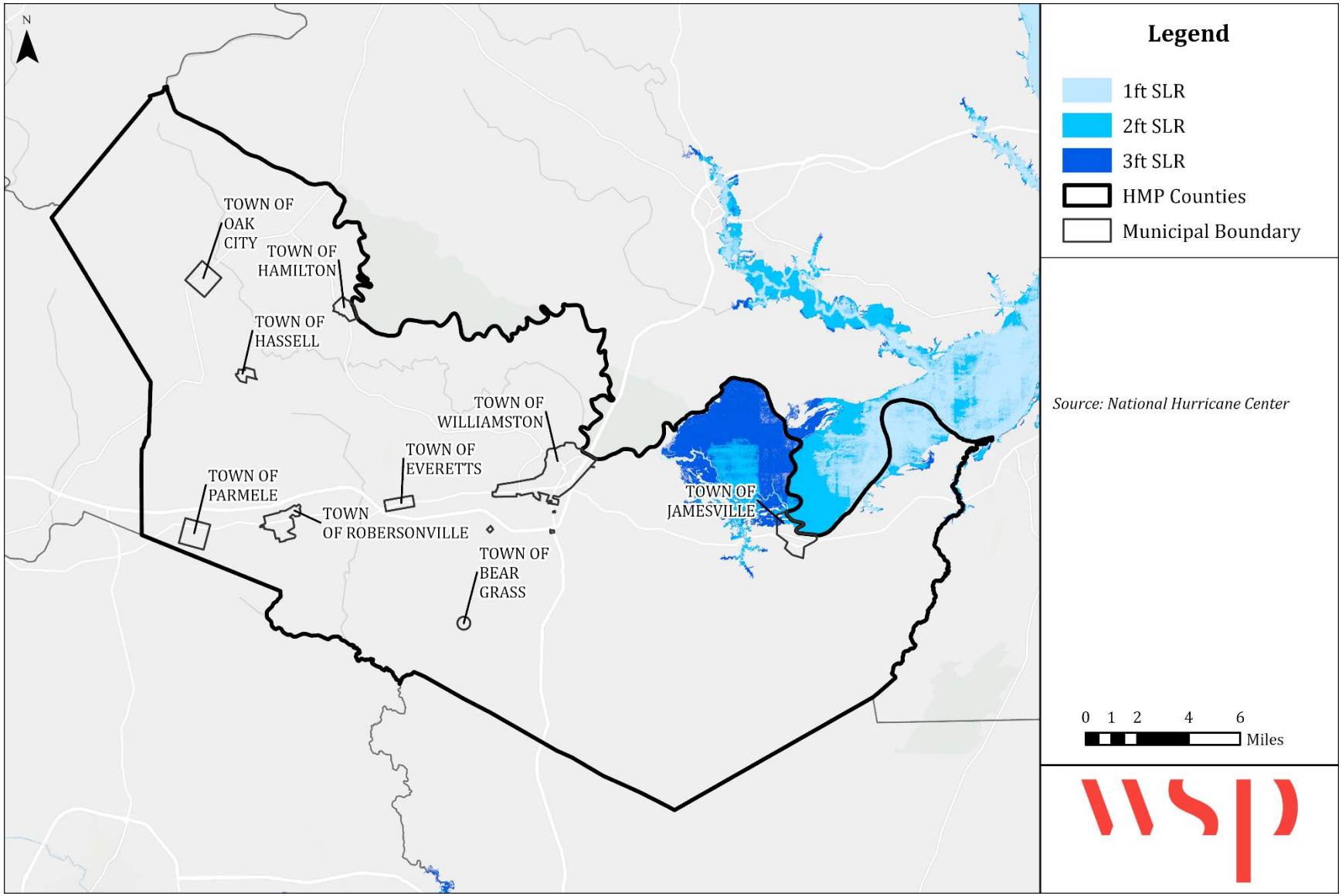


**Figure C.16 – Sea Level Rise Extent**



## C.2.3 WILDFIRE

Table C.14 summarizes the acreage in unincorporated Martin County that falls within the Functional Wildland Urban Interface (WUI), categorized into zones that describe the wildfire risk mitigation activities appropriate for each zone. Areas in the Functional WUI are those areas where development and building structures may intermix with burnable land cover. Approximately, 4 percent of unincorporated Martin County is categorized as having direct exposure to wildfire risk and 76 percent is located within the critical fireshed of the Functional WUI.

**Table C.14 – Functional Wildland Urban Interface Acreage, Unincorporated Martin County**

| | Functional Wildland Urban Interface (WUI) Category | Acres | Percent |
|---|---|---|---|
| | Direct Exposure | 11,360 | 4% |
| | Indirect Exposure | 13,943 | 5% |
| | Critical Fireshed | 211,173 | 76% |
| | Sources of Ember Load to Buildings | 41,147 | 15% |
| | Little to No Exposure | 0 | 0% |
| | Water | 1,492 | 1% |
| | **Total** | **279,116** | **100%** |

Source: Southern Wildfire Risk Assessment

Figure C.17 through Figure C.26 depicts the Functional WUI for unincorporated Martin County and all participating jurisdictions. Figure C.27 through Figure C.36 depicts the Fire Intensity Scale, which indicates the potential severity of fire based on fuel loads, topography, and other factors. Figure C.37 through Figure C.46 depicts Burn Probability based on landscape conditions, percentile weather, historical ignition patterns, and historical prevention and suppression efforts.

Potential fire intensity is highest in the unincorporated areas of Martin County, particularly near the western border with Edgecombe County and the southeastern border with Beaufort and Washington Counties. Functional WUI areas with direct exposure to wildfire are spread throughout the county appearing in areas with more housing density around Williamston and the major roadways. Burn probability is low across most of the county, but there is a large area of moderate probability in the southeastern portion of the county as well as a clusters of moderate burn probability near Oak City and Hassell in the northwestern corner of the county. Areas of the Functional WUI that intersect with high fire intensity and moderate burn probability may be exposed to greater potential wildfire risk.

Table C.15 provides building counts and values for critical facilities by FEMA lifeline that are located in areas categorized with direct exposure to wildfire risk on the Functional WUI scale. Note that not all jurisdictions within Martin County contain critical facilities that have exposure to direct exposure.

**Table C.15 – Critical Facilities Exposed to Wildfire by Jurisdiction, Martin County**

| Type | Critical Facility Count | Structure Value |
|---|---|---|
| **Martin County Unincorporated Area** | | |
| Food, Hydration, Shelter | 2 | $0 |
| Water Systems | 5 | $0 |
| **All Categories** | **7** | **$0** |
| **Town of Williamston** | | |
| Water Systems | 3 | $0 |
| **All Categories** | **3** | **$0** |
| **County Total** | **10** | **$0** |

Source: Southern Wildfire Risk Assessment

**Figure C.17 – Functional Wildland Urban Interface, Unincorporated Martin County**

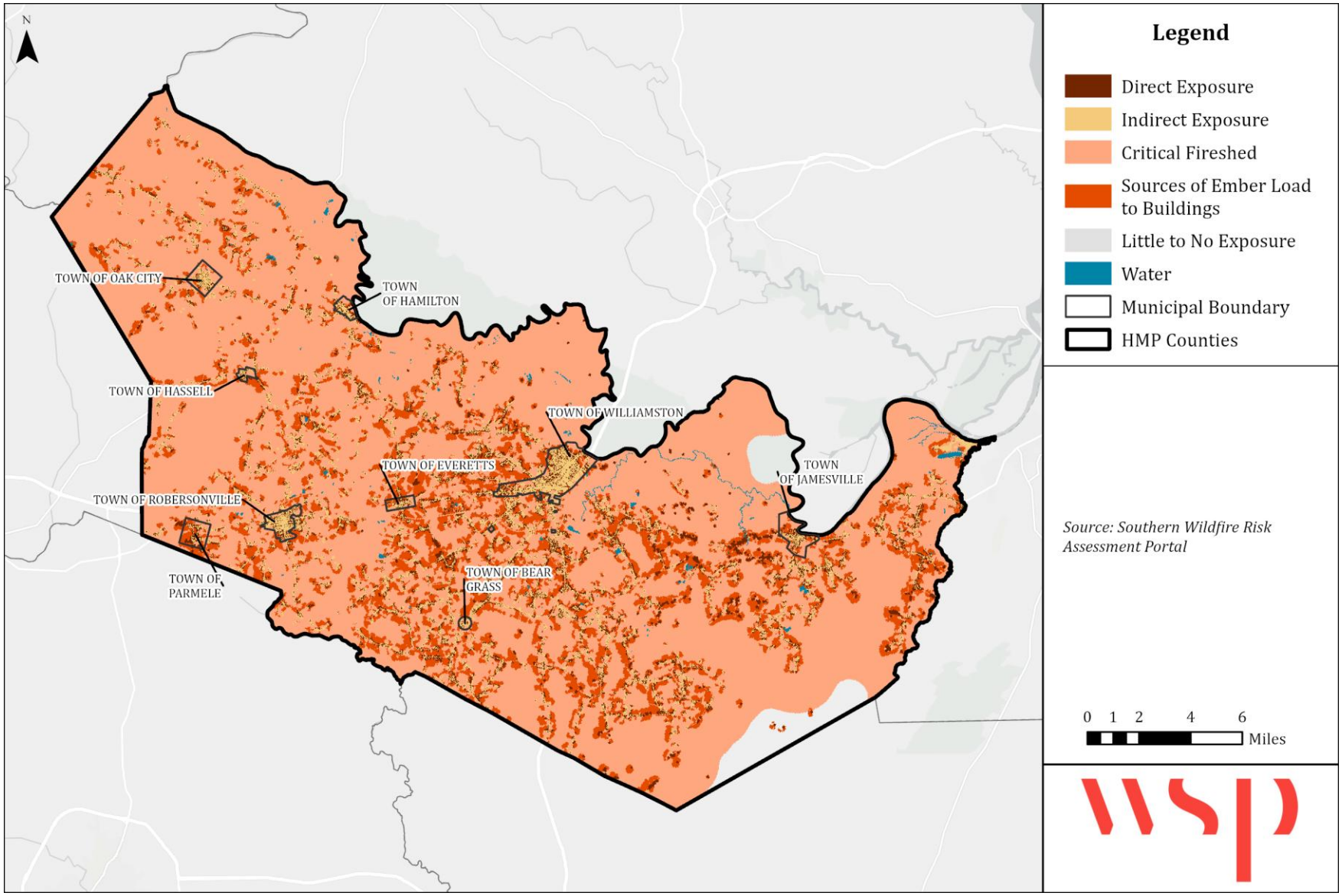


**Figure C.18 – Functional Wildland Urban Interface, Town of Bear Grass**

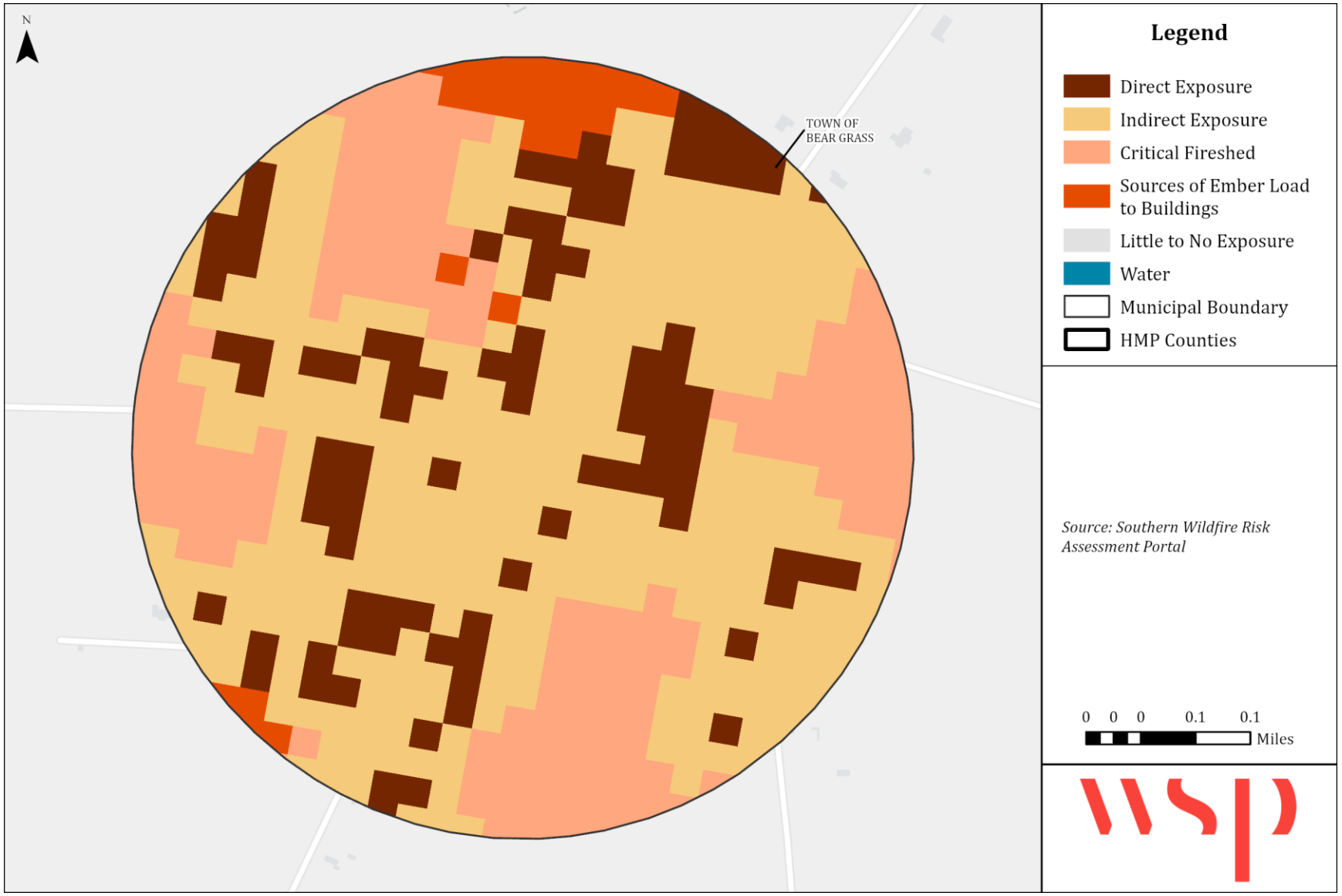


**Figure C.19 – Functional Wildland Urban Interface, Town of Everetts**

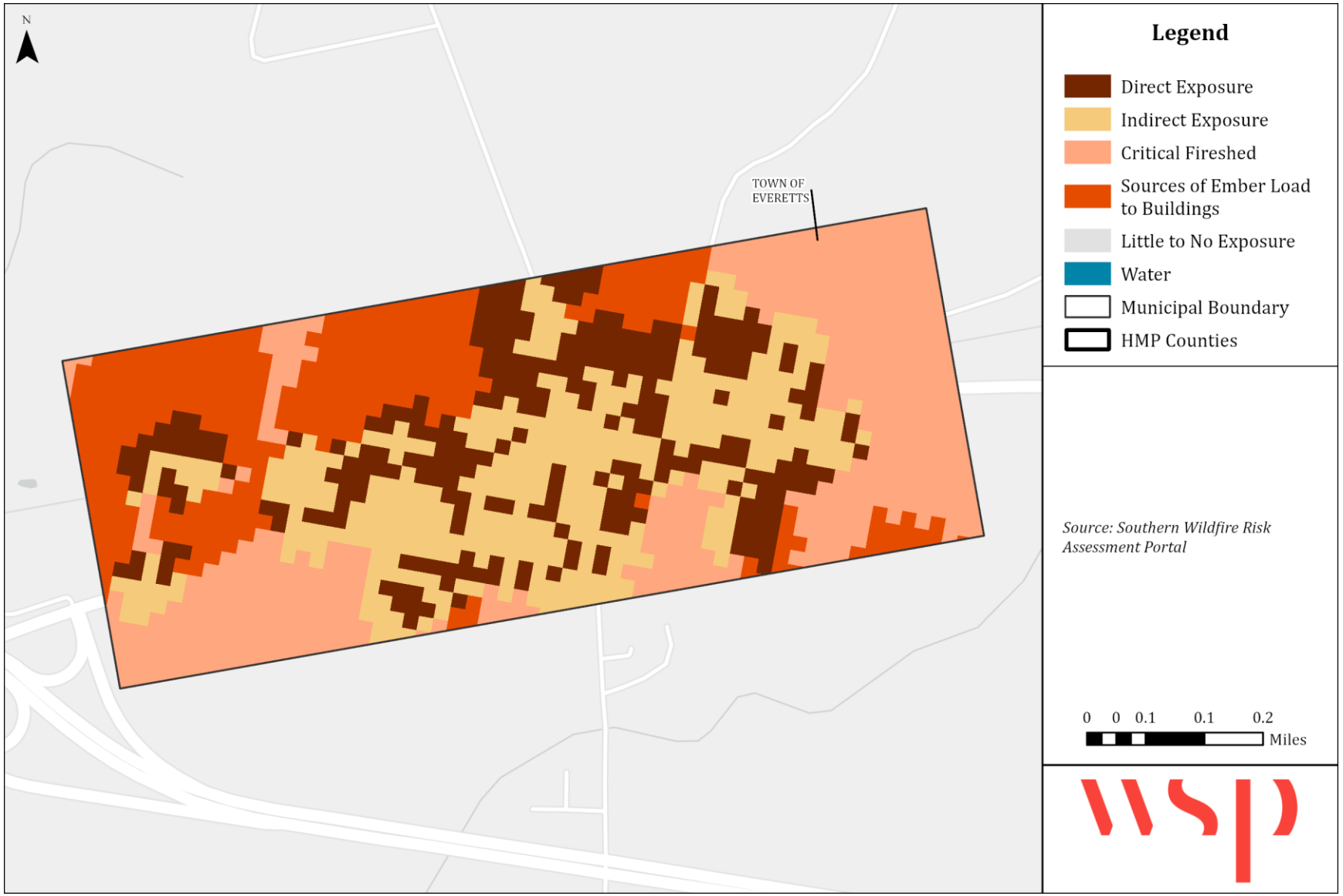


**Figure C.20 – Functional Wildland Urban Interface, Town of Hamilton**

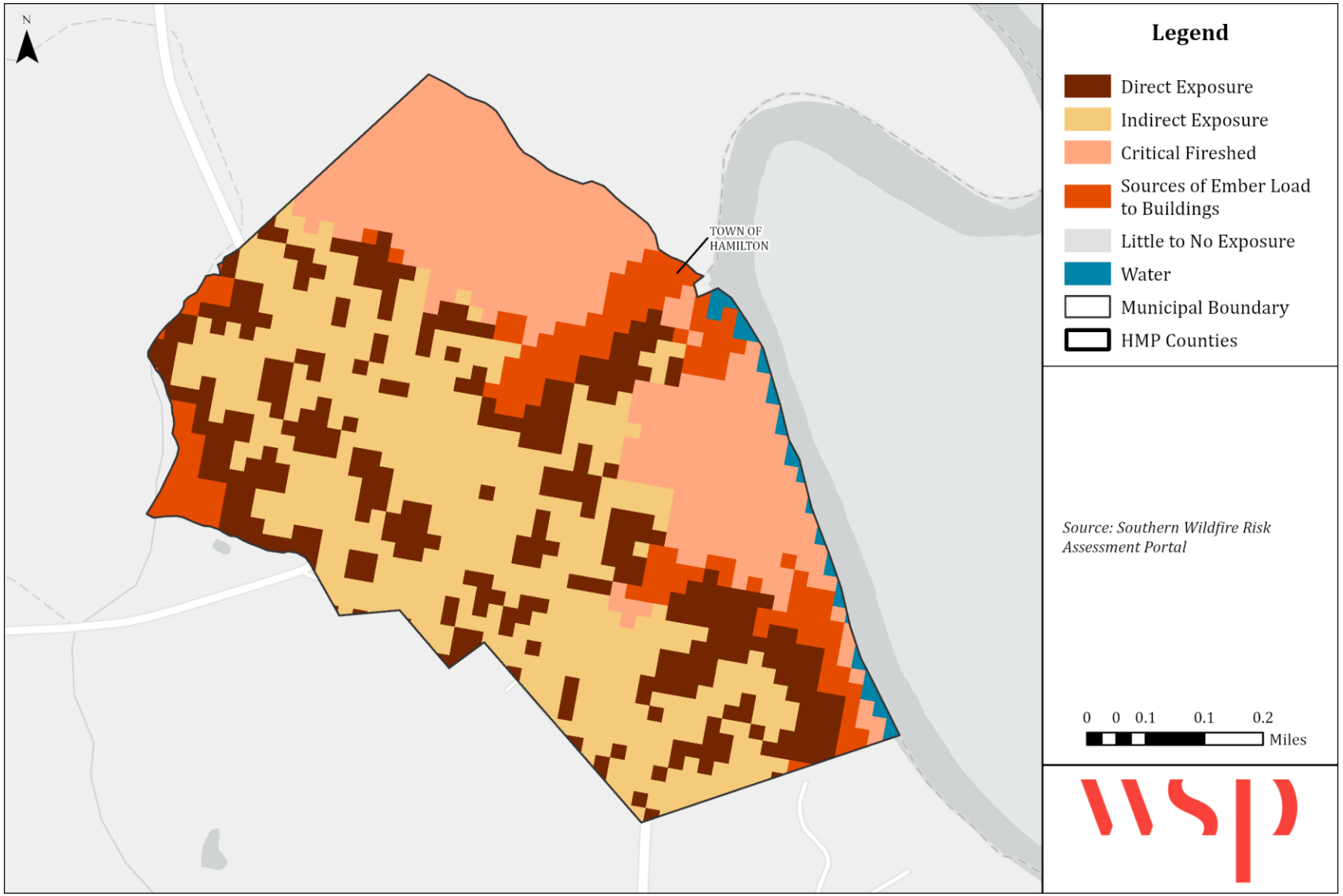


**Figure C.21 – Functional Wildland Urban Interface, Town of Hassell**

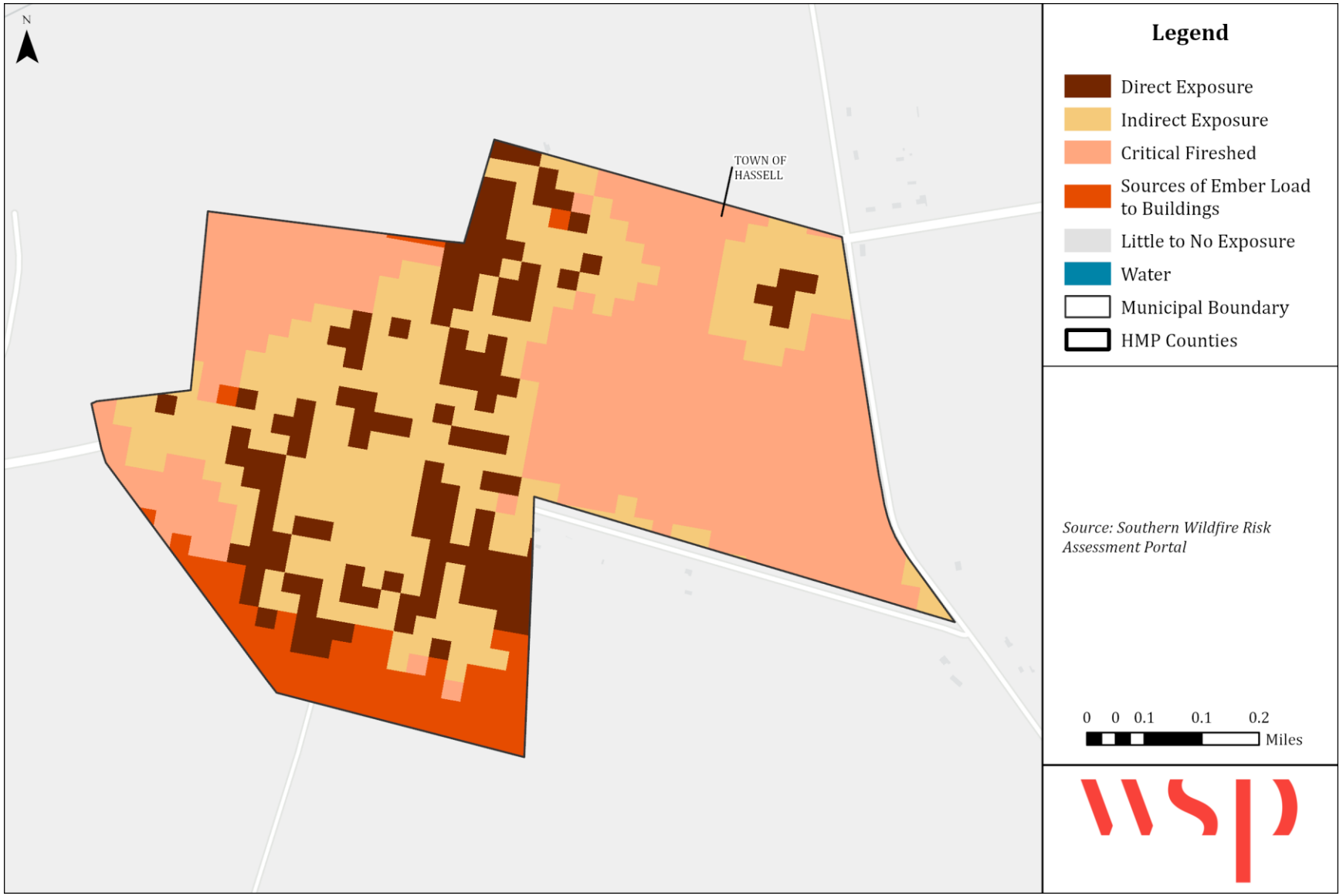


**Figure C.22 – Functional Wildland Urban Interface, Town of Jamesville**

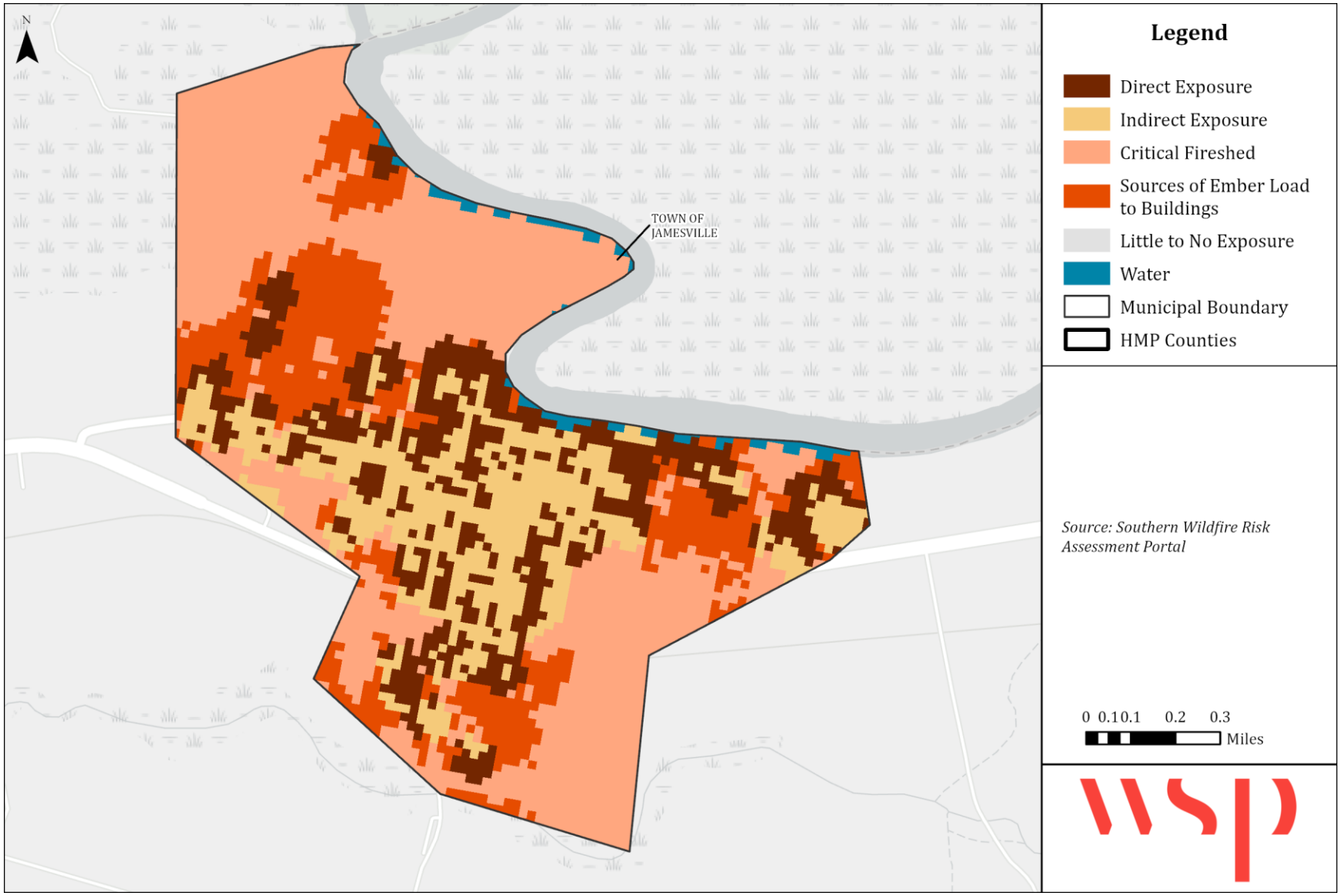


**Figure C.23 – Functional Wildland Urban Interface, Town of Oak City**

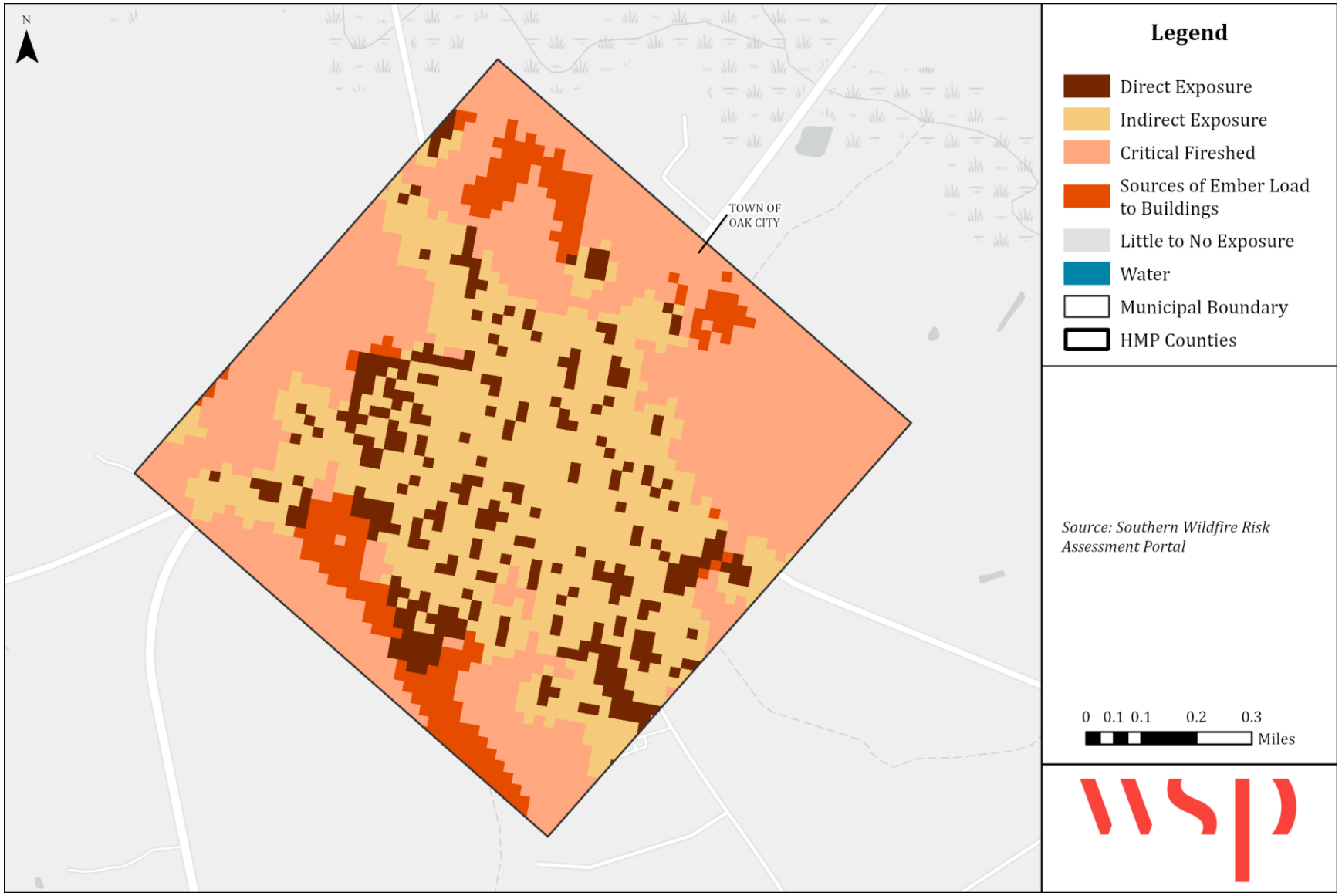


**Figure C.24 – Functional Wildland Urban Interface, Town of Parmele**

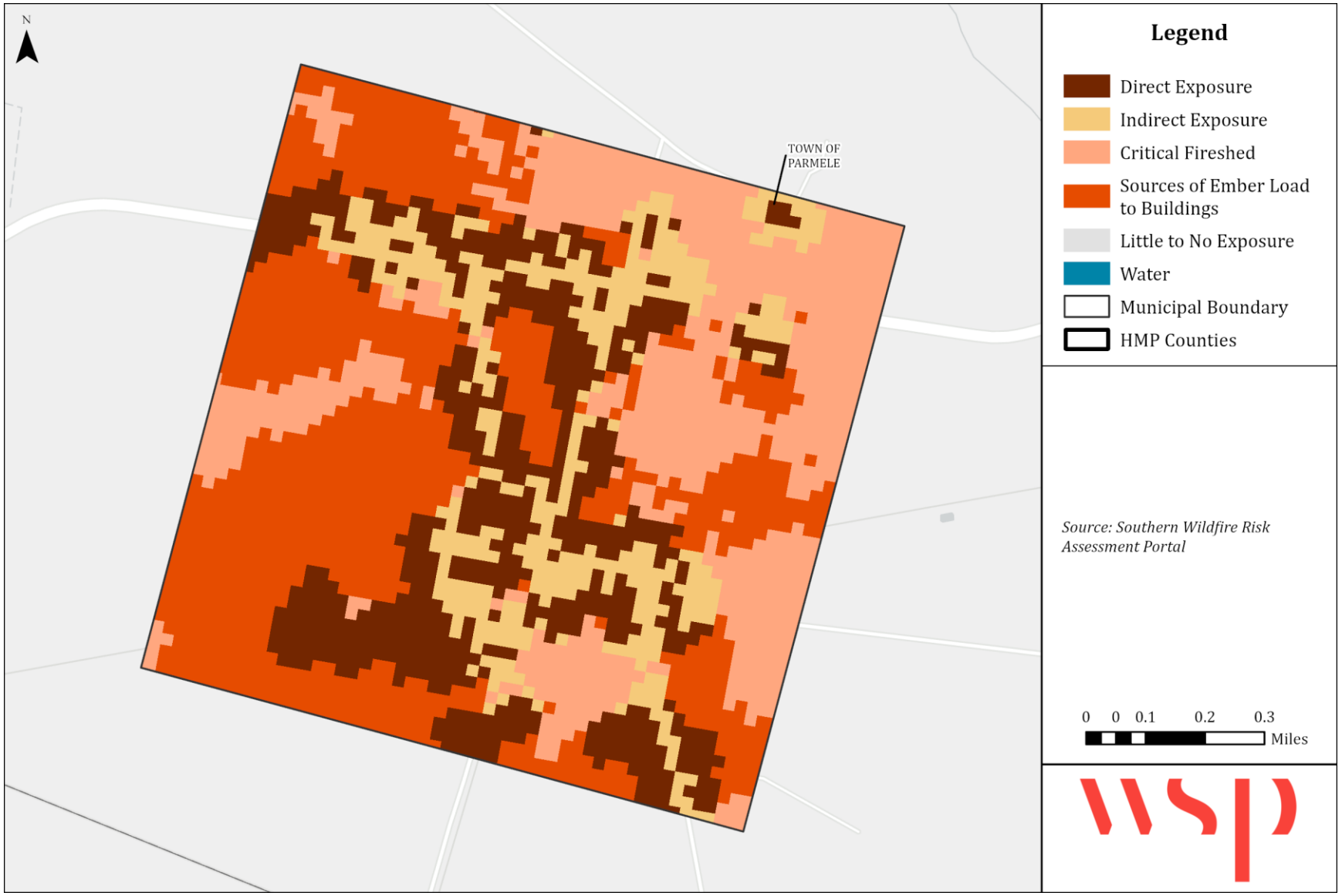


**Figure C.25 – Functional Wildland Urban Interface, Town of Robersonville**

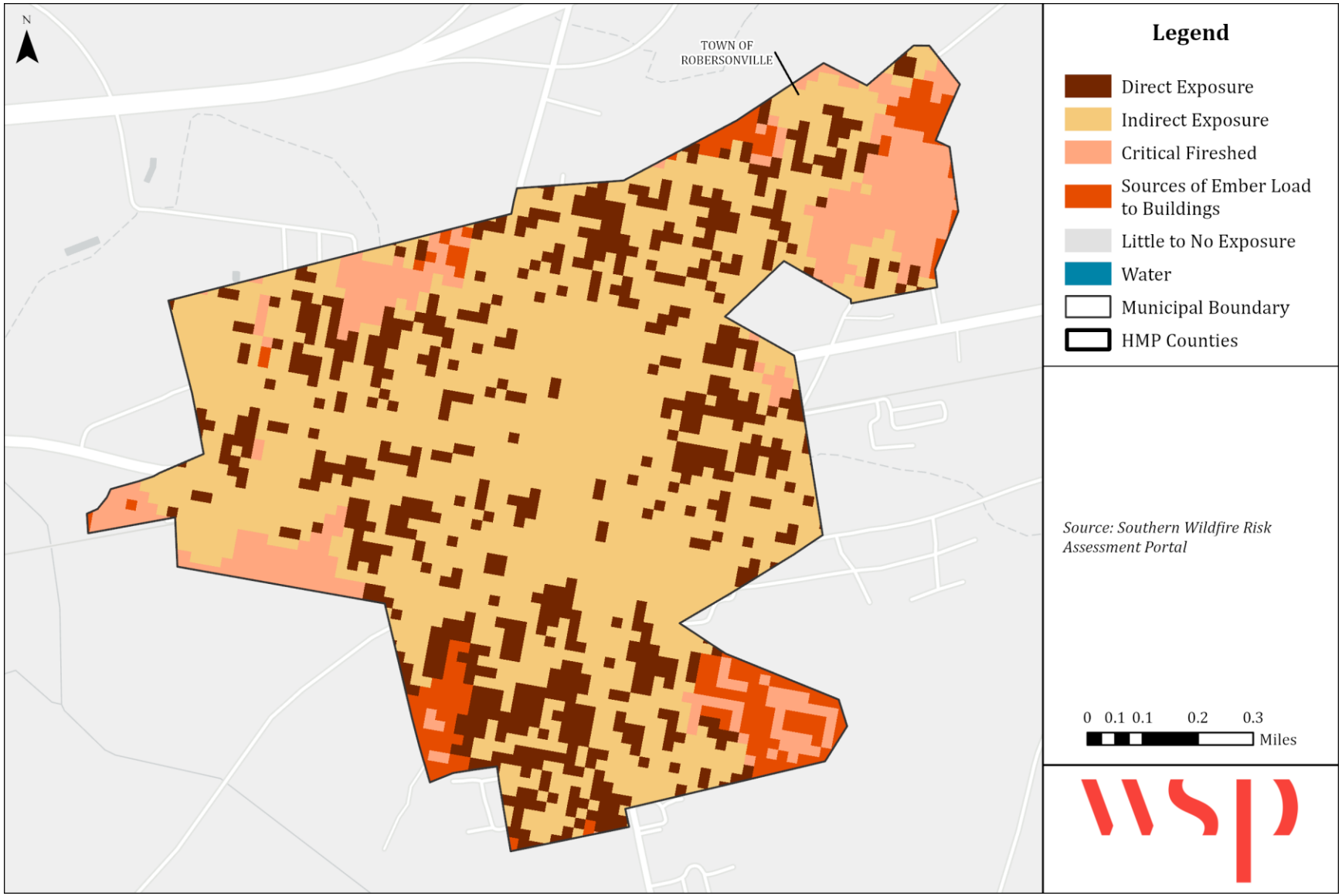


**Figure C.26 – Functional Wildland Urban Interface, Town of Williamston**

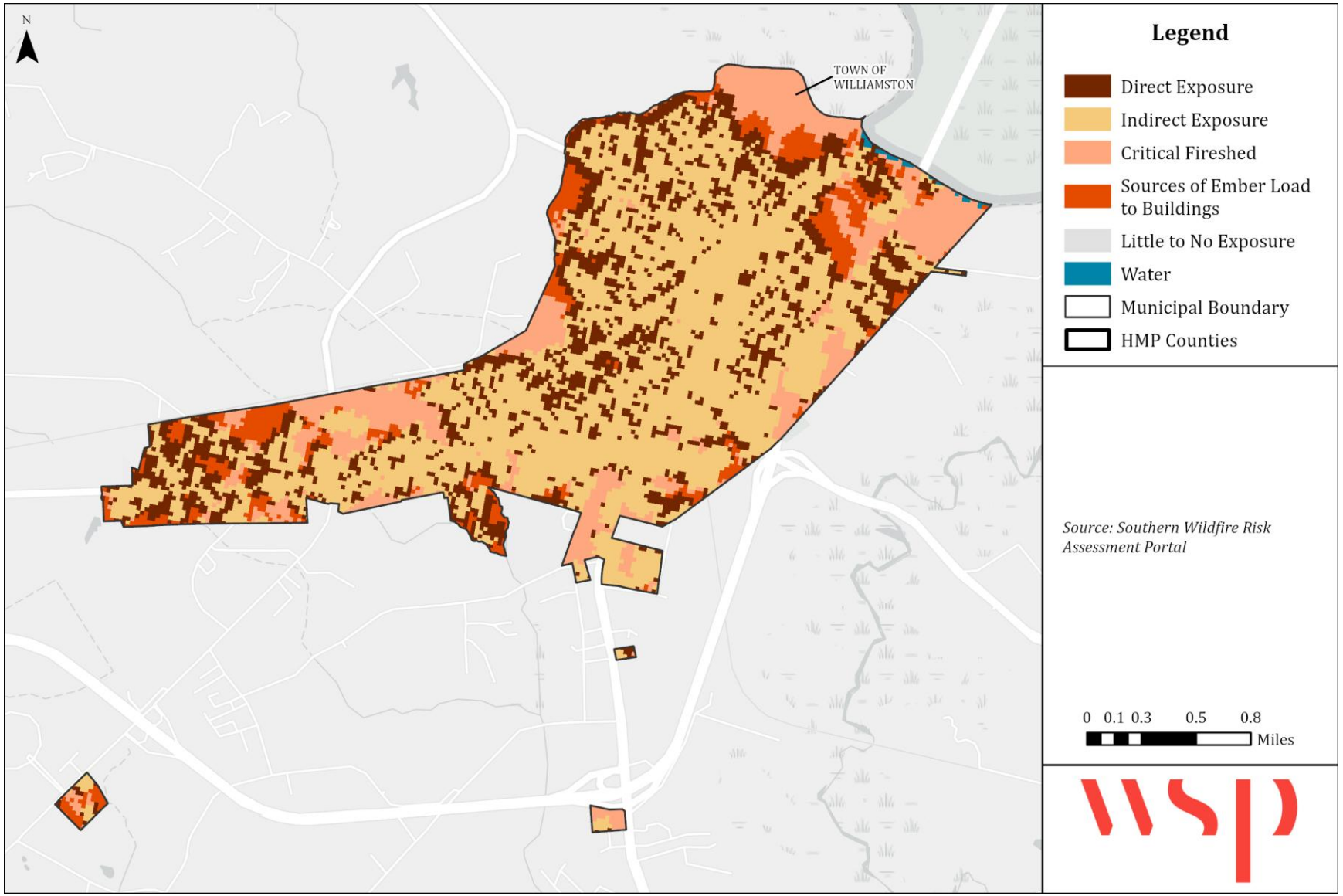


**Figure C.27 – Fire Intensity Scale, Unincorporated Martin County**

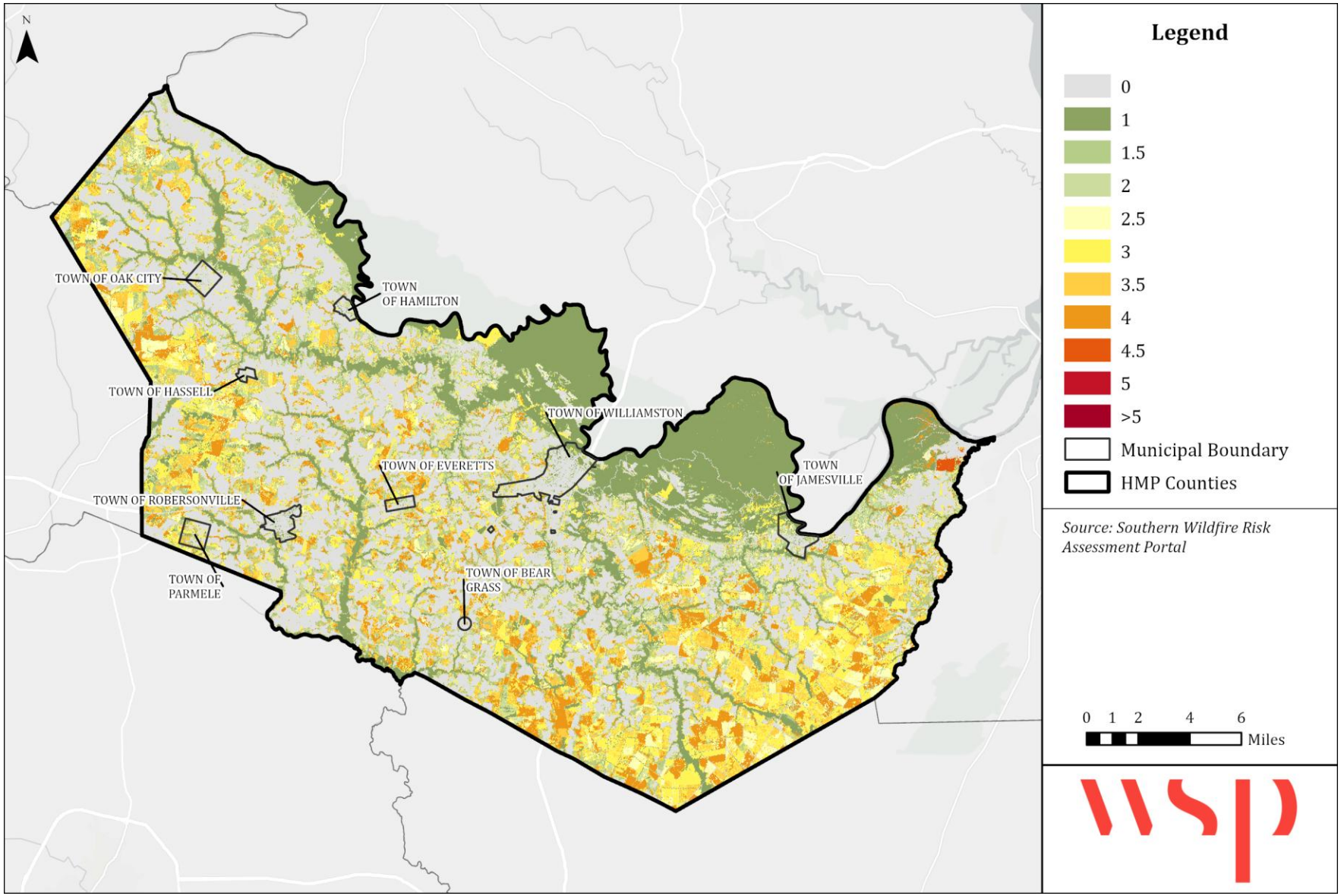


**Figure C.28 – Fire Intensity Scale, Town of Bear Grass**



**Figure C.29 – Fire Intensity Scale, Town of Everetts**

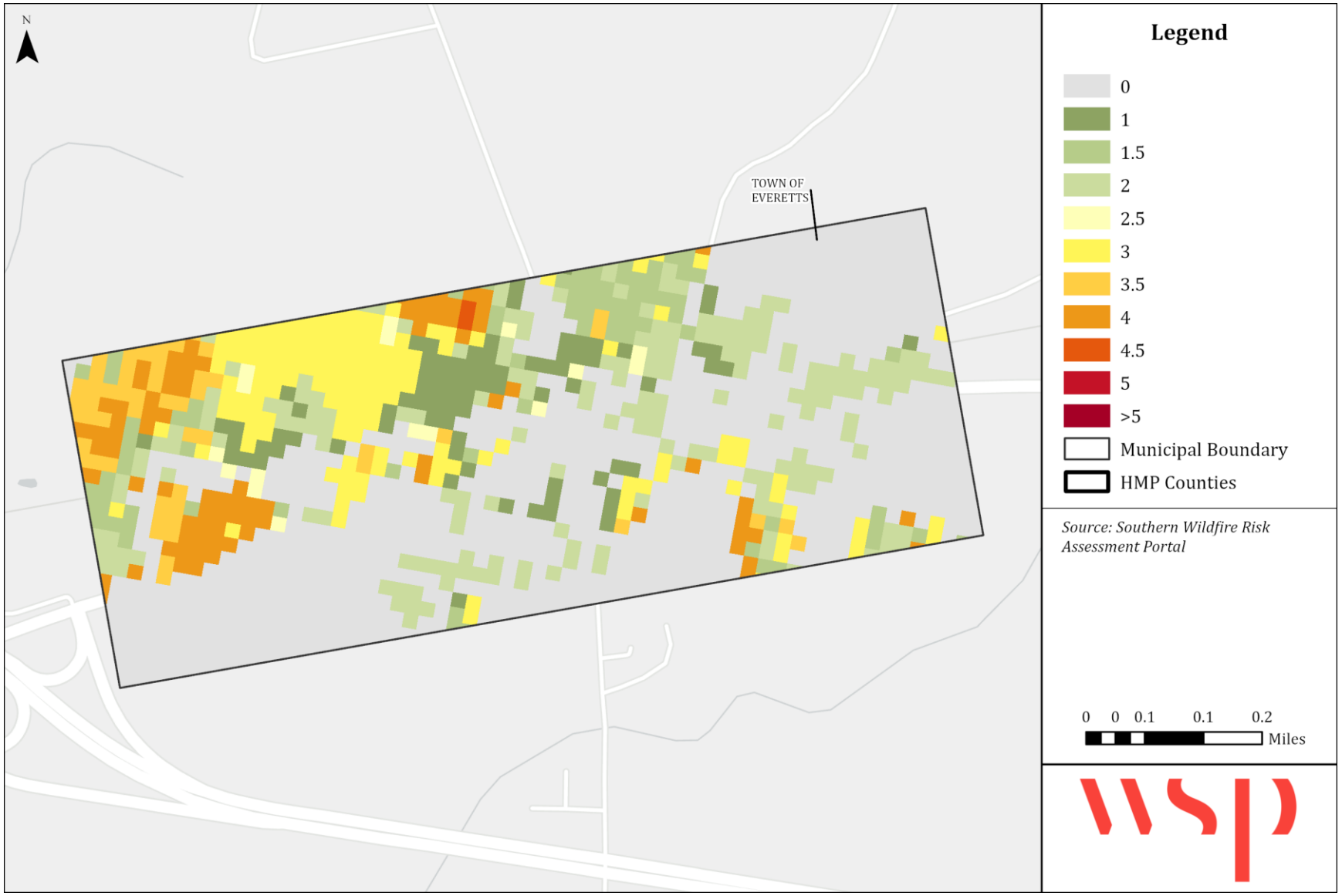


**Figure C.30 – Fire Intensity Scale, Town of Hamilton**

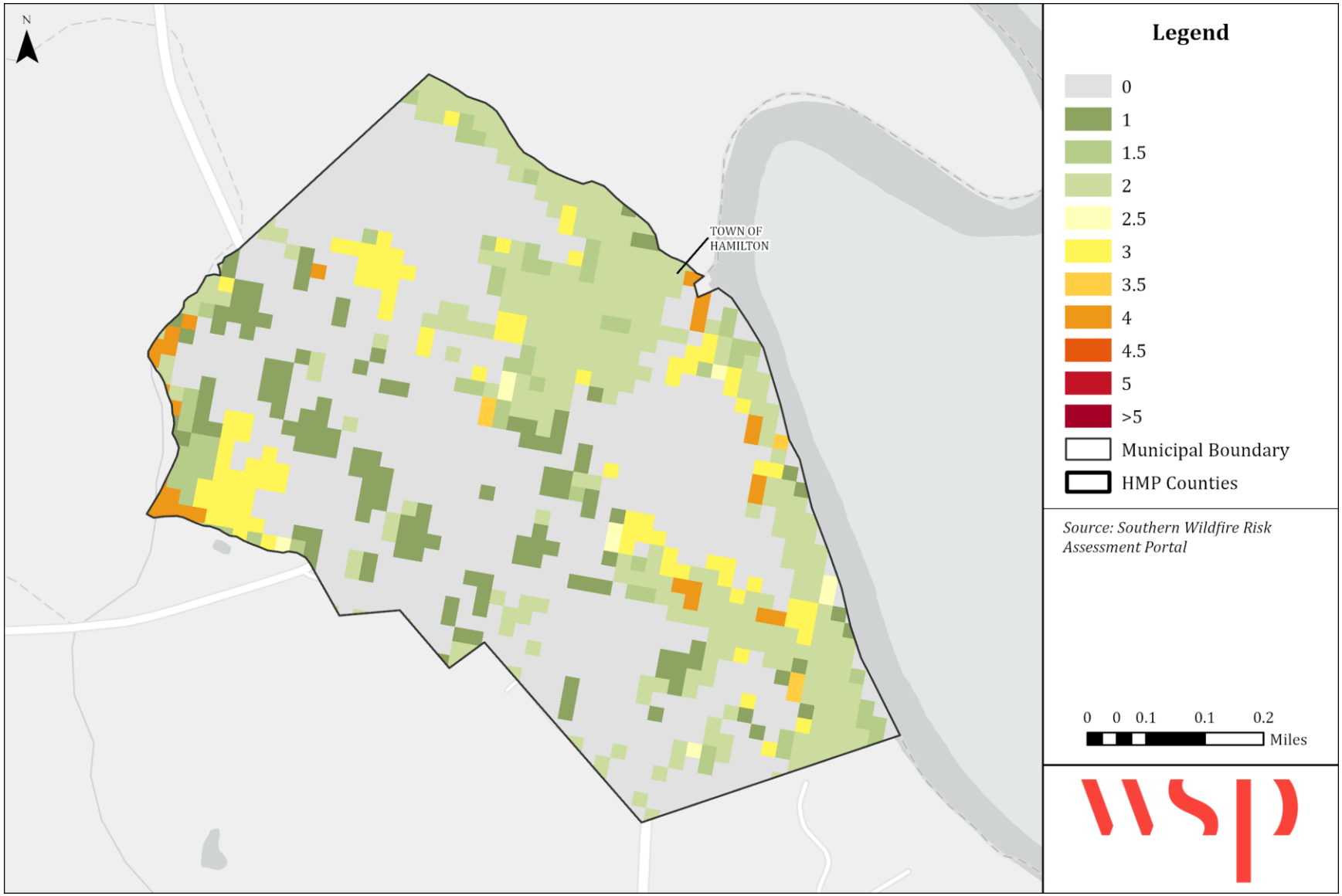


**Figure C.31 – Fire Intensity Scale, Town of Hassell**

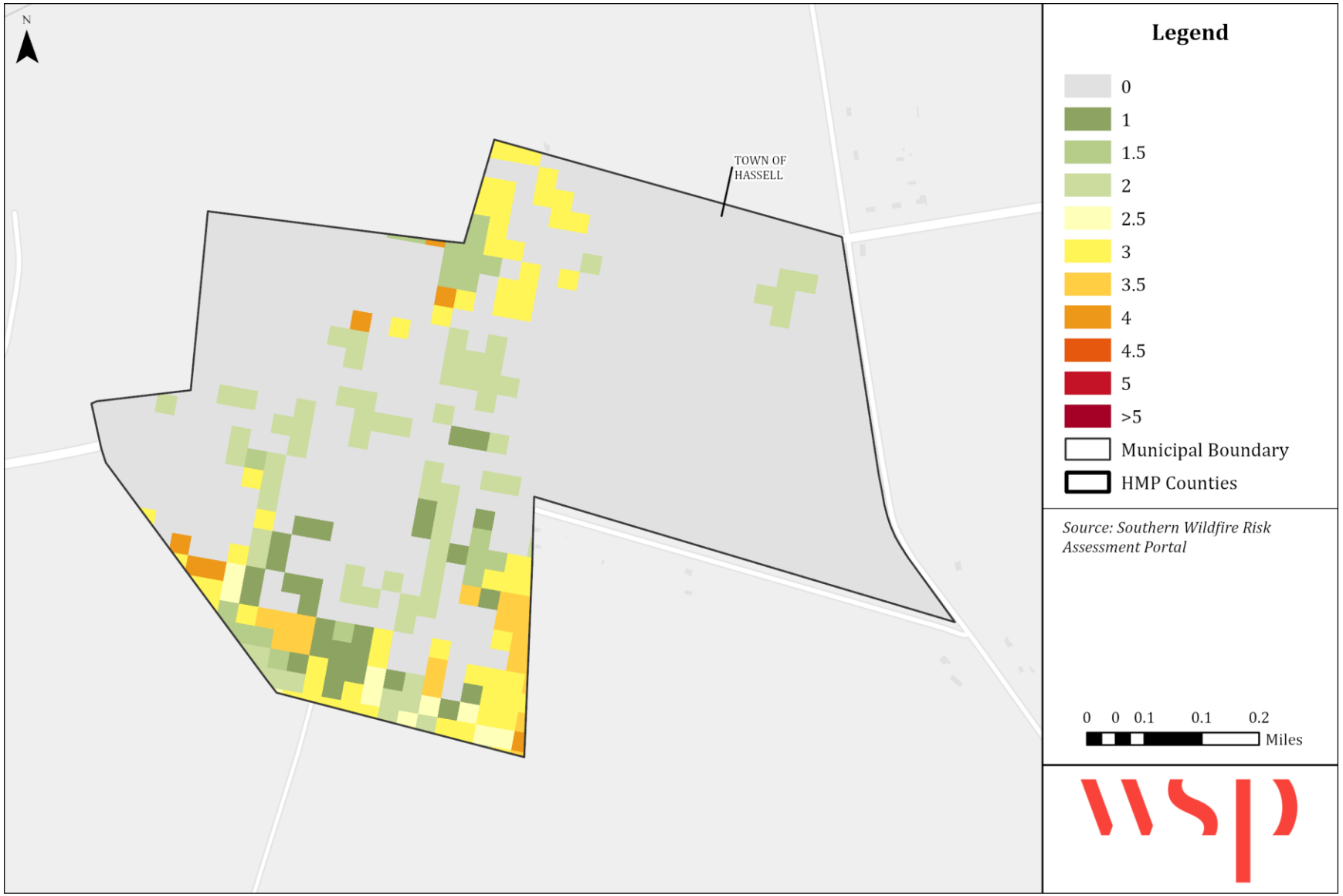


**Figure C.32 – Fire Intensity Scale, Town of Jamesville**

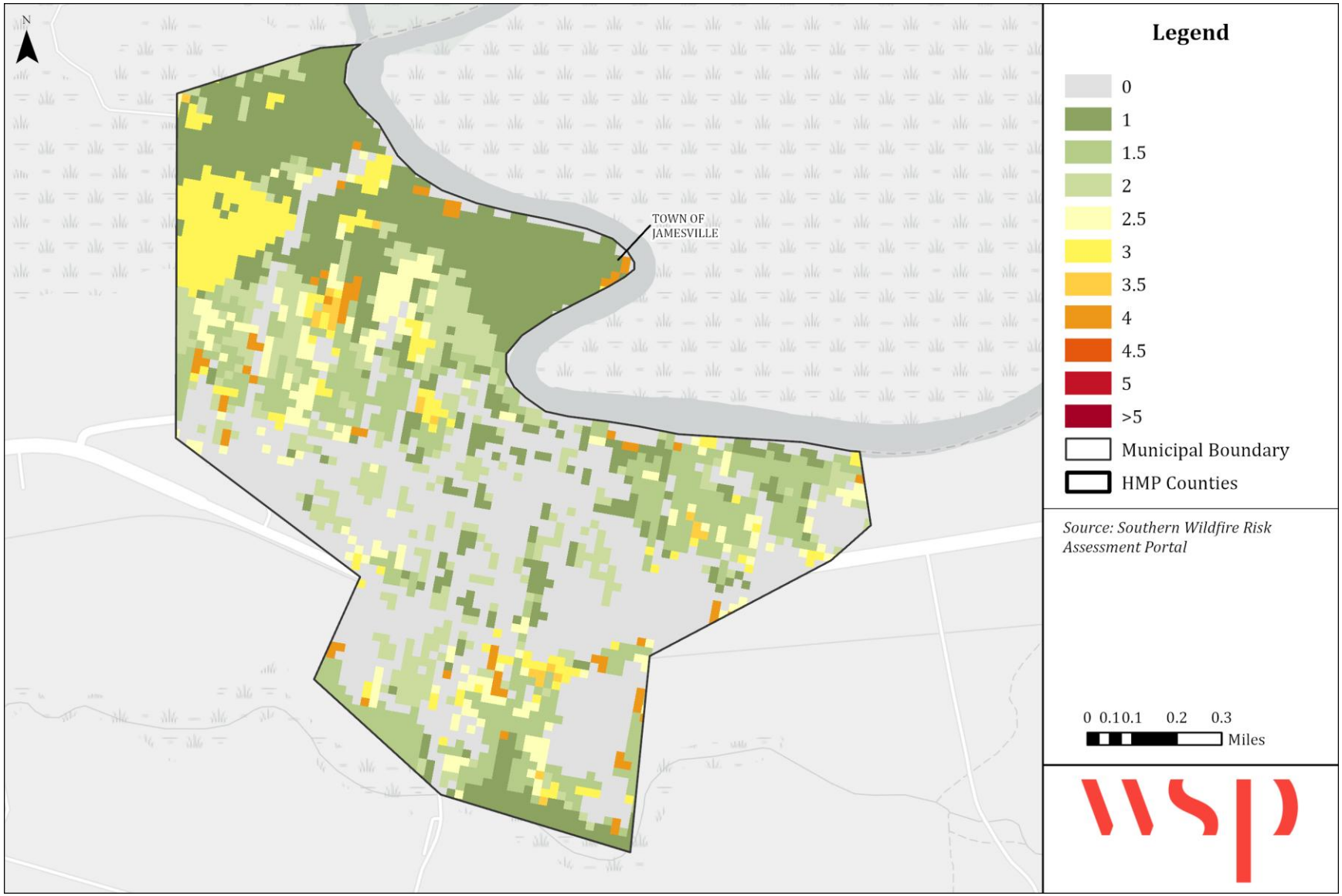


**Figure C.33 – Fire Intensity Scale, Town of Oak City**

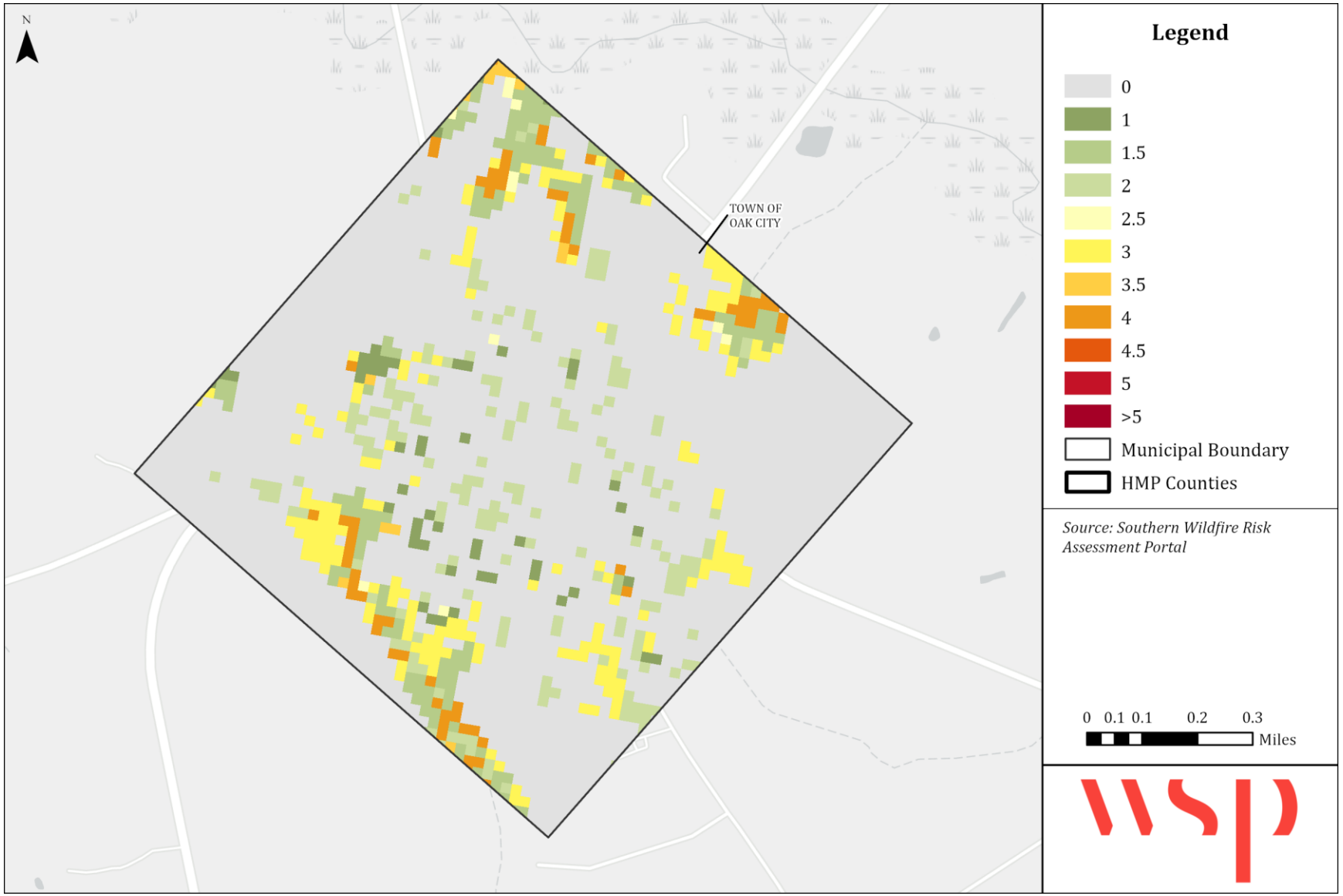


**Figure C.34 – Fire Intensity Scale, Town of Parmele**

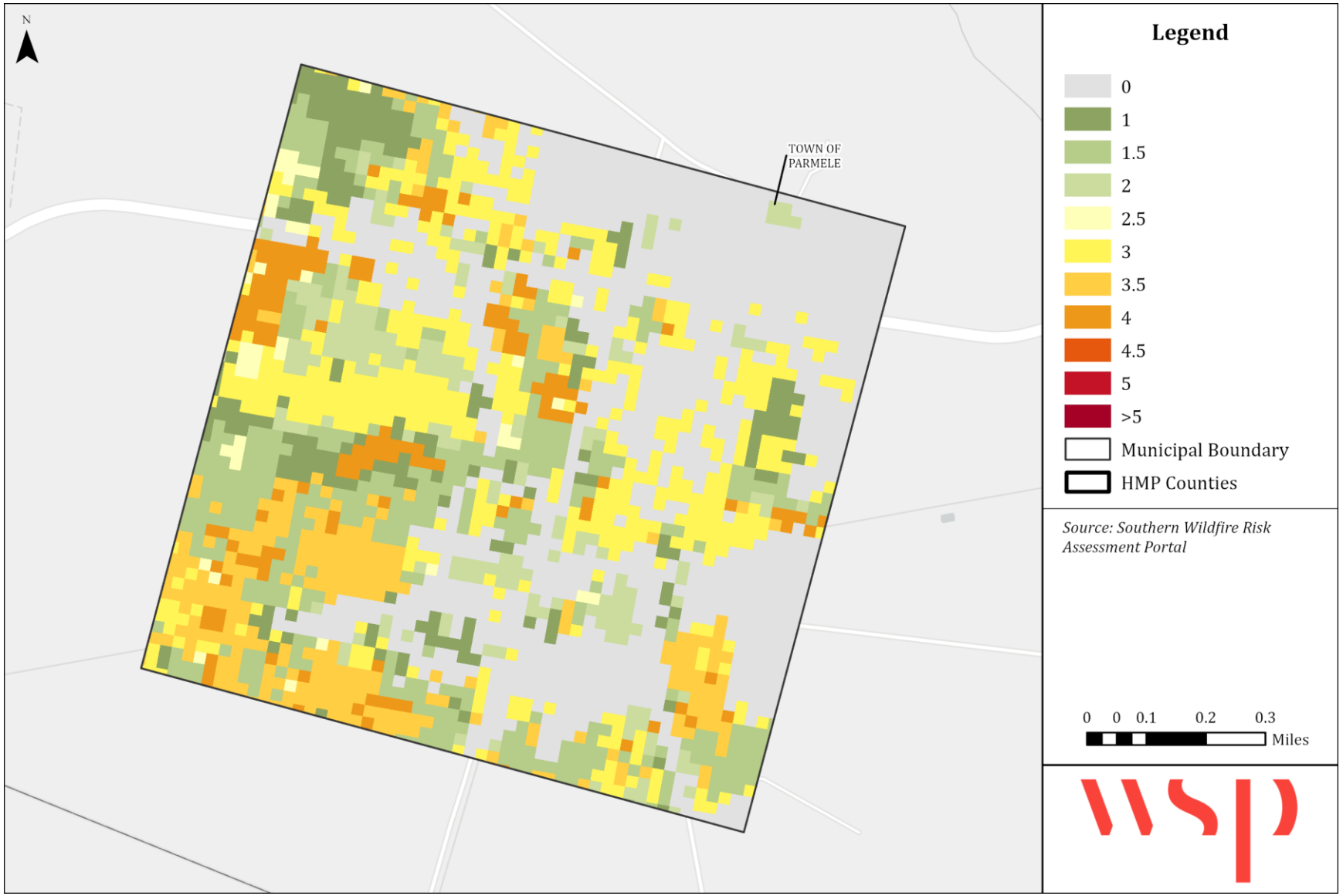


**Figure C.35 – Fire Intensity Scale, Town of Robersonville**

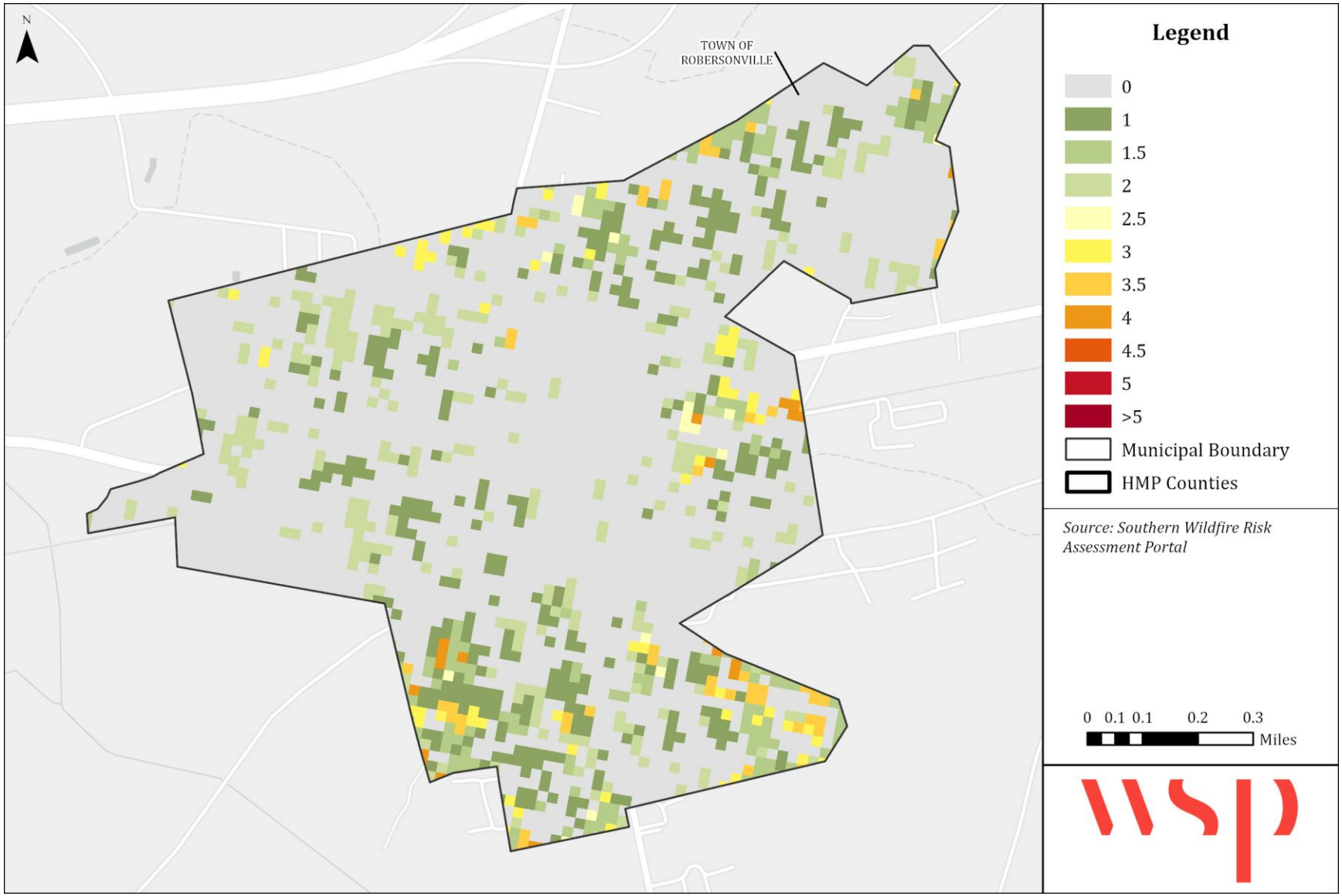


**Figure C.36 – Fire Intensity Scale, Town of Williamston**

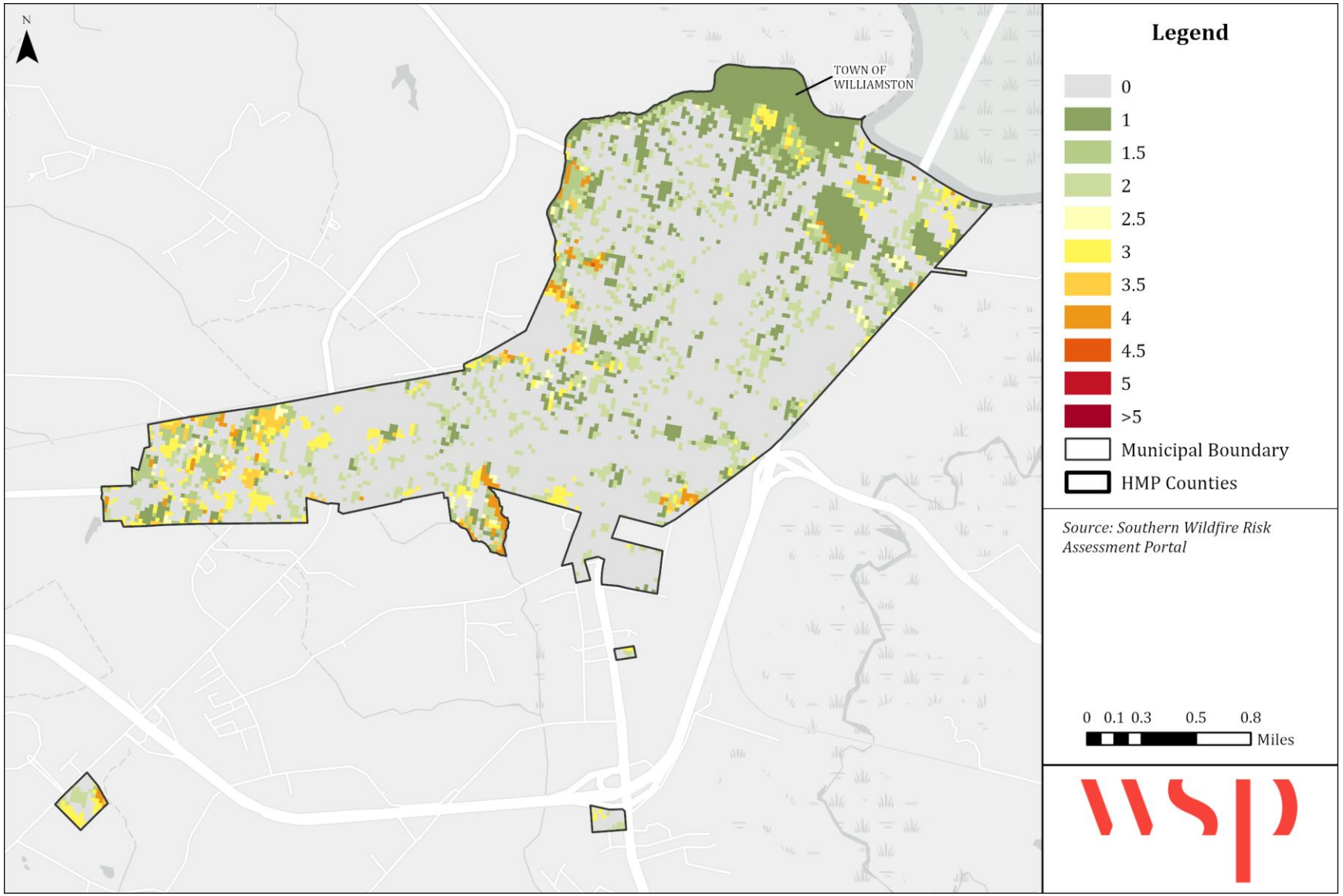


**Figure C.37 – Burn Probability, Unincorporated Martin County**

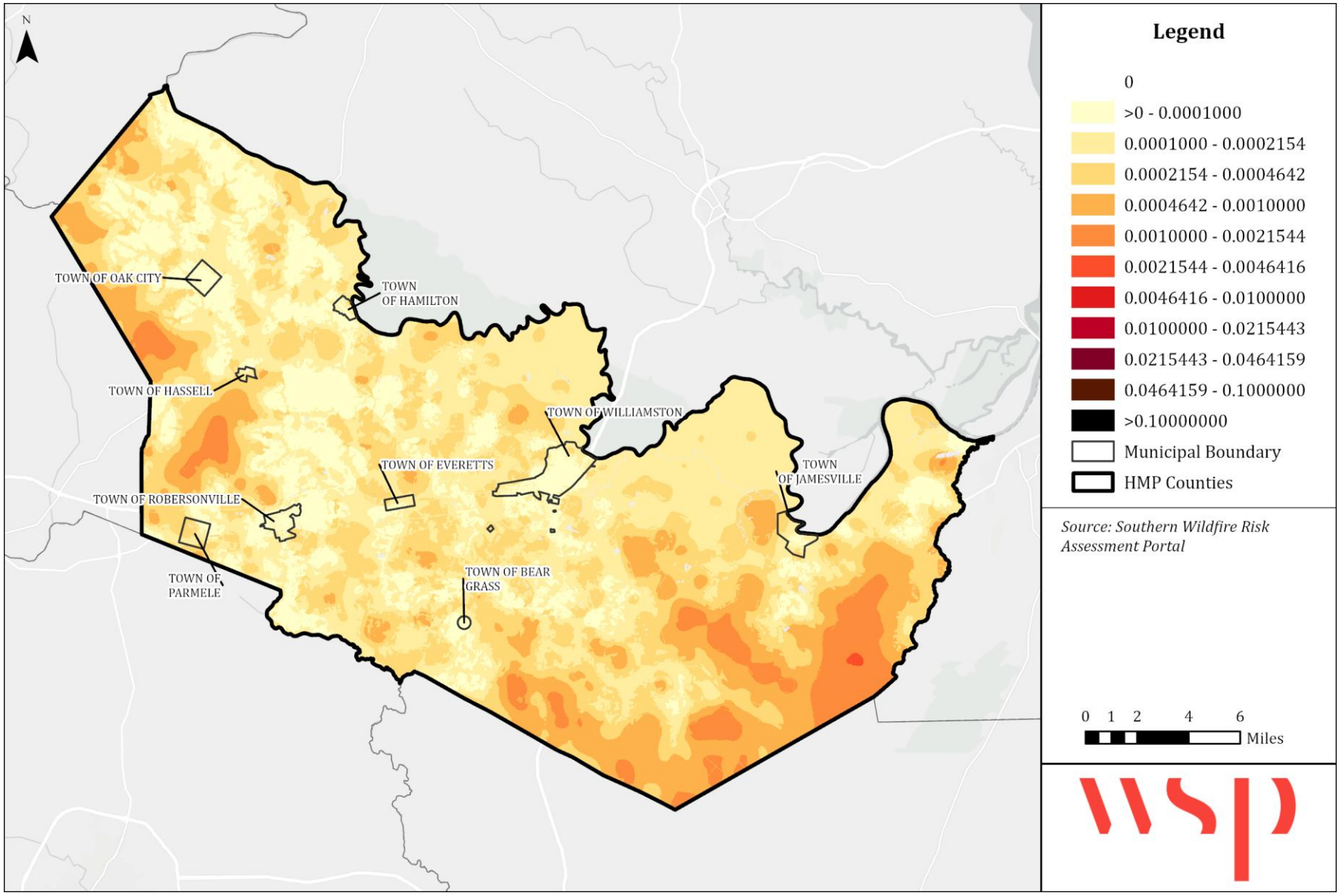


**Figure C.38 – Burn Probability, Town of Bear Grass**

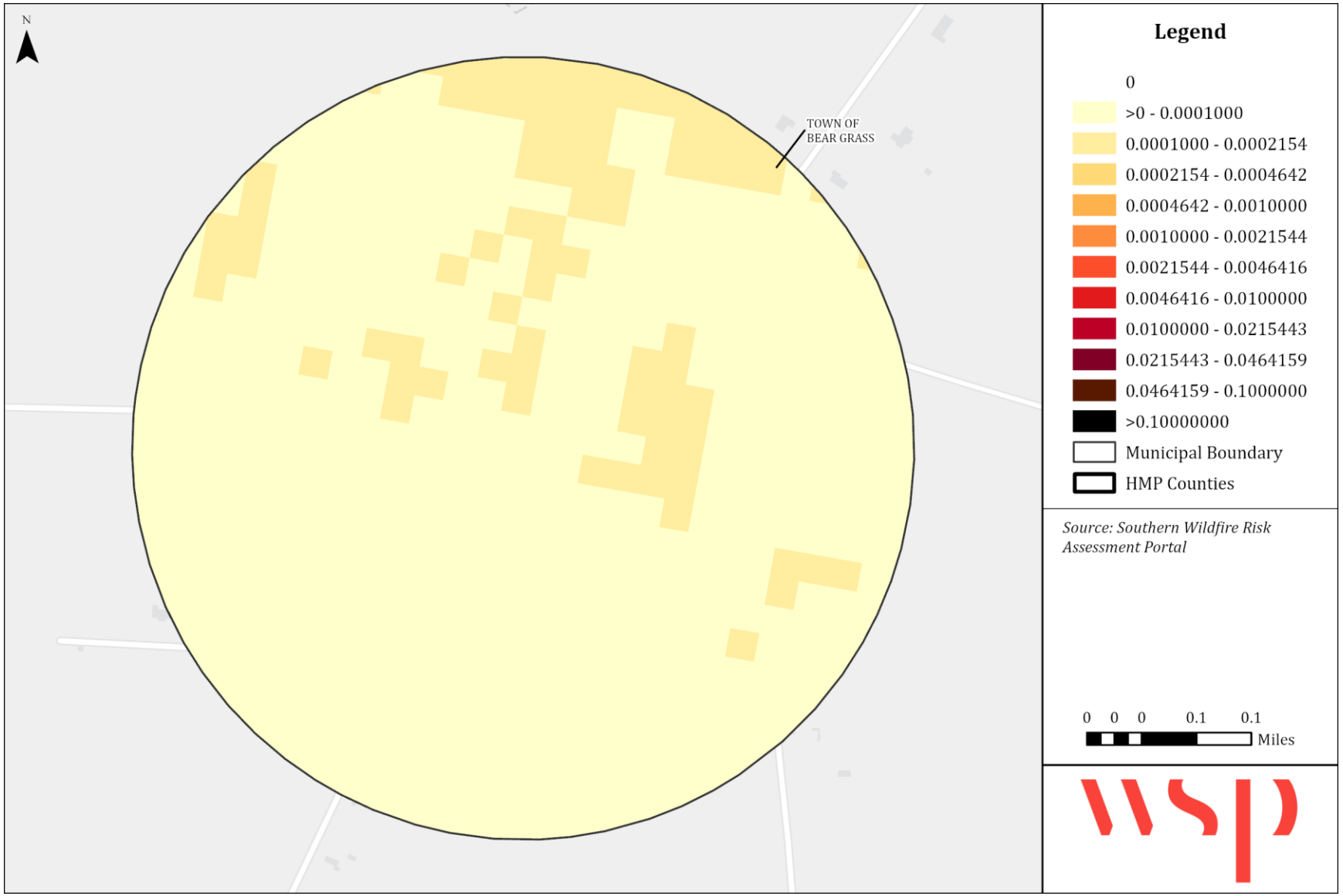


**Figure C.39 – Burn Probability, Town of Everetts**

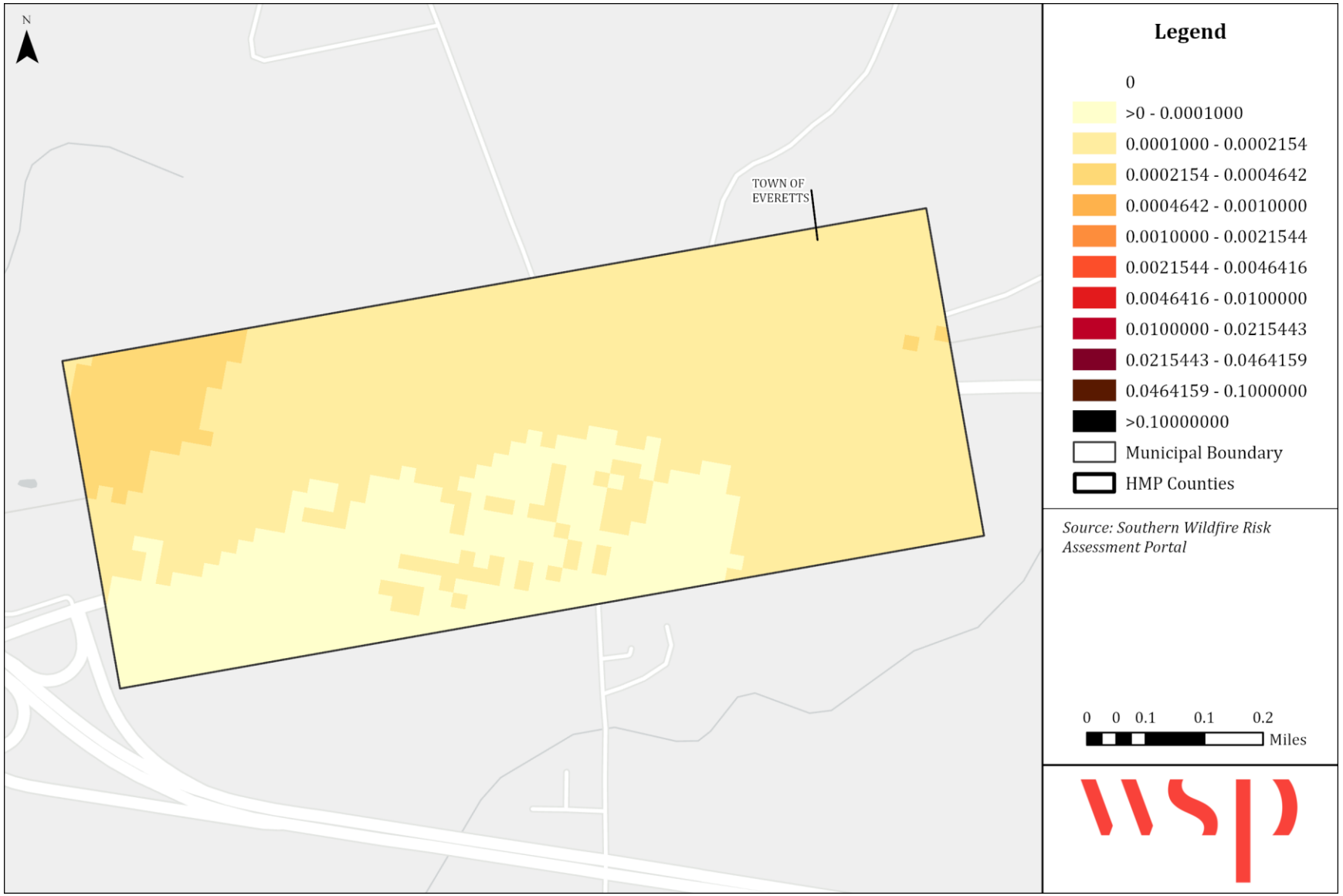
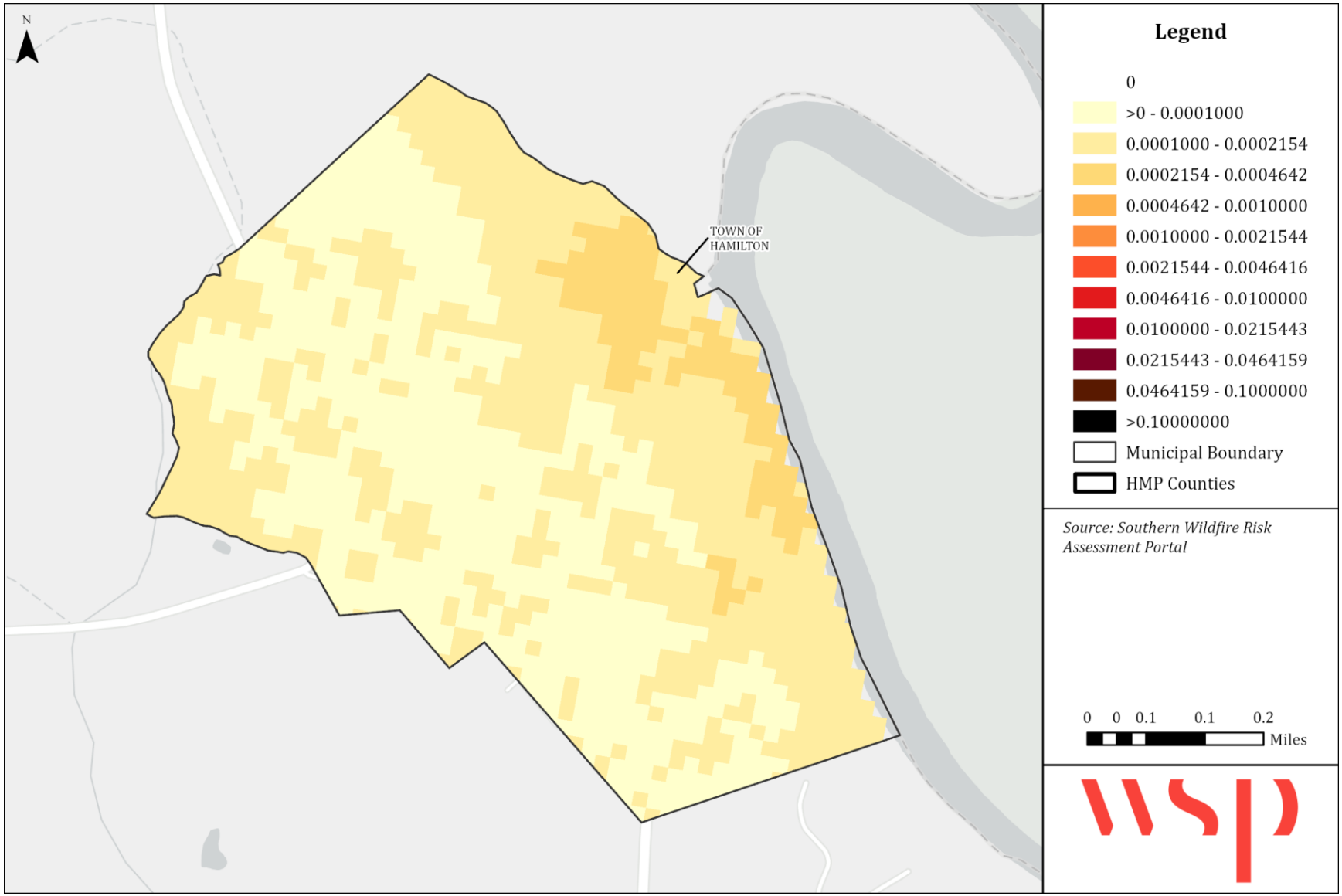


**Figure C.40 – Burn Probability, Town of Hamilton**



## Figure C.41 – Burn Probability, Town of Hassell

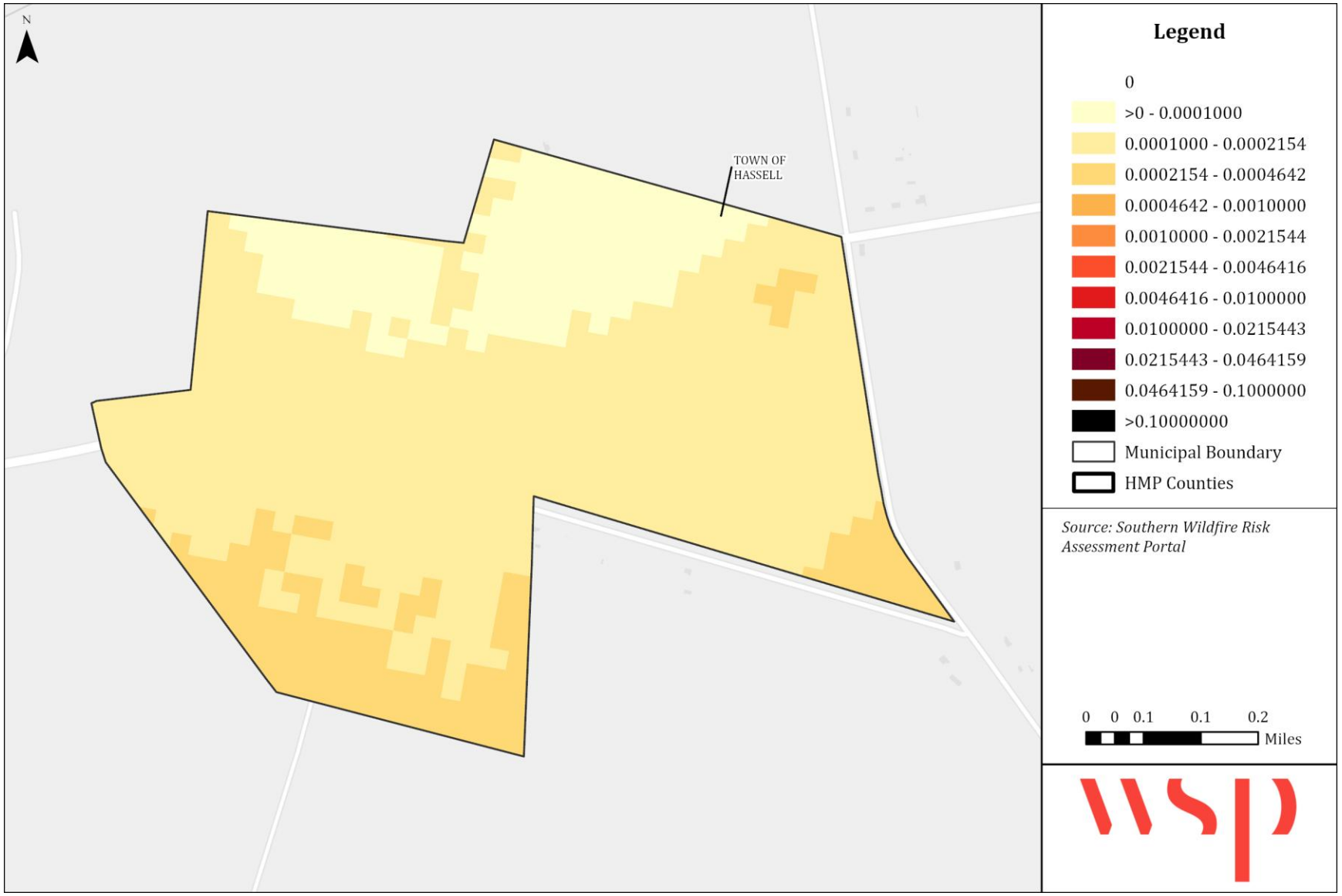


**Figure C.42 – Burn Probability, Town of Jamesville**

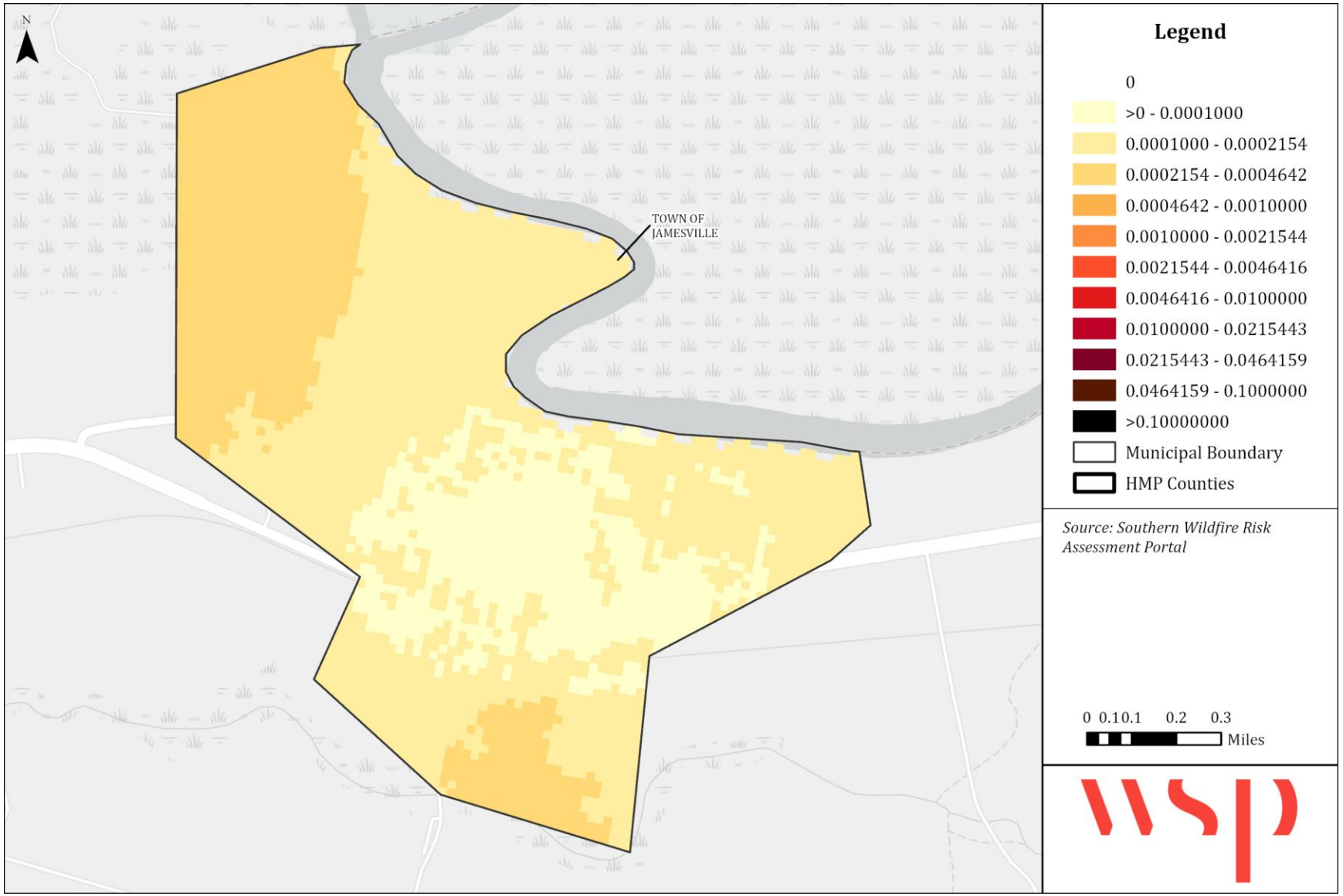


**Figure C.43 – Burn Probability, Town of Oak City**

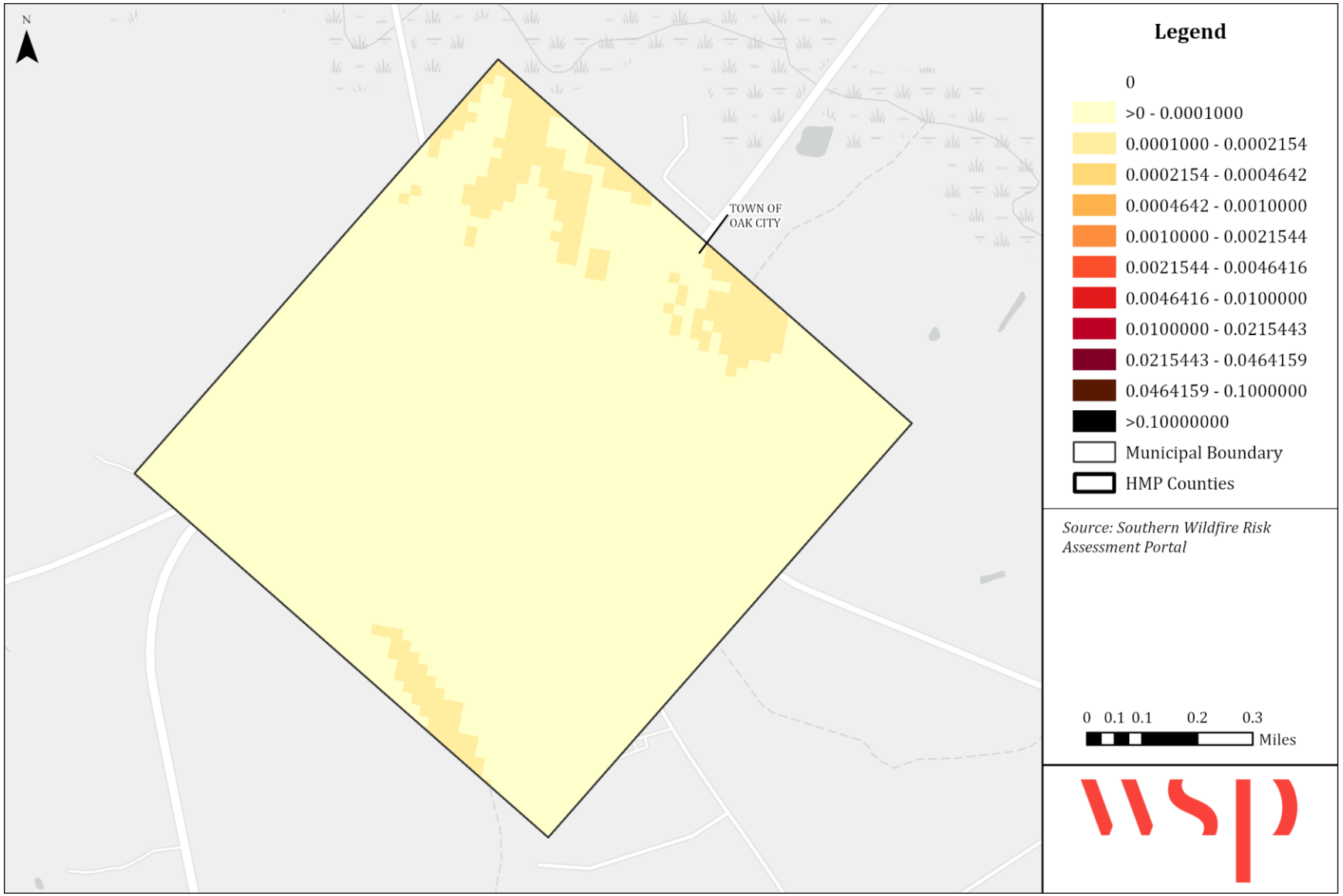


**Figure C.44 – Burn Probability, Town of Parmele**

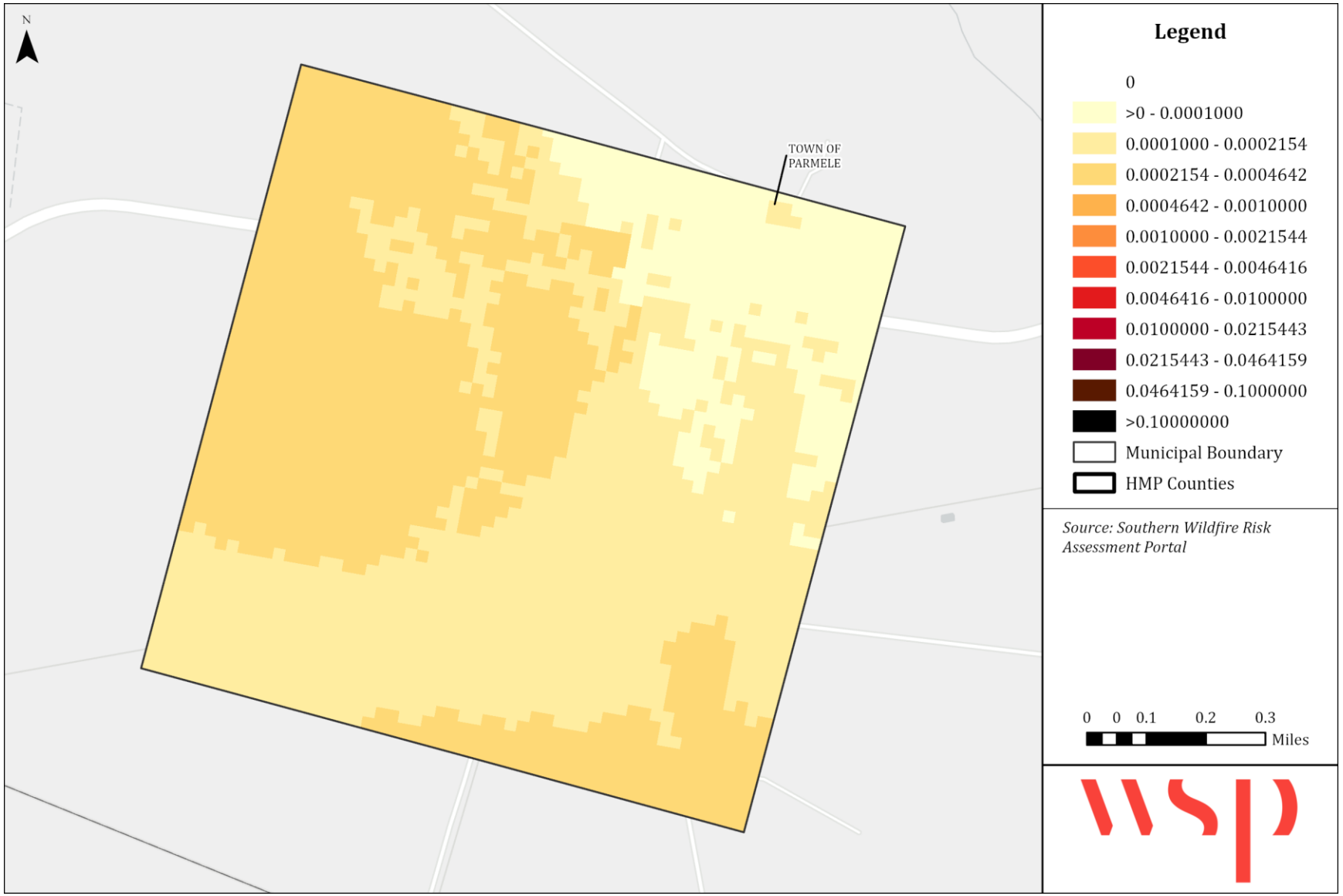


**Figure C.45 – Burn Probability, Town of Robersonville**

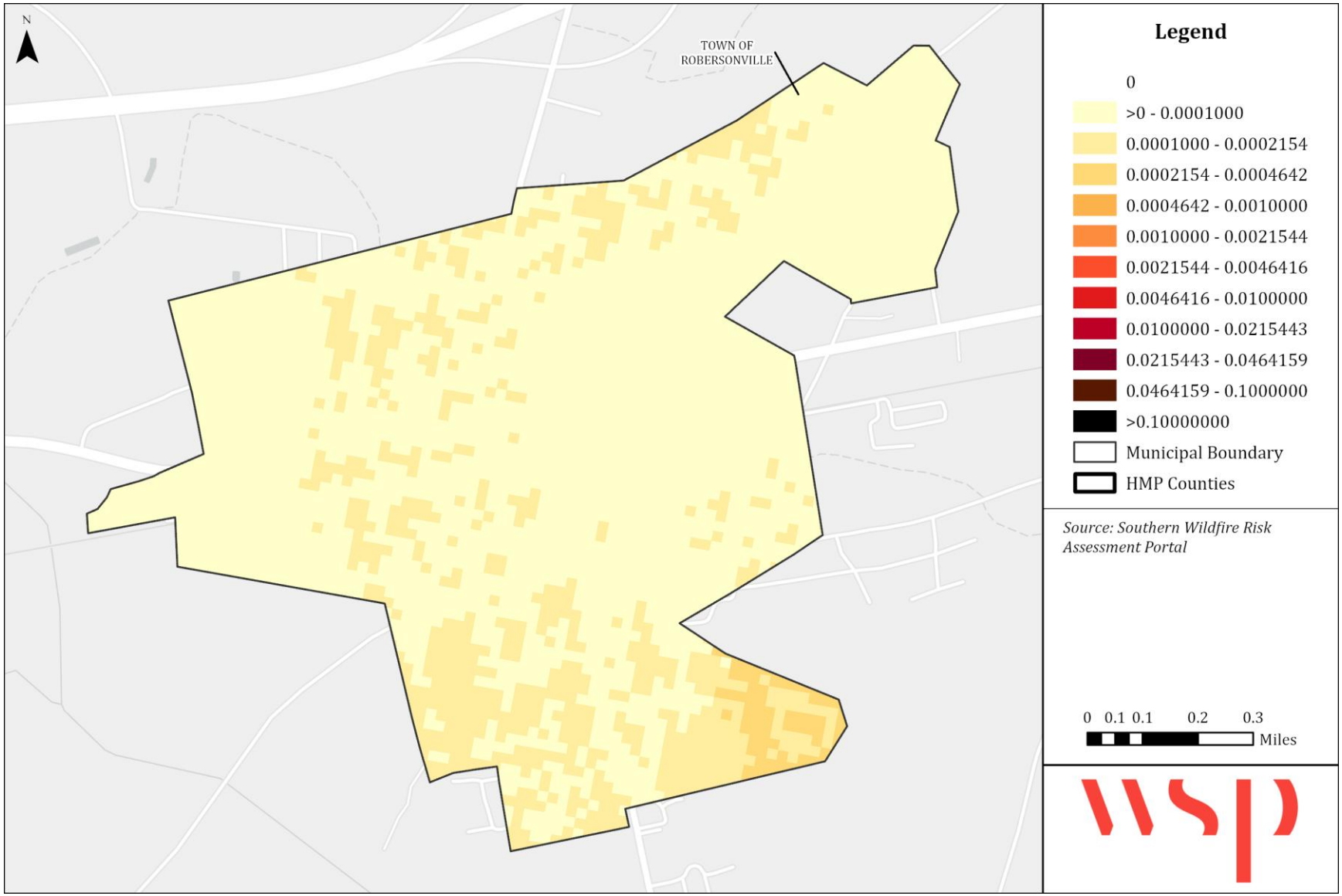
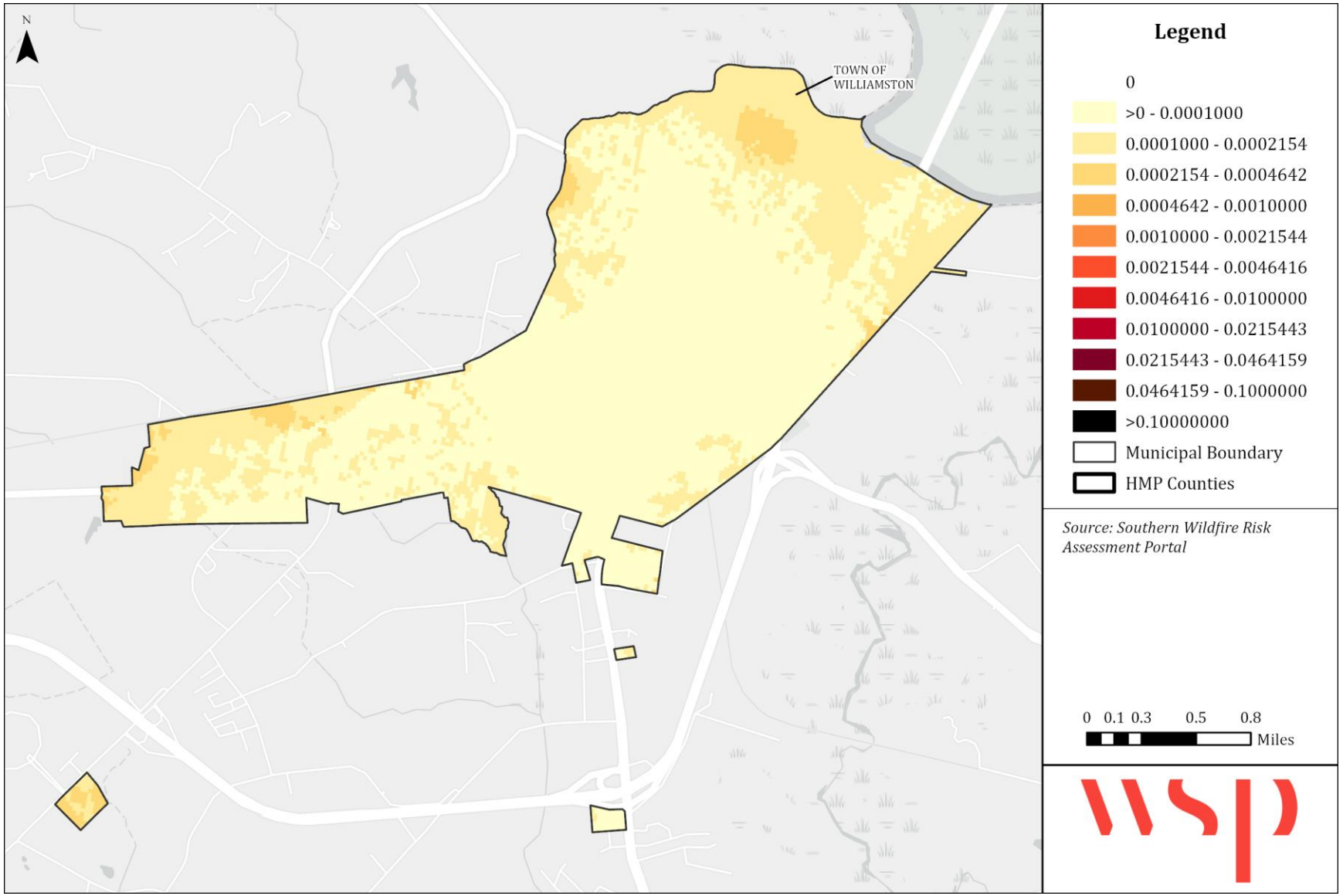


**Figure C.46 – Burn Probability, Town of Williamston**



## C.3 MITIGATION STRATEGY

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M1 | Continue to develop a county-wide Geographic Information System (GIS). This system will include a comprehensive land use inventory that will be used for improving upon future hazard mitigation vulnerability analysis. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | All Hazards | Medium | 4.2, 3.1 | PP | Martin County Administration<br>Martin County Emergency Management<br>Municipal Administrations | Staff Time | General Fund | 2 to 3 years | Carry Forward | County GIS mapping is established and new data continues to be integrated to improve performance and information. |
| M2 | Monitor development rates and issues over the next five years. If the county feels that it is the appropriate time to establish either limited or county-wide zoning regulations, then this effort will be initiated. | Martin Co. | All Hazards | Low | 1.3, 2.2 | P | Martin County Board of Commissioners<br>Martin County Administration | $70,000 | General Fund, NCDPS, NCDEQ | 3 to 5 years | Carry Forward | The County has and will continue to adopt ordinances influencing development in specific disciplines as the need becomes apparent. (ie: UDO adopted; Solar development ordinance currently in the works.) |
| M3 | Continue to monitor Flood Damage Prevention Ordinances and update as deemed necessary due to local conditions or as directed by FEMA and/or NCEM. Additionally, the county will consider increasing the freeboard requirement. | Martin Co., Bear Grass, Hamilton, Hassell, Jamesville, Oak City, Robersonville, Williamston | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 2.1 | P | Martin County Administration<br>Municipal Administrations | Staff Time | General Fund, NCDPS | 2020-2025 | Carry Forward | Martin County will continue to review the County's Flood Damage Prevention Ordinance annually to address any necessary changes. |
| M4 | Work in conjunction with the Regional HMPC on dealing with county drainage issues. This effort will involve an inventory of stormwater "hot spots." Following identification of drainage concerns, the county will work to address each issue on a case-by-case basis. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 1.3 | SP | Martin County Administration<br>Northeastern NC Regional HMPC | Staff Time | General Fund, NCDPS | 2020-2025 | Carry Forward | County has established drainage improvements of blue line streams through our local Soil & Water office, which uses grants to contract out clearing of these streams. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M5 | Continue to maintain a post-disaster debris management contract with a qualified service provider. The county will review this contract on an annual basis. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Flooding, Hurricanes & Coastal Hazards, Severe Winter Storm, Earthquake, Wildfire, Dam & Levee Failure, Severe Weather, Tornado | High | 3.2 | ES | Martin County Board of Commissioners Martin County Emergency Management Municipal Administrations | Staff Time | NCDPS, FEMA | 2020-2025 | Carry Forward | Martin County will continue to review annually the County's Post Disaster Debris Management Contract. The terms and provider will be reviewed and changes made when deemed necessary. |
| M6 | Work closely with county Emergency Management and the Regional HMPC to ensure that adequate evacuation procedures are in place. This effort will involve the establishment of a public outreach campaign to ensure that the public is aware of the proper procedures. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Flooding, Hurricanes & Coastal Hazards, Earthquake, Wildfire, Dam & Levee Failure, Tornado | High | 3.2, 4.2 | PIO | Martin County Emergency Management Municipal Administrations | Staff Time | General Fund | 1 year | Carry Forward | Martin County will establish a dialogue with the regional partners to improve upon evacuation and emergency notification protocols. |
| M7 | Maintain information on flood damage protection techniques for dissemination to citizens and property owners. Additionally, provide guidance to individuals looking for options relating to the elevation or retrofitting of homes. Make these materials available at the local library. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 4.2 | PIO | Martin County Building Inspections Municipal Administrations | Staff Time | General Fund, NCDPS | 2020-2025 | Carry Forward | The Martin County Planning and Inspections Department works closely with property owners and builders to retrofit homes in an effort to minimize future flood damages. |
| M8 | Work closely on addressing mitigation needs, including the identification of structural mitigation projects and the establishment of new mitigation policies and initiatives. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | All Hazards | High | 1.1, 2.3 | SP | Martin County Administration Municipal Administrations | Staff Time | General Fund, NCDPS | 2020-2025 | Carry Forward | Martin County will continue to identify projects that may be eligible for funding through either annual or post disaster mitigation funding. Projects for improvement have been identified through a local mitigation contractor with funding through CDBG |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M9 | Seek grant funding for eligible mitigation opportunities which may include but are not limited to: acquisition/elevation (addressed above), mitigation/reconstruction, and wet/dry floodproofing to residential and non-residential structures. Funding may also be utilized for redundant power to critical facilities, wind retrofits to critical facilities, storm shelters and other activities that reduce the loss of life and property. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 1.1, 2.3 | PP, SP | Martin County Administration Municipal Administrations | To be determined | General Fund, NCDPS, FEMA | 2020-2025 | Carry Forward | Martin County, as well as participating municipal jurisdictions, will continue to maintain a listing of vulnerable and/or repetitive loss properties and work to identify treatment options as funding becomes available. |
| M10 | Work to implement all strategies and recommendations outlined within the Martin County Hurricane Matthew Resilient Redevelopment Plan. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Low | 1.1, 2.3 | PP, SP, P | Martin County Administration Municipal Administrations | To be determined | General Fund, NCDPS, NCDEQ, FEMA | 5 years | Carry Forward | Will continue to pursue implementation of relevant projects from this plan. |
| M11 | Acquire generators or other forms of redundant power supply to ensure that critical facilities and infrastructure remain operational where normal power supply is not available. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | All Hazards | Medium | 1.1 | PP | Martin County Emergency Management Municipal Administrations | To be determined | General Fund, NCDPS, FEMA | 2 to 3 years | Carry Forward | Generators currently needed for Central Receiving & Distribution point, Sheriff's maintenance shop, and EOC. |
| M12 | Continue to monitor water resources in an effort to mitigate the impacts of drought conditions. These efforts will include maintaining a local water shortage ordinance. This ordinance will be activated in coordination with all utility providers as the need arises. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Extreme Heat, Drought | High | 1.1 | NRP | Martin County Administration Municipal Administrations | Staff Time | General Fund | 2020-2025 | Carry Forward | Water shortage ordinance is under consideration. |
| M13 | Create or Update Community Wildfire Protection Plans in each fire district. | Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston | Wildfire | Med | 1.4 | P | Martin County Emergency Management, Fire Departments, NC Forest Service | To Be Determined | Grant Funds | 5 years | New | |

# ANNEX D. TYRRELL COUNTY

## D.1 ASSET INVENTORY

Tyrrell County and the HMPC provided a local inventory of critical facilities and community lifelines, which are a priority for mitigation planning and emergency management. Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. Table D.1 and Table D.2 provide a count of critical facilities by FEMA lifeline category by jurisdiction in Tyrrell County. Figure D.1 through Figure D.2 show the locations of all critical facilities by jurisdiction in Tyrrell County.

Table D.3 provides a detailed inventory of the critical facilities in Tyrrell County, indicating each facility's FEMA lifeline category, flood zone, 1% annual chance flood depth, minimum storm surge category, and wildfire risk. More information on hazard vulnerability is provided in Section D.2.

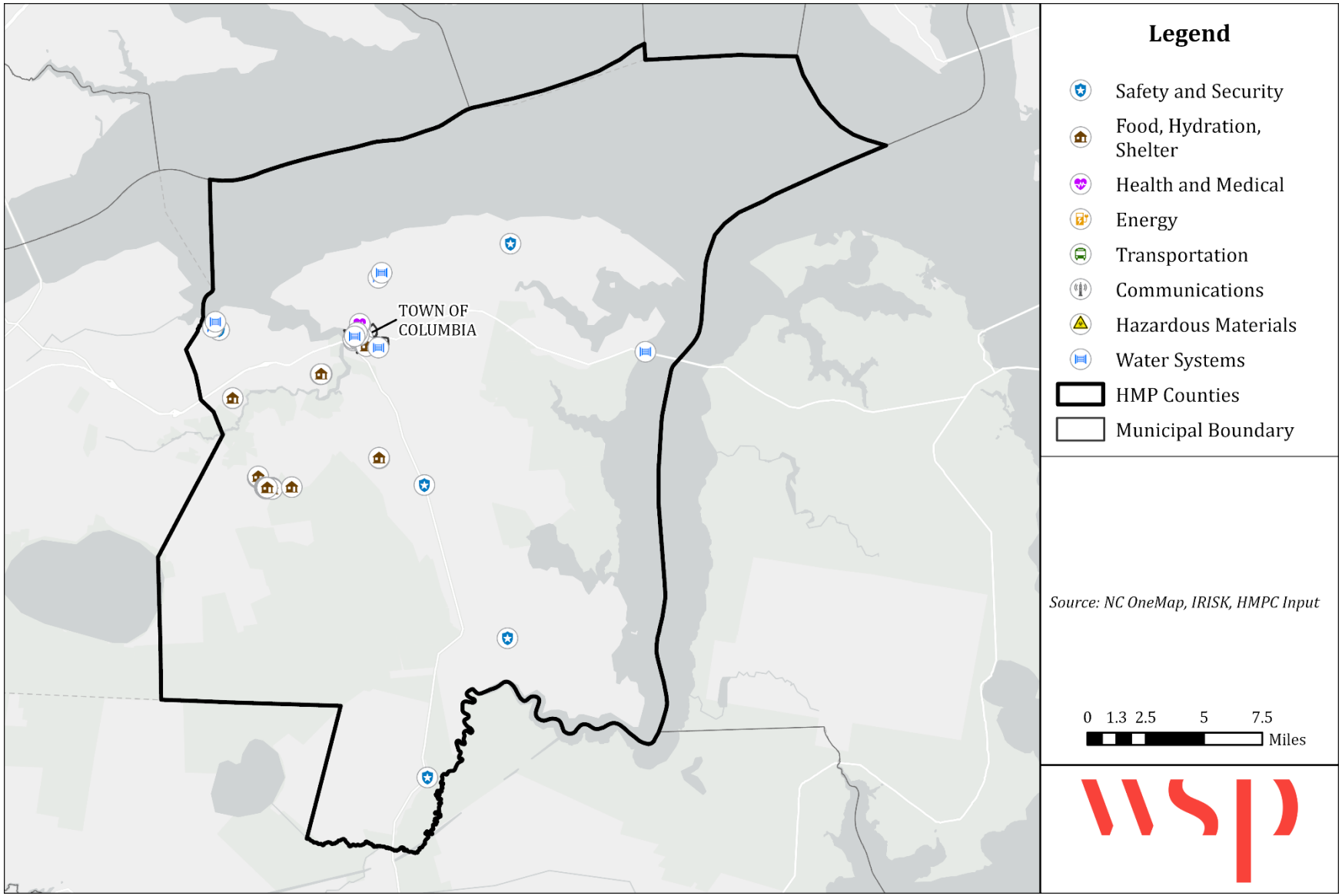
**Table D.1 – Critical Facilities by Type, Unincorporated Tyrrell County**

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 23 | $39,788,374.29 |
| Hazardous Materials | 0 | $- |
| Health and Medical | 0 | $- |
| Safety and Security | 5 | $394,748 |
| Transportation | 0 | $- |
| Water Systems | 6 | $1,525,064 |
| **Total** | **34** | **$41,708,186.29** |

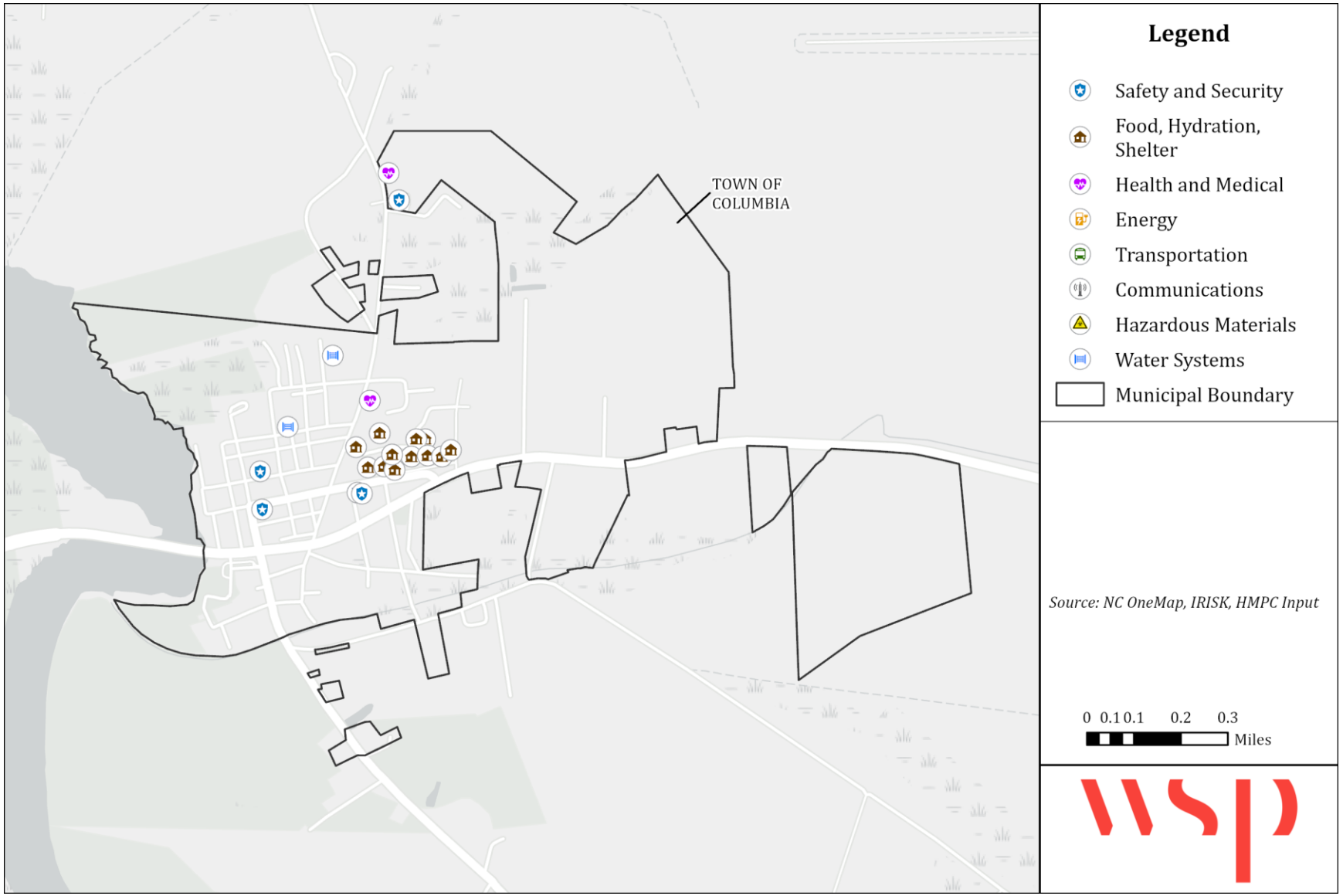
**Table D.2 – Critical Facilities by Type, Town of Columbia**

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 12 | $5,526,099.72 |
| Hazardous Materials | 0 | $- |
| Health and Medical | 2 | $377,143 |
| Safety and Security | 5 | $1,979,332 |
| Transportation | 0 | $- |
| Water Systems | 2 | $111,000 |
| **Total** | **21** | **$7,993,574.72** |

**Figure D.1 – Critical Facilities, Unincorporated Tyrrell County**



## Figure D.2 – Critical Facilities, Town of Columbia



## Table D.3 – Tyrrell County Critical Facilities Inventory

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|---|
| **Unincorporated Tyrrell County** | | | | | | | | | |
| Safety & Security | Tyrrell Volunteer Fire Department, Inc. | 2950 N. Gum Neck Rd. | $46,248 | 2.5 | AE | 3ft SLR | Category 1 | Direct Exposure | 2 |
| Safety & Security | Tyrrell Volunteer Fire Department, Inc. | 9 Kilkenny Rd. | $41,028 | 1.5 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Safety & Security | Tyrrell Volunteer Fire Department, Inc. | 33 Frying Pan Rd. | $76,617 | 0.0 | X Shaded | N/A | Category 2 | Direct Exposure | 2 |
| Safety & Security | Tyrrell Volunteer Fire Department, Inc. | 3575 Albemarle Church Rd. | $82,865 | 0.0 | X Shaded | N/A | Category 3 | Indirect Exposure | 0 |
| Safety & Security | Tyrrell Volunteer Fire Department, Inc. | 9720 Sound Side Rd. | $147,990 | 2.6 | AE | N/A | Category 2 | Direct Exposure | 0 |
| Water Systems | Columbia Water System | 110 Light St | - | 0.1 | AE | N/A | Category 3 | Critical Fireshed | 0 |
| Water Systems | Tyrrell County Water | SR 1301-LEVELS RD | $746,315 | 0.0 | X Unshaded | N/A | Category 3 | Sources of Ember Load to Buildings | 2 |
| Water Systems | Tyrrell County Water | SR 1301-LEVELS RD | $4,000 | 0.0 | X Shaded | N/A | Category 2 | Critical Fireshed | 0 |
| Water Systems | Tyrrell County Water | SR 1301-LEVELS RD | $377,897 | 0.1 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Water Systems | Tyrrell County Water | SR 1301-LEVELS RD | - | 0.1 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Water Systems | Alligator River Marina | 13435 HWY 64 EAST | $396,852 | 0.0 | X Shaded | N/A | Category 3 | Water | 0 |
| Food, Hydration, Shelter | New Colony Sow Farm | - | $7,765,374 | 0.0 | X Unshaded | N/A | Category 5 | Direct Exposure | 3 |
| Food, Hydration, Shelter | | - | $104,723 | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $7,765,374 | 0.0 | X Unshaded | N/A | N/A | Direct Exposure | 2 |
| Food, Hydration, Shelter | | - | $1,565,989 | 1.7 | AE | 3ft SLR | Category 1 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | - | $7,765,374 | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $1,953,837 | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | - | 1.9 | AE | N/A | Category 1 | Direct Exposure | 3 |
| Food, Hydration, Shelter | | - | - | 1.7 | AE | N/A | Category 1 | Direct Exposure | 3 |
| Food, Hydration, Shelter | | - | $330,331 | 1.4 | AE | N/A | Category 1 | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|---|
| Food, Hydration, Shelter | | - | $333,750 | 1.9 | AE | N/A | Category 1 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | - | $249,860 | 0.0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $165,836 | 0.0 | X Unshaded | N/A | Category 2 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | - | $339,340 | 0.0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $25,208 | 0.0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $7,765,374 | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $30,749 | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $31,084 | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $2,324,900 | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $71,605 | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $276,743 | 0.0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $76,356 | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $115,785 | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $730,782 | 0.1 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| **Town of Columbia** | | | | | | | | | |
| Safety & Security | Tyrrell Volunteer Fire Department, Inc. | 618 N. Road St. | $734,054 | 2.9 | AE | N/A | Category 3 | Indirect Exposure | 0 |
| Safety & Security | Tyrrell County Sheriffs Department | 405 Main Street | $924,762 | 0.1 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Health & Medical | Tyrrell EMS Incorporated | 618 North Road Street | $377,143 | 1.9 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Health & Medical | Tyrrell Volunteer Fire Department and EMS Incorporated | State Highway 1209 | - | 2.6 | AE | 2ft SLR | Category 1 | Critical Fireshed | 0 |
| Safety & Security | Tyrrell County Health Department | 408 Bridge Street | $254,981 | 1.1 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Water Systems | Columbia Water System | 110 Light St | - | 0.1 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Water Systems | Columbia Water System | 110 Light St | $111,000 | 1.8 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|---|
| Food, Hydration, Shelter | | - | $326,689 | 2.8 | AE | 3ft SLR | Category 1 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | - | $305,639 | 1.3 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Safety and Security | | 801 Main St | $14,403 | 2.0 | AE | 2ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $141,430 | 1.2 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $92,279 | 0.1 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $66,621 | 0.1 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $2,663,470 | 1.8 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $352,286 | 0.1 | AE | N/A | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $352,286 | 0.1 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $168,541 | 1.7 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $352,286 | 1.4 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $352,286 | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Safety and Security | | - | $51,132 | 2.2 | AE | 2ft SLR | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | - | $352,286 | 3.0 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |

# D.2 RISK ASSESSMENT

This section contains a summary of the County's asset inventory as well as hazard profile and vulnerability assessment for those hazards that are spatially defined and have variations in risk that could be evaluated quantitatively on a jurisdictional level. The hazards included in this section are: Flooding, Hurricanes & Coastal Hazards, and Wildfire.

## *D.2.1 FLOODING*

Table D.4 details the acreage of Tyrrell County's total area by jurisdiction and flood zone on the Effective DFIRM. Per this assessment the Town of Columbia has 86% of land area within the mapped 1%-annual-chance floodplain and over half of Tyrrell County overall is within the SFHA.

**Table D.4 – Flood Zone Acreage by Jurisdiction, Tyrrell County**

| Flood Zone | Acreage | Percent of Total (%) |
|---|---|---|
| **Columbia** | | |
| Zone AE | 523.1 | 86.0% |
| Zone X (500-year) | 81.8 | 13.4% |
| Zone X (unshaded) | 3.9 | 0.6% |
| **Total** | **608.8** | -- |
| **Unincorporated Tyrrell County** | | |
| Zone AE | 208,778.4 | 54.8% |
| Zone VE | 3,517.3 | 0.9% |
| Zone X (500-year) | 20,754.2 | 5.4% |
| Zone X (unshaded) | 37,296.1 | 9.8% |
| Open Water | 110,827.1 | 29.1% |
| **Total** | **381,173.0** | -- |
| **Tyrrell County Total** | | |
| Zone AE | 209,301.6 | 54.8% |
| Zone VE | 3,517.3 | 0.9% |
| Zone X (500-year) | 20,836.0 | 5.5% |
| Zone X Unshaded | 37,299.9 | 9.8% |
| Open Water | 110,827.1 | 29.0% |
| **Total** | **381,781.8** | -- |

Source: FEMA Effective DFIRM

Figure D.3 and Figure D.4 reflect the effective mapped flood hazard zones for Tyrrell County and the Town of Columbia, and Figure D.5 and Figure D.6 displays the depth of flooding estimated to occur in these areas during the 1%-annual-chance flood.

Table D.5 provides building counts and values for critical facilities by flood zone in Tyrrell County and participating jurisdictions.

**Table D.5 – Critical Facilities Exposed to Flooding by Event and Jurisdiction**

| Flood Zone | Critical Facility Count | Structure Value |
|---|---|---|
| **Unincorporated Tyrrell County** | | |
| Zone AE | 12 | $3,574,015.29 |
| Zone X (500-year) | 6 | $752,475 |
| Zone X (unshaded) | 16 | $37,381,696 |
| **Total** | **34** | **$41,708,186.29** |
| **Columbia** | | |
| Zone AE | 20 | $7,641,288.72 |
| Zone X (500-year) | 1 | $352,286 |
| **Total** | **21** | **$7,993,574.72** |
| **Tyrrell County Total** | | |
| Zone AE | 32 | $11,215,304.02 |
| Zone X (500-year) | 7 | $1,104,761 |
| Zone X (unshaded) | 16 | $37,381,696 |
| **Total** | **55** | **$49,701,761.02** |

Source: FEMA Effective DFIRM, HMPC

**Figure D.3 – FEMA Flood Hazard Areas, Unincorporated Tyrrell County**

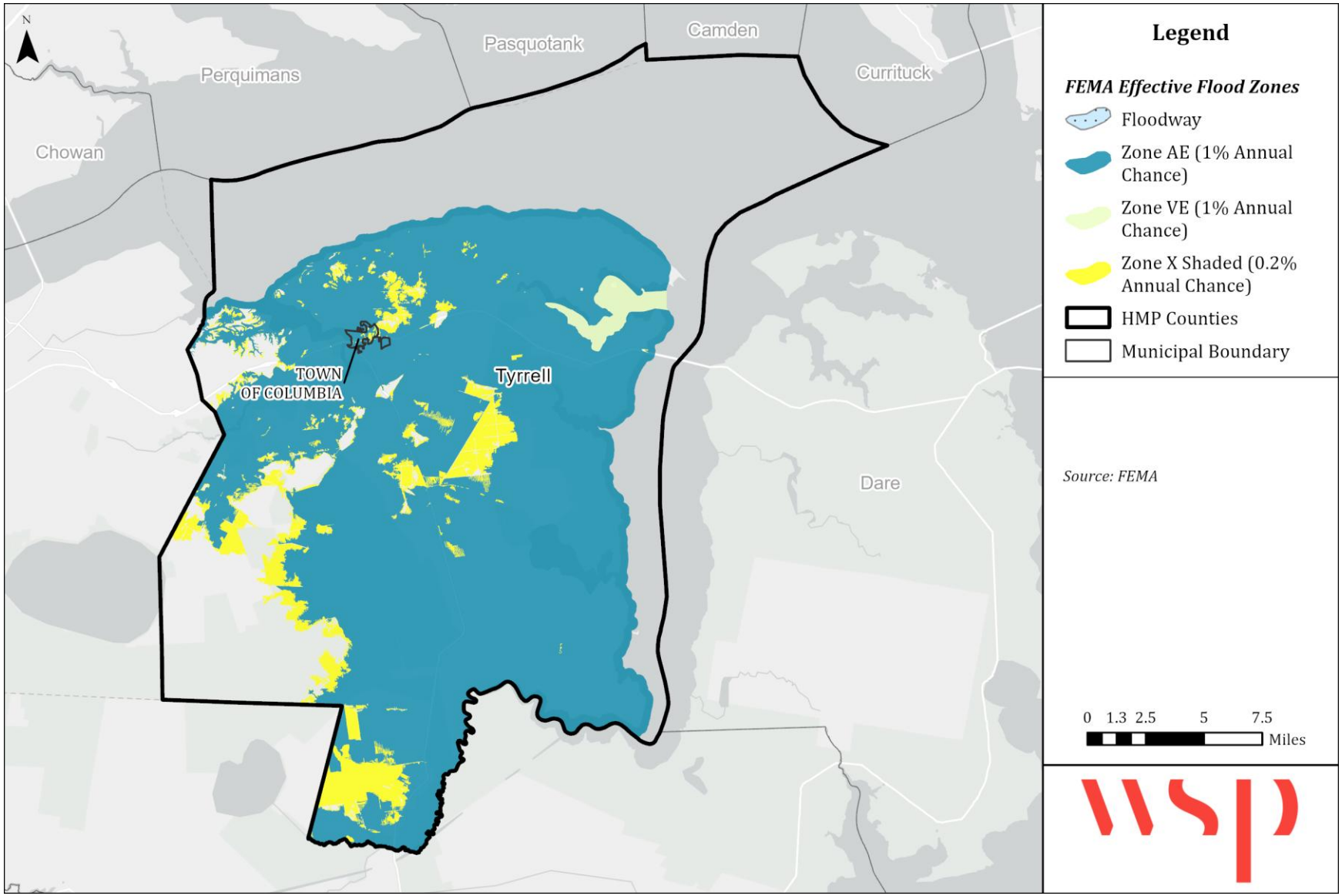


**Figure D.4 – FEMA Flood Hazard Areas, Town of Columbia**

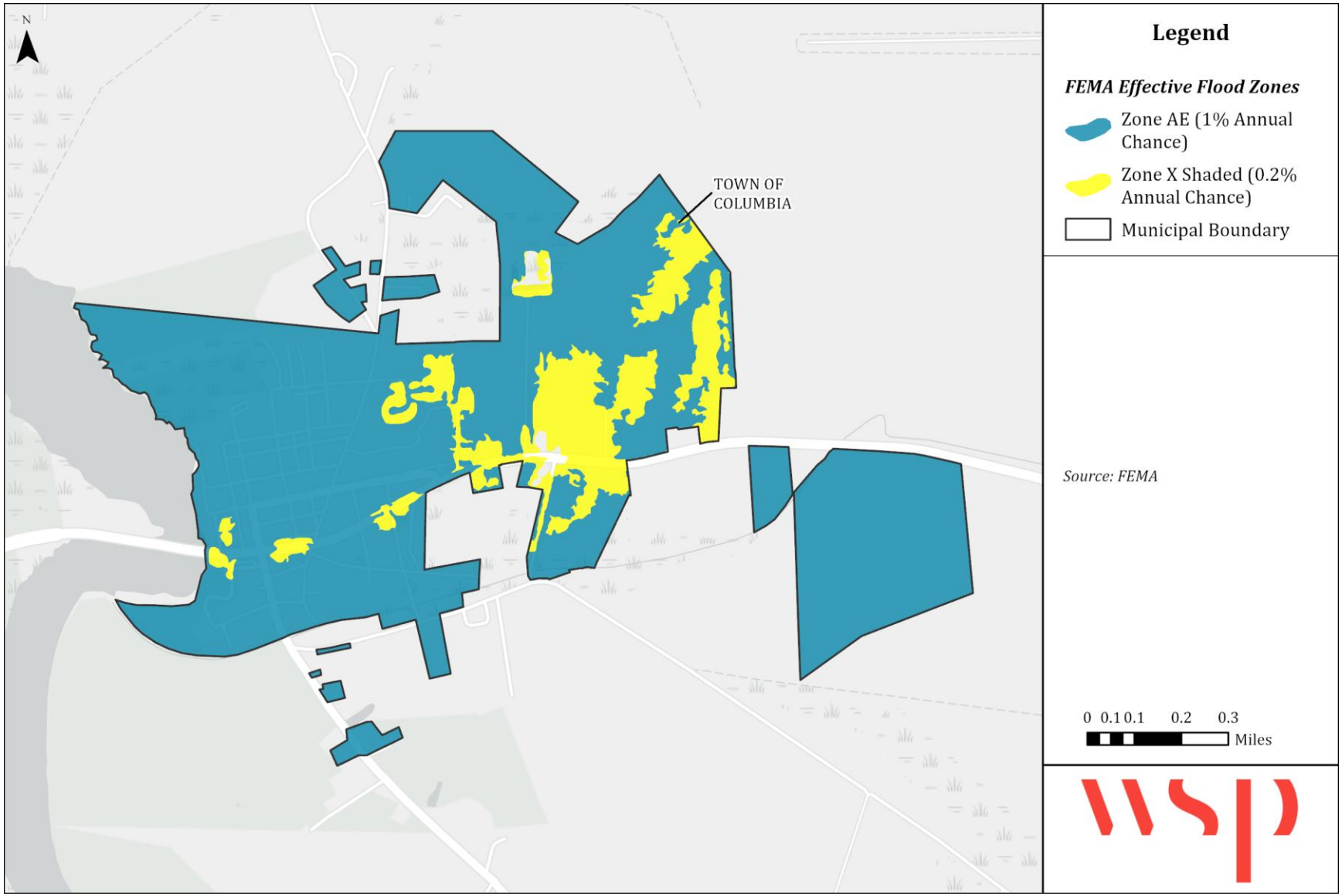


**Figure D.5 – Flood Depth, 1%-Annual-Chance Floodplain, Unincorporated Tyrrell County**

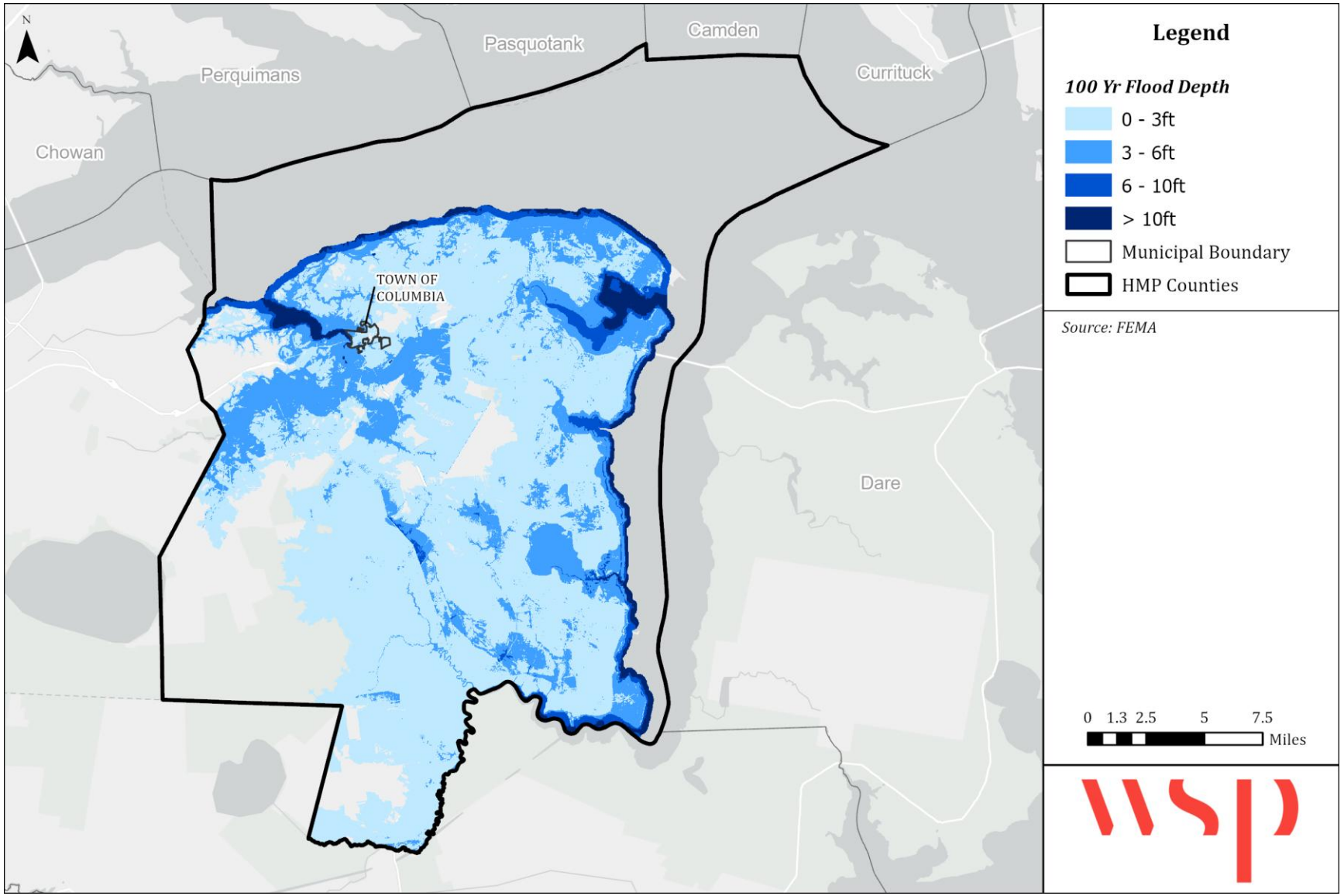
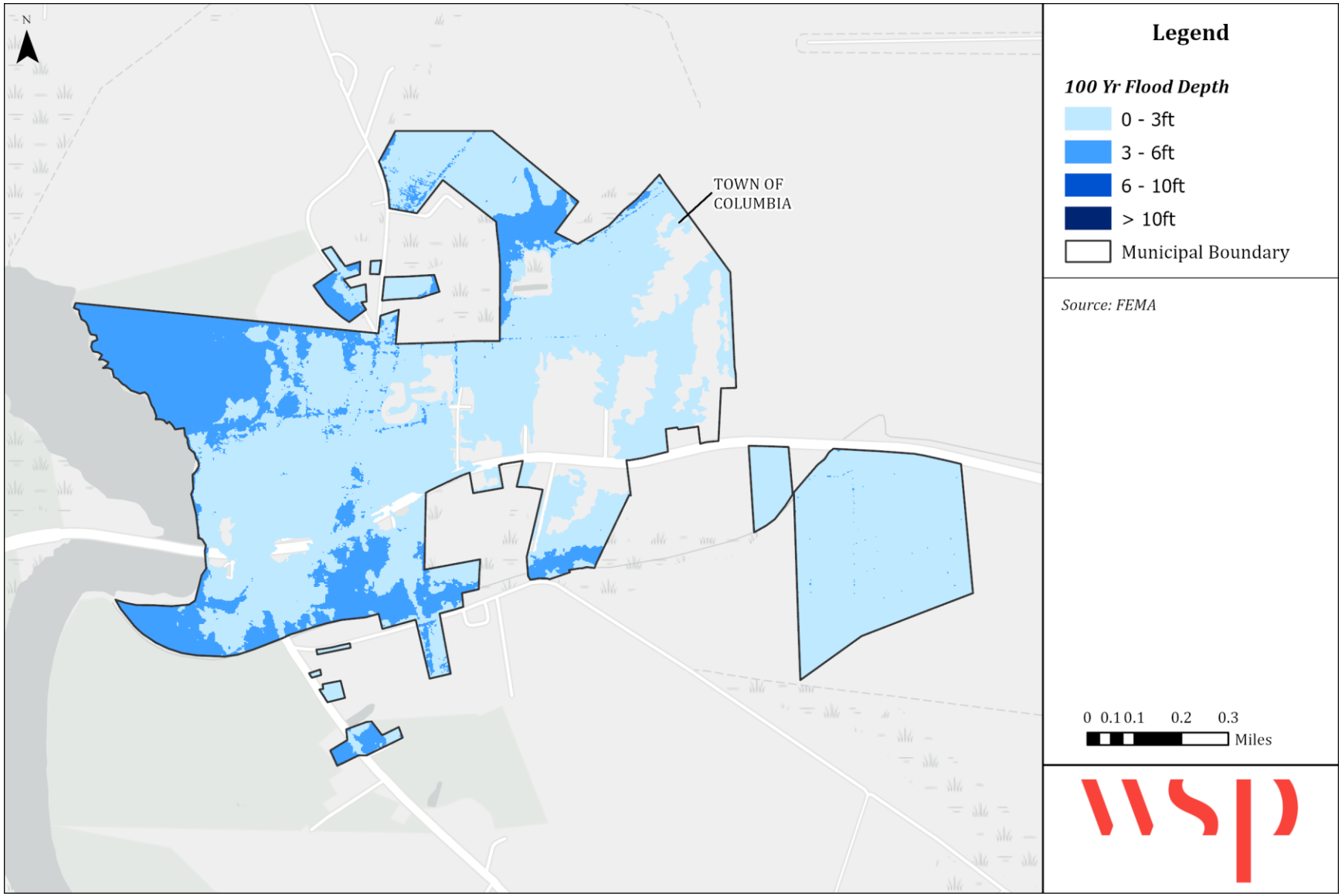


**Figure D.6 – Flood Depth, 1%-Annual-Chance Floodplain, Town of Columbia**



## FLOODPLAIN MANAGEMENT

The following tables reflect NFIP policy and claims data for Tyrrell County and the Town of Columbia categorized by structure type, flood zone, Pre-FIRM and Post-FIRM.

**Table D.6 – NFIP Policy and Claims Data by Structure Type**

| Structure Type | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Tyrrell County Unincorporated Area** | | | | | |
| Single Family | 208 | $140,920 | $35,433,000 | 369 | $4,310,725.84 |
| 2-4 Family | 3 | $1,920 | $750,000 | 0 | $0.00 |
| All Other Residential | 3 | $5,650 | $1,500,000 | 1 | $20,724.85 |
| Non Residential | 5 | $5,933 | $1,346,000 | 22 | $552,320.39 |
| **Total** | **219** | **$154,423** | **$39,029,000** | **392** | **$4,883,771.08** |
| **Town of Columbia** | | | | | |
| Single Family | 36 | $29,382 | $5,116,000 | 157 | $2,191,835.74 |
| 2-4 Family | 17 | $8,576 | $2,108,000 | 2 | $85,968.41 |
| All Other Residential | 1 | $1,145 | $189,000 | 5 | $120,829.13 |
| Non Residential | 13 | $34,016 | $4,432,000 | 31 | $1,734,863.25 |
| **Total** | **67** | **$73,119** | **$11,845,000** | **195** | **$4,133,496.53** |

Source: FEMA Community Information System, accessed December 2025

**Table D.7 – NFIP Policy and Claims Data by Flood Zone**

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Tyrrell County Unincorporated Area** | | | | | |
| A01-30 & AE Zones | 213 | $149,517 | $37,837,000 | 361 | $4,643,280.37 |
| B, C & X Zone | | | | | |
| Standard | 6 | $4,906 | $1,192,000 | 11 | $81,945.15 |
| Preferred | 0 | $0 | $0 | 15 | $129,467.51 |
| **Total** | **219** | **$154,423** | **$39,029,000** | **387** | **$4,854,693.03** |
| **Town of Columbia** | | | | | |
| A01-30 & AE Zones | 67 | $73,119 | $11,845,000 | 194 | $4,132,556.53 |
| **Total** | **67** | **$73,119** | **$11,845,000** | **194** | **$4,132,556.53** |

Source: FEMA Community Information System, accessed December 2025

**Table D.8 – NFIP Policy and Claims Data Pre-FIRM**

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Tyrrell County Unincorporated Area** | | | | | |
| A01-30 & AE Zones | 83 | $54,856 | $11,261,000 | 250 | $3,561,810.94 |
| B, C & X Zone | 5 | $4,251 | $1,017,000 | 19 | $173,435.50 |
| Standard | 5 | $4,251 | $1,017,000 | 10 | $78,355.14 |
| Preferred | 0 | $0 | $0 | 9 | $95,080.36 |
| **Total** | **88** | **$59,107** | **$12,278,000** | **269** | **$3,735,246.44** |

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Town of Columbia** | | | | | |
| A01-30 & AE Zones | 57 | $63,336 | $9,563,000 | 184 | $3,968,687.22 |
| **Total** | **57** | **$63,336** | **$9,563,000** | **184** | **$3,968,687.22** |

Source: FEMA Community Information System, accessed December 2025

**Table D.9 – NFIP Policy and Claims Data Post-FIRM**

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Tyrrell County Unincorporated Area** | | | | | |
| A01-30 & AE Zones | 130 | $94,661 | $26,576,000 | 111 | $1,081,469.43 |
| B, C & X Zone | 1 | $655 | $175,000 | 7 | $37,977.16 |
| Standard | 1 | $655 | $175,000 | 1 | $3,590.01 |
| Preferred | 0 | $0 | $0 | 6 | $34,387.15 |
| **Total** | **131** | **$95,316** | **$26,751,000** | **118** | **$1,119,446.59** |
| **Town of Columbia** | | | | | |
| A01-30 & AE Zones | 10 | $9,783 | $2,282,000 | 10 | $163,869.31 |
| **Total** | **10** | **$9,783** | **$2,282,000** | **10** | **$163,869.31** |

Source: FEMA Community Information System, accessed December 2025

## *D.2.2 HURRICANES AND COASTAL HAZARDS*

Figure D.7 on the following page show the estimated extent of surge by storm category according to NOAA SLOSH data that would occur in unincorporated Tyrrell County and the Town of Columbia. Due to its coastal location, the majority of Tyrrell County and the Town of Columbia are at risk to storm surge.

Figure D.8 show the estimated inundation extents of 1 foot, 2 feet, and 3 feet of sea level rise that may occur in Tyrrell County and the Town of Columbia. Sea level rise is likely to impact much of the county along the Albemarle Sound and Alligator River.

**Figure D.7 – Storm Surge Extent by Storm Category**

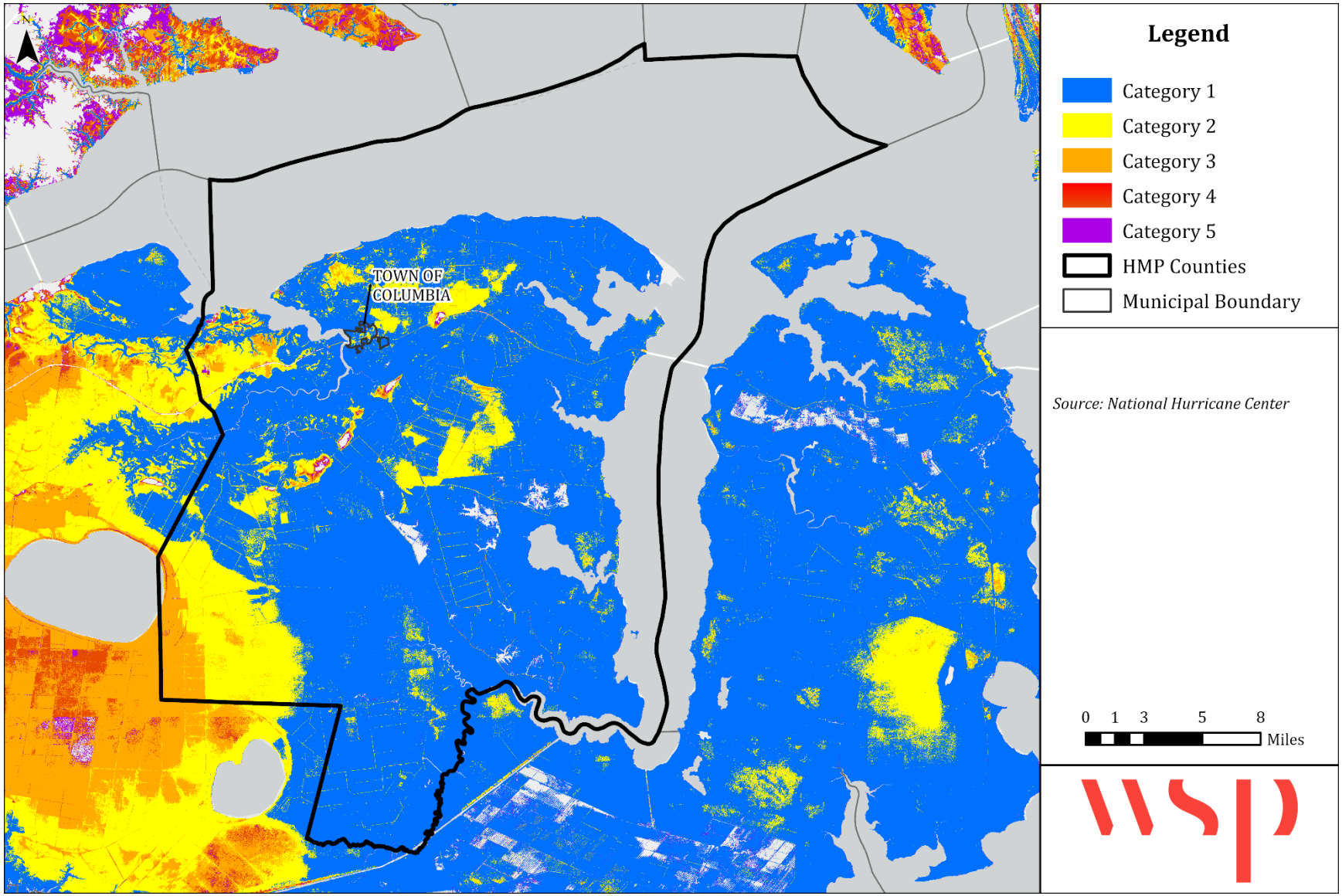
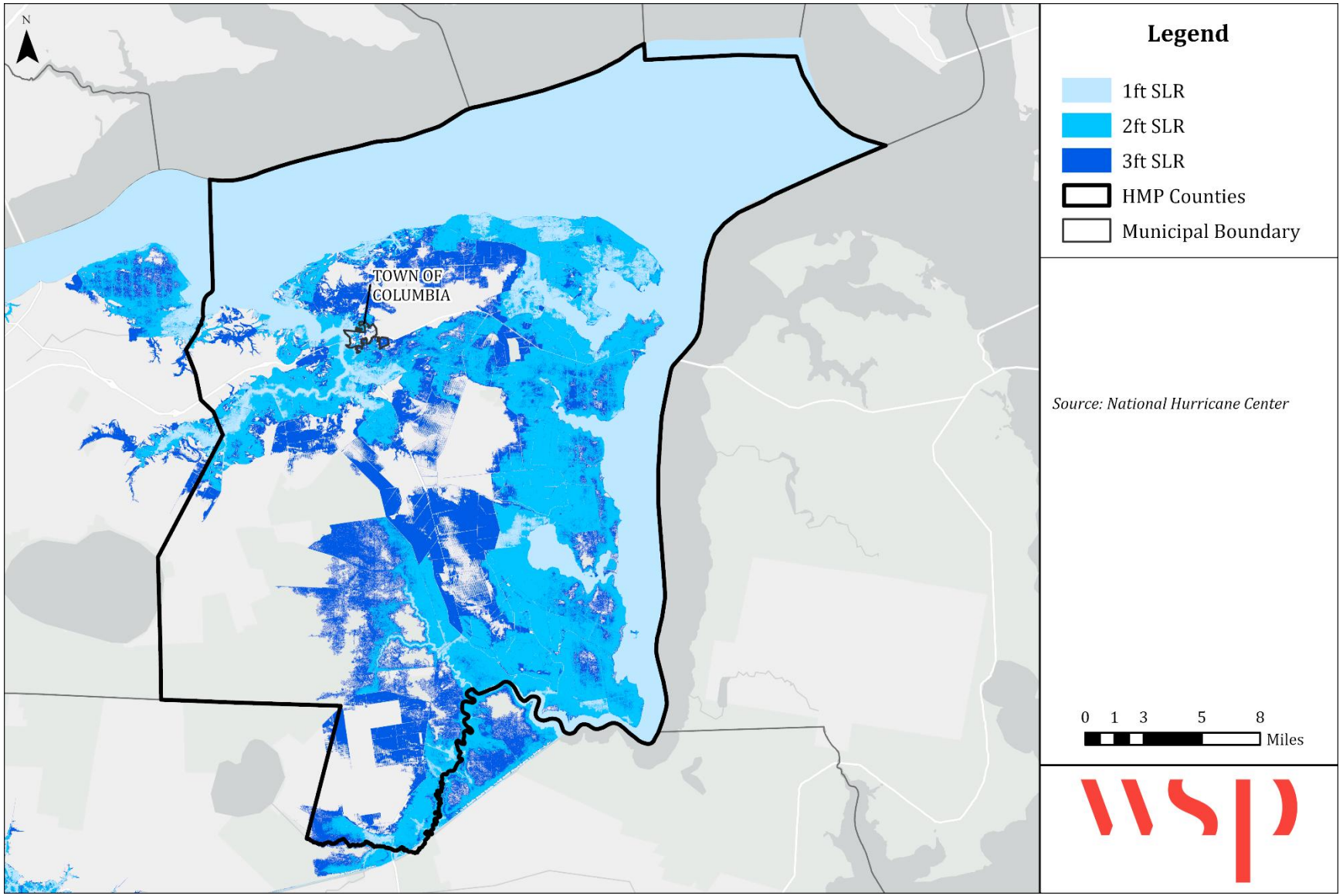


**Figure D.8 – Sea Level Rise Extent**



## D.2.3 WILDFIRE

Table D.10 summarizes the acreage in unincorporated Tyrrell County that falls within the Functional Wildland Urban Interface (WUI), categorized into zones that describe the wildfire risk mitigation activities appropriate for each zone. Areas in the Functional WUI are those areas where development and building structures may intermix with burnable land cover. Approximately, 2 percent of unincorporated Tyrrell County is categorized as having direct exposure to wildfire risk and 74 percent is located within the critical fireshed of the Functional WUI.

**Table D.10 – Wildland Urban Interface Acreage, Unincorporated Tyrrell County**

| | Functional Wildland Urban Interface (WUI) Category | Acres | Percent |
|---|---|---|---|
| | Direct Exposure | 2,810 | 2% |
| | Indirect Exposure | 2,855 | 2% |
| | Critical Fireshed | 137,758 | 74% |
| | Sources of Ember Load to Buildings | 13,566 | 7% |
| | Little to No Exposure | 4 | 0% |
| | Water | 28,430 | 15% |
| | **Total** | **185,424** | **100%** |

Source: Southern Wildfire Risk Assessment

Figure D.9 and Figure D.10 depict the Functional WUI for unincorporated Tyrrell County and the Town of Columbia. Figure D.11 and Figure D.12 depict the Fire Intensity Scale, which indicates the potential severity of fire based on fuel loads, topography, and other factors. Figure D.13 and Figure D.14 depict Burn Probability based on landscape conditions, percentile weather, historical ignition patterns, and historical prevention and suppression efforts.

Functional WUI areas with direct exposure to wildfire are very limited in Tyrrell County and occur primarily in the northwestern quadrant of the county near the Albemarle Sound. There are large areas of high potential fire intensity in unincorporated Tyrrell County, particularly along the Albemarle Sound and Alligator River as well as in inland areas in the south. Burn probability is highest in the southern portion of the county with a cluster of high burn probability occurring northeast of the Town of Columbia, but moderate burn probability covers much of the county. Areas of high potential fire intensity and moderate burn probability overlap with portions of the functional WUI in unincorporated Tyrrell County. A potential fire here could pose a high risk to human settlement and the built environment.

Table D.11 provides building counts and values for critical facilities by FEMA lifeline that are located in areas categorized with direct exposure to wildfire risk on the Functional WUI scale.

**Table D.11 – Critical Facilities Exposed to Wildfire by Jurisdiction, Tyrrell County**

| Type | Critical Facility Count | Structure Value |
|---|---|---|
| **Tyrrell County Unincorporated Area** | | |
| Food, Hydration, Shelter | 7 | $17,596,323.24 |
| Safety and Security | 3 | $270,855 |
| **All Categories** | **10** | **$17,867,178.24** |

| Type | Critical Facility Count | Structure Value |
|---|---|---|
| **Town of Columbia** | | |
| Food, Hydration, Shelter | 1 | $326,689.43 |
| **All Categories** | **1** | **$326,689.43** |
| **County Total** | **11** | **$18,193,867.68** |

Source: Southern Wildfire Risk Assessment

**Figure D.9 – Functional Wildland Urban Interface, Unincorporated Tyrrell County**

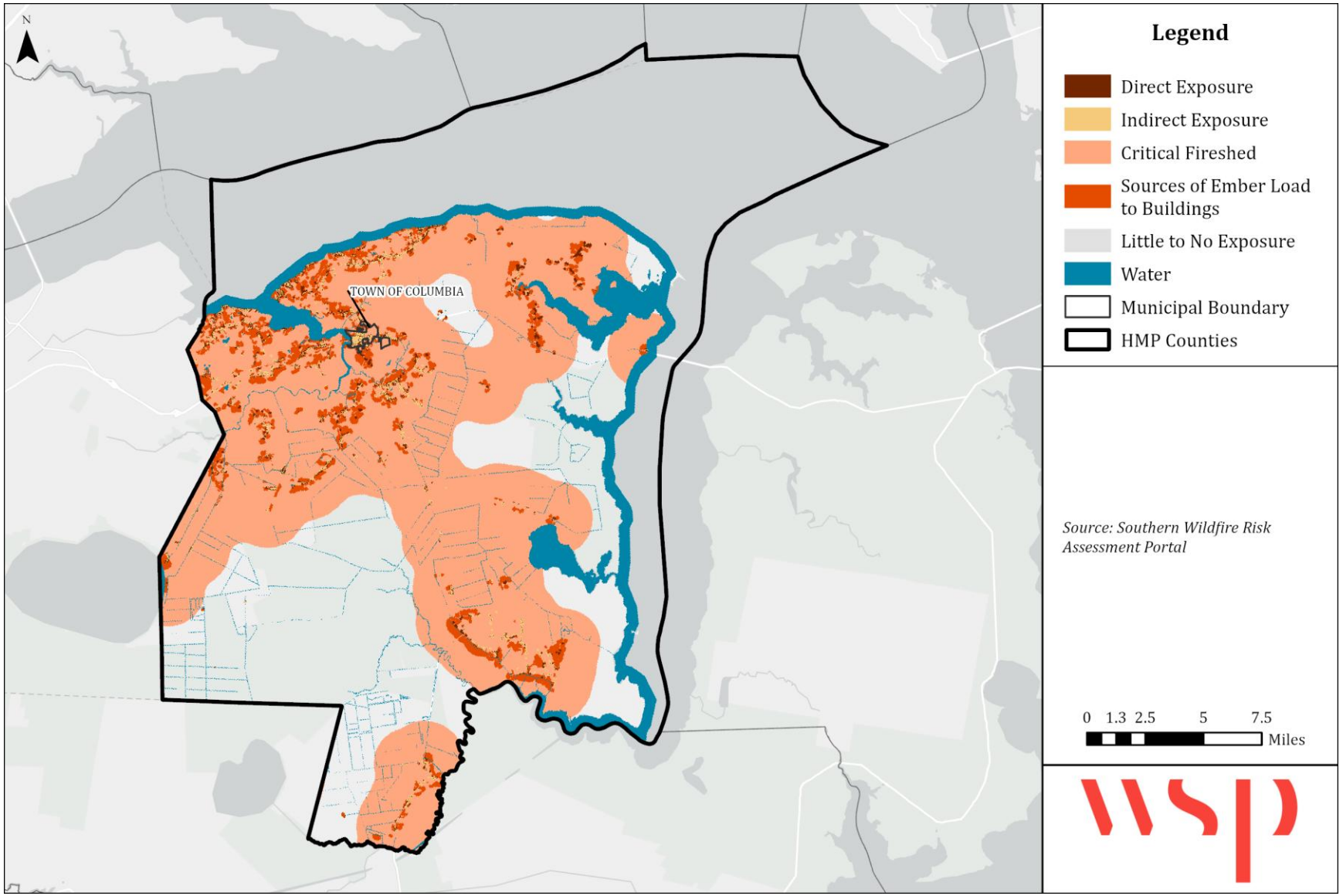


**Figure D.10 – Functional Wildland Urban Interface, Town of Columbia**

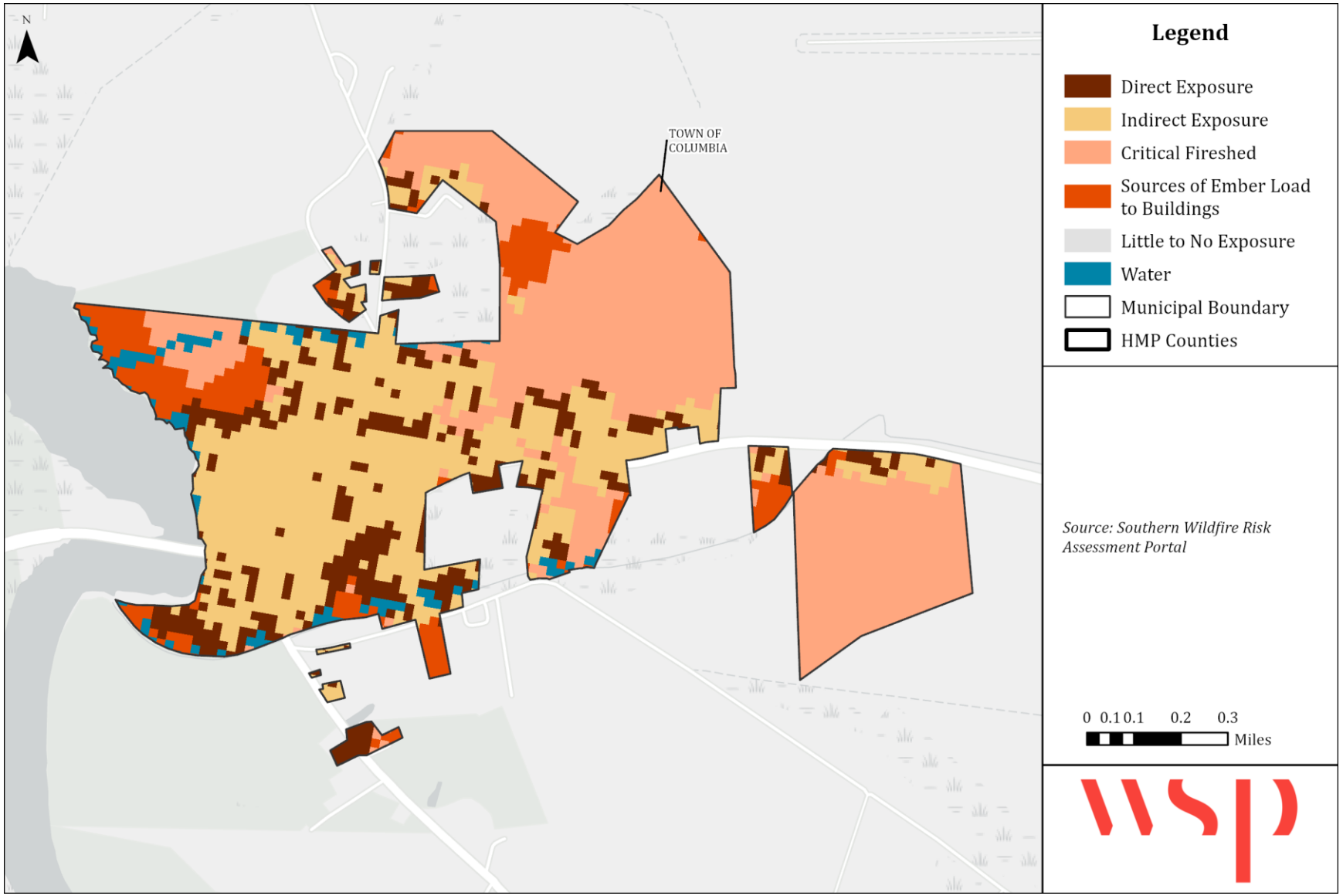


**Figure D.11 – Fire Intensity Scale, Unincorporated Tyrrell County**

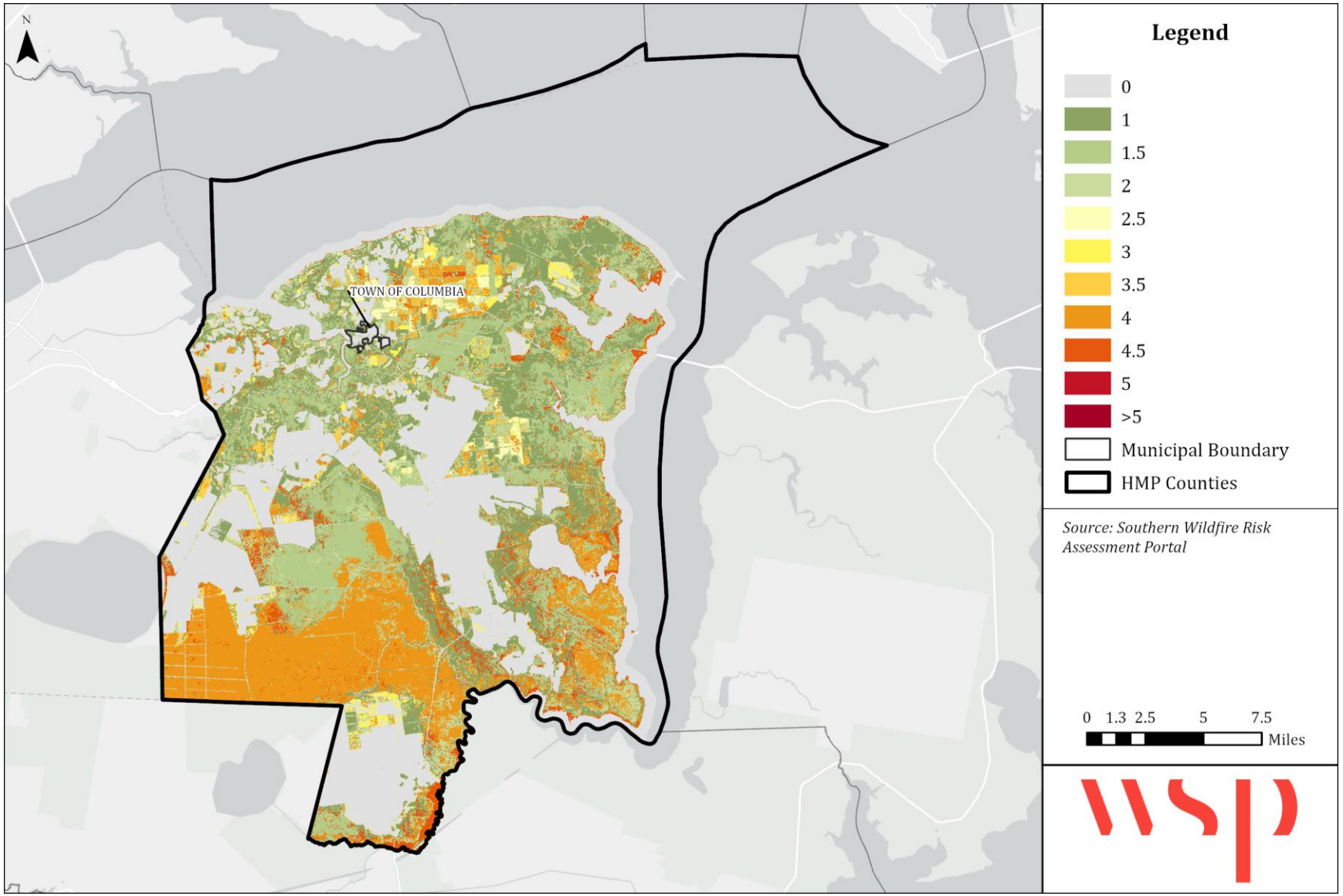


**Figure D.12 – Fire Intensity Scale, Town of Columbia**

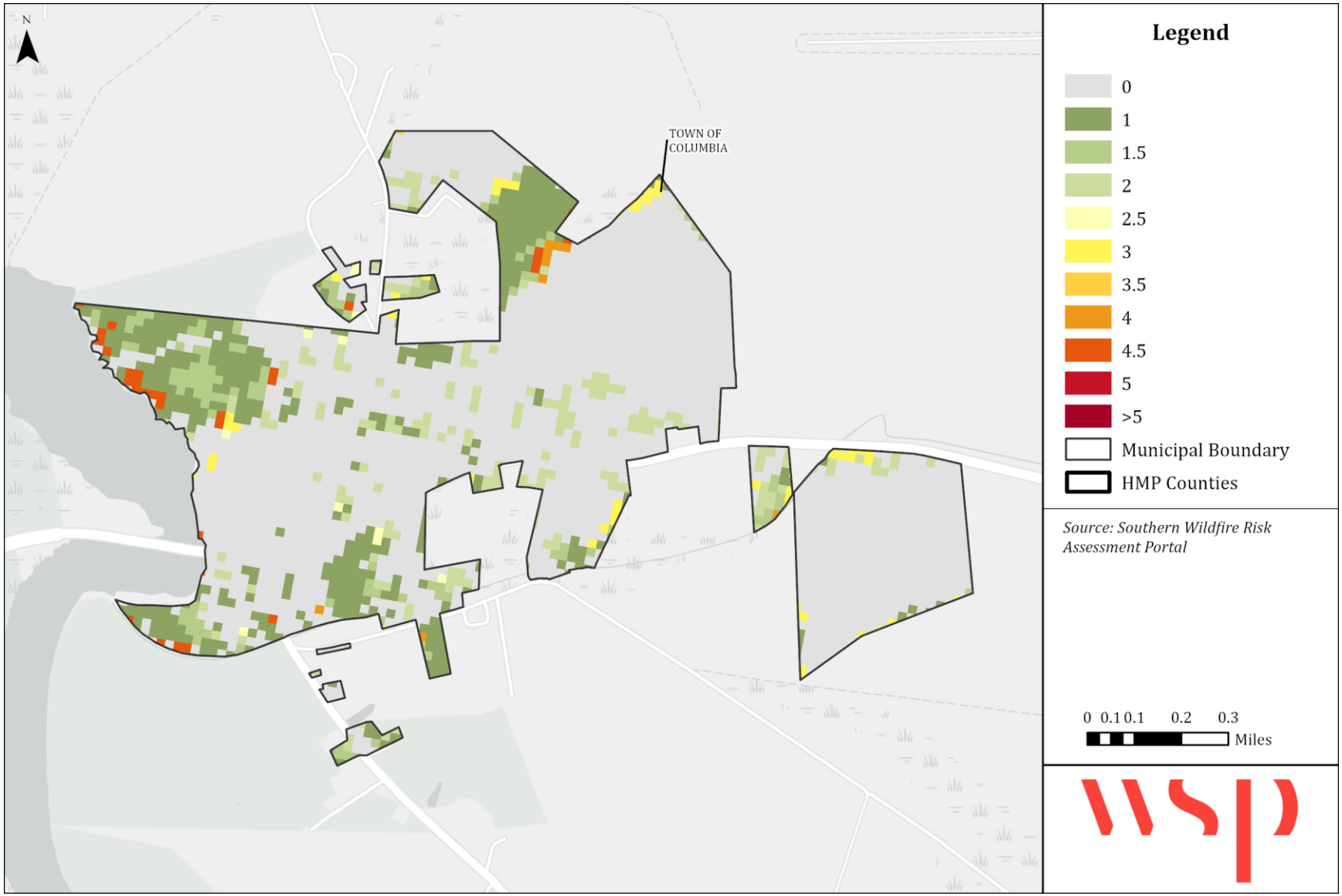
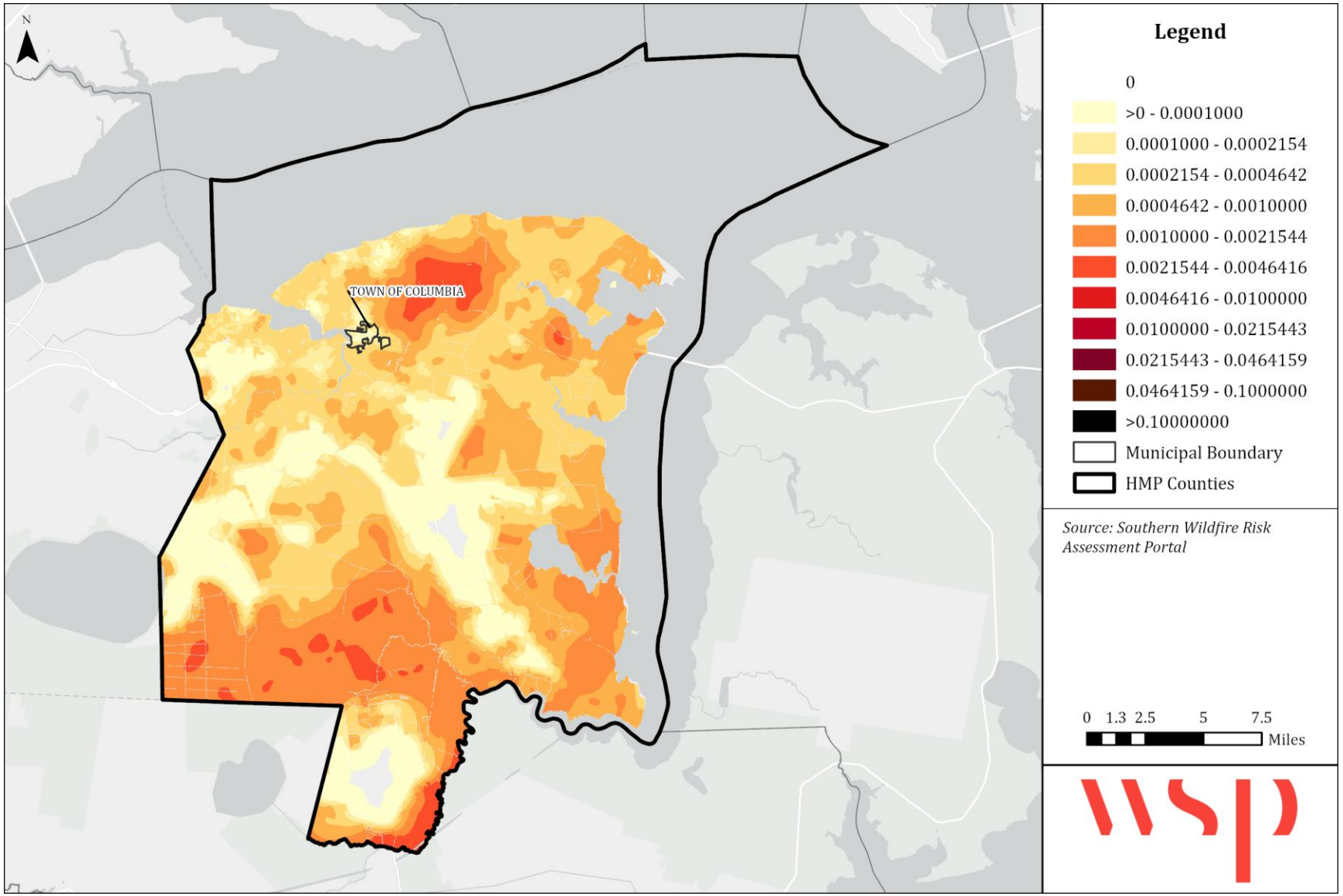
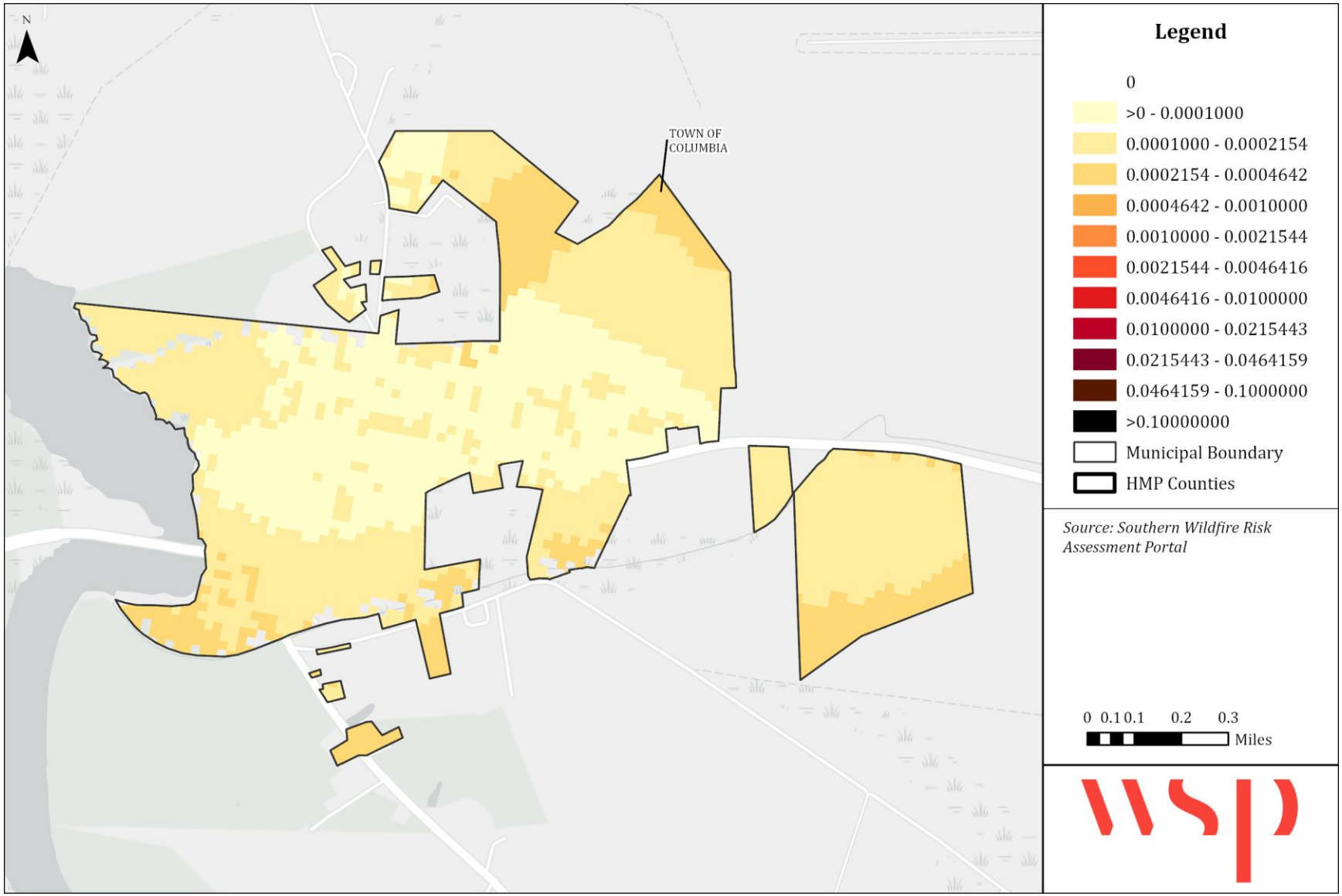


**Figure D.13 – Burn Probability, Unincorporated Tyrrell County**



## Figure D.14 – Burn Probability, Town of Columbia



## D.3 MITIGATION STRATEGY

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T1 | Maintain a policy of keeping branches and limbs from encroaching upon the right-of-way and power lines. The Town will assist in this effort through ensuring that this issue is properly addressed by utility providers. | Columbia | Flooding, Hurricanes & Coastal Hazards, Severe Winter Storm, Earthquake, Wildfire, Severe Weather, Tornado | High | 1.1 | P | Columbia Administration<br>Electric Service Providers | Staff Time | General Fund, Electric Service Providers | 2025-2030 | Carry Forward | The Town will coordinate with utility providers to minimize the impacts of natural hazard events on Town-wide infrastructure systems. |
| T2 | Monitor the county's equipment and facility needs with respect to mitigation and emergency management. Following a natural disaster, the county will utilize potential Hazard Mitigation Grant Program funds to acquire any identified needs. | Tyrrell Co., Columbia | All Hazards | High | 1.1 | PP, ES | Tyrrell County Emergency Management<br>Tyrrell County Board of Commissioners<br>Municipal Administration | Staff Time | General Fund, NCDPS | 1 year | Carry Forward | Current priority needs include swift water rescue equipment & training. |
| T3 | Mail a floodplain protection informational flyer to all county and town property owners a minimum of two times over the next five years. This effort will ensure that this critical information is being disseminated to a broad base of the population. | Tyrrell Co., Columbia | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 4.2 | PIO | Tyrrell County Administration<br>Tyrrell County Building Inspections<br>Municipal Administration | $4,000 | General Fund | 1 year | Carry Forward | Outreach was previously mailed but this effort needs to be reestablished once the County Floodplain Administrator position is filled. |
| T4 | Advertise the availability of federal flood insurance offered through the National Flood Insurance Program at least once annually through the county's website and/or social media. Additionally, the county will assist property owners in acquiring this insurance. | Tyrrell Co., Columbia | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 4.2 | PIO | Tyrell County Administration<br>Municipal Administration | $4,000 | General Fund | 2 years | Carry Forward | Action revised as Tyrrell County does not have a local newspaper but will use social media and website outreach to promote flood insurance. |
| T5 | Establish a long-range plan in conjunction with the US Army Corps of Engineers to clean out the arterial canals located throughout the county. | Tyrrell Co. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Medium | 1.3 | NRP | Tyrrell County Administration<br>US Army Corps of Engineers | To be determined | General Fund, NCDPS, NCDEQ | 2 to 3 years | Carry Forward | Soil & Water Conservation has been working to keep streams and canals clear. Currently working on several USACE permits. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T6 | Work towards a long-term solution to the flooding and drainage issues impacting the Alligator and Goat Neck communities within the county. | Tyrrell Co. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Medium | 1.3 | SP | Tyrrell County Administration<br>Tyrrell County Public Services | To be determined | General Fund, NCDPS, NCDEQ | 2 to 3 years | Carry Forward | Tyrrell County has been dealing with this issue for many years. The County will continue to seek out a long-term sustainable solution to this issue. Currently working on USACE permitting for a drainage improvement project. |
| T7 | Work to relocate all County service facilities to sites outside the flood hazard area. | Tyrrell Co. | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Low | 1.1, 2.3 | PP | Tyrrell County Administration<br>Tyrrell County Board of Commissioners<br>Municipal Administration | To be determined | General Fund, NCDPS, FEMA, USDA Loan Program | 5 years | Carry Forward | No progress to report but this remains a priority goal. |
| T8 | Continue to utilize annual, as well as post disaster Federal (FEMA) and State mitigation funds, to both acquire and elevate structures impacted by excessive flooding. The following provides a summary of mitigation target areas established following Hurricane Matthew in 2016:<br>• Alligator Community<br>• Albemarle Sound Area<br>• Town of Columbia | Tyrrell Co., Columbia | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Low | 2.3 | PP | Tyrrell County Administration<br>Tyrrell County Emergency Management<br>Municipal Administration | To be determined | General Fund, NCDPS, NCDEQ, NCDOT | 5 years | Carry Forward | Completed one mitigation reconstruction project in Columbia. Post-Matthew target areas remain a priority. |
| T9 | Actively working with Federal, State, local and private partners to identify mitigation measures and secure funding via grants to alleviate flooding. These efforts should focus on the following areas:<br>• Drainage system – Grendle Hill Canal<br>• Drainage system – Alligator Canal<br>• Drainage system – South Fork Creek Canal<br>• Drainage system – Rider Creek Canal | Tyrrell Co., Columbia | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Low | 1.1, 2.3 | SP | Tyrrell County Administration<br>Tyrrell County Emergency Management<br>Municipal Administration | To be determined | General Fund, NCDPS, NCDEQ, NCDOT | 5 years | Carry Forward | County obligates funding to Soil & Water Conservation department and that department conducts drainage maintenance. This is an ongoing need. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T10 | Seek grant funding for eligible mitigation opportunities which may include but are not limited to: acquisition/elevation, mitigation/reconstruction, and wet/dry floodproofing to residential and non-residential structures. Funding may also be utilized for redundant power to critical facilities, wind retrofits to critical facilities, storm shelters and other activities that reduce the loss of life and property. | Tyrrell Co., Columbia | All Hazards | Medium | 1.1, 2.3 | SP, PP | Tyrrell County Administration Tyrrell County Emergency Management Municipal Administration | To be determined | General Fund, NCDPS, FEMA | 2020-2025 | Carry Forward | Completed one mitigation reconstruction project in Columbia. |
| T11 | Maintain, and where necessary, establish backup generators at all identified critical facilities. Additionally, County Emergency Services will evaluate the equipment on a regular basis to assure it continues to meet operational demands at county facilities. | Tyrrell Co., Columbia | All Hazards | Medium | 1.1, 4.1 | PP | Tyrrell County Emergency Management Municipal Administration | To be determined | General Fund, NCDPS, FEMA | 2 to 3 years | Carry Forward | A new school is planned that will need backup power |
| T12 | Create or Update Community Wildfire Protection Plans in each fire district. | Tyrrell Co., Columbia | Wildfire | Med | 1.4 | P | Tyrrell County Emergency Management, Fire Departments, NC Forest Service | To Be Determined | Grant Funds | 5 years | New | |

# ANNEX E. WASHINGTON COUNTY

## E.1 ASSET INVENTORY

Washington County and the HMPC provided a local inventory of critical facilities and community lifelines, which are a priority for mitigation planning and emergency management. Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function. Table E.1 through Table E.4 provide a count of critical facilities by FEMA lifeline category by jurisdiction in Washington County. Figure E.1 through Figure E.4 show the locations of all critical facilities by jurisdiction in Washington County.

Table E.5 provides a detailed inventory of the critical facilities in Washington County, indicating each facility's FEMA lifeline category, flood zone, 1% annual chance flood depth, minimum storm surge category, and wildfire risk. More information on hazard vulnerability is provided in Section E.2.

**Table E.1 – Critical Facilities by Type, Unincorporated Washington County**

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 74 | $18,677,115.19 |
| Hazardous Materials | 3 | $1,000 |
| Health and Medical | 2 | $372,500 |
| Safety and Security | 5 | $1,675,500 |
| Transportation | 0 | $- |
| Water Systems | 18 | $1,539,539 |
| **Total** | **102** | **$22,265,654.19** |

**Table E.2 – Critical Facilities by Type, Town of Creswell**

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 7 | $2,510,983.73 |
| Hazardous Materials | 0 | $- |
| Health and Medical | 1 | $69,900 |
| Safety and Security | 1 | $69,900 |
| Transportation | 0 | $- |
| Water Systems | 2 | $82,400 |
| **Total** | **11** | **$2,733,183.73** |

### Table E.3 – Critical Facilities by Type, Town of Plymouth

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 2 | $4,344,200 |
| Hazardous Materials | 0 | $- |
| Health and Medical | 3 | $6,047,200 |
| Safety and Security | 3 | $545,600 |
| Transportation | 0 | $- |
| Water Systems | 2 | $1,063,400 |
| **Total** | **10** | **$12,000,400** |

### Table E.4 – Critical Facilities by Type, Town of Roper

| Facility Type | Count of Facility Type | Structure Value |
|---|---|---|
| Communications | 0 | $- |
| Energy | 0 | $- |
| Food, Hydration, Shelter | 0 | $- |
| Hazardous Materials | 0 | $- |
| Health and Medical | 1 | $89,900 |
| Safety and Security | 2 | $136,400 |
| Transportation | 0 | $- |
| Water Systems | 3 | $123,166 |
| **Total** | **6** | **$349,466** |

**Figure E.1 – Critical Facilities, Unincorporated Washington County**

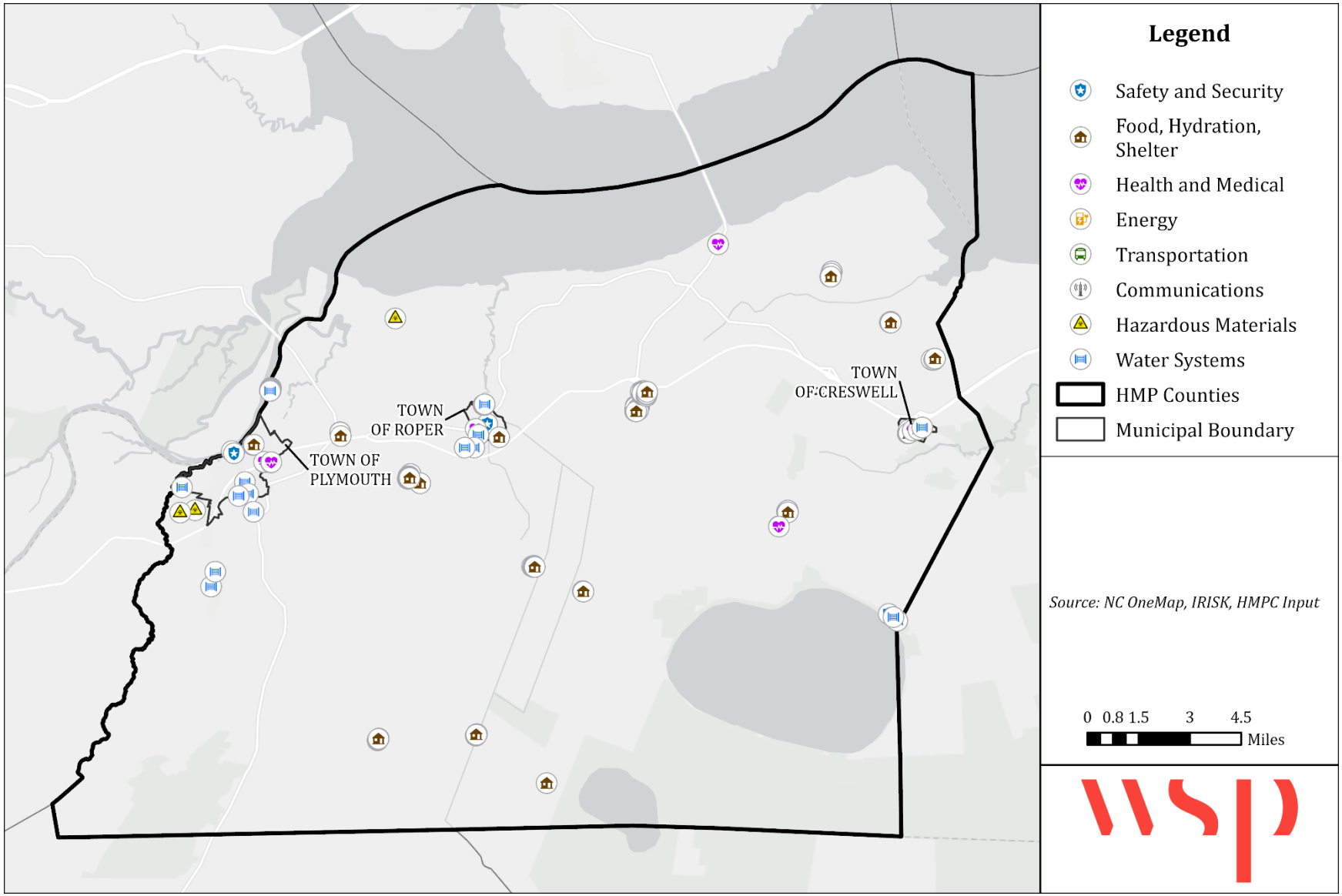
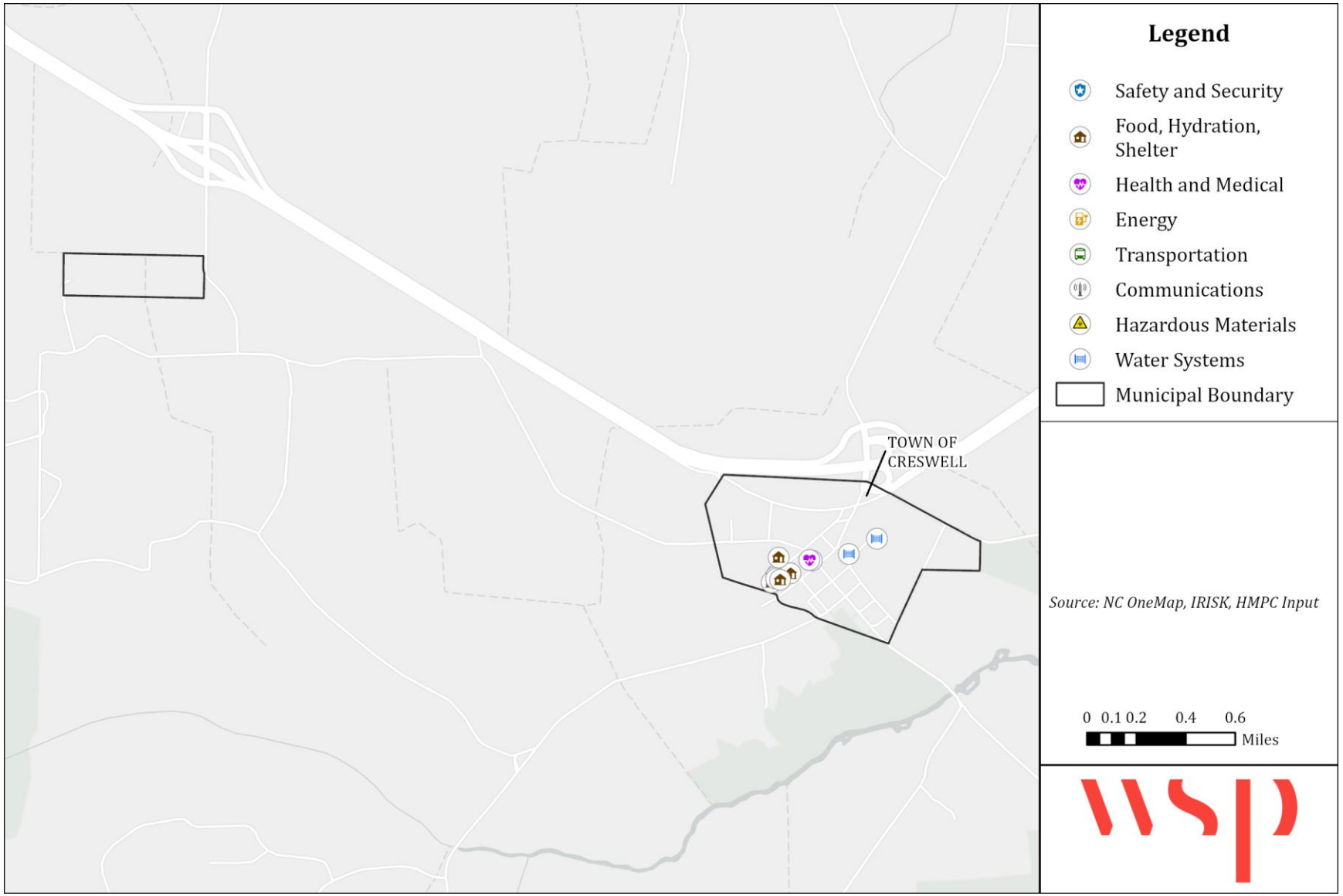
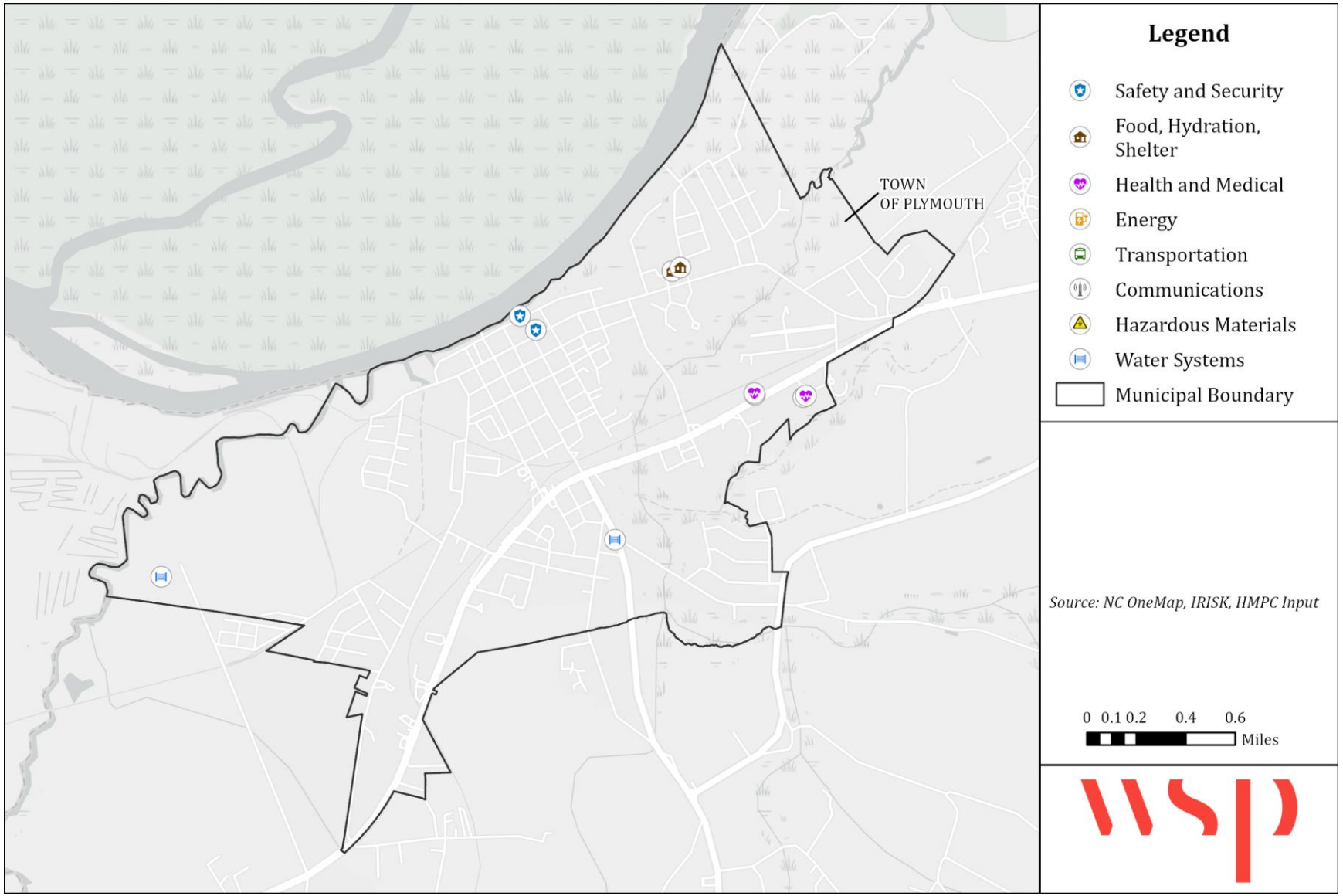


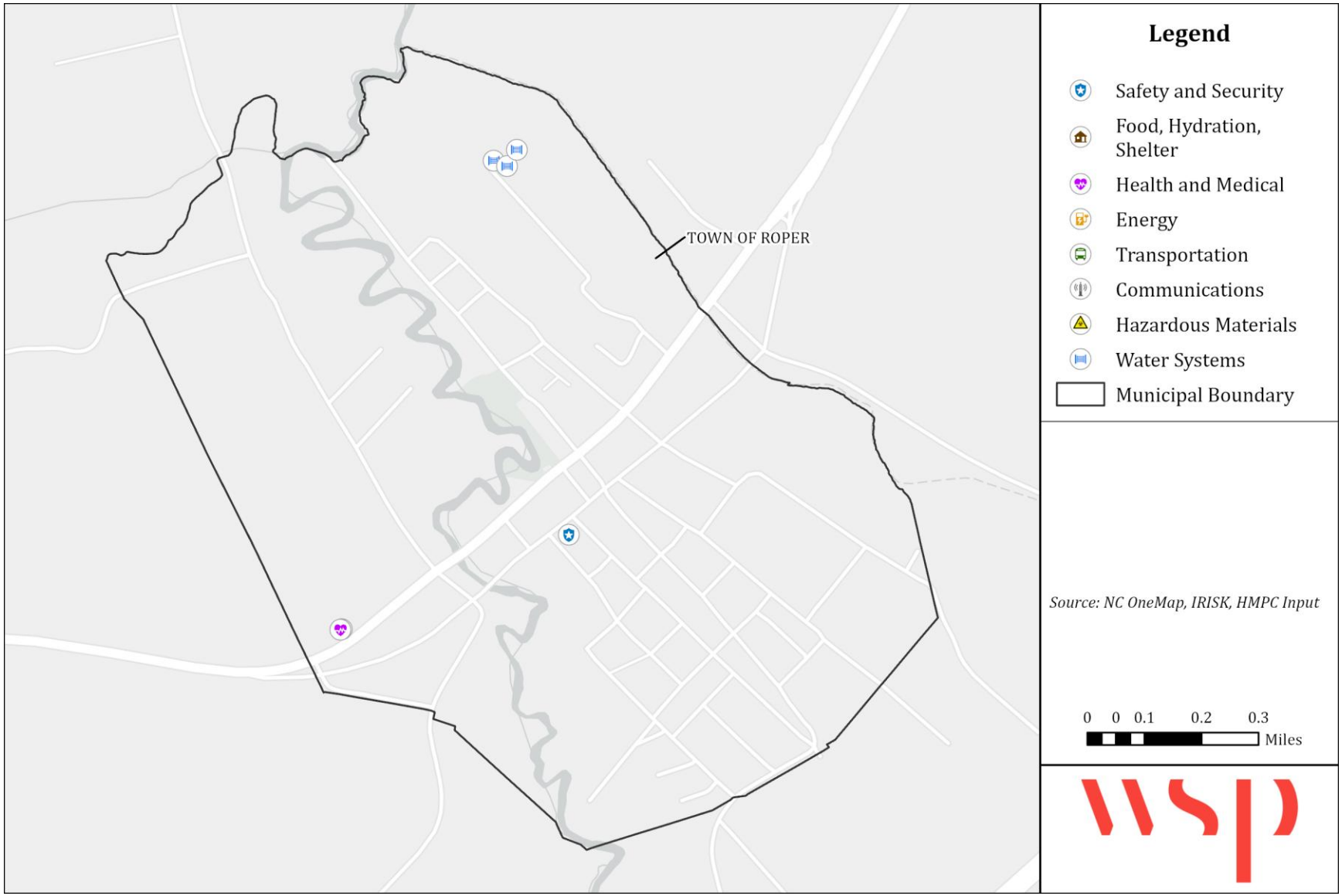
**Figure E.2 – Critical Facilities, Town of Creswell**



## Figure E.3 – Critical Facilities, Town of Plymouth



## Figure E.4 – Critical Facilities, Town of Roper



## Table E.5 – Washington County Critical Facilities Inventory

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|---|
| **Unincorporated Washington County** | | | | | | | | | |
| Safety & Security | Lake Phelps Volunteer Fire Department | 9688 Newland Road | $143,600 | 0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Safety & Security | Mid-County Volunteer Fire Department, Inc. | 18135 NC Highway 32 North | $228,900 | 0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Safety & Security | NC Division of Parks – Pettigrew State Park | 2252 Lake Shore Rd | - | 0 | X Unshaded | N/A | Category 4 | Direct Exposure | 2 |
| Health & Medical | Lake Phelps Volunteer Fire Department | 9606 Newland Rd | $143,600 | 0 | X Unshaded | N/A | Category 3 | Direct Exposure | 2 |
| Health & Medical | Mid-County Volunteer Fire Department Incorporated | 1485 State HWY 32 North | $228,900 | 0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Safety & Security | Washington County Health Department | 198 NC HWY 45 NORTH | $651,500 | 0 | X Unshaded | N/A | Category 3 | Direct Exposure | 2 |
| Safety & Security | Martin-Tyrrell-Washington District Health Department | 198 NC HWY 45 NORTH | $651,500 | 0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Hazardous Materials | Domtar Paper Company LLC | NC HWY 149 N | - | 0 | X Unshaded | N/A | N/A | Critical Fireshed | 0 |
| Water Systems | Plymouth Water System | 809 Washington St | $25,000 | 0 | X Shaded | N/A | Category 3 | Sources of Ember Load to Buildings | 0 |
| Water Systems | Plymouth Water System | 809 Washington St | $1,200 | 0 | X Unshaded | N/A | Category 3 | Direct Exposure | 1 |
| Water Systems | Plymouth Water System | 809 Washington St | - | 0 | X Unshaded | N/A | Category 3 | Critical Fireshed | 0 |
| Water Systems | Plymouth Water System | 809 Washington St | - | 0 | X Unshaded | N/A | N/A | Sources of Ember Load to Buildings | 3 |
| Water Systems | Plymouth Water System | 809 Washington St | - | 0 | X Unshaded | N/A | N/A | Critical Fireshed | 0 |
| Water Systems | Washington County Water System | 396 West Mill Pond Rd | $1,083,000 | 0 | X Shaded | N/A | Category 2 | Direct Exposure | 3 |
| Water Systems | Washington County Water System | 396 West Mill Pond Rd | $3,700 | 0 | X Shaded | N/A | Category 3 | Indirect Exposure | 0 |
| Water Systems | Washington County Water System | 396 West Mill Pond Rd | $4,200 | 0 | X Unshaded | N/A | Category 3 | Critical Fireshed | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|---|
| Water Systems | Somerset Place Historic Site | 2572 Lake Shore Rd | $99,400 | 0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Water Systems | Pettigrew State Park | 2572 Lake Shore Rd | - | 0 | X Unshaded | N/A | Category 4 | Sources of Ember Load to Buildings | 1 |
| Food, Hydration, Shelter | Coles Farms Inc.- North Pork | 1563 Railroad Bed Rd | $22,800 | 0 | X Unshaded | N/A | Category 3 | Direct Exposure | 2 |
| Food, Hydration, Shelter | Tidewater Research Station 2 | US HWY 64 | $141,700 | 0 | X Unshaded | N/A | N/A | Direct Exposure | 2 |
| Food, Hydration, Shelter | Tidewater Research Station | US HWY 64 | $141,700 | 0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | Joshua Spear Farm | Ambrose Rd | $85,400 | 0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | Somerset Farm | Northline Rd | $58,400 | 0 | X Unshaded | N/A | Category 4 | Direct Exposure | 2 |
| Hazardous Materials | Domtar Paper Company Landfill, Lined #3 | Ken Trowbridge Rd-Tract 26 | $1,000 | 0 | X Unshaded | N/A | N/A | Critical Fireshed | 3 |
| Hazardous Materials | Washington County C&D Landfill | Landfill Rd | - | 0 | X Unshaded | N/A | N/A | Critical Fireshed | 0 |
| Food, Hydration, Shelter | | Unknown | $5,269 | 0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $16,714 | 0 | X Unshaded | N/A | N/A | Direct Exposure | 2 |
| Food, Hydration, Shelter | | Unknown | $8,359 | 0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $13,599 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Northline Rd | $5,000 | 0 | X Unshaded | N/A | Category 4 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | Unknown | $37,895 | 0 | X Unshaded | N/A | Category 5 | Critical Fireshed | 0 |
| Food, Hydration, Shelter | | Unknown | $66,008 | 0 | X Unshaded | N/A | Category 3 | Critical Fireshed | 0 |
| Food, Hydration, Shelter | | Northline Rd | $5,000 | 0 | X Unshaded | N/A | Category 3 | Critical Fireshed | 0 |
| Food, Hydration, Shelter | | Off Northline Rd | $17,800 | 0 | X Unshaded | N/A | Category 3 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | Unknown | $57,691 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Water Systems | | Conaby Dr | $37,500 | 0.1 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Water Systems | | Unknown | $5,284 | 0.1 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Water Systems | | Unknown | $63,034 | 0.1 | AE | N/A | Category 3 | Indirect Exposure | 0 |
| Water Systems | | Unknown | $40,829 | 0.1 | AE | N/A | Category 3 | Indirect Exposure | 0 |
| Water Systems | | Unknown | $43,751 | 0.1 | AE | N/A | Category 3 | Direct Exposure | 2 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|---|
| Water Systems | | Unknown | $43,240 | 0.1 | AE | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | | Unknown | $45,066 | 0.1 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Water Systems | | Unknown | $44,335 | 0.1 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $393,488 | 0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $142,030 | 0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $171,098 | 0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $650,004 | 0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $440,951 | 0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $175,687 | 0 | X Unshaded | N/A | Category 2 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | Unknown | $177,195 | 0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $349,058 | 0 | X Unshaded | N/A | Category 4 | Direct Exposure | 2.5 |
| Food, Hydration, Shelter | | Unknown | $45,084 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $6,883 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $5,302 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $36,167 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $5,171 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Off Northline Rd | $65,200 | 0 | X Unshaded | N/A | Category 4 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | Northline Rd | $5,000 | 0 | X Unshaded | N/A | Category 4 | Critical Fireshed | 0 |
| Food, Hydration, Shelter | | Unknown | $61,323 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $55,759 | 0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $24,153 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $29,088 | 0 | X Unshaded | N/A | Category 5 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | Unknown | $2,291,529 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $3,814,173 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $1,192,192 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $1,207,069 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $1,166,012 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $1,810,565 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|---|
| Food, Hydration, Shelter | | 1514 C Canal Rd | $47,400 | 0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | NC HWY 99 | $15,100 | 0 | X Unshaded | N/A | Category 3 | Little to No Exposure | 0 |
| Food, Hydration, Shelter | | 1563 Railroad Bed Rd | $22,800 | 0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 1563 Railroad Bed Rd | $22,800 | 0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Pea Ridge Rd/Sr 1302 | $37,100 | 0 | X Shaded | N/A | Category 2 | Direct Exposure | 0 |
| Food, Hydration, Shelter | | Pea Ridge Rd/Sr 1302 | $37,100 | 0 | X Unshaded | N/A | Category 3 | Direct Exposure | 0 |
| Food, Hydration, Shelter | | 4007 Pea Ridge Rd | $76,500 | 0 | X Unshaded | N/A | Category 2 | Direct Exposure | 0 |
| Food, Hydration, Shelter | | 4007 Pea Ridge Rd | $76,500 | 0 | X Unshaded | N/A | Category 3 | Direct Exposure | 0 |
| Food, Hydration, Shelter | | 1563 Railroad Bed Rd | $22,800 | 0 | X Unshaded | N/A | Category 3 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | 1563 Railroad Bed Rd | $22,800 | 0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 1563 Railroad Bed Rd | $22,800 | 0 | X Unshaded | N/A | Category 3 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | 1847 Alligood Rd | $72,500 | 0 | X Unshaded | N/A | Category 2 | Direct Exposure | 3 |
| Food, Hydration, Shelter | | 1847 Alligood Rd | $72,500 | 0 | X Unshaded | N/A | Category 2 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | 1847 Alligood Rd | $72,500 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | NC HWY 99 | $15,100 | 0 | X Unshaded | N/A | Category 3 | Little to No Exposure | 0 |
| Food, Hydration, Shelter | | NC HWY 99 | $15,100 | 0 | X Unshaded | N/A | Category 3 | Little to No Exposure | 0 |
| Food, Hydration, Shelter | | NC HWY 99 | $15,100 | 0 | X Unshaded | N/A | Category 3 | Little to No Exposure | 0 |
| Food, Hydration, Shelter | | NC HWY 99 | $15,100 | 0 | X Unshaded | N/A | Category 3 | Little to No Exposure | 0 |
| Food, Hydration, Shelter | | NC HWY 99 | $15,100 | 0 | X Unshaded | N/A | Category 3 | Little to No Exposure | 0 |
| Food, Hydration, Shelter | | 3121 & 3123 B Canal Rd | $43,200 | 0 | X Unshaded | N/A | Category 3 | Direct Exposure | 2 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|---|
| Food, Hydration, Shelter | | 3121 & 3123 B Canal Rd | $43,200 | 0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | US HWY 64 | $141,700 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | US HWY 64 | $141,700 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | US HWY 64 | $141,700 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | US HWY 64 | $141,700 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | US HWY 64 | $141,700 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | US HWY 64 | $141,700 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | US HWY 64 | $141,700 | 0 | X Unshaded | N/A | Category 3 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | US HWY 64 | $141,700 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | US HWY 64 | $141,700 | 0 | X Unshaded | N/A | Category 3 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | Railroad Bed Rd | $18,400 | 0 | X Unshaded | N/A | Category 3 | Critical Fireshed | 2 |
| Food, Hydration, Shelter | | Railroad Bed Rd | $18,400 | 0 | X Unshaded | N/A | Category 4 | Direct Exposure | 2 |
| Food, Hydration, Shelter | | Railroad Bed Rd | $18,400 | 0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 401 E Mill Pond Rd | $1,560,000 | 0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| **Town of Creswell** | | | | | | | | | |
| Safety & Security | The Creswell Volunteer Fire Department, Inc. | 109 West Main Street | $69,900 | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Health & Medical | Creswell Volunteer Fire Department Incorporated | 109 WEST MAIN STREET | $69,900 | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |
| Water Systems | Creswell Town Of | 110 Palmentto | $82,000 | 0.0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Water Systems | Creswell Town Of | 110 Palmentto | $400 | 0.0 | X Unshaded | N/A | Category 2 | Sources of Ember Load to Buildings | 2 |
| Food, Hydration, Shelter | | Unknown | $88,441 | 0.1 | AE | N/A | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $23,311 | 1.1 | AE | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $57,984 | 0.0 | X Shaded | N/A | Category 1 | Direct Exposure | 2 |
| Food, Hydration, Shelter | Creswell High School | - | $2,151,900 | 1.3 | AE | N/A | Category 1 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $92,013 | 0.0 | X Unshaded | N/A | Category 2 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | Unknown | $85,629 | 0.0 | X Shaded | N/A | Category 2 | Indirect Exposure | 0 |

| FEMA Lifeline | Facility Name | Address | Structure Value | Flood Depth | Flood Zone | Min. Sea Level Rise | Min. Storm Surge Cat. | High WUI Exposure | Fire Intensity |
|---|---|---|---|---|---|---|---|---|---|
| Food, Hydration, Shelter | | Unknown | $11,706 | 2.2 | AE | 3ft SLR | Category 1 | Indirect Exposure | 0 |
| **Town of Plymouth** | | | | | | | | | |
| Safety & Security | Plymouth Fire Department | 775 US Highway 64 East | $411,400 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Safety & Security | Plymouth Police Department | 132 East Water Street | $116,200 | 0 | X Shaded | N/A | Category 3 | Indirect Exposure | 0 |
| Safety & Security | Washington County Sheriffs Department/Washington County Jail | 120 Adams Street | $18,000 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Health & Medical | Plymouth Fire Department Station 2 | US HWY 64 EAST | $411,400 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Health & Medical | Washington County Emergency Medical Services | 958 US HWY 64 EAST | $2,817,900 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Health & Medical | Washington County Hospital | 958 US Hwy 64 East | $2,817,900 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Water Systems | Plymouth Water System | 809 Washington Street | $19,400 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Water Systems | Domtar Resource Bldg | - | $1,044,000 | 3.0 | AE | N/A | Category 2 | Direct Exposure | 3 |
| Food, Hydration, Shelter | | 800 E Main St | $2,172,100 | 0 | X Unshaded | N/A | Category 5 | Indirect Exposure | 0 |
| Food, Hydration, Shelter | | 800 E Main St | $2,172,100 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| **Town of Roper** | | | | | | | | | |
| Safety & Security | Roper Fire Department, Inc. | 7121 NC Highway 32 North | $89,900 | 0 | X Unshaded | N/A | Category 3 | Direct Exposure | 2 |
| Safety & Security | Roper Police Department | 301 West Buncombe Street | $46,500 | 0 | X Unshaded | N/A | Category 3 | Indirect Exposure | 0 |
| Health & Medical | Roper Volunteer Fire Department Incorporated | 410 State HWY 32 North | $89,900 | 0 | X Unshaded | N/A | Category 3 | Direct Exposure | 2 |
| Water Systems | | Unknown | $37,250 | 0 | X Unshaded | N/A | N/A | Indirect Exposure | 0 |
| Water Systems | | Unknown | $2,798 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |
| Water Systems | | Unknown | $83,118 | 0 | X Unshaded | N/A | Category 4 | Indirect Exposure | 0 |

# E.2 RISK ASSESSMENT

This section contains a summary of the County's asset inventory as well as hazard profile and vulnerability assessment for those hazards that are spatially defined and have variations in risk that could be evaluated quantitatively on a jurisdictional level. The hazards included in this section are: Flooding, Hurricanes & Coastal Hazards, and Wildfire.

## *E.2.1 FLOODING*

Table E.6 details the acreage of Washington County's total area by jurisdiction and flood zone on the Effective DFIRM. Per this assessment, at 33 percent, the Town of Plymouth has the largest proportion of its land area within the mapped 1%-annual-chance floodplain. Overall, approximately 15.5 percent of the county's total area falls within the SFHA.

**Table E.6 – Flood Zone Acreage by Jurisdiction, Washington County**

| Flood Zone | Acreage | Percent of Total (%) |
|---|---|---|
| **Unincorporated Washington County** | | |
| Zone AE | 37,912.1 | 14.2% |
| Zone AO | 13.4 | 0.0% |
| Zone VE | 2,917.1 | 1.1% |
| Zone X Shaded | 6,615.0 | 2.5% |
| Zone X Unshaded | 193,389.4 | 72.5% |
| Open Water | 25,745.3 | 9.7% |
| **Total** | **266,592.2** | -- |
| **Creswell** | | |
| Zone AE | 79.4 | 21.9% |
| Zone X Shaded | 93.7 | 25.8% |
| Zone X Unshaded | 189.7 | 52.3% |
| **Total** | **362.9** | -- |
| **Plymouth** | | |
| Zone AE | 838.3 | 33.2% |
| Zone X Shaded | 227.7 | 9.0% |
| Zone X Unshaded | 1,457.3 | 57.8% |
| **Total** | **2,523.3** | -- |
| **Roper** | | |
| Zone AE | 107.8 | 19.9% |
| Zone X Shaded | 68.8 | 12.7% |
| Zone X Unshaded | 365.3 | 67.4% |
| **Total** | **541.9** | -- |
| **Washington County Total** | | |
| Zone AE | 38,937.7 | 14.4% |
| Zone AO | 13.4 | 0.0% |
| Zone VE | 2,917.1 | 1.1% |
| Zone X Shaded | 7,005.2 | 2.6% |
| Zone X Unshaded | 195,401.7 | 72.4% |
| Open Water | 25,745.3 | 9.5% |

| Flood Zone | Acreage | Percent of Total (%) |
|---|---|---|
| **Total** | **270,020.3** | -- |

Source: FEMA Effective DFIRM

Figure E.5 through Figure E.8 reflect the effective mapped flood hazard zones for all jurisdictions with land in the Special Flood Hazard Area in Washington County, and Figure E.9 through Figure E.12 displays the depth of flooding estimated to occur in these areas during the 1%-annual-chance flood.

Table E.7 provides building counts and values for critical facilities by flood zone in Washington County and participating jurisdictions.

**Table E.7 – Critical Facilities Exposed to Flooding by Event and Jurisdiction**

| Flood Zone | Critical Facility Count | Structure Value |
|---|---|---|
| **Unincorporated Washington County** | | |
| Zone AE | 8 | $323,039 |
| Zone X (500-year) | 7 | $2,125,268.98 |
| Zone X (unshaded) | 87 | $19,817,346.21 |
| **Total** | **102** | **$22,265,654.19** |
| **Creswell** | | |
| Zone AE | 4 | $2,275,357.73 |
| Zone X (500-year) | 4 | $283,413 |
| Zone X (unshaded) | 3 | $174,413 |
| **Total** | **11** | **$2,733,183.73** |
| **Plymouth** | | |
| Zone AE | 1 | $1,044,000 |
| Zone X (500-year) | 1 | $116,200 |
| Zone X (unshaded) | 8 | $10,840,200 |
| **Total** | **10** | **$12,000,400** |
| **Roper** | | |
| Zone X (unshaded) | 6 | $349,466 |
| **Total** | **6** | **$349,466** |
| **Washington County Total** | | |
| Zone AE | 13 | $3,642,396.73 |
| Zone X (500-year) | 12 | $2,524,881.98 |
| Zone X (unshaded) | 104 | $31,181,425.21 |
| **Total** | **129** | **$37,348,703.93** |

Source: FEMA Effective DFIRM; HMPC

**Figure E.5 – FEMA Flood Hazard Areas, Unincorporated Washington County**

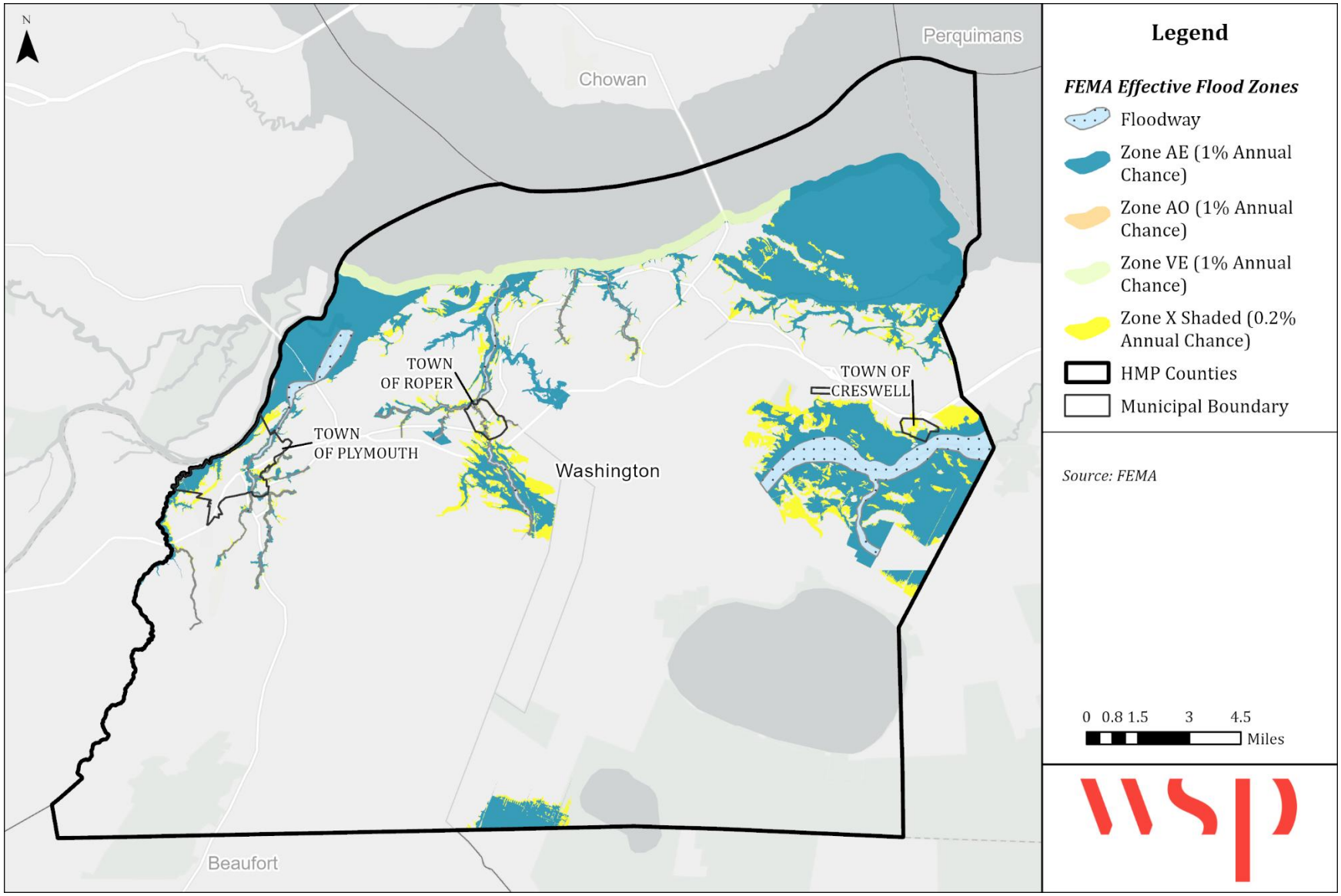


**Figure E.6 – FEMA Flood Hazard Areas, Town of Creswell**

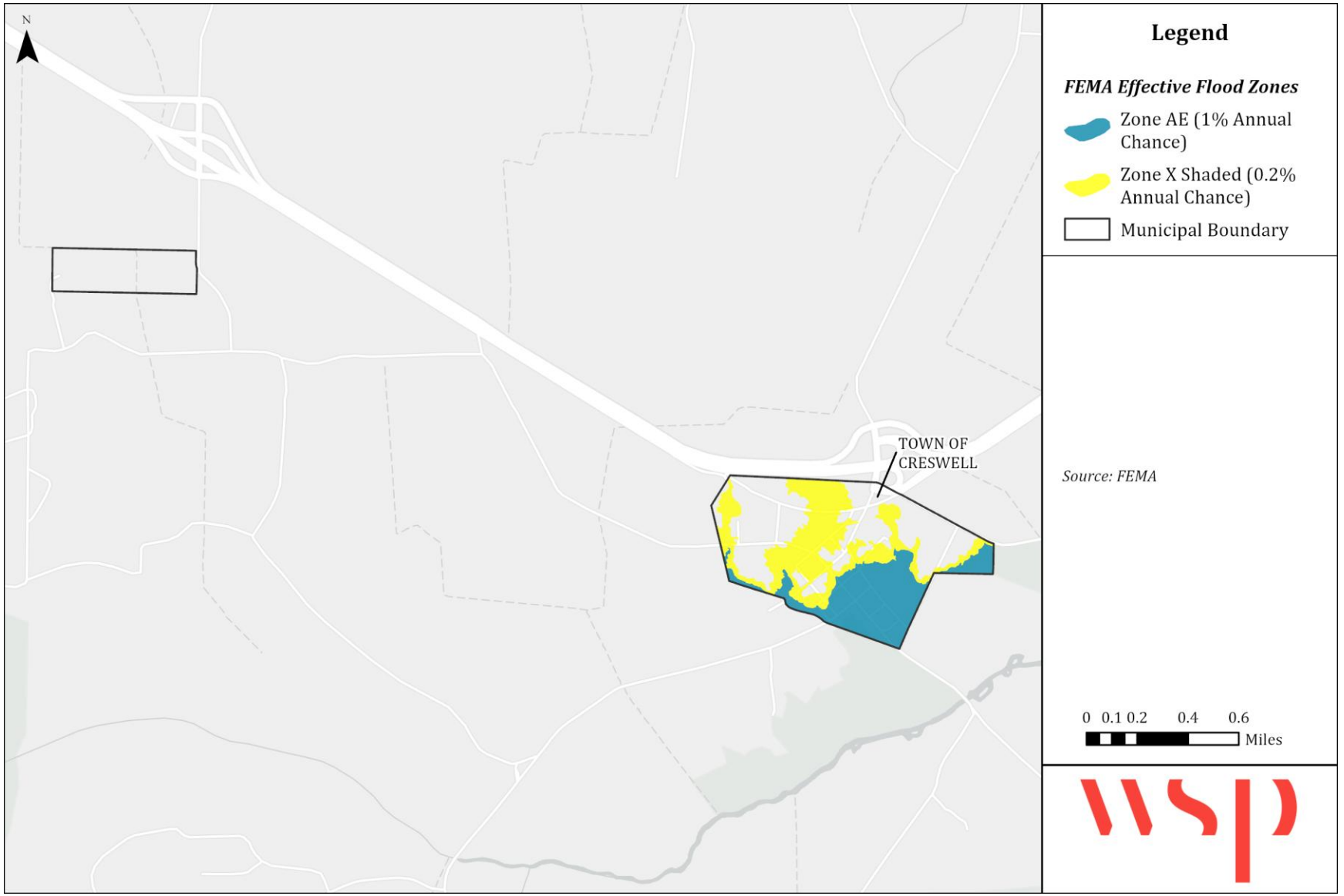


**Figure E.7 – FEMA Flood Hazard Areas, Town of Plymouth**

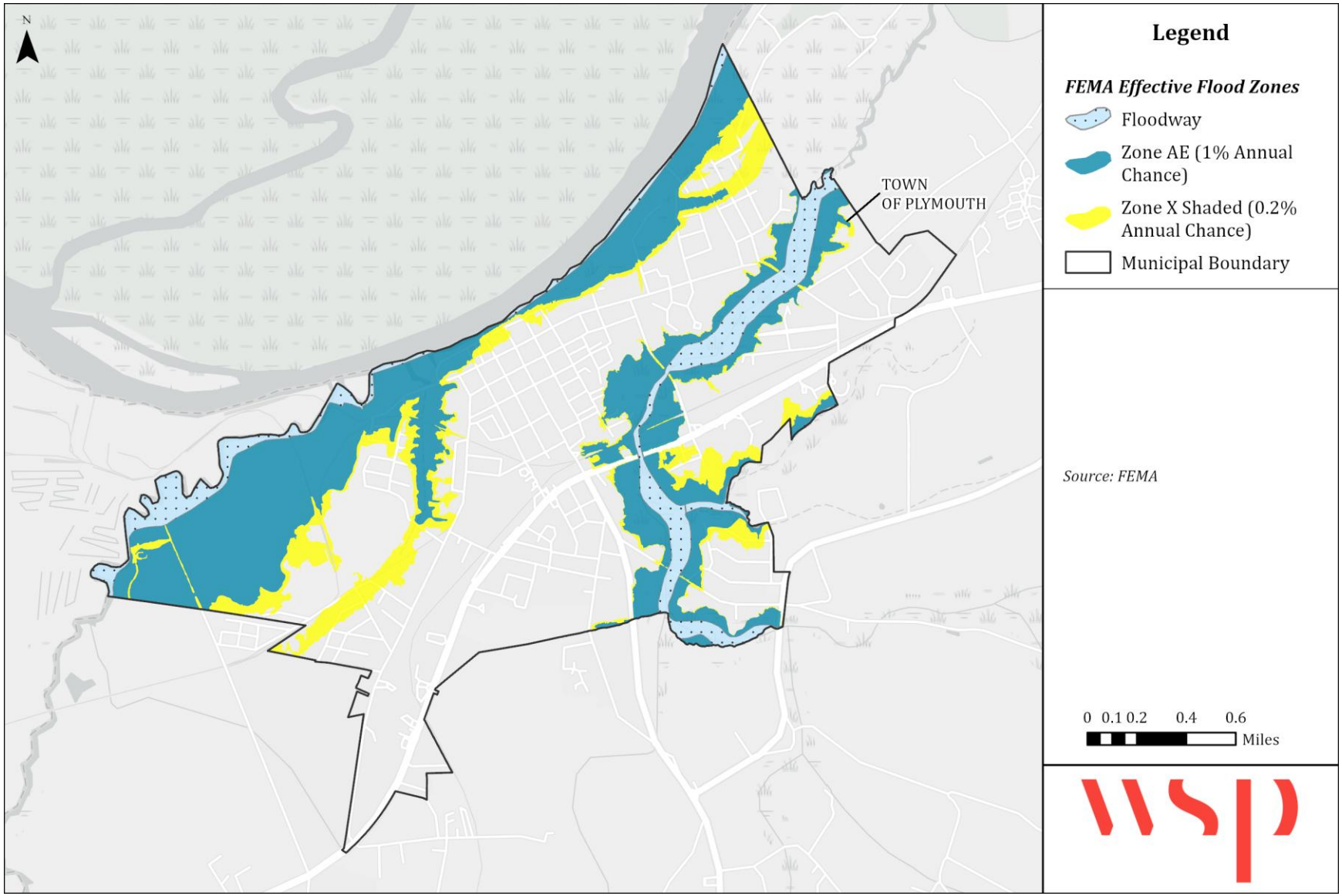


**Figure E.8 – FEMA Flood Hazard Areas, Village of Roper**

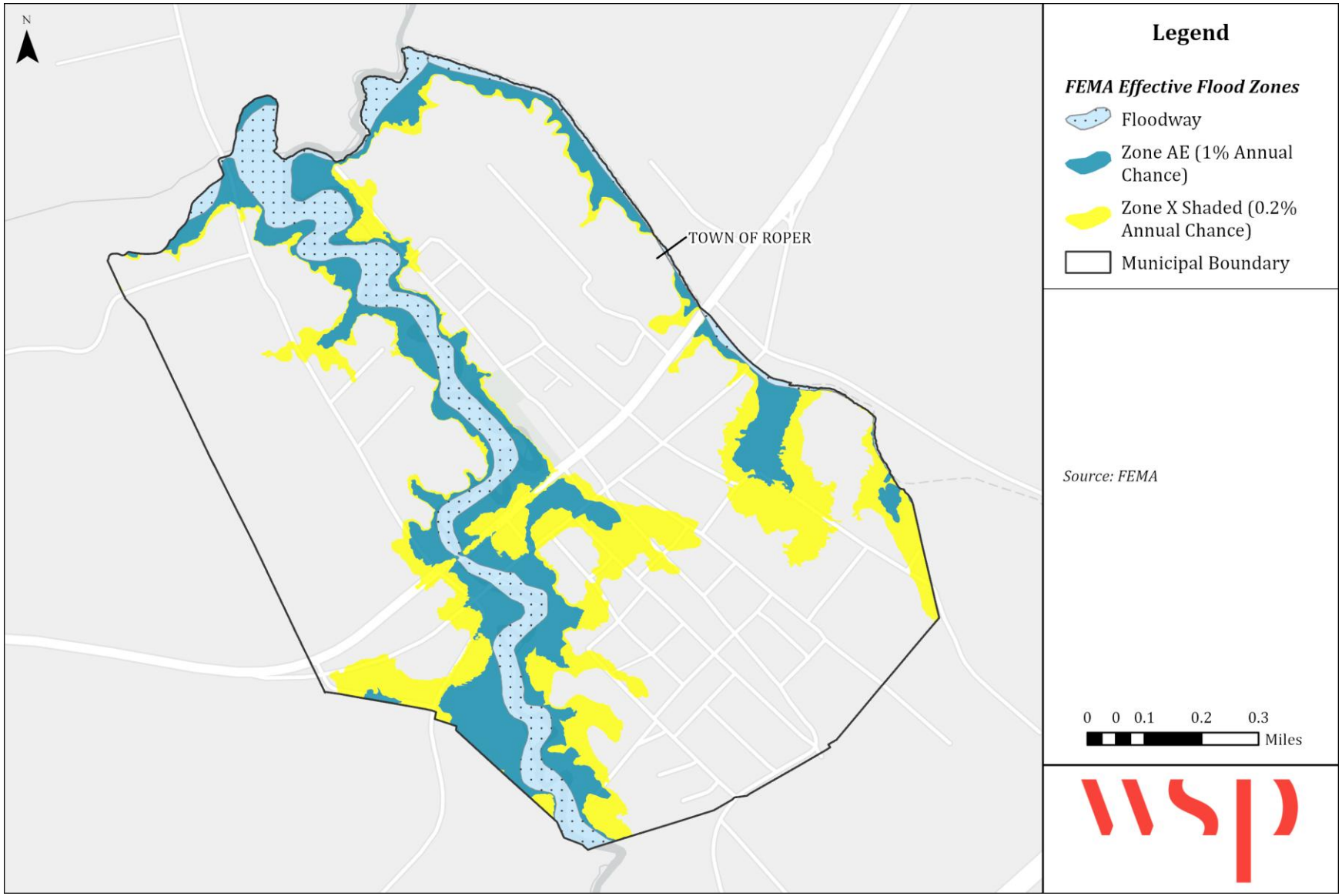


**Figure E.9 – Flood Depth, 1%-Annual-Chance Floodplain, Unincorporated Washington County**

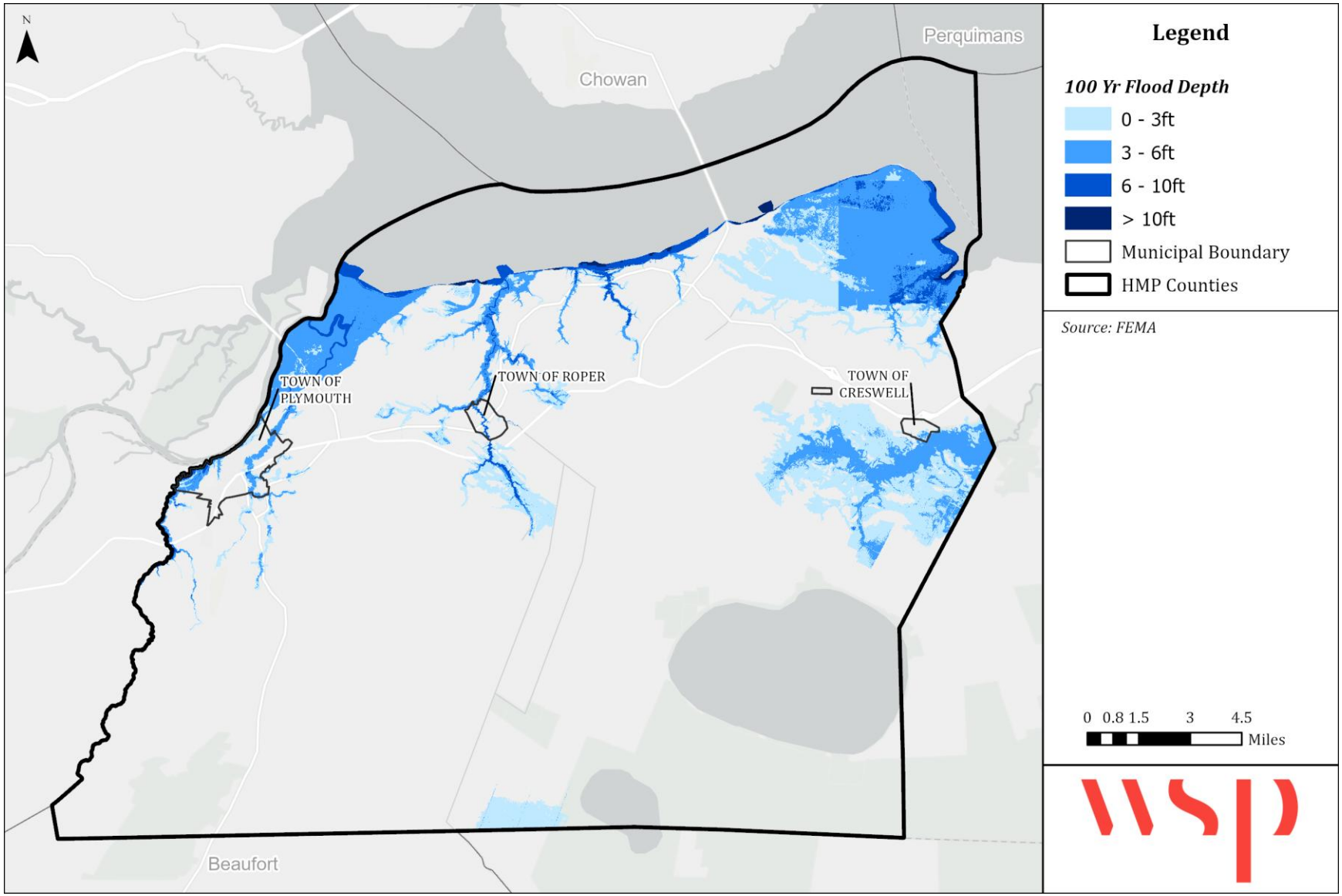


**Figure E.10 – Flood Depth, 1%-Annual-Chance Floodplain, Town of Creswell**

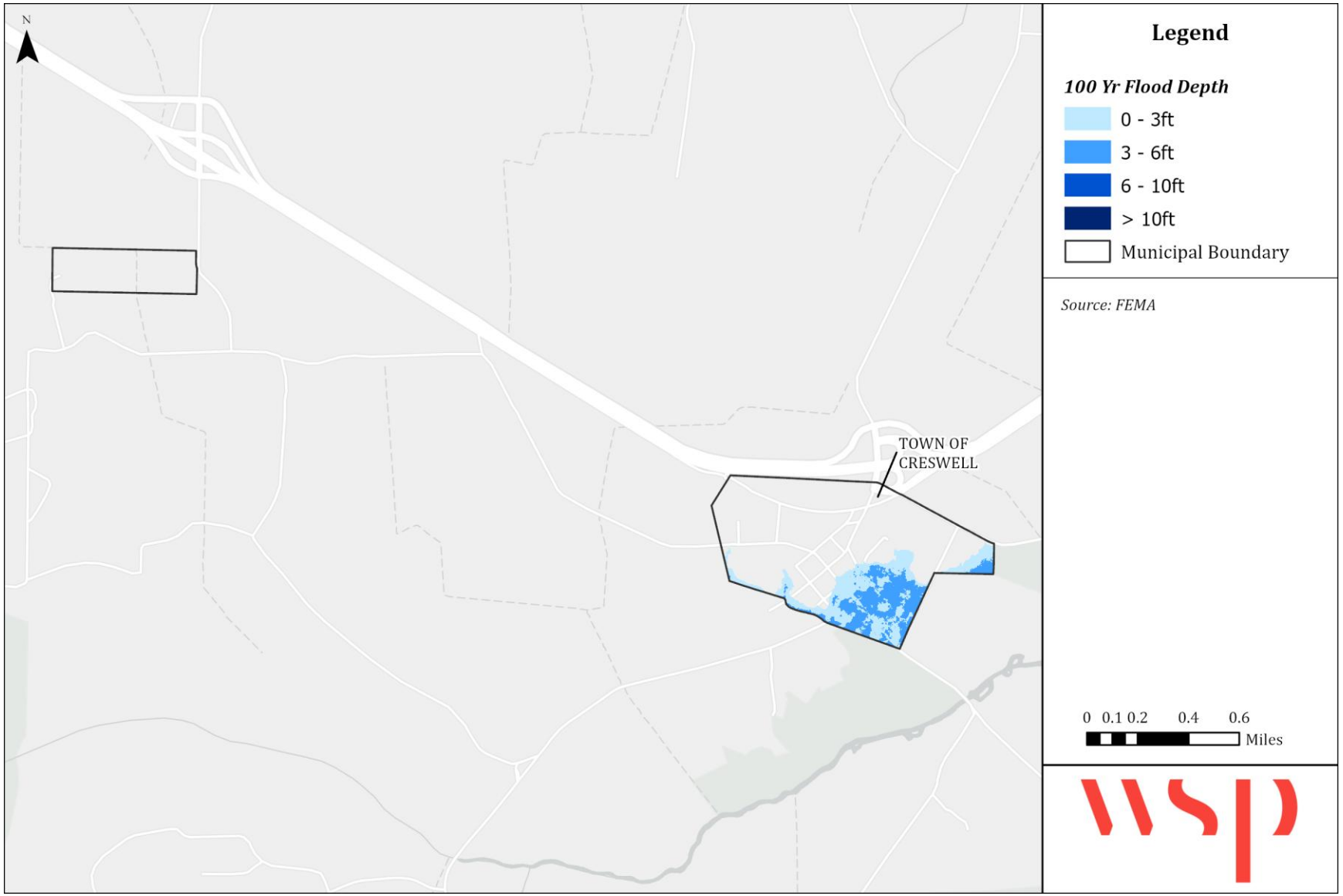


**Figure E.11 – Flood Depth, 1%-Annual-Chance Floodplain, Town of Plymouth**

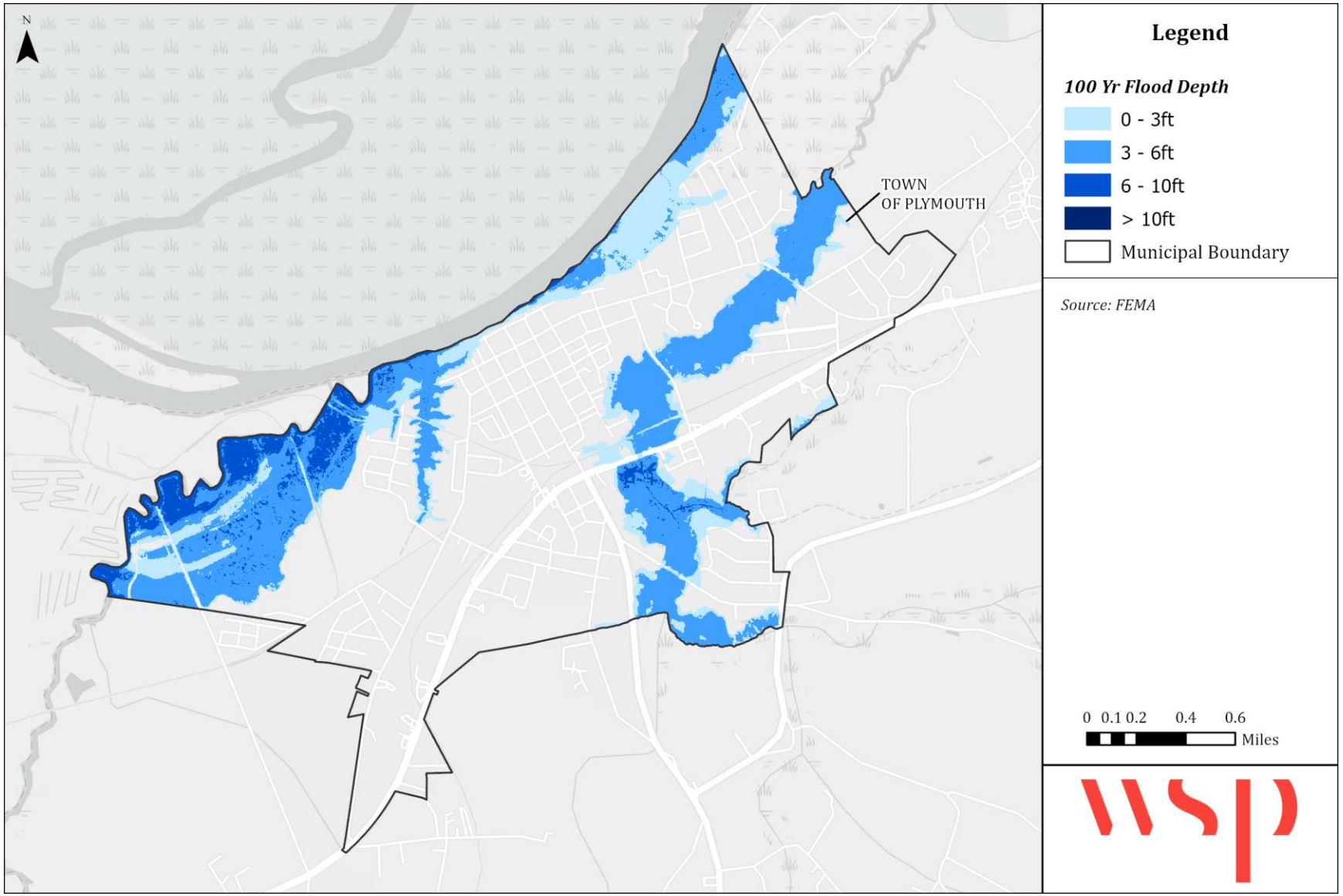
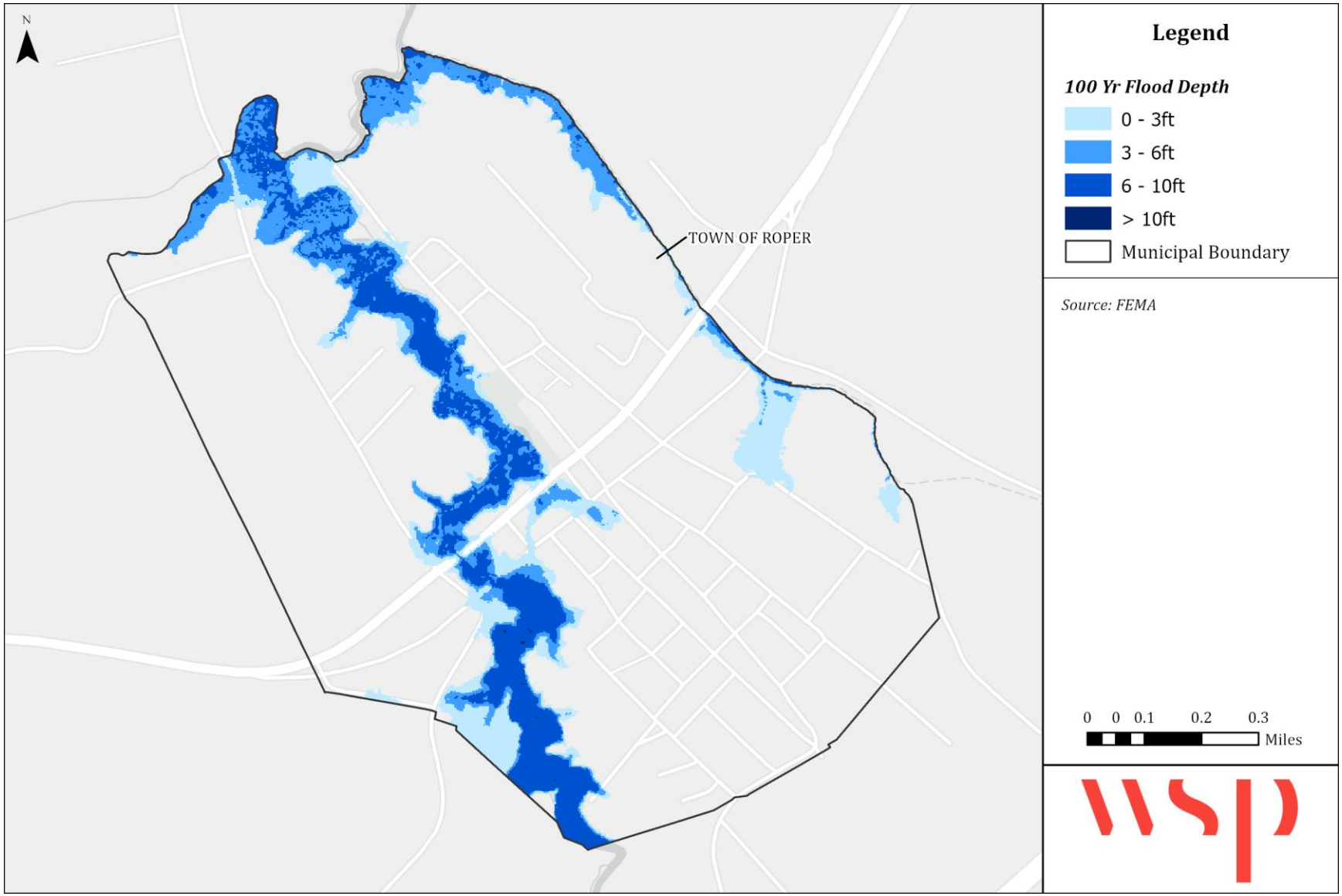


**Figure E.12 – Flood Depth, 1%-Annual-Chance Floodplain, Town of Roper**



## FLOODPLAIN MANAGEMENT

The following tables reflect NFIP policy and claims data for Washington County and incorporated categorized by structure type, flood zone, Pre-FIRM and Post-FIRM.

**Table E.8 – NFIP Policy and Claims Data by Structure Type**

| Structure Type | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Washington County Unincorporated Area** | | | | | |
| Single Family | 84 | $58,585 | $20,368,000 | 95 | $1,238,526.64 |
| Non Residential | 0 | $0 | $0 | 3 | $119,518.79 |
| **Total** | **84** | **$58,585** | **$20,368,000** | **98** | **$1,358,045.43** |
| **Town of Creswell** | | | | | |
| Single Family | 8 | $5,056 | $1,518,000 | 6 | $25,575.37 |
| **Total** | **8** | **$5,056** | **$1,518,000** | **6** | **$25,575.37** |
| **Town of Plymouth** | | | | | |
| Single Family | 35 | $24,131 | $9,064,000 | 40 | $435,851.07 |
| Non Residential | 5 | $5,577 | $2,391,000 | 8 | $866,196.81 |
| **Total** | **40** | **$29,708** | **$11,455,000** | **48** | **$1,302,047.88** |
| **Town of Roper** | | | | | |
| Single Family | 6 | $3,812 | $1,379,000 | 5 | $83,200.26 |
| **Total** | **6** | **$3,812** | **$1,379,000** | **5** | **$83,200.26** |

Source: FEMA Community Information System, accessed December 2025

**Table E.9 – NFIP Policy and Claims Data by Flood Zone**

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Washington County Unincorporated Area** | | | | | |
| A01-30 & AE Zones | 54 | $36,501 | $11,017,000 | 84 | $945,802.37 |
| A Zones | 1 | $621 | $250,000 | 2 | $12,274.32 |
| B, C & X Zone | | | | | |
| Standard | 29 | $21,463 | $9,101,000 | 2 | $157,406.42 |
| Preferred | 0 | $0 | $0 | 10 | $242,562.32 |
| **Total** | **84** | **$58,585** | **$20,368,000** | **98** | **$1,358,045.43** |
| **Town of Creswell** | | | | | |
| A01-30 & AE Zones | 5 | $3,380 | $672,000 | 5 | $21,833.16 |
| B, C & X Zone | | | | | |
| Standard | 3 | $1,676 | $846,000 | 0 | $0.00 |
| Preferred | 0 | $0 | $0 | 1 | $3,742.21 |
| **Total** | **8** | **$5,056** | **$1,518,000** | **6** | **$25,575.37** |
| **Town of Plymouth** | | | | | |
| **A01-30 & AE Zones** | 26 | $18,278 | $5,911,000 | 33 | $813,527.59 |
| **A Zones** | 1 | $669 | $250,000 | 4 | $20,097.38 |
| B, C & X Zone | | | | | |
| Standard | 13 | $10,761 | $5,294,000 | 5 | $440,084.03 |
| Preferred | 0 | $0 | $0 | 6 | $28,338.88 |
| **Total** | **40** | **$29,708** | **$11,455,000** | **48** | **$1,302,047.88** |

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Town of Roper** | | | | | |
| A01-30 & AE Zones | 3 | $1,849 | $539,000 | 1 | $0.00 |
| B, C & X Zone | | | | | |
| Standard | 3 | $1,963 | $840,000 | 2 | $72,533.67 |
| Preferred | 0 | $0 | $0 | 2 | $10,666.59 |
| **Total** | **6** | **$3,812** | **$1,379,000** | **5** | **$83,200.26** |

Source: FEMA Community Information System, accessed December 2025

### Table E.10 – NFIP Policy and Claims Data Pre-FIRM

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Washington County Unincorporated Area** | | | | | |
| A01-30 & AE Zones | 22 | $16,427 | $4,371,000 | 43 | $649,555.62 |
| A Zones | 1 | $621 | $250,000 | 2 | $12,274.32 |
| B, C & X Zone | 19 | $13,397 | $5,766,000 | 12 | $399,968.74 |
| Standard | 19 | $13,397 | $5,766,000 | 2 | $157,406.42 |
| Preferred | 0 | $0 | $0 | 10 | $242,562.32 |
| **Total** | **42** | **$30,445** | **$10,387,000** | **57** | **$1,061,798.68** |
| **Town of Creswell** | | | | | |
| A01-30 & AE Zones | 2 | $1,604 | $367,000 | 5 | $21,833.16 |
| B, C & X Zone | 3 | $1,676 | $846,000 | 1 | $3,742.21 |
| Standard | 3 | $1,676 | $846,000 | 0 | $0.00 |
| Preferred | 0 | $0 | $0 | 1 | $3,742.21 |
| **Total** | **5** | **$3,280** | **$1,213,000** | **6** | **$25,575.37** |
| **Town of Plymouth** | | | | | |
| A01-30 & AE Zones | 16 | $11,468 | $3,291,000 | 17 | $725,095.50 |
| A Zones | 1 | $669 | $250,000 | 0 | $0.00 |
| B, C & X Zone | 10 | $8,378 | $3,729,000 | 10 | $456,632.04 |
| Standard | 10 | $8,378 | $3,729,000 | 4 | $428,293.16 |
| Preferred | 0 | $0 | $0 | 6 | $28,338.88 |
| **Total** | 27 | $20,515 | $7,270,000 | 27 | $1,181,727.54 |
| **Town of Roper** | | | | | |
| A01-30 & AE Zones | 2 | $1,412 | $418,000 | 0 | $0.00 |
| B, C & X Zone | 3 | $1,963 | $840,000 | 4 | $83,200.26 |
| Standard | 3 | $1,963 | $840,000 | 2 | $72,533.67 |
| Preferred | 0 | $0 | $0 | 2 | $10,666.59 |
| **Total** | **5** | **$3,375** | **$1,258,000** | **4** | **$83,200.26** |

Source: FEMA Community Information System, accessed December 2025

### Table E.11 – NFIP Policy and Claims Data Post-FIRM

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| **Washington County Unincorporated Area** | | | | | |
| A01-30 & AE Zones | 32 | $20,074 | $6,646,000 | 41 | $296,246.75 |

| Flood Zone | Policies in Force | Total Premium | Insurance in Force | Number of Closed Paid Losses | Total of Closed Paid Losses |
|---|---|---|---|---|---|
| B, C & X Zone | 10 | $8,066 | $3,335,000 | 0 | $0.00 |
| Standard | 10 | $8,066 | $3,335,000 | 0 | $0.00 |
| Preferred | 0 | $0 | $0 | 0 | $0.00 |
| **Total** | **42** | **$28,140** | **$9,981,000** | **41** | **$296,246.75** |
| **Town of Creswell** | | | | | |
| A01-30 & AE Zones | 3 | $1,776 | $305,000 | 0 | $0.00 |
| **Total** | **3** | **$1,776** | **$305,000** | **0** | **$0.00** |
| **Town of Plymouth** | | | | | |
| A01-30 & AE Zones | 10 | $6,810 | $2,620,000 | 16 | $88,432.09 |
| A Zones | 0 | $0 | $0 | 4 | $20,097.38 |
| B, C & X Zone | 3 | $2,383 | $1,565,000 | 1 | $11,790.87 |
| Standard | 3 | $2,383 | $1,565,000 | 1 | $11,790.87 |
| Preferred | 0 | $0 | $0 | 0 | $0.00 |
| **Total** | **13** | **$9,193** | **$4,185,000** | **21** | **$120,320.34** |
| **Town of Roper** | | | | | |
| A01-30 & AE Zones | 1 | $437 | $121,000 | 1 | $0.00 |
| **Total** | **1** | **$437** | **$121,000** | **1** | **$0.00** |

Source: FEMA Community Information System, accessed December 2025

## E.2.2 HURRICANES AND COASTAL HAZARDS

Figure E.13 on the following page shows the estimated extent of surge by storm category according to NOAA SLOSH data that would occur in unincorporated Washington County and all participating jurisdictions. Much of the coastline along the northeastern edge of Washington County near the Albemarle Sound is at the highest risk to storm surge. However, during severe categories of storm surge inundation, the majority of Washington County is at risk to storm surge.

Figure E.14 shows the estimated inundation extents of 1 foot, 2 feet, and 3 feet of sea level rise that may occur in Washington County and participating jurisdictions. Sea level rise is likely to impact the land along the Albemarle Sound and Roanoke River.

**Figure E.13 – Storm Surge Extent by Storm Category**

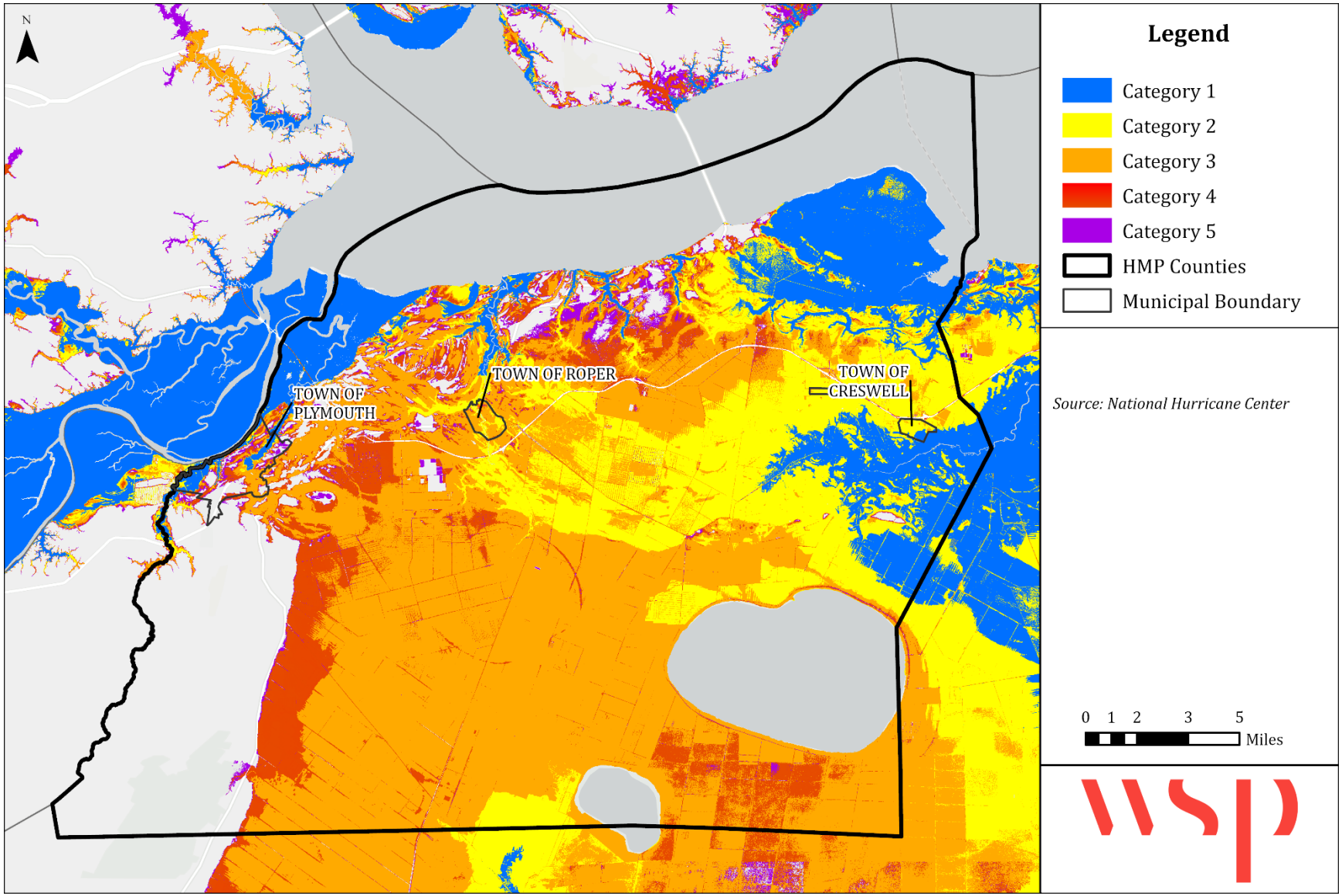
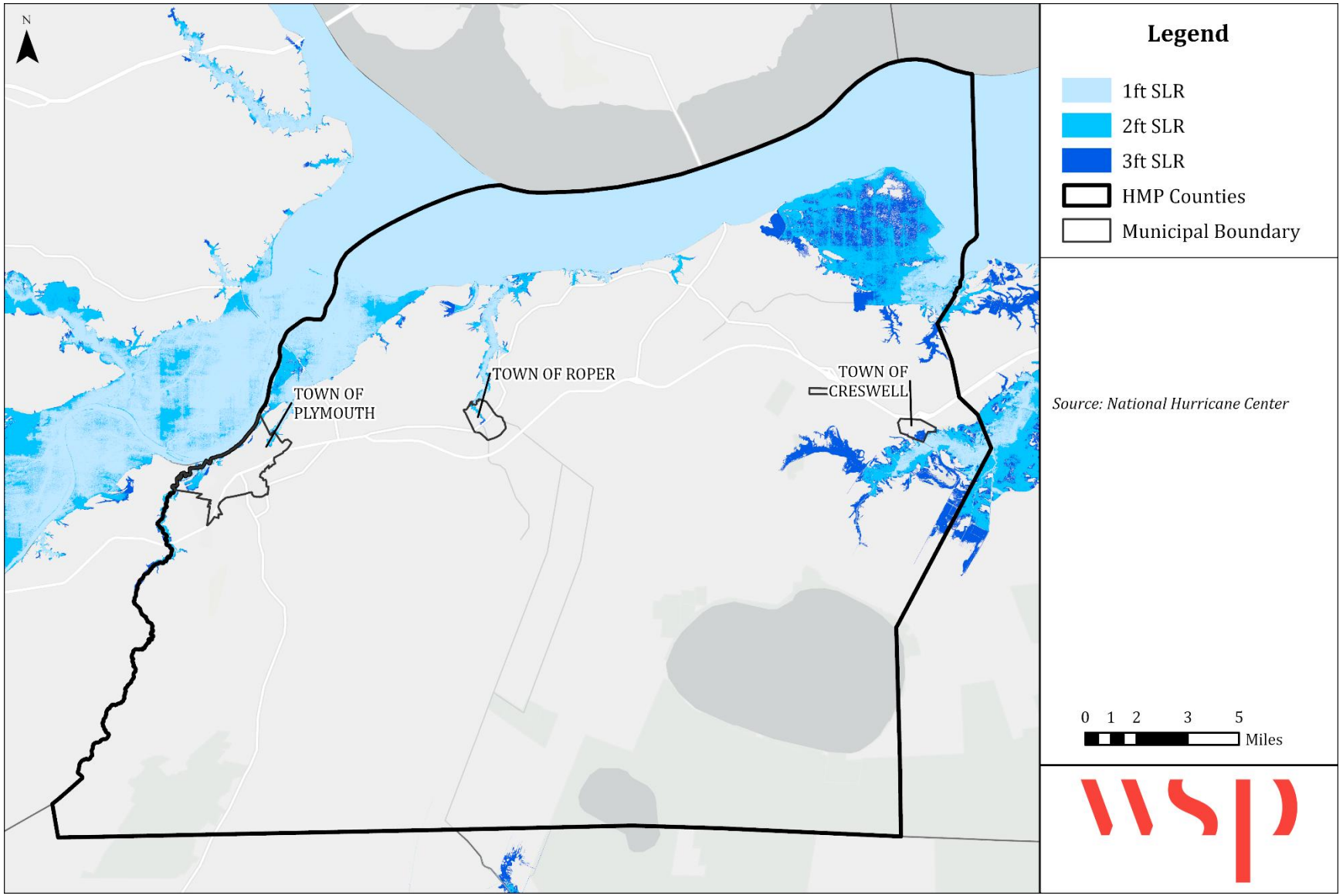


**Figure E.14 – Sea Level Rise Extent**



## E.2.3 WILDFIRE

Table E.12 summarizes the acreage in unincorporated Washington County that falls within the Functional Wildland Urban Interface (WUI), categorized into zones that describe the wildfire risk mitigation activities appropriate for each zone. Areas in the Functional WUI are those areas where development and building structures may intermix with burnable land cover. Approximately, 3 percent of unincorporated Washington County is categorized as having direct exposure to wildfire risk and 73 percent is located within the critical fireshed of the Functional WUI.

**Table E.12 – Functional Wildland Urban Interface Acreage, Unincorporated Washington County**

| | Functional Wildland Urban Interface (WUI) Category | Acres | Percent |
|---|---|---|---|
| | Direct Exposure | 5,960 | 3% |
| | Indirect Exposure | 6,481 | 3% |
| | Critical Fireshed | 160,073 | 73% |
| | Sources of Ember Load to Buildings | 21,024 | 10% |
| | Little to No Exposure | 47 | 0% |
| | Water | 26,493 | 12% |
| | **Total** | **220,078** | **100%** |

Source: Southern Wildfire Risk Assessment

Figure E.15 through Figure E.18 depict the Functional WUI for unincorporated Washington County and all participating jurisdictions. Figure E.19 through Figure E.22 depict the Fire Intensity Scale, which indicates the potential severity of fire based on fuel loads, topography, and other factors. Figure E.23 through Figure E.26 depict Burn Probability based on landscape conditions, percentile weather, historical ignition patterns, and historical prevention and suppression efforts.

Areas of high potential fire intensity occur in the southeastern corner of the county and along the northern and eastern edges of the county. Moderate burn probability also exists in these areas with high potential fire intensity. Functional WUI areas with direct exposure to wildfire occur primarily along the northern and western edges of the county. There are many areas of overlap between high potential fire intensity, moderate burn probability, and WUI which occur primarily in the unincorporated areas of the county. Based on these correlations, there is significant exposure to wildfire in Washington County.

Table E.13 provides building counts and values for critical facilities by FEMA lifeline that are located in areas categorized with direct exposure to wildfire risk on the Functional WUI scale.

**Table E.13 – Critical Facilities Exposed to Wildfire by Jurisdiction, Washington County**

| Type | Critical Facility Count | Structure Value |
|---|---|---|
| **Washington County Unincorporated Area** | | |
| Food, Hydration, Shelter | 22 | $1,644,246.80 |
| Health and Medical | 1 | $143,600 |
| Safety and Security | 2 | $651,500 |
| Water Systems | 3 | $1,127,951 |
| **All Categories** | **28** | **$3,567,297.80** |

| Type | Critical Facility Count | Structure Value |
|---|---|---|
| **Town of Creswell** | | |
| Food, Hydration, Shelter | 1 | $57,984 |
| **All Categories** | **1** | **$57,984** |
| **Town of Plymouth** | | |
| Water Systems | 1 | $1,044,000 |
| **All Categories** | **1** | **$1,044,000** |
| **Town of Roper** | | |
| Health and Medical | 1 | $89,900 |
| Safety and Security | 1 | $89,900 |
| **All Categories** | **2** | **$179,800** |
| **County Total** | **32** | **$4,849,081.80** |

Source: Southern Wildfire Risk Assessment

**Figure E.15 – Functional Wildland Urban Interface, Unincorporated Washington County**

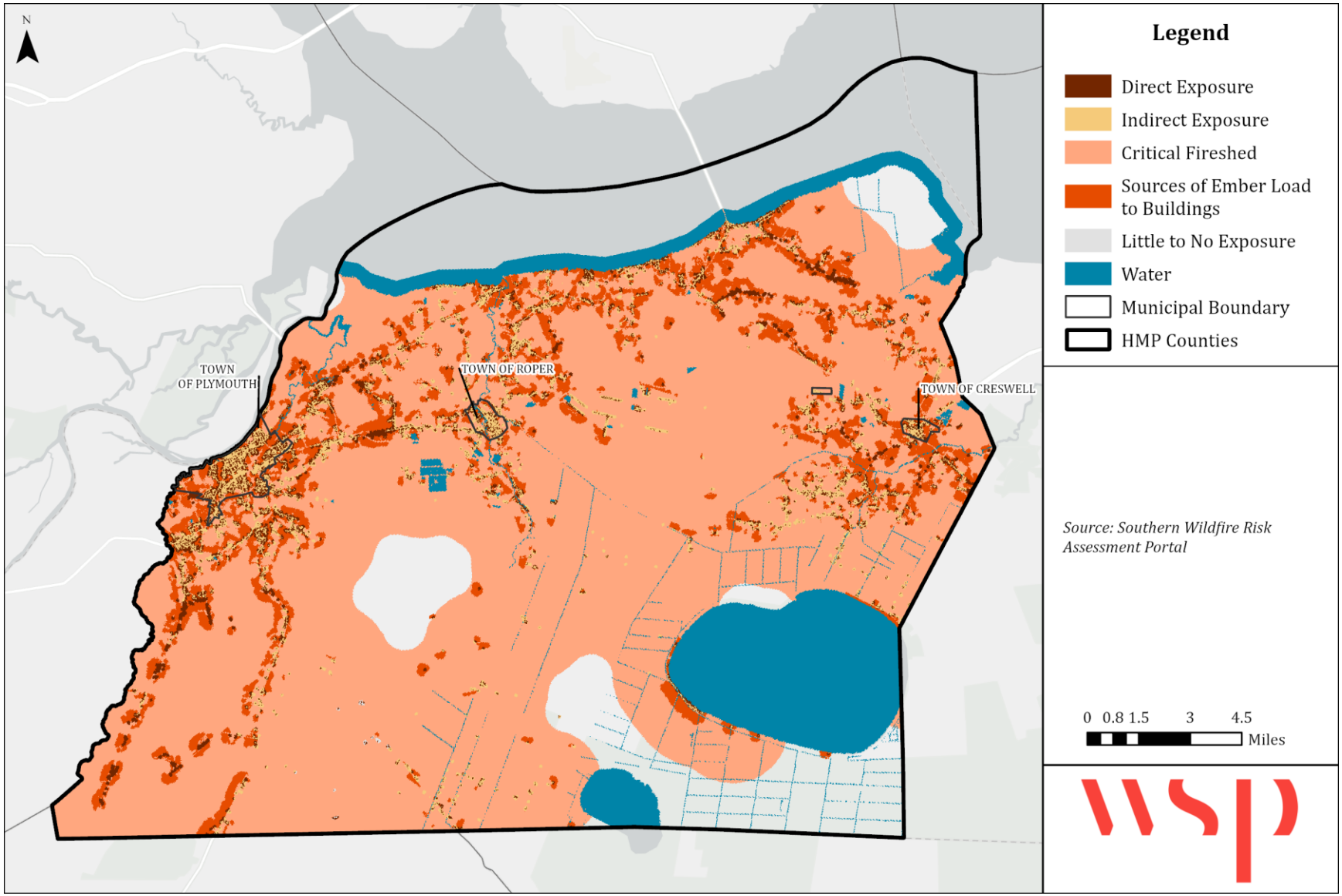


**Figure E.16 – Functional Wildland Urban Interface, Town of Creswell**

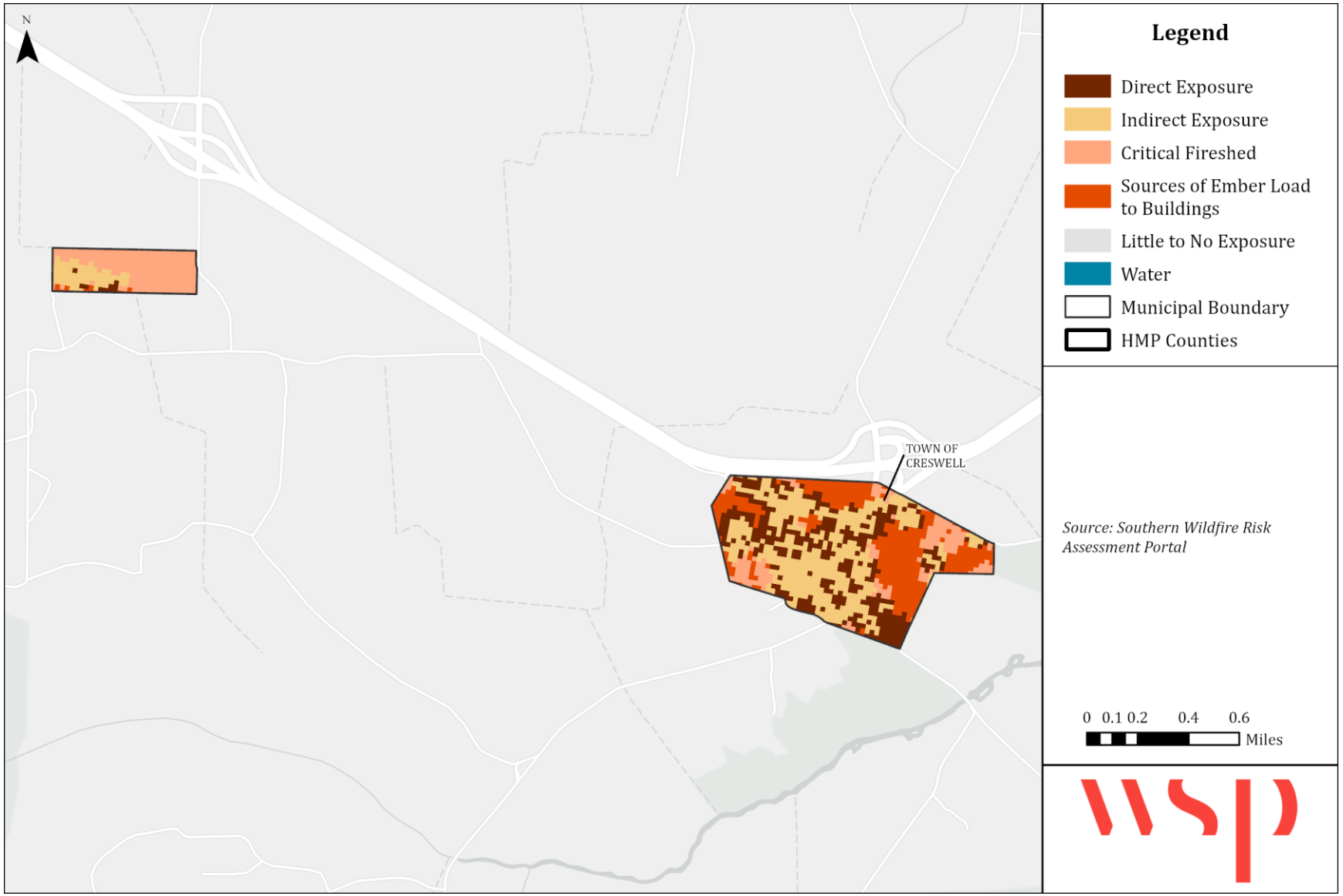


**Figure E.17 – Functional Wildland Urban Interface, Town of Plymouth**

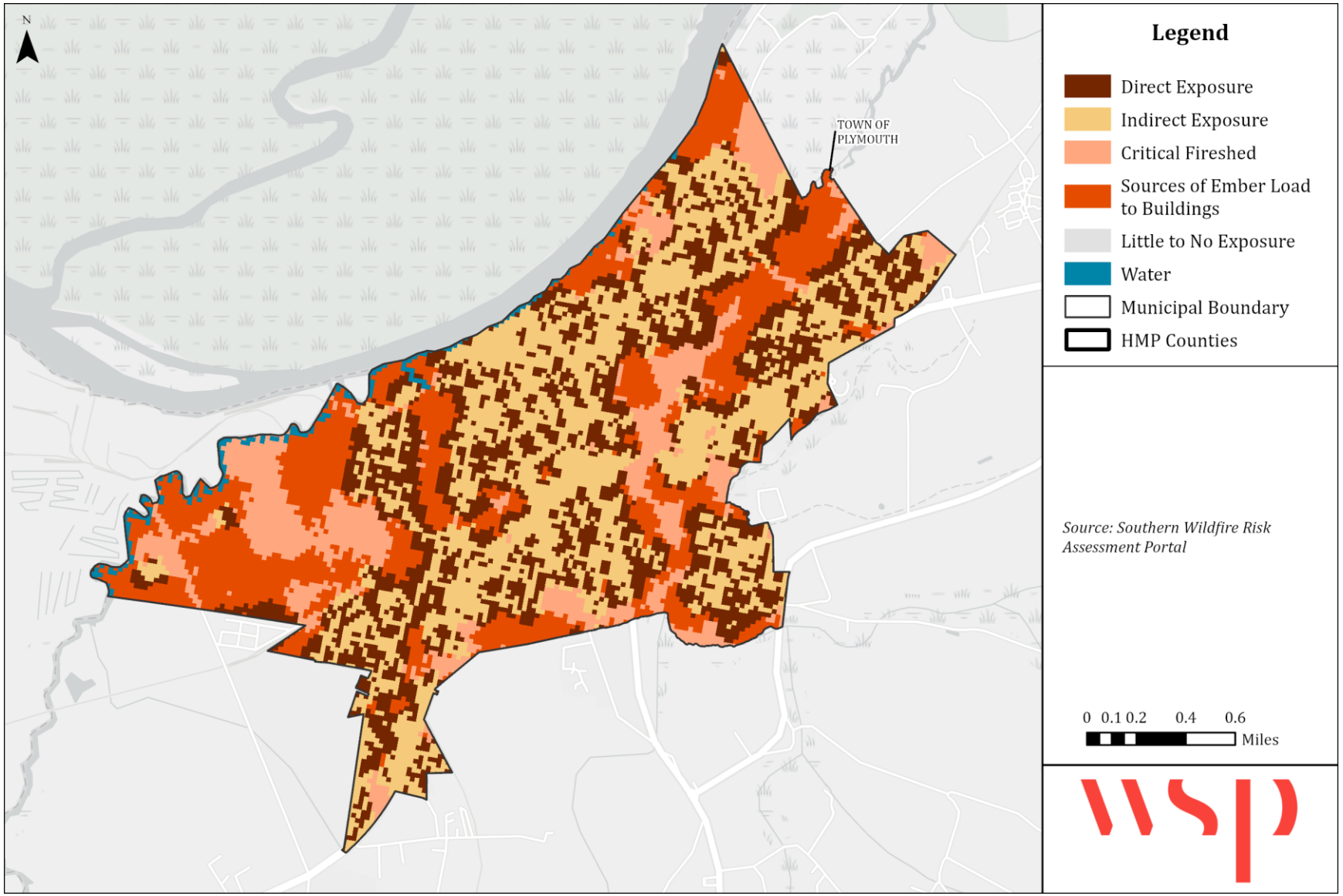


**Figure E.18 – Functional Wildland Urban Interface, Town of Roper**

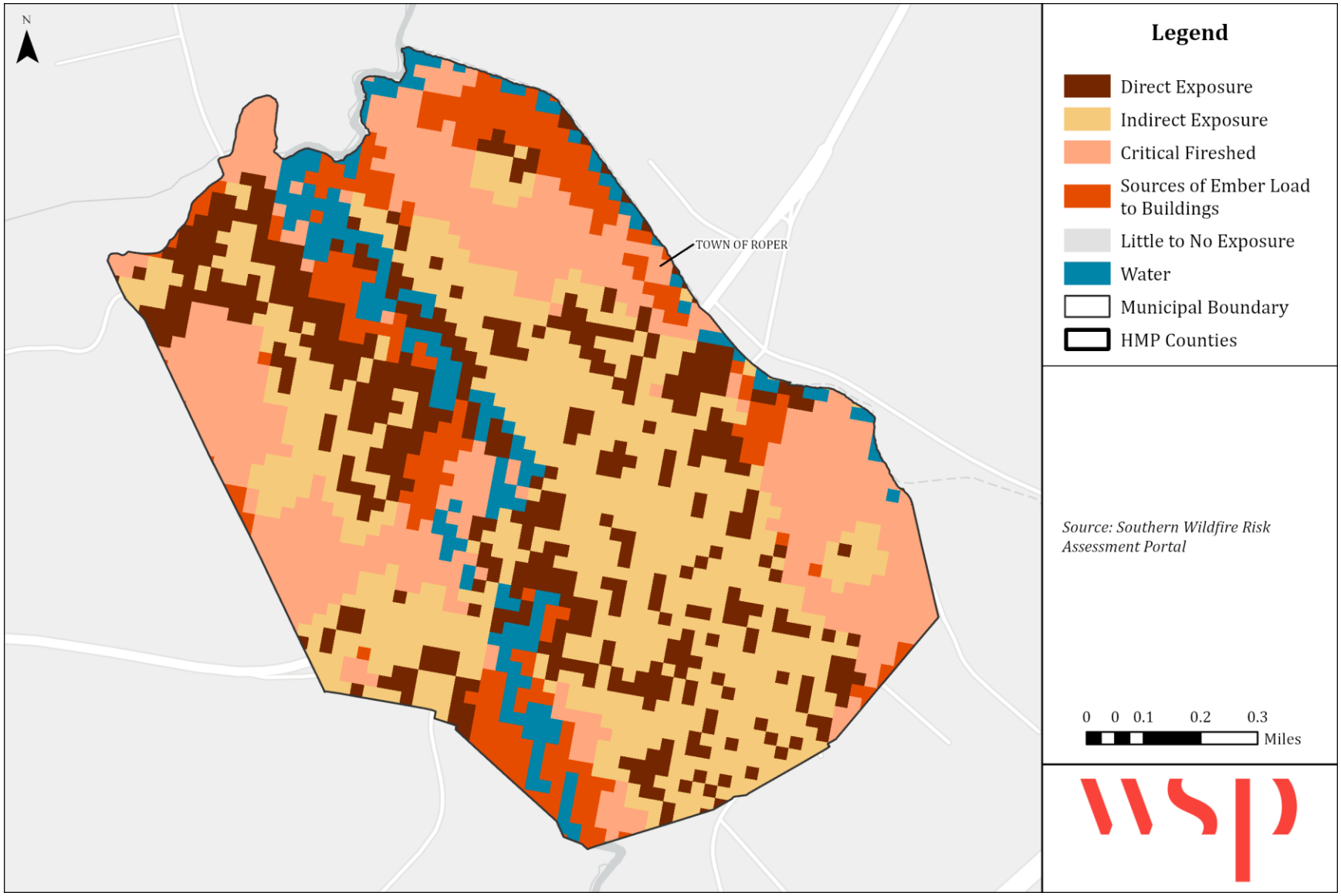


**Figure E.19 – Fire Intensity Scale, Unincorporated Washington County**

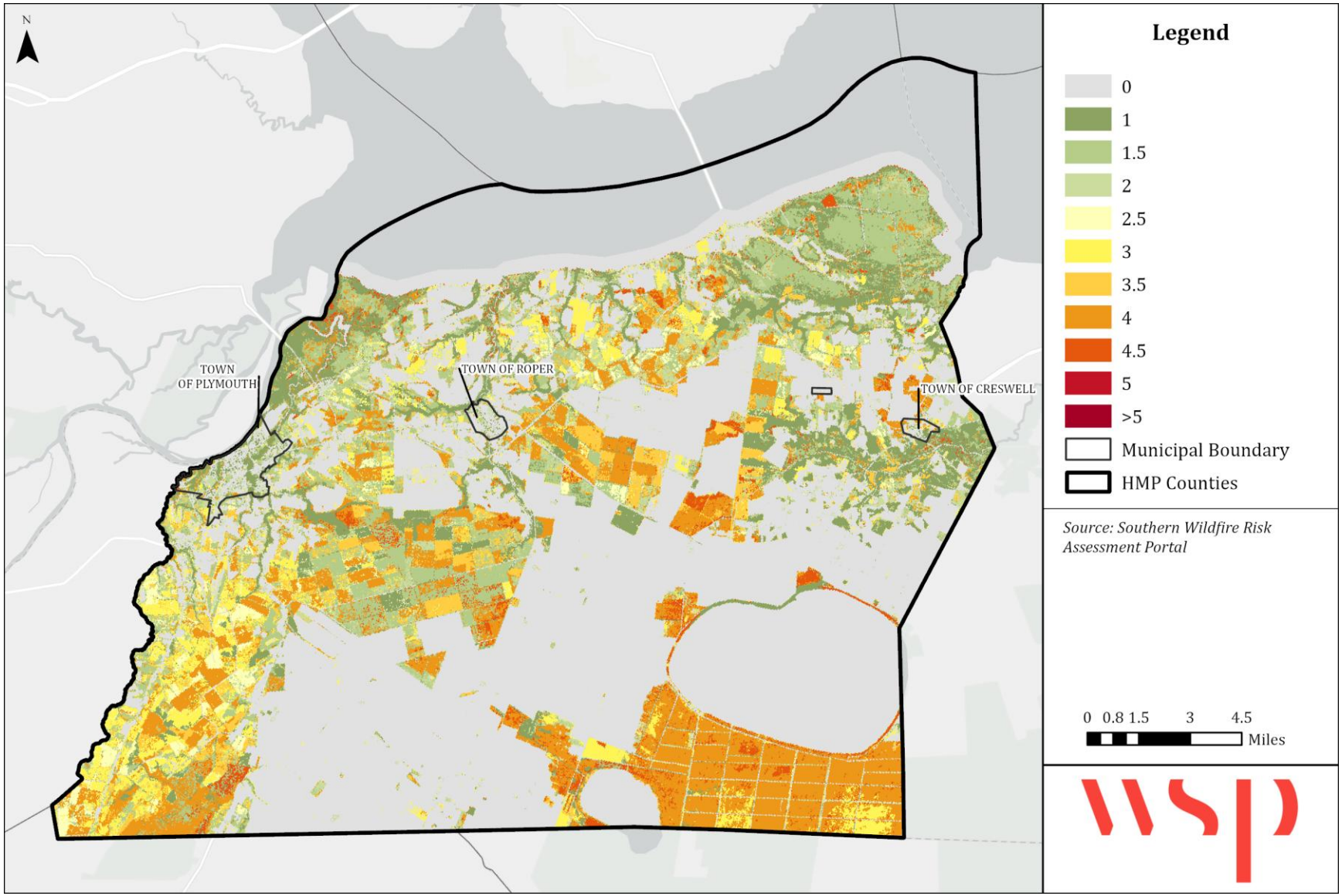


**Figure E.20 – Fire Intensity Scale, Town of Creswell**

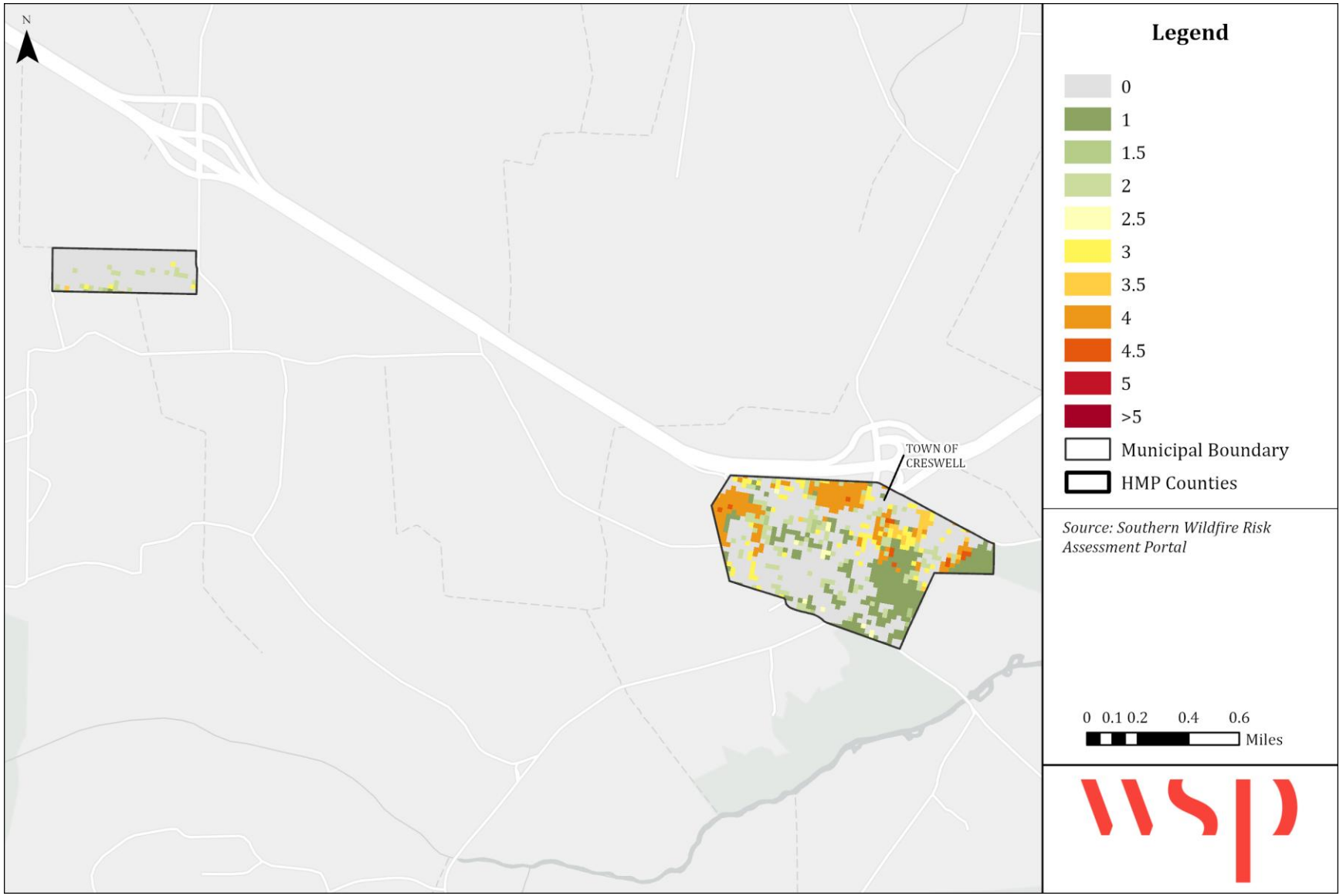


**Figure E.21 – Fire Intensity Scale, Town of Plymouth**

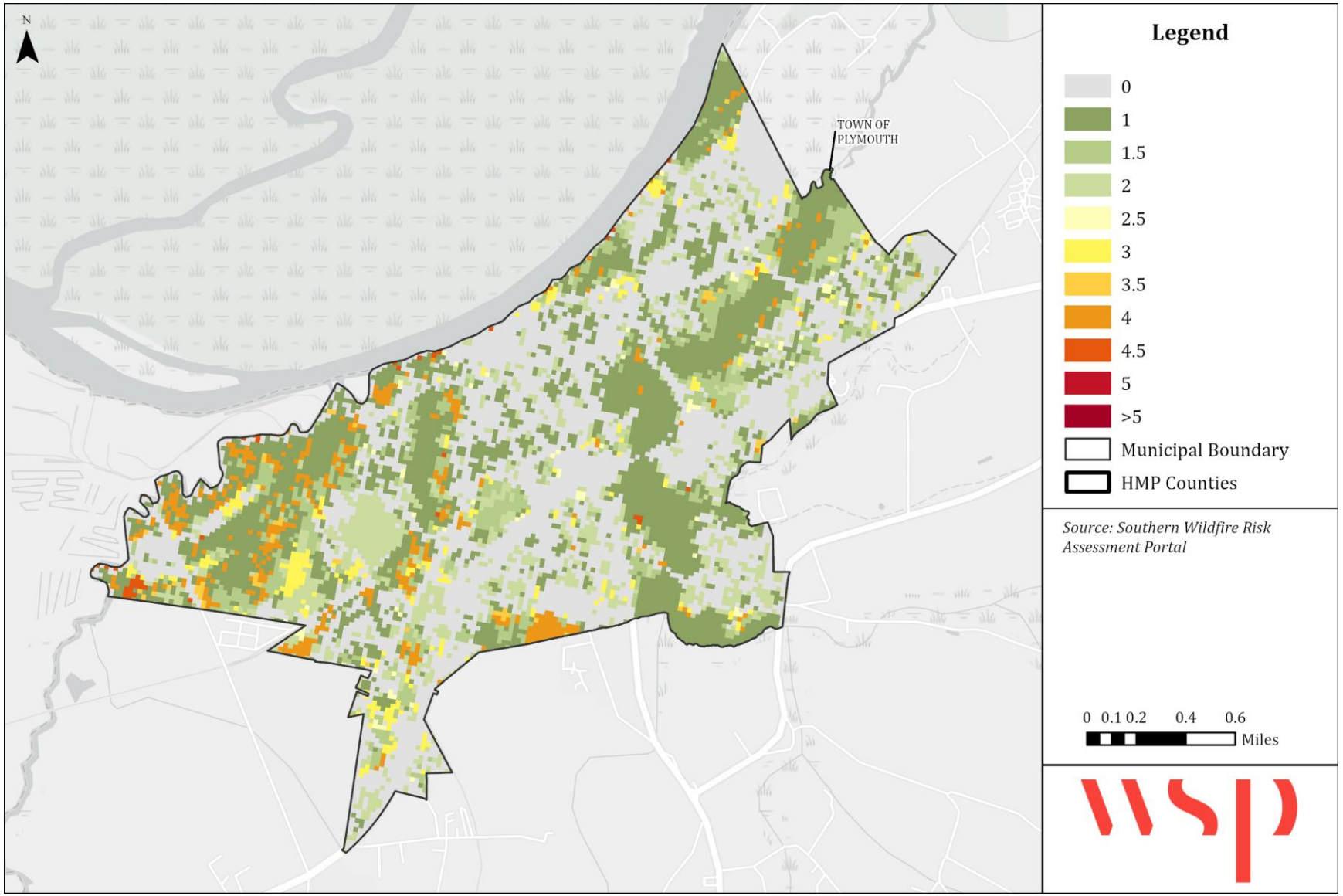


**Figure E.22 – Fire Intensity Scale, Town of Roper**

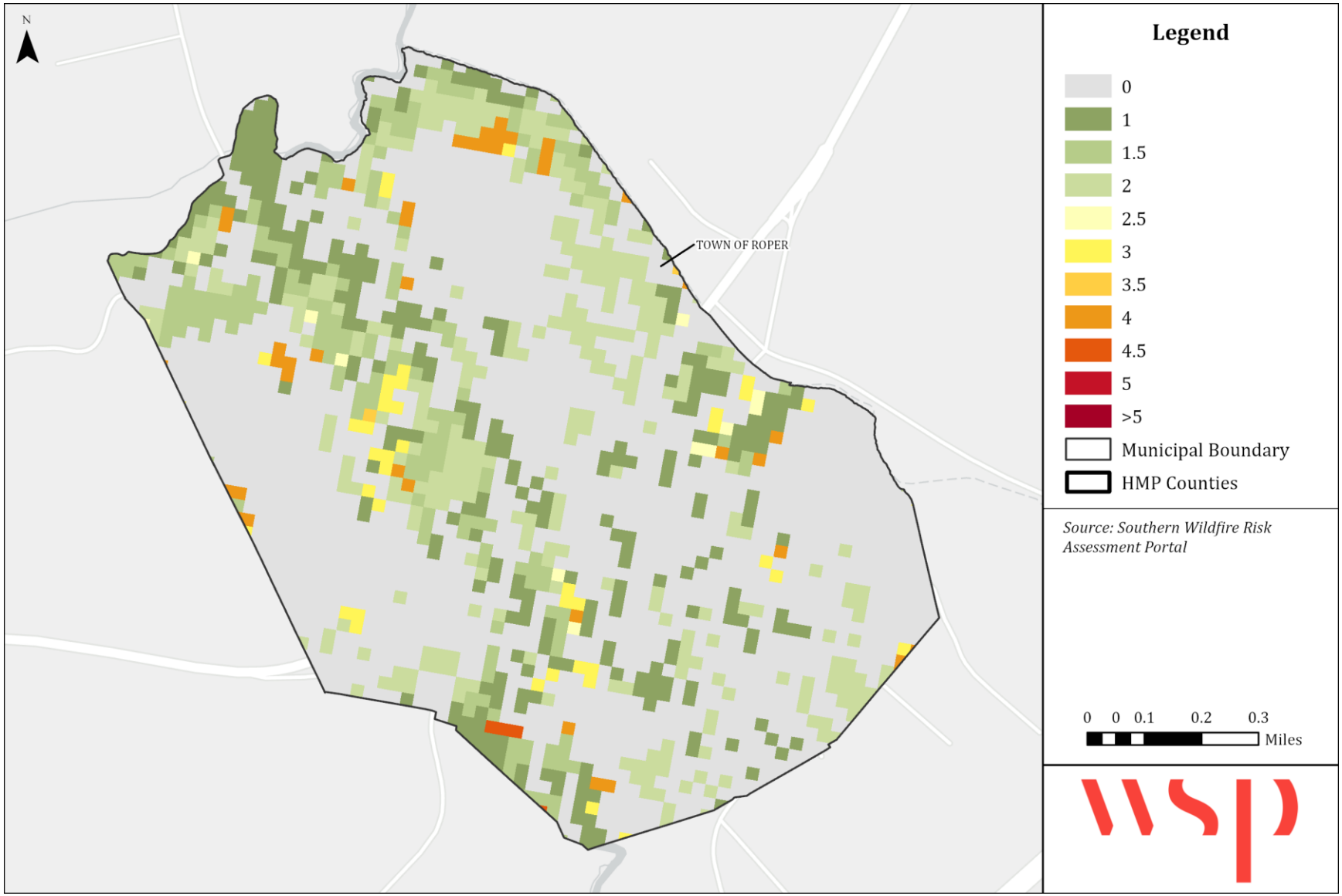


**Figure E.23 – Burn Probability, Unincorporated Washington County**

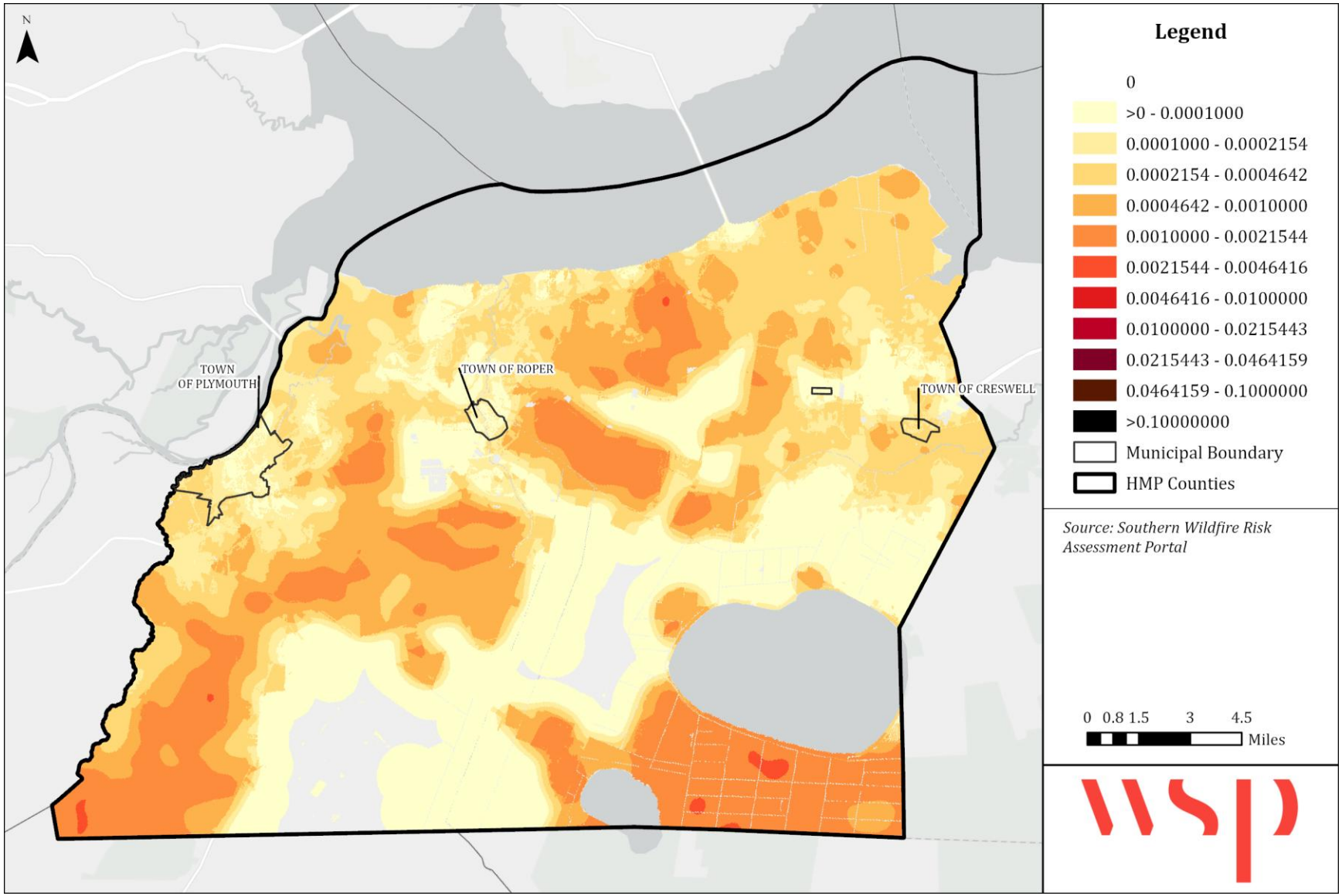


**Figure E.24 – Burn Probability, Town of Creswell**

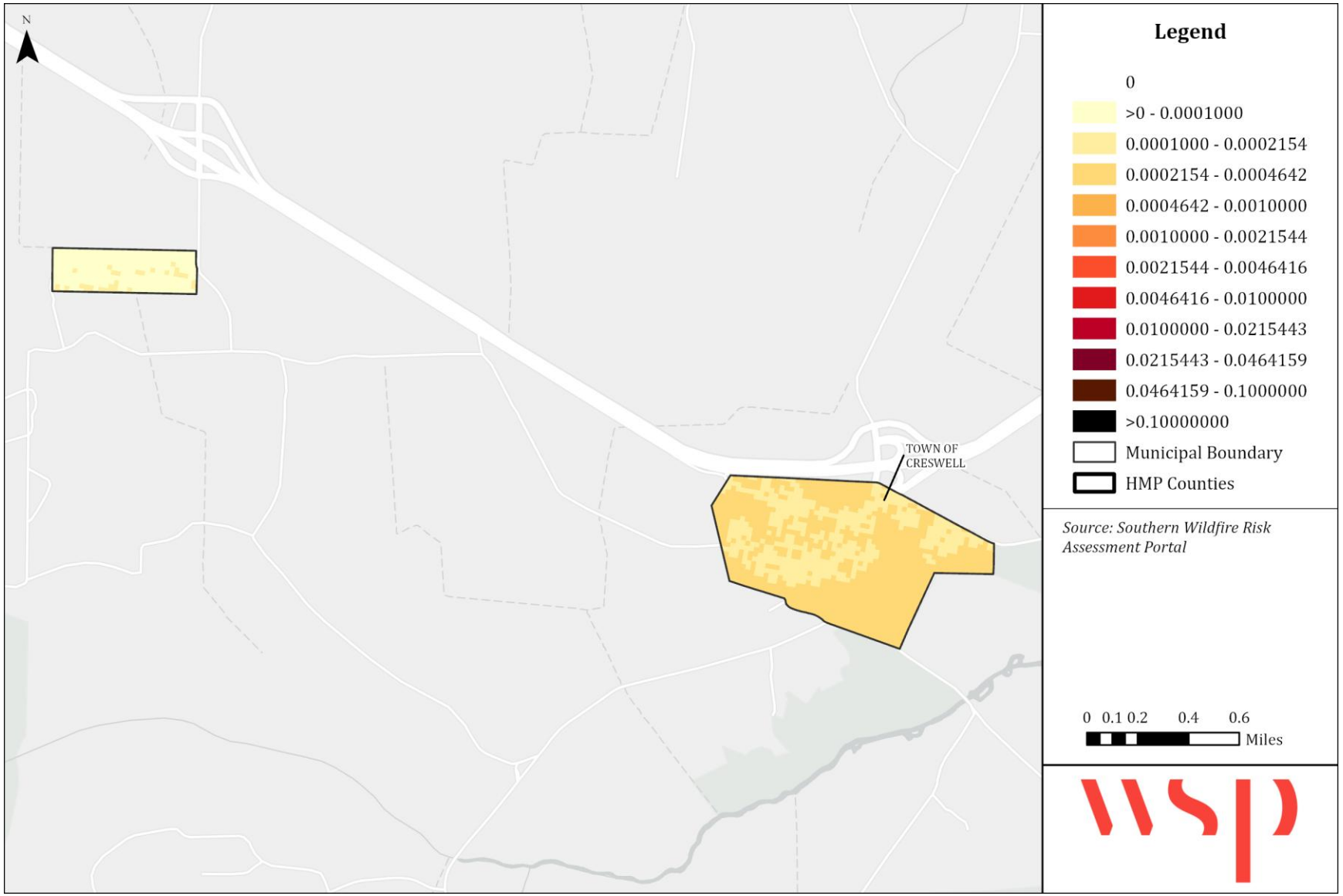


**Figure E.25 – Burn Probability, Town of Plymouth**

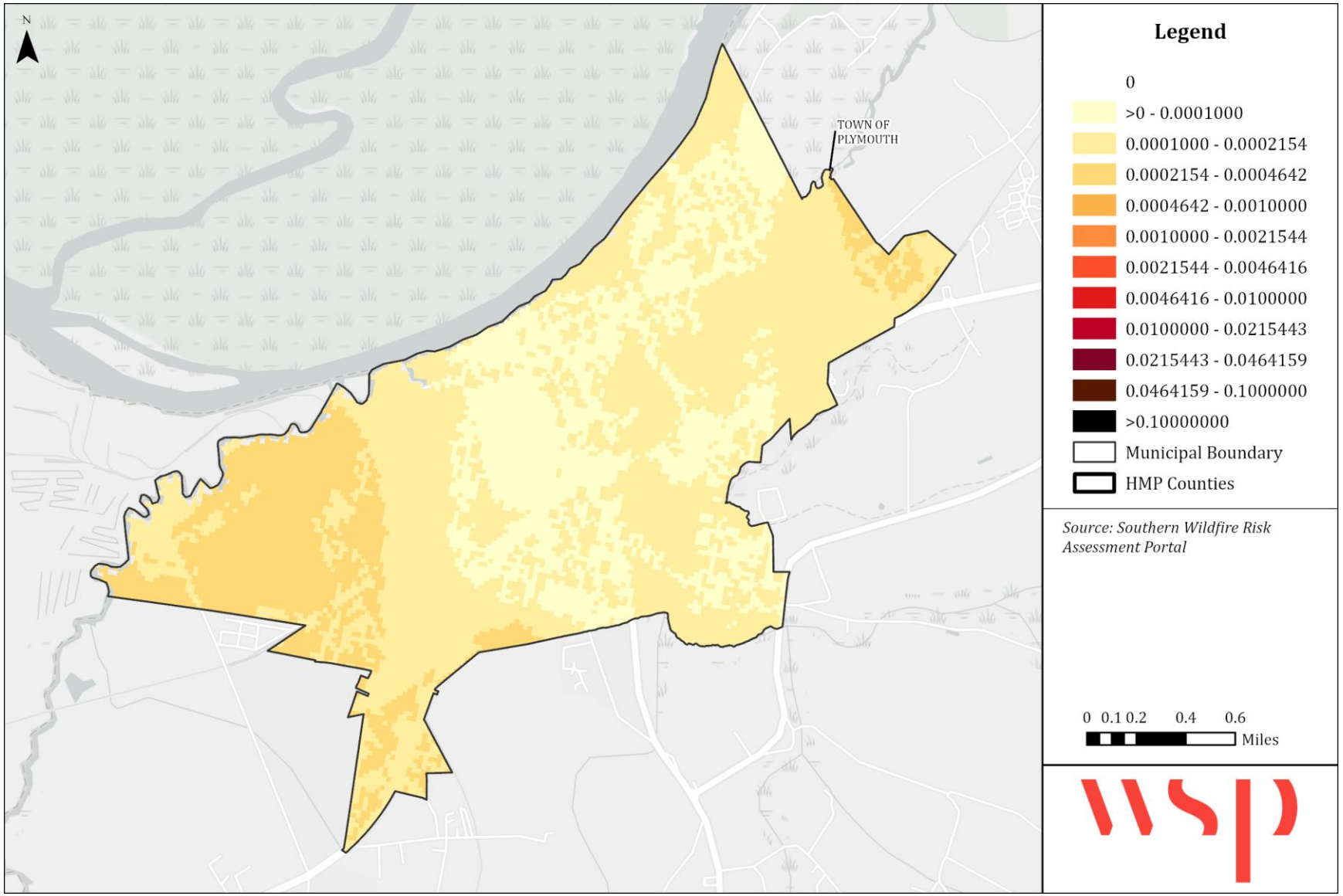
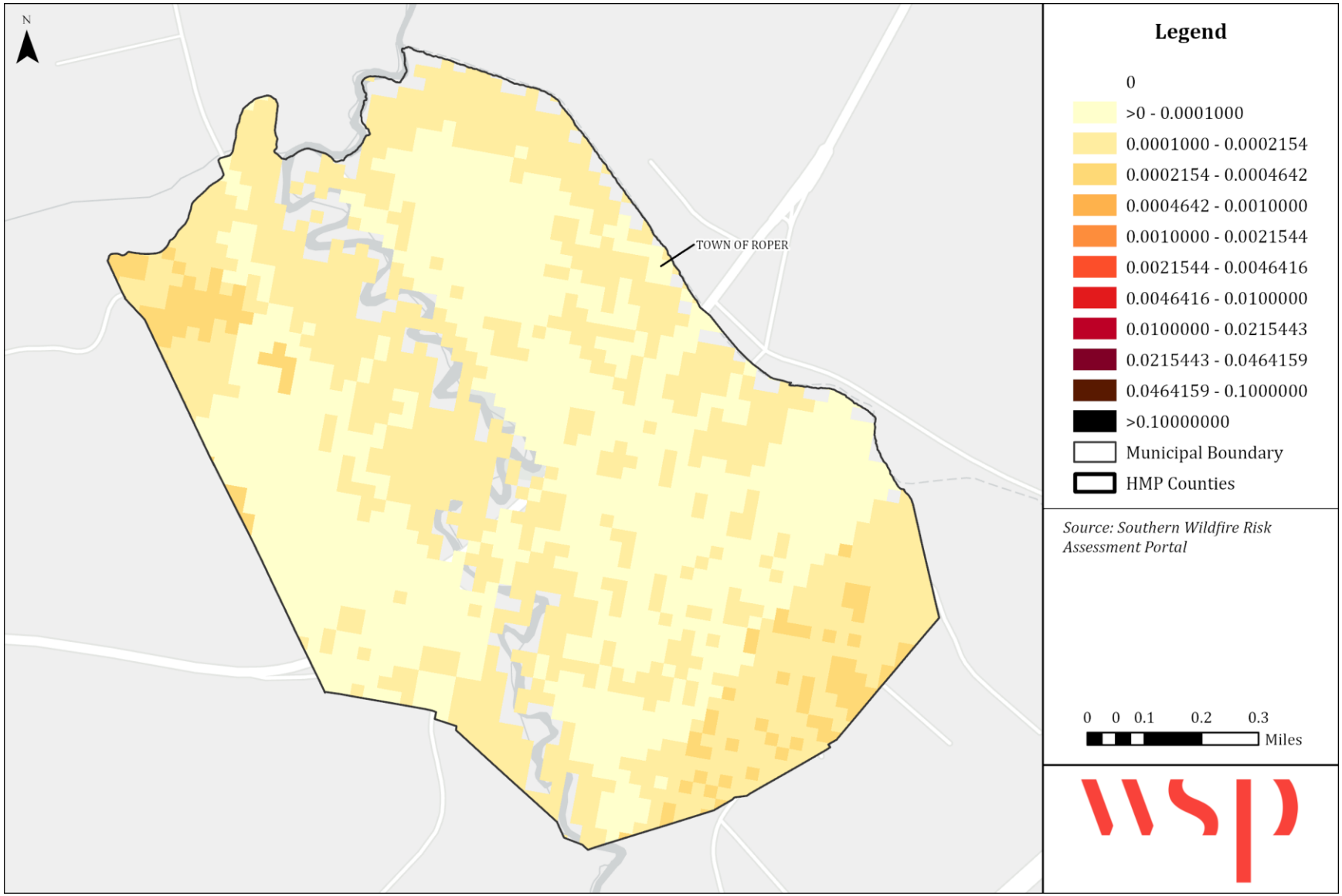


**Figure E.26 – Burn Probability, Town of Roper**



## E.3 MITIGATION STRATEGY

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W1 | Continue to seek funding for assistance in constructing a new dedicated EOC. The county's existing facility is adequate; however, there is a need for a new and dedicated facility. | Washington Co., Creswell, Plymouth, Roper | All Hazards | Low | 3.1, 3.2 | PP, ES | Washington County Planning & Safety<br>Washington County Board of Commissioners<br>Municipal Administrations | To be Determined | General Fund, NCDPS, FEMA | 5 years | Carry Forward | New EOC is under construction. Additional work remains to establish operations once construction is complete. |
| W2 | Continue to seek grant funding that will enable the removal of all critical infrastructure from the floodplain. This effort is currently underway; however, there is more to be accomplished. This effort will require assistance from the county Emergency Management Department. | Washington Co., Plymouth | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Low | 1.1, 2.3 | PP | Washington County Planning & Safety<br>Washington County Board of Commissioners<br>Municipal Administration | To be determined | General Fund, NCDPS, FEMA | 5 years | Carry Forward | No progress to report. The County will continue to look for opportunities to relocate or otherwise protect critical infrastructure. |
| W3 | Monitor all land development codes, including the county and town Flood Damage Prevention Ordinances, on an annual basis to ensure that they are up-to-date and address current issues and concerns. This review will also be conducted following substantial natural hazard events. | Washington Co., Creswell, Plymouth, Roper | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 2.2 | P | Washington County Planning & Safety<br>Washington County Inspections<br>Washington County Board of Commissioners<br>Municipal Administrations | Staff Time | General Fund, NCDPS | 2025-2030 | Carry Forward | Hazard mitigation will be incorporated into decisions regarding amendments to the County's land development regulations as opportunities arise. |
| W4 | Continue to work towards the development of a system to provide on-line offerings of permits, inspections, and taxes. This effort will streamline operations and provide for a more efficient flow of information. | Washington Co. | All Hazards | High | 3.1 | P | Washington County Inspections | $20,000 | General Fund | 2 years | Carry Forward | Washington County is still working to establish an online permit portal. This effort will also impact all participating municipal jurisdictions. |
| W5 | The Washington County Inspections office will aim to acquire a new permitting program that will be helpful in tracking floodplain development activity. | Washington Co., Creswell, Plymouth, Roper | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure, Severe Weather | High | 3.1 | P | Washington County Inspections<br>Municipal Administrations | $20,000 | General Fund | 2 years | Carry Forward | No progress to report, but this action remains a priority. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W6 | Mail a notice once annually to all property owners whose land is located within a special flood hazard area. The notice should clearly state that the recipient's property is susceptible to flooding and provide information pertinent to emergency evacuation and post-disaster recovery. Additionally, the county will notify all property owners once annually via mail, either through individual mailers or utility bill inserts, of the hazards associated with flooding and other hazards resulting from severe weather events. | Washington Co., Creswell, Plymouth, Roper | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 4.2 | PIO | Washington County Inspections<br>Municipal Administrations | $4,500 | General Fund, NCDPS | 2025-2030 | Carry Forward | This effort occurs annually and supports the County's ongoing CRS program. The County will continue to implement this action. |
| W7 | Maintain a map information service involving the following:<br>• Provide information relating to Flood Insurance Rate Maps (FIRM) to all inquirers, including providing information on whether a given property is located within a flood hazard area.<br>• Provide information regarding the flood insurance purchase requirement.<br>• Maintain historical and current FIRMs.<br>• Locally advertise once annually in the local newspaper.<br>• Provide information to inquirers about local floodplain management requirements. | Washington Co., Creswell, Plymouth, Roper | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 2.2, 4.2 | PIO | Washington County Inspections<br>Washington County Administration<br>Municipal Administrations | Staff Time | General Fund | 2025-2030 | Carry Forward | Washington County provides this service on a daily basis to property owners, builders, and contractors. This effort supports the County's CRS program and will continue to be implemented. |
| W8 | Work with local real estate agencies to ensure that agents are informing clients when property for sale is located within an SFHA. The county will provide these agencies with brochures documenting the concerns relating to development located within flood-prone areas and ways that homeowners may make their homes more disaster-resistant to strong winds, lightning, and heavy rains. | Washington Co., Creswell, Plymouth, Roper | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 2.2, 4.2 | PIO | Washington County Inspections<br>Municipal Administrations | Staff Time | General Fund, Municipal Administrations | 2025-2030 | Carry Forward | This effort occurs annually and supports the County's ongoing CRS program. The County will continue to implement this action. |
| W9 | Make information regarding hazards and development regulations within floodplains available through the following:<br>• Ensure that the local library maintains information relating to flooding and flood protection.<br>• Provide a link on county/town websites to FEMA resources addressing flooding and flood protection.<br>• Maintain information pertinent to local development conditions and make this information readily available to the public, including being posted at the local library. | Washington Co., Creswell, Plymouth, Roper | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | High | 4.2 | PIO | Washington County Inspections<br>Washington County Administration<br>Municipal Administrations | Staff Time | General Fund, NCDPS, FEMA | 2025-2030 | Carry Forward | This effort is reviewed annually and supports the County's ongoing CRS program. The County will continue to implement this action. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W10 | Provide comprehensive services regarding planning and development activities within the defined SFHA and issues relating to the construction of disaster-resistant structures. These services will include:<br>• Provide site-specific flood and flood related information on an as-needed basis.<br>• Maintain a list of contractors with experience in floodproofing and retrofit techniques.<br>• Provide information on methods of windproofing construction methods for new and renovated structures.<br>• Maintain materials providing an overview of how to select a qualified contractor.<br>• Make site visits upon request to review occurrences of flooding, drainage problems, and sewer problems. If applicable, the inspector should provide one-on-one advice to the property owner.<br>• Provide advice and assistance regarding CRS Activity 530 (Flood Protection).<br>• Advertise the availability of this service in the local newspaper once annually.<br>• Maintain a log of all individuals assisted through this service, including all site visits. | Washington Co, Creswell, Plymouth, Roper | All Hazards | High | 2.3, 4.2 | PP, PIO | Washington County Inspections<br>Washington County Administration<br>Municipal Administrations | Staff Time | General Fund | 2025-2030 | Carry Forward | This effort is reviewed annually and supports the County's ongoing CRS program. The County will continue to implement this action. |
| W11 | Maintain a comprehensive Geographic Information System (GIS) with current FIRM panels in an effort to make this information readily available to county citizens. In addition to this digital data, bound copies of all historical and current FIRM panels will be maintained within Planning and Building Inspections Department. | Washington Co., Creswell, Plymouth, Roper | Flooding, Hurricanes & Coastal Hazards, Dam & Levee Failure | Medium | 2.2, 3.1 | P, PIO | Washington County Tax Office<br>Washington County Inspections<br>Municipal Administrations | Staff Time | General Fund, NCDPS | 2 to 3 years | Carry Forward | Contract in place for ongoing updates as needed. Will continue to implement and need to establish an in-house GIS coordinator. |
| W12 | Seek grant funding for eligible mitigation opportunities which may include but are not limited to: acquisition/elevation, mitigation/reconstruction, and wet/dry floodproofing to residential and non-residential structures. Funding may also be utilized for redundant power to critical facilities, wind retrofits to critical facilities, storm shelters and other activities that reduce the loss of life and property. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 1.1, 2.3 | PP, SP | Washington County Administration<br>Municipal Administrations | Staff Time | General Fund, NCPDS, FEMA | 2020-2025 | Carry Forward | No completed projects to report. Washington County and municipal jurisdictions will continue to seek funding to implement property protection and structural projects as specific needs arise. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W13 | Work to implement all strategies and recommendations outlined within the Washington County Hurricane Matthew Resilient Redevelopment Plan. | Washington Co., Creswell, Plymouth, Roper | Flood, Hurricanes & Coastal Hazards, Dam & Levee Failure | Low | 1.1, 2.3 | SP, PP | Washington County Administrations<br>Municipal Administrations | To be Determined | General Fund, NCPDS, NCDEQ, FEMA | 5 years | Carry Forward | No progress to report. Remaining priority projects include residential elevations, a countywide drainage improvement study, retrofitting the county court house, retrofitting the Plymouth East Main St lift station, and elevating the entry road to the sewer treatment plant. |
| W14 | Promote and encourage the training of Community Emergency Response Teams (CERT) throughout the county. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.1, 4.2 | ES | Washington County Planning & Safety<br>Washington County Community Emergency Response Teams<br>Municipal Administrations | To be determined | General Fund, NCDPS, FEMA | 1 to 3 years | Carry Forward | No progress to report, but this action remains a priority. |
| W15 | Work to develop continuity of operations plans (COOP) for county/town departments, assisted living facilities, long-term care facilities, day care centers, etc. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.2 | ES | Washington County Planning & Safety<br>Municipal Administrations | To be determined | General Fund, NCDPS, FEMA | 1 to 3 years | Carry Forward | COOP plan in place but will be reassessed annually. |
| W16 | Acquire generators or other forms of redundant power supply and equipment such as backup water pumps and pump parts to ensure that critical facilities and infrastructure remain operational. | Washington Co., Creswell, Plymouth, Roper | All Hazards | Medium | 1.1, 2.3 | PP | Washington County Planning & Safety<br>Washington County Administration<br>Municipal Administrations | $10,000-$25,000 each | General Fund, NCDPS, FEMA | 2 to 3 years | Carry Forward | Action revised to incorporate other redundant infrastructure. Generator provided for county radio station. Additional needs remain. |
| W17 | Maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.2 | ES | Washington County Administration<br>Municipal Administrations | Staff Time | General Fund, NCDPS, FEMA | 2025-2030 | Carry Forward | Washington County will continue to maintain an on-call contract with a qualified post-disaster provider. |

| Action # | Description | Applicable Jurisdictions | Hazards Addressed | Priority | Goal & Objective | Category | Lead/Participating Agencies | Estimated Cost | Potential Funding Sources | Implementation Schedule | 2025 Status | Status Comments/Explanation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| W18 | Annually review and update the County's Emergency Operations Plan (EOP) to ensure compliance with all NCEM and NCOEMS procedures and policies. Through these updates, the County will work closely with all participating municipalities to ensure that all jurisdictions continue to be educated and prepared for activation of the EOP in the event of a disaster event. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 2.1 | ES | Washington County Planning & Safety Municipal Administrations | Staff Time | General Fund, NCDPS, FEMA | 2025-2030 | Carry Forward | Washington County will continue to review the EOP annually. |
| W19 | Create or Update Community Wildfire Protection Plans in each fire district. | Washington Co., Creswell, Plymouth, Roper | Wildfire | Med | 1.4 | P | Washington County Planning & Safety, Fire Departments, NC Forest Service | To Be Determined | Grant Funds | 5 years | New | |
| W20 | Improve drainage conditions through the identification and implementation of capital improvements projects. | Washington Co., Creswell, Plymouth, Roper | Dam & Levee Failure, Flooding, Hurricane & Coastal Hazards | Med | 1.3 | SP | Washington County Planning & Safety Municipal Administrations | To Be Determined | Grant Funds | 2025-2030 | New | |
| W21 | Construct a new storage building at new EOC to house emergency supplies and response equipment. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.2 | ES | Washington County Planning & Safety | To Be Determined | General Fund, NCDPS, FEMA | 5 years | New | |
| W22 | Create an Assistant Emergency Manager/Planning Coordinator position to support emergency management responsibilities including mitigation planning and grant identification and application. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.1, 3.2 | P, ES | Washington County Planning & Safety, Washington County Administration | To Be Determined | General Fund, NCDPS, FEMA | 5 years | New | |
| W23 | Develop a security plan and conduct an initial emergency response exercise and ongoing exercises for the new school/hurricane shelter. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.2, 4.1 | ES | Washington County Planning & Safety | To Be Determined | General Fund, NCDPS, FEMA | 2-3 years | New | |
| W24 | Upgrade current message board and acquire at least two additional boards to be able to meet countywide needs for Plymouth, Creswell, and Roper zones. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.2, 4.1 | ES | Washington County Planning & Safety | To Be Determined | General Fund, NCDPS, FEMA | 2-3 years | New | |
| W25 | Establish a communications plan and a radio study to help implement new repeaters that may be needed for backup high-band communication. | Washington Co., Creswell, Plymouth, Roper | All Hazards | High | 3.2, 4.1 | P, ES | Washington County Planning & Safety | To Be Determined | General Fund, NCDPS, FEMA | 2-3 years | New | |
| W26 | Establish satellite communications to support continuity of operations during hazard events. | Washington Co. | All Hazards | High | 3.3, 4.1 | ES | Washington County Planning & Safety | To Be Determined | General Fund, NCDPS, FEMA | 2-3 years | New | |

# APPENDIX A PLAN REVIEW TOOL

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# Local Mitigation Plan Review Tool

## Cover Page

The Local Mitigation Plan Review Tool (PRT) demonstrates how the local mitigation plan meets the regulation in 44 CFR § 201.6 and offers states and FEMA Mitigation Planners an opportunity to provide feedback to the local governments, including special districts.

1. The Multi-Jurisdictional Summary Sheet is a worksheet that is used to document how each jurisdiction met the requirements of the plan elements (Planning Process; Risk Assessment; Mitigation Strategy; Plan Maintenance; Plan Update; and Plan Adoption).

1. The Plan Review Checklist summarizes FEMA's evaluation of whether the plan has addressed all requirements.

*For greater clarification of the elements in the Plan Review Checklist, please see Section 4 of this guide. Definitions of the terms and phrases used in the PRT can be found in Appendix E of this guide.*

| Plan Information | |
|---|---|
| **Jurisdiction(s)** | Bertie County, Hyde County, Martin County, Tyrrell County, Washington County and incorporated jurisdictions |
| **Title of Plan** | Northeastern NC Regional Hazard Mitigation Plan |
| **New Plan or Update** | Update |
| **Single- or Multi-Jurisdiction** | Multi-jurisdiction |
| **Date of Plan** | 12/19/2025 |
| **Local Point of Contact** | |
| **Title** | Joseph Griffin, Director |
| **Agency** | Martin County Office of Code Enforcement & Safety |
| **Address** | 205 E. Main Street |
| **Phone Number** | 252-789-4310 |
| **Email** | jgriffin@martincountync.gov |

| Additional Point of Contact | |
|---|---|
| **Title** | David Stroud |
| **Agency** | WSP |
| **Address** | 4021 Stirrup Creek Drive, Suite 100, Durham, NC 27703 |
| **Phone Number** | 919-325-6497 |
| **Email** | david.stroud@wsp.com |

| Review Information | |
|---|---|
| **State Review** | |
| **State Reviewer(s) and Title** | John Mello |
| **State Review Date** | 1/20/2026 |
| **FEMA Review** | |
| **FEMA Reviewer(s) and Title** | Antionette A. Fowlkes |
| **Date Received in FEMA Region** | 1/21/2026 |
| **Plan Not Approved** | Click or tap to enter a date. |
| **Plan Approvable Pending Adoption** | Click or tap to enter a date. |
| **Plan Approved** | 4/15/2026 |

# Multi-Jurisdictional Summary Sheet

In the boxes for each element, mark if the element is met (Y) or not met (N).

| # | Jurisdiction Name | A. Planning Process | B. Risk Assessment | C. Mitigation Strategy | D. Plan Maintenance | E. Plan Update | F. Plan Adoption | G. HHPD Requirements | H. State Requirements |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Bertie County | Y | Y | Y | Y | Y | Y | | |
| 2 | Askewville | Y | Y | Y | Y | Y | Y | | |
| 3 | Aulander | Y | Y | Y | Y | Y | Y | | |
| 4 | Colerain | Y | Y | Y | Y | Y | Y | | |
| 5 | Kelford | Y | Y | Y | Y | Y | Y | | |
| 6 | Lewiston-Woodville | Y | Y | Y | Y | Y | Y | | |
| 7 | Powellsville | Y | Y | Y | Y | Y | Y | | |
| 8 | Roxobel | Y | Y | Y | Y | Y | Y | | |
| 9 | Windsor | Y | Y | Y | Y | Y | Y | | |
| 10 | Hyde County | Y | Y | Y | Y | Y | Y | | |
| 11 | Martin County | Y | Y | Y | Y | Y | Y | | |
| 12 | Bear Grass | Y | Y | Y | Y | Y | Y | | |
| 13 | Everetts | Y | Y | Y | Y | Y | Y | | |
| 14 | Hamilton | Y | Y | Y | Y | Y | Y | | |
| 15 | Hassell | Y | Y | Y | Y | Y | Y | | |
| 16 | Jamesville | Y | Y | Y | Y | Y | Y | | |
| 17 | Oak City | Y | Y | Y | Y | Y | Y | | |
| 18 | Parmele | Y | Y | Y | Y | Y | Y | | |
| 19 | Robersonville | Y | Y | Y | Y | Y | Y | | |
| 20 | Williamston | Y | Y | Y | Y | Y | Y | | |
| 21 | Tyrrell County | Y | Y | Y | Y | Y | Y | | |
| 22 | Columbia | Y | Y | Y | Y | Y | Y | | |
| 23 | Washington County | Y | Y | Y | Y | Y | Y | | |

| # | Jurisdiction Name | A. Planning Process | B. Risk Assessment | C. Mitigation Strategy | D. Plan Maintenance | E. Plan Update | F. Plan Adoption | G. HHPD Requirements | H. State Requirements |
|---|---|---|---|---|---|---|---|---|---|
| 24 | Creswell | Y | Y | Y | Y | Y | Y | | |
| 25 | Plymouth | Y | Y | Y | Y | Y | Y | | |
| 26 | Roper | Y | Y | Y | Y | Y | Y | | |

# Plan Review Checklist

The Plan Review Checklist is completed by FEMA. States and local governments are encouraged, but not required, to use the PRT as a checklist to ensure all requirements have been met prior to submitting the plan for review and approval. The purpose of the checklist is to identify the location of relevant or applicable content in the plan by element/sub-element and to determine if each requirement has been "met" or "not met." FEMA completes the "required revisions" summary at the bottom of each element to clearly explain the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is "not met." Sub-elements in each summary should be referenced using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each element and sub-element are described in detail in Section 4: Local Plan Requirements of this guide.

Plan updates must include information from the current planning process.

If some elements of the plan do not require an update, due to minimal or no changes between updates, the plan must document the reasons for that.

Multi-jurisdictional elements must cover information unique to all participating jurisdictions.

## Element A: Planning Process

| Element A Requirements | Location in Plan (section and/or page number) | Met / Not Met |
|---|---|---|
| **A1. Does the plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement 44 CFR § 201.6(c)(1))** | | |
| A1-a. Does the plan document how the plan was prepared, including the schedule or time frame and activities that made up the plan's development, as well as who was involved? | Section 2, p.7-17; Appendix B | Met<br>MET |
| A1-b. Does the plan list the jurisdiction(s) participating in the plan that seek approval, and describe how they participated in the planning process? | Section 1.3, p.2; Section 2.3-2.9, p.7-22; Appendix B | Met<br>MET |

| Element A Requirements | Location in Plan (section and/or page number) | Met / Not Met |
|---|---|---|
| **A2. Does the plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development as well as businesses, academia, and other private and non-profit interests to be involved in the planning process? (Requirement 44 CFR § 201.6(b)(2))** | | |
| A2-a. Does the plan identify all stakeholders involved or given an opportunity to be involved in the planning process, and how each stakeholder was presented with this opportunity? | Section 2.4, p.10-14; Section 2.5, p.14-15; Section 2.7-2.8, p.16-17, Appendix B | Met<br>**MET** |
| **A3. Does the plan document how the public was involved in the planning process during the drafting stage and prior to plan approval? (Requirement 44 CFR § 201.6(b)(1))** | | |
| A3-a. Does the plan document how the public was given the opportunity to be involved in the planning process and how their feedback was included in the plan? | Section 2.4-2.7, p.10-16; | Met<br>**MET** |
| **A4. Does the plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement 44 CFR § 201.6(b)(3))** | | |
| A4-a. Does the plan document what existing plans, studies, reports and technical information were reviewed for the development of the plan, as well as how they were incorporated into the document? | Section 2.3.1, p.8-9 | Met<br>**MET** |
| **ELEMENT A REQUIRED REVISIONS** | | |
| Required Revision**:** | | |

## Element B: Risk Assessment

| Element B Requirements | Location in Plan (section and/or page number) | Met / Not Met |
|---|---|---|
| **B1. Does the plan include a description of the type, location, and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events? (Requirement 44 CFR § 201.6(c)(2)(i))** | | |
| B1-a. Does the plan describe all natural hazards that can affect the jurisdiction(s) in the planning area, and does it provide the rationale if omitting any natural hazards that are commonly recognized to affect the jurisdiction(s) in the planning area? | Section 4.2, p.55-59, Section 4.5, p.77-296 (Hazard Description, Location, Extent, Hazard Summary by Jurisdiction) | Met<br>**MET** |
| B1-b. Does the plan include information on the location of each identified hazard? | Section 4.5, p. 77-296 ("Location" subheadings) | Met<br>**MET** |
| B1-c. Does the plan describe the extent for each identified hazard? | Section 4.5, p. 77-296 ("Extent" subheadings) | Met<br>**MET** |
| B1-d. Does the plan include the history of previous hazard events for each identified hazard? | Section 4.5, p. 77-296 ("Historical Occurrences" subheadings) | Met<br>**MET** |
| B1-e. Does the plan include the probability of future events for each identified hazard, including the type, location and range of anticipated intensities? | Section 4.5, p. 77-296 ("Probability of Future Occurrence" subheadings) | Met<br>**MET** |
| B1-f. For participating jurisdictions in a multi-jurisdictional plan, does the plan describe any hazards that are unique to and/or vary from those affecting the overall planning area? | Section 4.5, p. 77-296 ("Hazard Summary by Jurisdiction" subheadings); Annexes, p.376-617 | Met<br>**MET** |

| Element B Requirements | Location in Plan (section and/or page number) | Met / Not Met |
|---|---|---|
| **B2. Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP-insured structures that have been repetitively damaged by floods? (Requirement 44 CFR § 201.6(c)(2)(ii))** | | |
| B2-a. Does the plan provide an overall summary of each jurisdiction's vulnerability to the identified hazards? | Section 4.3, p.59-63; Section 4.4, p.64-76; Section 4.5, p.77-296 ("Vulnerability Assessment" subheadings); Annexes, p.376-617 | Met **MET** |
| B2-b. For each participating jurisdiction, does the plan describe the potential impacts of each of the identified hazards on each participating jurisdiction? | Section 4.5, p.77-296; Annexes, p.376-617 | Met **MET** |
| B2-c. Does the plan address NFIP-insured structures within each jurisdiction that have been repetitively damaged by floods? | Section 4.5.5, p.167 | Met **MET** |
| **ELEMENT B REQUIRED REVISIONS** | | |
| Required Revision**:** Click or tap here to enter text. | | |

## Element C: Mitigation Strategy

| Element C Requirements | Location in Plan (section and/or page number) | Met / Not Met |
|---|---|---|
| **C1. Does the plan document each participant's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement 44 CFR § 201.6(c)(3))** | | |
| C1-a. Does the plan describe how the existing capabilities of each participant are available to support the mitigation strategy? Does this include a discussion of the existing building codes and land use and development ordinances or regulations? | Section 5, p.297-317 | Met **MET** |

| Element C Requirements | Location in Plan (section and/or page number) | Met / Not Met |
|---|---|---|
| C1-b. Does the plan describe each participant's ability to expand and improve the identified capabilities to achieve mitigation? | Section 5, p.297-317 | Met<br>**MET** |
| **C2. Does the plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement 44 CFR § 201.6(c)(3)(ii))** | | |
| C2-a. Does the plan contain a narrative description or a table/list of their participation activities? | Section 5.3.1.3, p.304-307 | Met<br>**MET** |
| **C3. Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement 44 CFR § 201.6(c)(3)(i))** | | |
| C3-a. Does the plan include goals to reduce the risk from the hazards identified in the plan? | Section 6.1, p.318-320 | Met<br>**MET** |
| **C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement 44 CFR § 201.6(c)(3)(ii))** | | |
| C4-a. Does the plan include an analysis of a comprehensive range of actions/projects that each jurisdiction considered to reduce the impacts of hazards identified in the risk assessment? | Section 7, p.322-344; Appendix C | Met<br>**MET** |
| C4-b. Does the plan include one or more action(s) per jurisdiction for each of the hazards as identified within the plan's risk assessment? | Section 7, p.322-344 | Met<br>**MET** |
| **C5. Does the plan contain an action plan that describes how the actions identified will be prioritized (including a cost-benefit review), implemented, and administered by each jurisdiction? (Requirement 44 CFR § 201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))** | | |
| C5-a. Does the plan describe the criteria used for prioritizing actions? | Section 6.2, p. 320-321 | Met<br>**MET** |
| C5-b. Does the plan provide the position, office, department or agency responsible for implementing/administrating the identified mitigation actions, as well as potential funding sources and expected time frame? | Section 7, p.322-344 | Met<br>**MET** |

| ELEMENT C REQUIRED REVISIONS |
|---|
| Required Revision:<br>Click or tap here to enter text. |

## Element D: Plan Maintenance

| Element D Requirements | Location in Plan (section and/or page number) | Met / Not Met |
|---|---|---|
| **D1. Is there discussion of how each community will continue public participation in the plan maintenance process? (Requirement 44 CFR § 201.6(c)(4)(iii))** | | |
| D1-a. Does the plan describe how communities will continue to seek future public participation after the plan has been approved? | Section 8.3, p.351 | Met<br>**MET** |
| **D2. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a five-year cycle)? (Requirement 44 CFR § 201.6(c)(4)(i))** | | |
| D2-a. Does the plan describe the process that will be followed to track the progress/status of the mitigation actions identified within the Mitigation Strategy, along with when this process will occur and who will be responsible for the process? | Section 8.2, p.348-351 | Met<br>**MET** |
| D2-b. Does the plan describe the process that will be followed to evaluate the plan for effectiveness? This process must identify the criteria that will be used to evaluate the information in the plan, along with when this process will occur and who will be responsible. | Section 8.2, p.354-356 | Met<br>**MET** |
| D2-c. Does the plan describe the process that will be followed to update the plan, along with when this process will occur and who will be responsible for the process? | Section 8.2, p.354-356 | Met<br>**MET** |
| **D3. Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement 44 CFR § 201.6(c)(4)(ii))** | | |
| D3-a. Does the plan describe the process the community will follow to integrate the ideas, information and strategy of the mitigation plan into other planning mechanisms? | Section 8.1, p. 351-354;<br>Section 8.2, p.354-356 | Met<br>**MET** |

| Element D Requirements | Location in Plan (section and/or page number) | Met / Not Met |
|---|---|---|
| D3-b. Does the plan identify the planning mechanisms for each plan participant into which the ideas, information and strategy from the mitigation plan may be integrated? | Section 8.1, p. 351-354; Section 8.2, p.354-356 | Met **MET** |
| D3-c. For multi-jurisdictional plans, does the plan describe each participant's individual process for integrating information from the mitigation strategy into their identified planning mechanisms? | Section 8.1, p. 351-354; Section 8.2, p.354-356 | Met **MET** |
| **ELEMENT D REQUIRED REVISIONS** | | |
| Required Revision**:** Click or tap here to enter text. | | |

## Element E: Plan Update

| Element E Requirements | Location in Plan (section and/or page number) | Met / Not Met |
|---|---|---|
| **E1. Was the plan revised to reflect changes in development? (Requirement 44 CFR § 201.6(d)(3))** | | |
| E1-a. Does the plan describe the changes in development that have occurred in hazard-prone areas that have increased or decreased each community's vulnerability since the previous plan was approved? | Section 3, p.23-53 | Met **MET** |
| **E2. Was the plan revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3))** | | |
| E2-a. Does the plan describe how it was revised due to changes in community priorities? | Section 2.1-2.2, p.5-7; Section 6, p.318-321, Section 7, p.322-344 | Met **MET** |
| E2-b. Does the plan include a status update for all mitigation actions identified in the previous mitigation plan? | Section 7, p.322-344; Section 2.9, p.23-24 | Met **MET** |
| E2-c. Does the plan describe how jurisdictions integrated the mitigation plan, when appropriate, into other planning mechanisms? | Section 8.1, p.351-354 | Met **MET** |

| ELEMENT E REQUIRED REVISIONS |
|---|
| Required Revision:<br>Click or tap here to enter text. |

## Element F: Plan Adoption

| Element F Requirements | Location in Plan (section and/or page number) | Met / Not Met |
|---|---|---|
| **F1. For single-jurisdictional plans, has the governing body of the jurisdiction formally adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))** | | |
| F1-a. Does the participant include documentation of adoption? | Section 9, p.352-375 | Choose an item. |
| **F2. For multi-jurisdictional plans, has the governing body of each jurisdiction officially adopted the plan to be eligible for certain FEMA assistance? (Requirement 44 CFR § 201.6(c)(5))** | | |
| F2-a. Did each participant adopt the plan and provide documentation of that adoption? | Section 9, p.352-375 | Choose an item. |
| **ELEMENT F REQUIRED REVISIONS** | | |
| Required Revision:<br>Click or tap here to enter text. | | |

## Element G: High Hazard Potential Dams (Optional)

| HHPD Requirements | Location in Plan (section and/or page number) | Met / Not Met |
|---|---|---|
| **HHPD1. Did the plan describe the incorporation of existing plans, studies, reports and technical information for HHPDs?** | | |
| HHPD1-a. Does the plan describe how the local government worked with local dam owners and/or the state dam safety agency? | N/A | Choose an item. |
| HHPD1-b. Does the plan incorporate information shared by the state and/or local dam owners? | N/A | Choose an item. |

| HHPD Requirements | Location in Plan (section and/or page number) | Met / Not Met |
|---|---|---|
| **HHPD2. Did the plan address HHPDs in the risk assessment?** | | |
| HHPD2-a. Does the plan describe the risks and vulnerabilities to and from HHPDs? | N/A | Choose an item. |
| HHPD2-b. Does the plan document the limitations and describe how to address deficiencies? | N/A | Choose an item. |
| **HHPD3. Did the plan include mitigation goals to reduce long-term vulnerabilities from HHPDs?** | | |
| HHPD3-a. Does the plan address how to reduce vulnerabilities to and from HHPDs as part of its own goals or with other long-term strategies? | N/A | Choose an item. |
| HHPD3-b. Does the plan link proposed actions to reducing long-term vulnerabilities that are consistent with its goals? | N/A | Choose an item. |
| **HHPD4-a. Did the plan include actions that address HHPDs and prioritize mitigation actions to reduce vulnerabilities from HHPDs?** | | |
| HHPD4-a. Does the plan describe specific actions to address HHPDs? | N/A | Choose an item. |
| HHPD4-b. Does the plan describe the criteria used to prioritize actions related to HHPDs? | N/A | Choose an item. |
| HHPD4-c. Does the plan identify the position, office, department or agency responsible for implementing and administering the action to mitigate hazards to or from HHPDs? | N/A | Choose an item. |

| **HHPD Required Revisions** |
|---|
| Required Revision**:**<br>Click or tap here to enter text. |

## Element H: Additional State Requirements (Optional)

| Element H Requirements | Location in Plan (section and/or page number) | Met / Not Met |
|---|---|---|
| **This space is for the State to include additional requirements.** | | |
| Click or tap here to enter text. | Click or tap here to enter text. | Choose an item. |

# Plan Assessment

These comments can be used to help guide your annual/regularly scheduled updates and the next plan update.

## Element A. Planning Process

**Strengths**

- The planning process was well documented highlighting the participation and contribution of each participating jurisdiction's attendees.
- The description of the planning process in Section 2 is clear and concise. A reader would be able to quickly understand how this plan was put together, who was involved, and what was considered. The use of well formatted tables and graphics further improve readability.

- The plan layout for this information, especially considering the number of jurisdictions, is easy to read and understand. Communities are also able to utilize the plan to identify which of their neighbors have certain plans and capabilities.

**Opportunities for Improvement**

- [insert comments]

## Element B. Risk Assessment

**Strengths**

- Data visualization and GIS mapping is clear, readable, and consistently formatted. Throughout the plan and particularly in the annexes, the additional graphics support the written text and provide the reader with useful information. The graphics in each county's annex for flooding and wildfire risk are extremely clear with each community highlighted against the larger county.

- Wonderful job using tables, consistent formatting, and table descriptions especially considering the size of the planning area. This is very helpful and makes the plan easy to read and follow.

- Hazard summary by jurisdiction provides additional clarity at the jurisdiction level and is communicated clearly to the reader.

**Opportunities for Improvement**

- Include individual jurisdiction maps that are to scale which highlight the locations for the following hazards Dam Failure, Flooding and Wildfire
- Include additional details at the localized community level for each participating community.

## Element C. Mitigation Strategy

**Strengths**

- The Mitigation Strategy documented the mitigation strategy, actions, timeline, status and responsible POCs well for each jurisdiction.
- The plan outlines very clearly the applicable plans, existing authorities, policies, programs, and resources that the various communities have in place to help support and advance hazard mitigation efforts.
- Actions from the previous plan each have information for their implementation status.

**Opportunities for Improvement**

- [insert comments]

## Element D. Plan Maintenance

**Strengths**

- [insert comments]

**Opportunities for Improvement**

- [insert comments]

## Element E. Plan Update

**Strengths**

- [insert comments]

**Opportunities for Improvement**

- [insert comments]

## Element G. HHPD Requirements (Optional)

**Strengths**

- [insert comments]

**Opportunities for Improvement**

- [insert comments]

## Element H. Additional State Requirements (Optional)

**Strengths**

- [insert comments]

**Opportunities for Improvement**

- [insert comments]

# APPENDIX B PLANNING PROCESS DOCUMENTATION

## PLANNING STEP 1: ORGANIZE TO PREPARE THE PLAN

**Table B.1 – HMPC Meeting Topics, Dates, and Locations**

| Meeting Title | Meeting Topic | Meeting Date | Meeting Location |
|---|---|---|---|
| HMPC Mtg. #1 – Project Kick-Off | 1. Introduction to DMA, CRS, and FMA requirements and the planning process<br>2. Review of HMPC responsibilities and the project schedule. | July 15, 2025<br>3:00 p.m. | Bertie County Library Community Meeting Center & Microsoft Teams |
| HMPC Mtg. #2 | 1. Project overview<br>2. Asset inventory<br>3. Review draft Hazard Identification & Risk Assessment (HIRA)<br>4. Excessive heat presentation from North Carolina State Resilience Office | September 15, 2025<br>1:00 p.m. | Martin County TeleCenter & Microsoft Teams |
| HMPC Mtg. #3 | 1. Review capability assessment<br>2. Review & update mitigation strategy<br>3. Discuss public engagement & survey efforts | November 6, 2025<br>11:00 am | Washington County Commissioner's Room & Microsoft Teams |
| HMPC Mtg. #4 | 1. Review the Draft Hazard Mitigation Plan<br>2. Solicit comments and feedback | December 10, 2025<br>3:00 p.m. | Bertie County Library Community Meeting Center & Microsoft Teams |

Note: All HMPC Meetings were open to the public.

Meeting agendas, minutes, and sign in sheets are provided on the following pages. Presentations referenced in the minutes can be provided upon request.

# HMPC MEETING AGENDAS, MINUTES, AND SIGN-IN SHEETS

## *HMPC MEETING 1: JULY 15, 2025*

### NORTHEASTERN NC REGIONAL HAZARD MITIGATION PLAN UPDATE

HAZARD MITIGATION PLANNING COMMITTEE (HMPC) MEETING #1

July 15, 2025, 3 pm, Bertie County Library Community Meeting Center & Microsoft Teams

#### ATTENDANCE

There were 10 attendees in person and seven online. The following individuals were in attendance:
Traci White, Planning & Inspections Director, Bertie County
John Rawls, Director of Emergency Services, Bertie County
Charlotte Griffin, Mayor, Town of Bear Grass
Tina Brown, Mayor, Town of Robersonville
Jerry McCrary, Mayor, Town of Parmele
Joseph Griffin, Director of Emergency Management, Martin County
Michael Bryant, Deputy Director of Emergency Management, Martin County
Allen Castelloe, Town Administrator, Town of Windsor
Ben Jones, Mayor, Town of Everetts
Allen Pittman, Director of Planning and Inspections, Washington County
Andrew Brownfield, Planner & Zoning Administrator, Town of Williamston
Connie Barnes
Lance Swindell, Emergency Management Coordinator, Washington County
John Mello, NCEM Mitigation Specialist
Abby Moore, WSP
Ranger Ruffins, WSP

#### AGENDA

- NCEM Introduction
- Why Plan?
- Project Overview
- Planning Process
- Project Schedule
- Next Steps
- Q & A

#### NCEM INTRODUCTION

NCEM Mitigation Specialist John Mello, provided a brief overview of the Hazard Mitigation Plan (HMP) update process and the role of each participant. John explained that North Carolina plan updates are funded through the HMGP and State funds. He noted that while NCEM has appointed consultants to facilitate the plan updates, NCEM is available to provide support throughout the planning process. Once the draft plan is completed, NCEM will review the plan for accuracy and compliance with federal guidance. They will also submit the plan to FEMA for approval.

#### WHY PLAN?

Abby began the presentation with why we plan in the first place. She discussed the Disaster Mitigation Act (DMA) of 2000, which is codified in 44 CFR 201.6 and requires local government to update their

hazard mitigation plans every five years to be eligible for pre- and post-disaster grant funding through FEMA's Hazard Mitigation Assistance programs. Mitigation funding available through FEMA includes the Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA) program. Abby noted that every community in the state is eligible for HMGP funding whenever a disaster is declared in the state of North Carolina, even if it does not directly impact your community, as there is often funding left over after projects have been completed in affected areas.

Abby reviewed trends in disasters that support the need for mitigation planning. In FY2024 there were 27 billion-dollar disasters. There's an increasing trend in recent years in the number of billion-dollar disasters. This may be in part because we now have more frequent and intense hazard events and greater exposure to risk (people, property and critical infrastructure). Abby explained that hazard mitigation is a priority for multiple reasons, including that the cost of doing nothing is too high, many events are predictable and repetitive, loss reduction can be effective, cost-beneficial, and environmentally-sound, there are legal and moral responsibilities to prevent disasters, and there are federal funds available to support mitigation. The average benefit-cost ratio (BCR) for federally funded projects is 6:1 and is even higher for flood mitigation.

## PROJECT OVERVIEW

Abby explained that we must follow the DMA planning process and integrate Community Rating System (CRS) Activity 510 planning steps into the DMA four-phase planning process to meet the requirements of both programs. The DMA process provides continued eligibility for mitigation funding and guides mitigation activities in a coordinated and economical manner. The CRS program is flood specific and provides flood insurance policy holders in participating communities with discounts based on the number of CRS points they communities earn. Hyde County, Town of Creswell, Town of Plymouth, Town of Roper, and Washington County participate in the CRS program. Overall, the WSP planning team will ensure that the updated hazard mitigation plan meets all FEMA planning requirements.

## PLANNING PROCESS

### PHASE 1

Abby described the planning process in more detail. Phase 1, organize resources, is already underway. The HMPC has been reconvened, and new staff members and stakeholders were identified for involvement. Each jurisdiction should have staff representatives and citizen/stakeholder representatives who are not affiliated with local government to have a 50/50 split of staff and stakeholders. Please contact Abby if you need additional updates to your communities' HMPC representatives.

The HMPC will be asked to attend four meetings (including this one), provide input on risk and capability, update mitigation actions, and review plan drafts. HMPC members, especially staff, will also be asked to support public involvement efforts throughout the planning process.

Abby noted that more stakeholders can still join the HMPC. We can also invite additional stakeholders to provide data and input without having to commit to participating on the HMPC. In particular, we should look to involve stakeholders that may be able to represent underserved communities and/or vulnerable populations.

### PHASE 2: ASSESS RISKS

Phase 2 covers the risk assessment, which includes the hazard identification and the vulnerability assessment. All of the hazards that were addressed in the previous plan will be carried over into this plan update. The identified hazards area s follows: Coastal Erosion, Dam & Levee Failure, Drought, Earthquake, Extreme Heat, Flood, Hurricane & Tropical Storm, Severe Weather, Severe Winter Storm, Tornado, Wildfire. It was discussed and determined that hazardous substances be added as a hazard. Abby also explained that the hazards groupings and nomenclature will be updated to align with the State Hazard Mitigation Plan.

To conduct the vulnerability assessment, NCEM iRisk data will be used to provide loss estimates for several hazards. Additional qualitative, quantitative, and spatial analysis will be used as appropriate. WSP will send communities a web map with the iRisk facilities to review and add any missing critical facilities. If communities already have a list of updated facilities, they can also send those to the WSP team. Abby noted that critical facilities will be categorized by FEMA lifeline in the plan update, which may be helpful to communities when preparing FEMA grant applications.

**PHASE 3: DEVELOP A MITIGATION STRATEGY**

Phase 3 involves developing a mitigation strategy by reviewing and updating the plan goals and objectives, evaluating mitigation alternatives including existing and new projects, and drafting an action plan with prioritized projects. The action plan will identify criteria to support monitoring and implementation, including the responsible department or agency, timeline for completion, and potential funding sources. Abby explained that each community will need to provide a status update for each of the projects included in the previous plan. It should be indicated if each project has been completed, deleted, or carried forward. If the project is carried forward a progress update will need to be provided.

Abby also reviewed different approaches to mitigation based on the six FEMA/CRS mitigation categories: prevention, property, structural projects, emergency services, natural resources protection, and public education. CRS communities should look to identify a project for each of the categories. FEMA requires the community to have at least one action for each of the identified hazards. Abby reminded the HMPC that projects must be in the hazard mitigation plan to be eligible for FEMA HMA funding.

**PHASE 4: ADOPTION AND IMPLEMENTATION**

Phase 4 is where the communities must adopt and implement the plan. Each of the participating jurisdictions must adopt the plan by resolution. Abby noted that the HMPC will need to meet at least annually to review the action plan and look for funding and opportunities to implement projects. However, she recommends that community meet quarterly to maximize CRS credit. The plan will continue to be updated every five years.

PROJECT SCHEDULE

Abby presented the schedule for the planning process. The HMPC will meet again in September. Martin County may be able to host the next HMPC meeting. WSP will work with the County to select a date/time that works. The first public meeting will be held in the evening of July 15th following the HMPC meeting. The final public meetings will be held in December. The plan must be approved by NCEM and FEMA and adopted by all communities before the current plan expires in April 2026.

NEXT STEPS

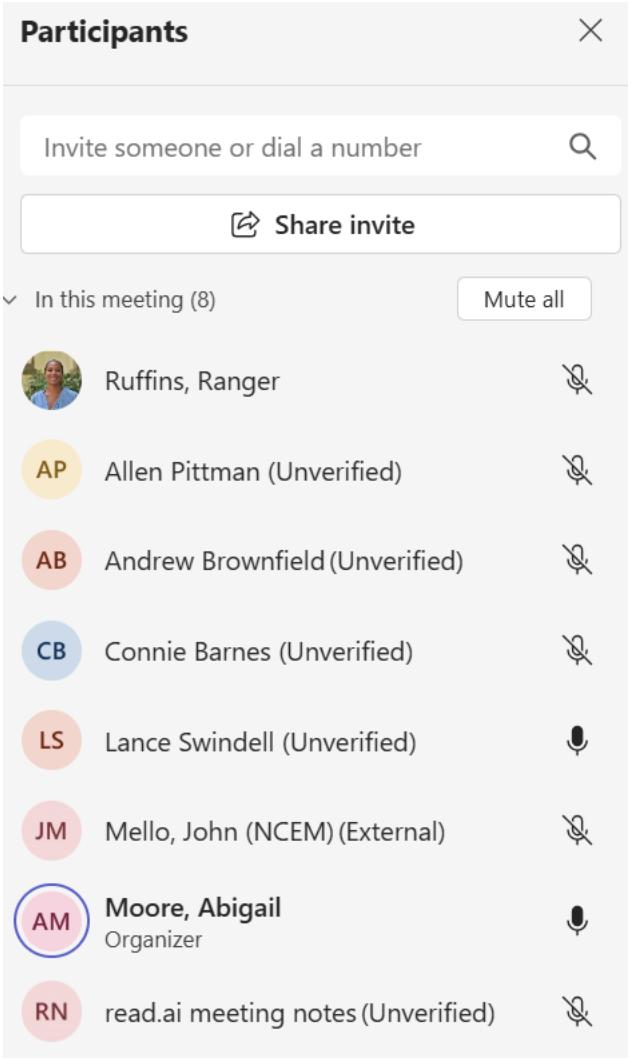
Abby discussed public outreach efforts which include public meetings facilitated by WSP, a public survey, and a plan website (https://www.NortheasternHMP.com). Community staff will be asked to post outreach on local websites and social media. It was noted that a flyer would be useful for outreach; WSP will provide an electronic version of a flyer that staff can use to promote public engagement in the plan update. Community staff were also asked to think about additional stakeholders to involve in the planning process – please send any relevant contact to the WSP team.

The HMPC was asked to review the existing mitigation strategy to provide action status updates. WSP will send existing projects to communities for review.

WSP is working on the risk and vulnerability assessment update and will reach out to community representatives on the HMPC for updates on local capability. WSP will provide language for advertising the plan website and survey and provide an informational flyer that can be posted.

**Northeastern NC Regional Hazard Mitigation Plan**
**Hazard Mitigation Planning Committee – Meeting #1**
**Tuesday, July 15, 2025, 3pm**

| | Name | Jurisdiction | Department/Agency/Organization | Email |
|---|---|---|---|---|
| 1. | Abby Moore | | WSP | abigail.moore@wsp.com |
| 2. | TRACI WHITE | BERTIE COUNTY | PLANNING & INSPECTIONS | traci.white@bertie.nc.gov |
| 3. | Charlotte Griffin | Martin County Bear Grass | Town of Bear Grass | ladybear45@outlook.com |
| 4. | Tina Brown | Martin County | TOWN of Robersonville | tbrown@townofrobersonville |
| 5. | Jenny M. McCraney | Martin County | TOWN OF PARMELE | MayorJennyM@GMAIL.com |
| 6. | Joseph Griffin | Martin Co | Martin Co | jgriffin@martincountync.gov |
| 7. | Michael Bryant | Martin Co | Martin Co EM | michael.bryant@martincountync.gov |
| 8. | Allen Castelloe | Windsor | Administrator | acastelloe@windsornc.com |
| 9. | John Rawls | Bertie Co. | BCES Director | john.rawls@bertie.nc.gov |
| 10. | Ben Jones | Martin County | Town of Everetts | bjonesjr@suddenlink.net |
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Participants
Invite someone or dial a number
Share invite
In this meeting (8)
Mute all
Ruffins, Ranger
AP
Allen Pittman (Unverified)
AB
Andrew Brownfield (Unverified)
CB
Connie Barnes (Unverified)
LS
Lance Swindell (Unverified)
JM
Mello, John (NCEM) (External)
AM
Moore, Abigail
Organizer
RN
read.ai meeting notes (Unverified)

## *HMPC MEETING 2: SEPTEMBER 15, 2025*

### NORTHEASTERN NC REGIONAL HAZARD MITIGATION PLAN UPDATE

HAZARD MITIGATION PLANNING COMMITTEE (HMPC) MEETING #2

September 15, 2025, 1 pm, Martin County Telecenter & Microsoft Teams

ATTENDANCE

There were 7 attendees in person and 11 online. The following individuals were in attendance:

Andrew Brownfield, Planner & Zoning Administrator, Town of Williamston
Charlotte Griffin, Mayor, Town of Bear Grass
Joseph Griffin, Director of Emergency Management, Martin County
Allen Castelloe, Town Administrator, Town of Windsor
Traci White, Planning & Inspections Director, Bertie County
Jerry McCrary, Mayor, Town of Parmele
Drew Batts, County Manager, Martin County
Connie Barnes, CERT Team Coordinator, Washington County
Marie Garris, Clerk & Finance Officer, Town of Kelford
Lance Swindell, Emergency Management Coordinator, Washington County
Hannah Thompson, Wildfire Mitigation Specialist, N.C. Forest Service
Nicole Goddard, NCORR, Resilience Outreach and Engagement Manager
John Mello, NCEM Mitigation Specialist
Carl Baker, NCEM Mitigation Plans Manager
David Stroud, WSP
Abby Moore, WSP
Ranger Ruffins, WSP
Kimmy Hansen, WSP

AGENDA

- Project Overview & Where we are in the planning process
- Hazard Identification
- Asset Inventory
  - People, Property, and Critical Facilities
- Hazard Profiles: Risk & Vulnerability
  - Summary of key findings for each hazard
  - Excessive Heat presentation by Nicole Goddard, State Resilience Office
- Discussion
- Next Steps

## PROJECT OVERVIEW & PLANNING PROCESS

Abby began the presentation by explaining where we are in the planning process. Currently, the plan update is in Phase 2 of the four-phase planning process which includes identifying hazards and assessing the problems. Abby proceeded to describe the steps taken during the Hazard Identification & Risk Assessment (HIRA) process which are shown to the right.




## HAZARD IDENTIFICATION

Abby noted that there has been a total of 20 Disaster and Emergency Declarations within the Northeastern Region. Around 65% of those declarations have been caused due to Hurricanes. As shown in slide 7 of the presentation, a comprehensive list of all existing hazards that are being carried forward and reevaluated in the plan update were provided and reviewed. Abby explained that a few of these hazard profiles have been consolidated to mirror the State HMP. She presented the hazards that have been included and not included in the plan update. She also noted that Hazardous Substances has been added to the list of evaluated hazards.

## ASSET INVENTORY

Abby briefly reviewed the data that has been collected and included in the asset inventory for Bertie, Hyde, Martin, Tyrell, and Washington counties. The data was sourced from the NCEM iRisk platform to collect information about population demographics, building counts and values, and critical facilities. Critical facilities are buildings and infrastructure that support continuity of operations and are essential to health and safety.

It was noted by several members of the HMPC that the presented population estimates are very low compared to actual 2020 census data. WSP will work with the State to address the issue in iRisk or determine another method for estimating vulnerability.

## HAZARD PROFILES

Abby reviewed the Priority Risk Index (PRI) methodology and results. She reminded the Committee that the purpose of the PRI is to categorize and prioritize all hazards for the region as high, moderate, or low risk. She asked HMPC members to review the PRI ratings (found on slide 12) for each hazard and provide feedback if any changes are recommended. Abby then reviewed current draft findings for the hazard profiles listed below.

**Dam and Levee Failure**

There are 15 dams in the Northeastern Region – all are low hazard dams. Abby noted the importance of monitoring dam conditions. The HMPC also asked to include an evaluation of Kerr Dam, located upstream of the region. WSP will include Kerr Dam and see if inundation data is available to further explore vulnerability.

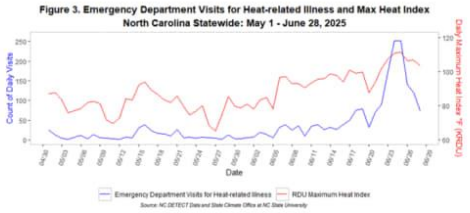
There are four levees in the Northeastern region – two in Tyrell County, one in Washington County, and one in Hyde County. Within the leveed areas there is an estimated 1,347 people, and $274M in property value.

**Drought**

According to the U.S. Drought Monitor, from 2000-2024, all five counties were in some level of drought 36% of the time. Based on NCEI data, from 2007 – 2024 there were over $62M in crop insurance claims paid in the region due to drought. The most severe droughts to recently occur were in 2007/2008 and 2011. Abby mentioned that drought can increase wildfire risk and may become more frequent and severe due to climate change.

**Excessive Heat**

Nicole Goddard from the Department of Environmental Quality (DEQ) State Resilience Office presented on heat vulnerability in the Northeastern Region. She noted that it is likely that temperatures will continue to increase which will impact the rate of heat-related illness. The NC Resilience Exchange Climate Projects site has more information on how excessive heat may change over time.




Higher temperatures will specifically impact infants and children, pregnant persons, persons taking certain medications, older adults (65+), outdoor workers, low income, people with underlying health conditions, and athletes. Additionally, it was noted that high temperatures will not only impact human health but utility costs, infrastructure, and agriculture. ReBuildNC has a Heat Action Plan Toolkit with helpful resources about how communities can build resilience to extreme heat.

Nicole also discussed the Planning for Extreme Heat Cohort Program, which supports NC local governments in developing heat action plans.

**Flooding**

This plan evaluates both riverine and coastal flooding, which are evaluated using the current effective FIRMs for each county. Abby noted that localized and street stormwater flooding are also common sources of flooding. If any communities maintain known flooding hot spots, please share this data with WSP so they can be incorporated into the plan.

Abby explained that that 36% of the region is in the Special Flood Hazard Area (SFHA). The SFHA exceeds 50% of the total area in Tyrell County and Columbia. While the majority of the land area in the region is in the unshaded, low risk areas, flooding can occur outside of the SFHA and floodplains.

Data from iRisk estimates that around 7,690 buildings are at risk to the 1% annual chance flood event with an estimated damage of over $60M.

Percent of total buildings at risk is highest in:

- Unincorporated Tyrell County (81%)
- Town of Columbia (59%)
- Unincorporated Hyde County (57%)
- Town of Creswell (34%)

**Hurricane and Coastal Hazards**

NCEI reports $72.5M in property damages. Abby noted that an additional $61M in damages associated with storm surge from Hurricane Irene. She also explained that survey responses note impacts from hurricanes Floyd and Matthew.

The plan uses NOAA SLOSH model to approximate maximum surge potential by storm category. Based on the model, every county is impacted by CAT 3 storm surge.

Abby explained that the region is seeing high levels of coastal and soundfront erosion. Abby asked communities to provide any known locations of erosion to be included in the plan.

**Tornadoes and Thunderstorms**

Based on NCEI data, the Northeastern Region has experienced 53 tornado incidents between 1999 and 2024, causing 14 deaths, 81 injuries, and $6.5M in property damage and $1.4M in crop damage. The

database reported 163 days with thunderstorm winds, and 76 days with reported hail incidents. There were not reports of lightning, however, Abby explained that NCEI only reports lightning events with recorded damage.

**Severe Winter Weather**

Two winter related disaster declarations have occurred in the region, however there are 144 events are reported in NCEI during the 25-year period from 1999 through 2024. Abby noted that there are 74 separate days with winter weather related events equating to an average of three days with winter weather per year. The HMPC discussed vulnerabilities associated with overhead powerlines and reliance on electric heat sources.

**Wildfire**

The WUI is the area where structures and other human improvements meet undeveloped wildland or vegetative fuels. These are high risk areas. An estimated 6% of the region has direct or indirect exposure, and 73% is located in the critical fireshed. Over 12% of the region is vulnerable to high or higher fire intensity, primarily in Hyde County. Hannah noted that some of the largest and longest fires have occurred in this region, so mitigation should focus on the impacts of long-lasting fires.

Abby reviewed the PRI results again noting that HMPC can further review the risk ratings when they read through the draft HIRA. She also noted that PRI tables are presented for each jurisdiction so variations by community can be reviewed.

PROJECT SCHEDULE

Abby presented a tentative schedule for the planning process, which includes two more HMPC meetings and one public meeting. The next HMPC meeting will be in early November and we will review the mitigation strategy. The final HMPC will be in February or March.

The draft plan is due to NCEM in March 2026. The plan must be approved by NCEM and FEMA and adopted by all communities before the current plan expires in April 2026.

PUBLIC SURVEY UPDATE

There have only been six survey responses so far. Abby encouraged communities to publicize the survey to increase responses.

NEXT STEPS

HMPC Action Items

- Review the draft risk assessment when made available
- Start reviewing existing mitigation action plans and prepare status updates for each action
- Publicize the plan website and public survey
- Abby suggested posting the survey on community websites and publicizing on social media. It can also be found on the plan website: www.NortheasternHMP.com/.

WSP Action Items

- WSP will post updated draft HIRA on the plan website for review once population discrepancy is addressed
- Will send existing mitigation action plans
- Will schedule the next HMPC meeting for early November




Survey Link: https://forms.office.com/e/Kj1MPsEJBU

Plan Website: www.NortheasternHMP.com/

**Northeastern NC Regional Hazard Mitigation Plan**
**Hazard Mitigation Planning Committee – Meeting #2**
**Monday, September 15, 2025, 1pm**

| | Name | Jurisdiction | Department/Agency/Organization | Email |
|---|---|---|---|---|
| 1. | Abby Moore | — | WSP | abigail.moore@wsp.com |
| 2. | Andrew Brumfield | | Town of Williamston | abrumfield@townofwilliamston.com |
| 3. | Charlotte Griffin | | Bear Grass | ladybear45@outlook.com |
| 4. | Joseph S Griffin | Martin Co | Martin EM | jgriffin@martincountync.gov |
| 5. | Allen Castelloe | Windsor | Town of Windsor | accastelloe@windsornc.com |
| 6. | TRACI WHITE | BERTIE COUNTY | BERTIE COUNTY | traci.white@bertie.nc.gov |
| 7. | Jacky M. McCrory | Martin County | Planning | mayorjackymc@gmail.com |
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In this meeting (13)

- KH Hansen, Kimberly
- CB Baker, Carl (NCEM) (Unverified)
- CB Connie Barnes (Unverified)
- DB Drew Batts (Unverified)
- NG Goddard, Nicole (Unverified)
- LS Lance Swindell (Unverified)
- MG Marie Garris (Unverified)
- JM Mello, John (NCEM) (Unverified)
- AM **Moore, Abigail** Organizer
- RN read.ai meeting notes (Unverified)
-  Ruffins, Ranger
- DS Stroud, David
- HT Thompson, Hannah (Unverified)

## HMPC MEETING 3: NOVEMBER 6, 2025

# NORTHEASTERN NC REGIONAL HAZARD MITIGATION PLAN UPDATE

### HAZARD MITIGATION PLANNING COMMITTEE (HMPC) MEETING #3

November 6, 2025, 11 am, Washington County Commissioner's Room & Microsoft Teams

### ATTENDANCE

There were four attendees in person and four online. The following individuals were in attendance:

Andrew Brownfield, Planner & Zoning Administrator, Town of Williamston
Charlotte Griffin, Mayor, Town of Bear Grass
Jody Griffin, Director of Emergency Management, Martin County
Lance Swindell, Emergency Management Coordinator, Washington County
John Mello, NCEM Mitigation Specialist
Carl Baker, NCEM Mitigation Plans Manager
Abby Moore, WSP
Kimmy Hansen, WSP

### AGENDA

- Project Overview & Where we are in the Planning Process
- Updates Since Last Meeting
- Capability Assessment
  - New Capabilities
  - Substantial Damage Management Procedures
- Mitigation Strategy
  - Goals & Objectives
  - Mitigation Action Plan Updates
- Next Steps

### CAPABILITY ASSESSMENT

Abby facilitated the meeting and began by reviewing the region's capability assessment, highlighting strengths such as planning documents and emergency management resources, while identifying significant gaps in staffing, local funding, and capital improvement planning across the five-county region.

- Abby outlined the capability indicators used for assessment, including plans and regulatory capability, administrative and technical resources, fiscal resources, education and outreach, mitigation resources, and political will, emphasizing the need to catalog strengths and gaps to be able to identify feasible mitigation actions.
- The HMPC discussed the challenge of limited administrative personnel, noting that most small towns rely on county-level resources and that almost no new staff positions have been created, which restricts the scope of mitigation projects that can be pursued.
- The HMPC agreed that previous self-assessment ratings for community capabilities were overly optimistic, and the group decided to revise these ratings to more accurately reflect moderate or low capabilities, especially in smaller communities.

- It was noted by the committee that most towns now have basic zoning ordinances due to statutory requirements (Chapter 160D), but counties remain reliant on general ordinances without zoning, and much of the zoning work was supported by regional councils of government.
- The group clarified that most mitigation grant applications and projects have been managed at the county or state level, with little direct experience at the town level, and agreed to update the capability assessment to reflect this reality.

### FEMA SUBSTANTIAL DAMAGE MANAGEMENT PROCEDURES

Abby discussed the new FEMA requirement to document substantial damage management procedures in the hazard mitigation plan, clarifying local responsibilities for floodplain management pre- and post-disaster.

- Jody explained that as the county ordinance administrator and building inspector, he reviews and enforces permit requirements for all incorporated communities. Williamston previously handled permitting independently but may have recently shifted to county oversight; Andrew confirmed that Williamston defers most building-related matters to the county.
- The group described the process for post-disaster damage assessment, noting that the tax assessor's offices conduct canvassing, data is collected in Survey123, and properties with substantial damage are flagged for compliance with current standards.
- Abby will document these procedures in the plan and follow up with relevant staff to ensure accuracy, including clarifying roles in communities where responsibilities may be changing due to retirements or staffing transitions.

### MITIGATION STRATEGY AND ACTION PLAN UPDATES

Abby reviewed the existing goals and objectives for the Northeastern NC Regional Hazard Mitigation Plan, soliciting input from the HMPC to revise objectives, prioritize hazards, and ensure that new and ongoing mitigation actions are included for future grant eligibility.

- Abby presented the current goals and objectives, suggesting updates such as clarifying objectives related to property protection, compliance with regulatory requirements, and wildfire risk, with participants agreeing to move and rephrase certain objectives for better alignment as shown in slides 11 and 12.
- The group discussed the prioritization of hazards, agreeing to elevate wildfire risk due to the unique long-duration fires in the region, and decided to adjust the risk assessment scoring to reflect this.
- Abby emphasized the importance of including all desired mitigation actions in the plan to ensure eligibility for future grant funding, noting that actions can be broadly defined at this stage and that amendments are possible but more cumbersome.
- Participants were reminded that FEMA requires a status update for every mitigation action from the previous plan, and county leads will be responsible for providing updates, indicating whether actions are completed, carried forward, or deleted.
- Abby shared examples of potential mitigation projects, including flood mitigation, stormwater improvements, shoreline restoration, public education campaigns, and equipment needs such as generators and message boards, encouraging participants to submit ideas for inclusion.

### PUBLIC ENGAGEMENT AND SURVEY EFFORTS

Abby updated the group on public survey responses and outreach efforts, encouraging further distribution and documentation of posts, and discussed how public input informs mitigation planning and education initiatives.

- Abby reported that the public survey has received only ten responses. She requested screenshots of any new outreach posts for documentation in the plan.
- Survey responses indicated that residents have taken preparedness actions such as acquiring generators and maintaining properties and expressed interest in learning more about local government efforts, highlighting opportunities for public education and outreach.

NEXT STEPS

HMPC Action Items

— Send mitigation action status updates and new mitigation action ideas to Abby at abigail.moore@wsp.com
— Review draft plan when made available (December)

WSP Action Items

— Provide draft plan for committee and the public to review by December. (The plan will be posted on the HMP website)
— Schedule the final HMPC and public meetings for early December.
  — The HMPC confirmed that it would be best to hold the final meetings in Bertie County during the first two weeks of December.




Survey Link: https://forms.office.com/e/Kj1MPsEJBU
Plan Website: www.NortheasternHMP.com/

Northeastern NC HMP - HMPC Meeting #3 - Mitigation Strategy - November 6, 2025

| Name | Jurisdiction | Department/Agency/Organization | Email |
|---|---|---|---|
| Abby Moore | — | WSP | abigail.moore@wsp.com |
| Kimmy Hansen | — | WSP | Kimberly.hansen@wsp.com |
| Charlotte Griffin | Martin Co. | Bear Grass Martin Co | ladybear46@outlook.com |
| LANCE SWINDELL | Wash. Co. EM | Washington County EM | emergencymanager@washcanc.org |

## HMPC MEETING 4: DECEMBER 10, 2025

# NORTHEASTERN NC REGIONAL HAZARD MITIGATION PLAN UPDATE

### HAZARD MITIGATION PLANNING COMMITTEE (HMPC) MEETING #4

December 10, 2025, 3 pm, Bertie County Library Community Meeting Center & Microsoft Teams

### ATTENDANCE

There were four attendees in person and eleven online. The following individuals were in attendance:

Wesley Hopkins, EM, Tyrrell County
Charlotte Griffin, Mayor, Town of Bear Grass
Traci White, Planning Director, Bertie County
Andrew Brownfield, Planner & Zoning Administrator, Town of Williamston
Jody Griffin, Director of Emergency Management, Martin County
Ann Keyes, Board of County Commissioners Office, Washington County
Jerry McCrary, Mayor, Town of Parmele
Johnny Gibbs, Deputy Emergency Manager/Fire Marshall, Hyde County
Tracey Johnson, Board of County Commissioners Office, Washington County
John Mello, NCEM Mitigation Specialist
Carl Baker, NCEM Mitigation Plans Manager
David Stroud, WSP
Abby Moore, WSP
Ranger Ruffins, WSP
Kimmy Hansen, WSP

### AGENDA

- Planning Process Update
- Structure of the Plan
- Review of Key Plan Components
  - Planning Process
  - Risk Assessment
  - Mitigation Strategy
- Plan Adoption & Implementation
- Next Steps
- Discussion/Feedback on Draft Plan

### PLANNING PROCESS UPDATE

Ranger Ruffins with WSP began the presentation by explaining where we are in the planning process. We are nearing the end of the planning process as we have drafted the plan and now need to finalize it with any new mitigation actions that the communities wish to add. The plan will then need to be adopted and the HMPC and communities will work on implementation for the next five years.

### STRUCTURE OF THE PLAN

Ranger provided an overview of the structure of the draft plan including a summary of each section of the plan, as follows.

- **Section 1: Introduction** provides background information on the plan, including context and justification for planning and the scope of the plan.
- **Section 2: Planning Process** summarizes how the planning process was conducted and how all planning requirements were met, including how the communities, public, and stakeholders were involved in the plan. This section also documents implementation progress of the last plan in terms of completed and deleted mitigation actions.
- **Section 3: Planning Area Profile** for summary information on the region and participating communities, including geographic, climate, demographic, and economic characteristics of the region.
- **Section 4: Risk Assessment** contains the bulk of the plan. This section presents the hazard identification and profiles each hazard with information on the location at risk, past occurrences, probability of future occurrence, and vulnerability of people, property, and critical facilities.
- **Section 5: Capability Assessment** summarizes each community's existing tools, staff, and other resources that can support the implementation of mitigation projects.
- **Section 6: Mitigation Strategy** reviews the goals and objectives of the plan and details how mitigation actions were identified and prioritized. David explained that existing mitigation actions from the previous plan were reviewed, and project status updates are reported in the plan. Some projects were carried forward. The HMPC also reviewed new mitigation projects to include in this plan update.
- **Section 7: Mitigation Action Plans** presents the action plan tables for each community.
- **Section 8: Plan Maintenance** describes past plan integration, opportunities for future plan integration, and the process for regular monitoring, maintenance, and implementation of the plan, including ongoing responsibilities of the HMPC.
- **Section 9: Plan Adoption** will document each community's adoption of the plan update.
- **Annexes** are provided for each participating community. The annexes provide an asset inventory with a full critical facility list, risk assessment data with vulnerability assessment results specific to the community for spatially defined hazards, and the mitigation action plan.
- **Appendix A** provides the Local Mitigation Plan Review Tool, which documents for the plan reviewers where the planning requirements were met.
- **Appendix B** provides planning process documentation demonstrating how the HMPC, public, and stakeholders were involved and engaged in the planning process.
- **Appendix C** provides mitigation alternatives analysis, documenting the review of mitigation action options, which is important for the CRS program planning requirements.
- **Appendix D** lists data and resources that were referenced in the plan.

KEY PLAN COMPONENTS

Ranger reviewed key parts of the planning process, including the HMPC meetings, the public meetings, and all the participating communities' public outreach efforts.

- Extensive public outreach was conducted, including a public survey with 13 responses highlighting experiences with hurricanes, flooding, and other hazards. Feedback on mitigation efforts and preferred categories, such as emergency services and natural resource protection, was incorporated into the plan.

- Ranger reviewed the Priority Risk Index results shown on slide 22, which notes Excessive Heat, Flooding, Hurricanes & Tropical Storms, and Thunderstorm Winds as "high risk" hazards for the Northeastern Region.
- On slides 23 and 24, Ranger reviewed the goals and objectives of the Northeastern Regional HMP update which were largely carried forward from the previous plan with some small revisions.
- Ranger reviewed a sample of the mitigation action plan to explain the organization of the table and the information included for each project, such as the lead agency, timeline for implementation, and potential funding sources.
- Based on prior discussions, the mitigation action plans for each jurisdiction will automatically include the creation or update of community wildfire protection plans, a generic property elevation/acquisition project, and a generic drainage improvement project for all communities, unless there are objections.

PLAN ADOPTION AND IMPLEMENTATION

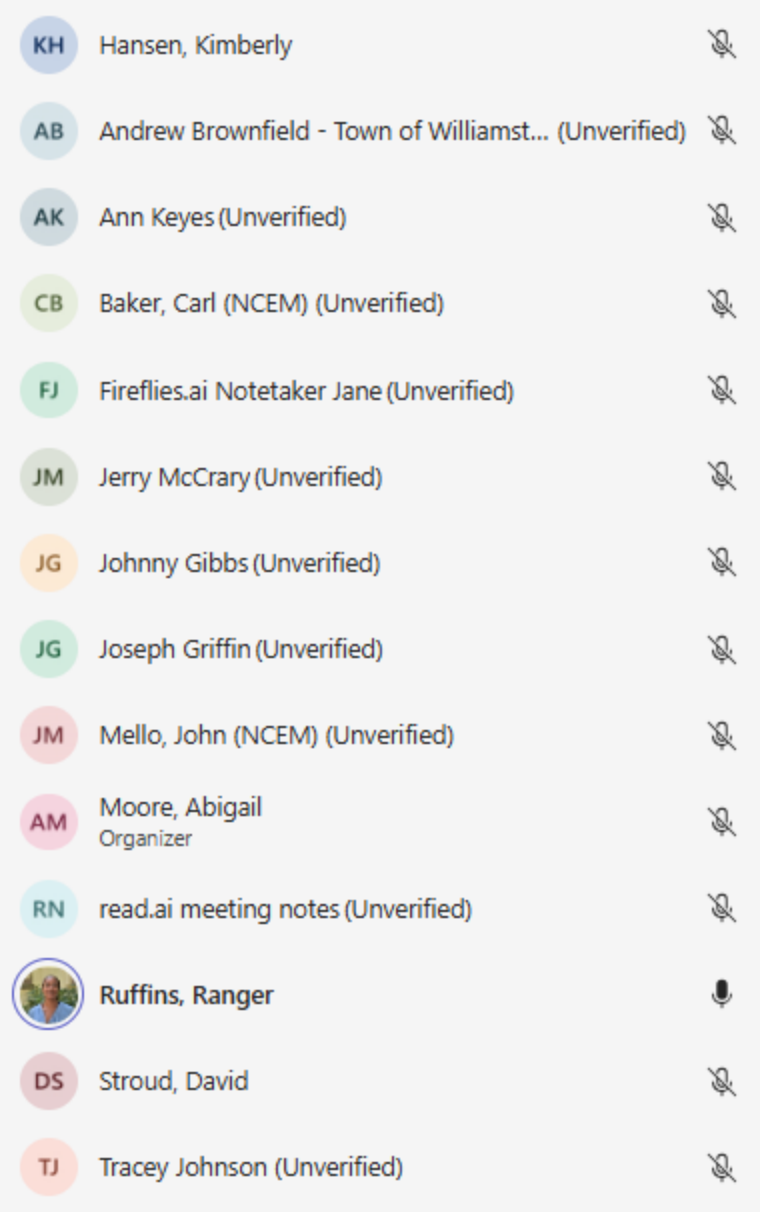
- Ranger explained that every community will need to adopt the plan. A template adoption resolution from NCEM will be provided to all communities. Once NCEM approves the plan, communities can adopt the plan.
- Moving forward, the HMPC should meet quarterly to report on progress toward implementation and monitor funding opportunities and implementation of mitigation actions. At minimum, annual HMPC meetings should be held. The plan will continue to be updated every five years.
- David Stroud emphasized to all communities the importance of considering and submitting all potential mitigation projects for the next five years to avoid the need for future plan amendments, which require additional review by NCEM.

NEXT STEPS

- The HMPC was asked to send any final mitigation actions updates or new actions to Abby by Friday, December 12th. If any community needs extra assistance, they can schedule a call with Abby to review and update their mitigation actions.
- WSP will submit the draft plan to NCEM for review and approval on December 18th.
- A final public meeting is scheduled for December 10th at 5pm following the HMPC meeting. Community staff were asked to advertise the meeting to the public. It will be an in-person meeting held at the Bertie County Library Community Meeting Center.
- Any other draft plan comments should be sent by Thursday, December 18th. Comments will be incorporated into the final approved version of the plan.
- Plan Website: www.NortheasternHMP.com/

DISCUSSION

Tracey Johnson inquired about the inclusion of environmental issues such as PFAS and hydrilla as mitigation actions in the plan update. David Stroud and Carl Baker clarified that such issues are not typically covered under FEMA hazard mitigation plans and may be better addressed through the Department of Environmental Quality.


KH Hansen, Kimberly
AB Andrew Brownfield - Town of Williamst... (Unverified)
AK Ann Keyes (Unverified)
CB Baker, Carl (NCEM) (Unverified)
FJ Fireflies.ai Notetaker Jane (Unverified)
JM Jerry McCrary (Unverified)
JG Johnny Gibbs (Unverified)
JG Joseph Griffin (Unverified)
JM Mello, John (NCEM) (Unverified)
AM Moore, Abigail
Organizer
RN read.ai meeting notes (Unverified)
Ruffins, Ranger
DS Stroud, David
TJ Tracey Johnson (Unverified)

**Northeastern NC Regional Hazard Mitigation Plan**
**Hazard Mitigation Planning Committee – Meeting #4**
**Wednesday, December 10, 2025, 3pm**

| | Name | Jurisdiction | Department/Agency/Organization | Email |
|---|---|---|---|---|
| 1. | Abby Moore | | WSP | abigail.moore@wsp.com |
| 2. | Wesley Hopkins | EM | Tyrrell County | wshopkins@tyrrellcounty.net |
| 3. | Charlotte Griffin | Mayor | Bear Grass → ladybear45@outlook.com | |
| 4. | TRACI WHITE | BERTIE COUNTY | BERTIE COUNTY | traci.white@bertie.nc.gov |
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Page 1

# PLANNING STEP 2: INVOLVE THE PUBLIC

**Table B.2 – Public Meeting Topics, Dates, Locations**

| Meeting Title | Meeting Topic | Meeting Date | Meeting Location |
|---|---|---|---|
| Public Meeting #1 | 1. Introduction to DMA, CRS, and FMA requirements and the planning process<br>2. Review of HMPC responsibilities and the project schedule. | July 15, 2025 5:00 PM | Bertie County Library Community Meeting Center |
| Public Meeting #2 | 1. Review "Draft" Hazard Mitigation Plan<br>2. Solicit comments and feedback | December 10, 2025 5:00 PM | Bertie County Library Community Meeting Center |

# PUBLIC MEETING AGENDAS, MINUTES, SIGN-IN SHEETS, AND ANNOUNCEMENTS

## *PUBLIC MEETING 1: JULY 15, 2025*

### NORTHEASTERN NC REGIONAL HAZARD MITIGATION PLAN UPDATE

PUBLIC MEETING #1

July 15, 2025, 5 pm, Bertie County Library Community Meeting Center

ATTENDANCE

There were seven individuals in attendance:
Traci White, Planning & Inspections Director, Bertie County
James Peele, Mayor, Town of Powellsville
Mary Davis, Resident
Janet Capehart, Resident
Robert Capehart, Resident
Billy Barrow, Bertie Cooperative Extension
Abby Moore, WSP

AGENDA

- Why Plan?
- Project Overview
- Planning Process
- Project Schedule
- Next Steps
- Q & A

WHY PLAN?

Abby began the presentation with why we plan in the first place. She discussed the Disaster Mitigation Act (DMA) of 2000, which is codified in 44 CFR 201.6 and requires local government to update their hazard mitigation plans every five years to be eligible for pre- and post-disaster grant funding through FEMA's Hazard Mitigation Assistance programs. Mitigation funding available through FEMA includes the Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA) program. Abby noted that every community in the state is eligible for HMGP funding whenever a disaster is declared in the state of North Carolina, even if it does not directly impact your community, as there is often funding left over after projects have been completed in affected areas.

Other reasons to plan are to understand changings risks and to increase community resilience. Abby reviewed trends in disasters that support the need for mitigation planning. In FY2024 there were 27 billion-dollar disasters. There's an increasing trend in recent years in the number of billion-dollar disasters. This may be in part because we now have more frequent and intense hazard events and greater exposure to risk (people, property and critical infrastructure). Abby explained that hazard mitigation is a priority for multiple reasons, including that the cost of doing nothing is too high, many events are predictable and repetitive, loss reduction can be effective, cost-beneficial, and environmentally-sound, there are legal and moral responsibilities to prevent disasters, and there are federal funds available to support mitigation. The average benefit-cost ratio (BCR) for federally funded projects is 6:1 and is even higher for flood mitigation.

Abby explained that mitigation is a sustained or permanent action taken to reduce or eliminate long-term risk to people and/or property. Mitigation helps to break the damage/rebuild cycle. Basic approaches to mitigation include altering the hazard, averting the hazard, adapting to the hazard, or avoiding the hazard.

## PROJECT OVERVIEW

Abby explained that we must follow the DMA planning process and will integrate Community Rating System (CRS) Activity 510 planning steps into the DMA four-phase planning process to meet the requirements of both programs. The DMA process provides continued eligibility for mitigation funding and guides mitigation activities in a coordinated and economical manner. The CRS program is flood specific and provides flood insurance policy holders in participating communities with discounts based on the number of CRS points their communities earn. Hyde County, Town of Creswell, Town of Plymouth, Town of Roper, and Washington County participate in the CRS program. Overall, the WSP planning team will ensure that the updated hazard mitigation plan meets all FEMA planning requirements.

## PLANNING PROCESS

### PHASE 1

Abby described the planning process in more detail. Phase 1, organize resources, is already underway. The HMPC has been reconvened, and new staff members and stakeholders were identified for involvement. Someone asked if the committee was already established; Abby clarified that the committee is established and already held their first meeting, but additional resident or stakeholder members can still join the committee and participate in the remaining meetings. Abby answered another question to clarify that the participants in the plan are the county and municipal jurisdictions in the region, which includes Bertie, Hyde, Martin, Tyrrell, and Washington Counties and their incorporated municipalities.

The HMPC will meet four times to provide input on risk and capability, update mitigation actions, and review plan drafts. HMPC meetings are open to the public, but there will also be two public meetings, this meeting and a meeting at the end of the planning process to review the draft plan.

It will also be important to involve stakeholders in the planning process in other ways. WSP will reach out to stakeholders to solicit input on the plan and is seeking suggestions on stakeholder to contact.

### PHASE 2: ASSESS RISKS

Phase 2 covers the risk assessment, which includes the hazard identification and the vulnerability assessment. All of the hazards that were addressed in the previous plan will be carried over into this plan update. The identified hazards are as follows: Coastal Erosion, Dam & Levee Failure, Drought, Earthquake, Extreme Heat, Flood, Hurricane & Tropical Storm, Severe Weather, Severe Winter Storm, Tornado, Wildfire. The HMPC also decided to add hazardous substances to the plan update. Abby also explained that the hazards groupings and nomenclature will be updated to align with the State Hazard Mitigation Plan.

To conduct the vulnerability assessment, NCEM iRisk data will be used to provide loss estimates for several hazards. Additional qualitative, quantitative, and spatial analysis will be used as appropriate.

### PHASE 3: DEVELOP A MITIGATION STRATEGY

Phase 3 involves developing a mitigation strategy by reviewing and updating the plan goals and objectives, evaluating mitigation alternatives including existing and new projects, and drafting an action plan with prioritized projects. The action plan will identify criteria to support monitoring and implementation, including the responsible department or agency, timeline for completion, and potential funding sources.

## PHASE 4: ADOPTION AND IMPLEMENTATION

Phase 4 is where the communities must adopt and implement the plan. Each of the participating jurisdictions must adopt the plan by resolution and the committee will meet at least annually to review the action plan and look for funding and opportunities to implement projects. The plan will continue to be updated every five years.

### PROJECT SCHEDULE

Abby presented the schedule for the planning process. The HMPC will meet again in September and November. The final public meeting will be held in December. The plan must be approved by NCEM and FEMA and adopted by all communities before the current plan expires in April 2026.

### NEXT STEPS

Abby discussed opportunities for the public to stay involved in the plan update, including attending the public meetings, responding to the public survey, and reviewing meetings materials and draft documents on the plan website (https://www.NortheasternHMP.com).

WSP is working on the risk and vulnerability assessment update and responses to the public survey will be extremely helpful in identifying local risks and vulnerabilities as well as local priorities for mitigation.

**Northeastern NC Regional Hazard Mitigation Plan**
**Public Meeting #1**
**Tuesday, July 15th, 5:00 PM**

| | Name | Agency/Organization/Affiliation | Email |
|---|---|---|---|
| 1. | Mary Davis | Resident | MARYjearydavis@gmail.com |
| 2. | James Poole | Town of Powellsville | Administrator@powellsville.net |
| 3. | Janet Copeland | Resident | janetc229@gmail.com |
| 4. | Robert Copeland | | |
| 5. | TRACI WHITE | BERTIE COUNTY PLANNING DEPT | traci.white@bertie.nc.gov |
| 6. | Billy Barrow | Bertie Coop Extension | wbarrow@ncsu.edu |
| 7. | Abby Moore | WSP | abigail.moore@wsp.com |
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## PUBLIC MEETING 2: DECEMBER 10, 2025

# NORTHEASTERN NC REGIONAL HAZARD MITIGATION PLAN UPDATE

### PUBLIC MEETING #2

December 10, 2025, 5pm, Bertie County Library Community Meeting Center

### ATTENDANCE

There were two attendees:

Mary Davis
Abby Moore, WSP

### AGENDA

- Planning Process Update
- Structure of the Plan
- Review of Key Plan Components
  - Planning Process
  - Risk Assessment
  - Mitigation Strategy
- Plan Adoption & Implementation
- Next Steps
- Discussion/Feedback on Draft Plan

### PLANNING PROCESS UPDATE

Abby reviewed the planning process that was followed for the plan update, which is four phases as outlined by FEMA's local mitigation planning guidance.

### STRUCTURE OF THE PLAN

Abby provided an overview of the structure of the draft plan including a summary of each section of the plan, as follows.

- **Section 1: Introduction** provides background information on the plan, including context and justification for planning and the scope of the plan.
- **Section 2: Planning Process** summarizes how the planning process was conducted and how all planning requirements were met, including how the communities, public, and stakeholders were involved in the plan. This section also documents implementation progress of the last plan in terms of completed and deleted mitigation actions.
- **Section 3: Planning Area Profile** for summary information on the region and participating communities, including geographic, climate, demographic, and economic characteristics of the region.
- **Section 4: Risk Assessment** contains the bulk of the plan. This section presents the hazard identification and profiles each hazard with information on the location at risk, past occurrences, probability of future occurrence, and vulnerability of people, property, and critical facilities.
- **Section 5: Capability Assessment** summarizes each community's existing tools, staff, and other resources that can support the implementation of mitigation projects.

- **Section 6: Mitigation Strategy** reviews the goals and objectives of the plan and details how mitigation actions were identified and prioritized. David explained that existing mitigation actions from the previous plan were reviewed, and project status updates are reported in the plan. Some projects were carried forward. The HMPC also reviewed new mitigation projects to include in this plan update.
- **Section 7: Mitigation Action Plans** presents the action plan tables for each community.
- **Section 8: Plan Maintenance** describes past plan integration, opportunities for future plan integration, and the process for regular monitoring, maintenance, and implementation of the plan, including ongoing responsibilities of the HMPC.
- **Section 9: Plan Adoption** will document each community's adoption of the plan update.
- **Annexes** are provided for each participating community. The annexes provide an asset inventory with a full critical facility list, risk assessment data with vulnerability assessment results specific to the community for spatially defined hazards, and the mitigation action plan.
- **Appendix A** provides the Local Mitigation Plan Review Tool, which documents for the plan reviewers where the planning requirements were met.
- **Appendix B** provides planning process documentation demonstrating how the HMPC, public, and stakeholders were involved and engaged in the planning process.
- **Appendix C** provides mitigation alternatives analysis, documenting the review of mitigation action options, which is important for the CRS program planning requirements.
- **Appendix D** lists data and resources that were referenced in the plan.

KEY PLAN COMPONENTS

Abby reviewed key parts of the planning process, including committee and public meetings, public outreach efforts, and the public survey results. Abby also highlighted the findings from the risk assessment, the updated goals and objectives, and the format of the mitigation action plans.

PLAN ADOPTION AND IMPLEMENTATION

Abby explained that every community will need to adopt the plan. The HMPC meet at least annually to report on progress toward implementation and monitor funding opportunities and implementation of mitigation actions. The plan will continue to be updated every five years.

NEXT STEPS

Abby asked that any comments on the draft plan be submitted to her via email or via the plan website by December 18th. WSP will submit the draft plan to NCEM for review and approval on December 18th.

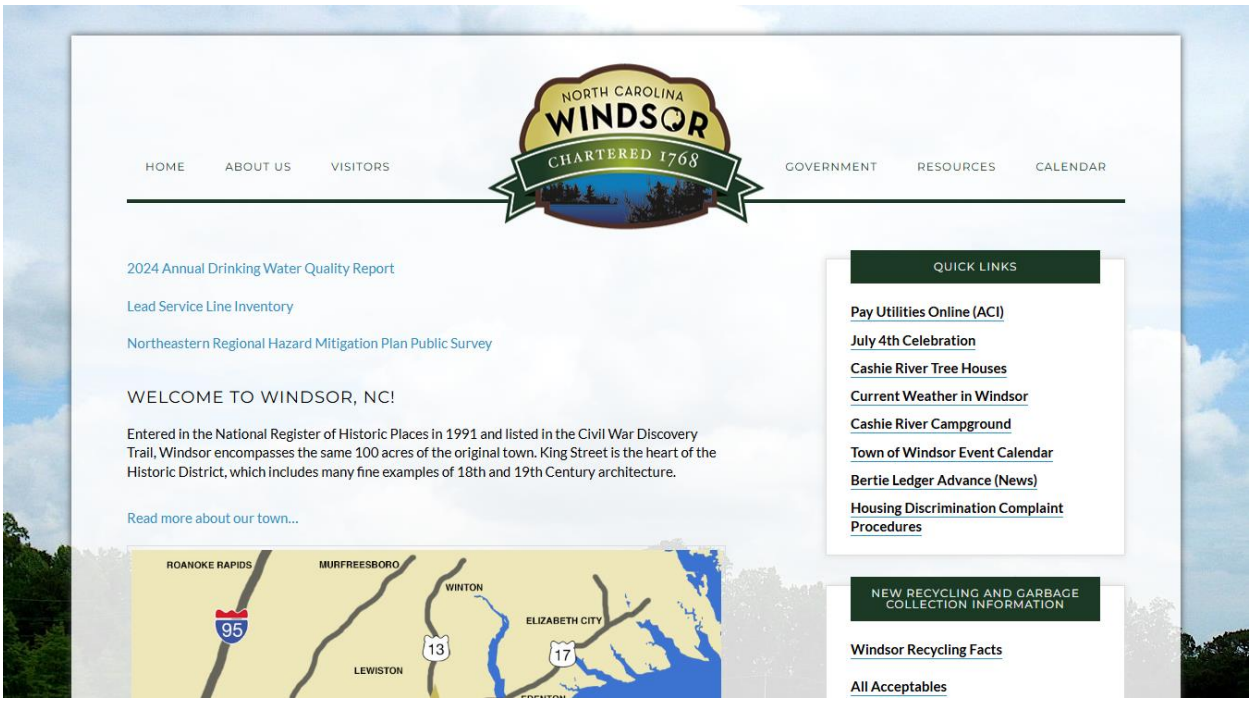
The plan website is: www.NortheasternHMP.com/

**Northeastern NC Regional Hazard Mitigation Plan**
**Public Meeting #2**
**Wednesday, December 10th, 5:00 PM**

| | Name | Agency/Organization/Affiliation | Email |
|---|---|---|---|
| 1. | Abby Moore | WSP | abigail.moore@wsp.com |
| 2. | Mary Davis | Community Member | MARYlearyDAVIS@gmail.com |
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Page 1

## *PUBLIC MEETING 1 OUTREACH*




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2 comments
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Town of Windsor, NC
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The Northeastern NC Regional Hazard Mitigation Plan update is underway, and we need your input! Join us at the Bertie County Library Community Meeting Center (102 Lancaster Ave, Windsor, NC) for a public meeting on July 15th at 5pm. At this meeting you can learn about the plan update process, review the identified hazards, and provide your input to the planning team.
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Survey link:
forms.office.com
forms.office.com
Boost this post to get more reach for Town of Windsor, NC.
Boost post
Like
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Copy
Share

# Public Notice

**Northeastern NC Regional Hazard Mitigation Plan**

**Public Kickoff Meeting**

Bertie, Hyde, Martin, Tyrrell, and Washington Counties and their incorporated communities are updating the Northeastern NC Regional Hazard Mitigation Plan and are seeking public input on changes in risks, vulnerabilities, and opportunities for mitigation. To learn about the plan update process, review the identified hazards, and provide your input to the planning team, join us for a public meeting on:

**Tuesday, July 15th, 2025 at 5:00 p.m. at the**
**Bertie County Library Community Meeting Center**
**(102 Lancaster Ave, Windsor, NC)**

This plan update is required for all communities to maintain eligibility for pre- and post-disaster mitigation funding from FEMA. This effort will also help our communities understand vulnerability and develop ways to proactively reduce risk.

If you are unable to attend the public meeting but still want to be involved in the planning process, please take a few minutes to complete a brief public survey to provide your input on hazard risks and mitigation options. Click here or scan the QR code for the survey. Public input is critical to the planning process.

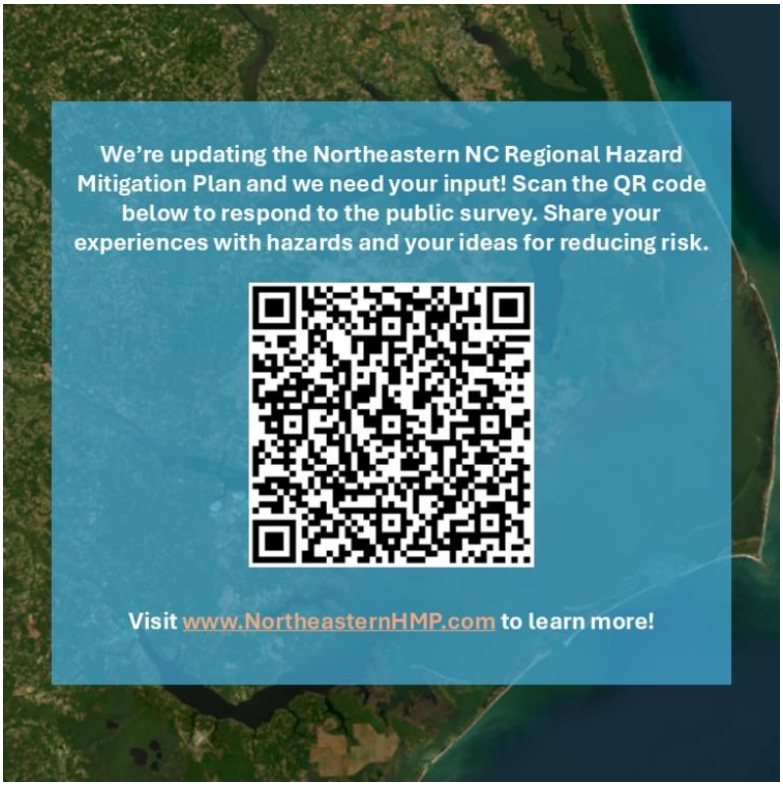
## *PUBLIC MEETING 2 OUTREACH*

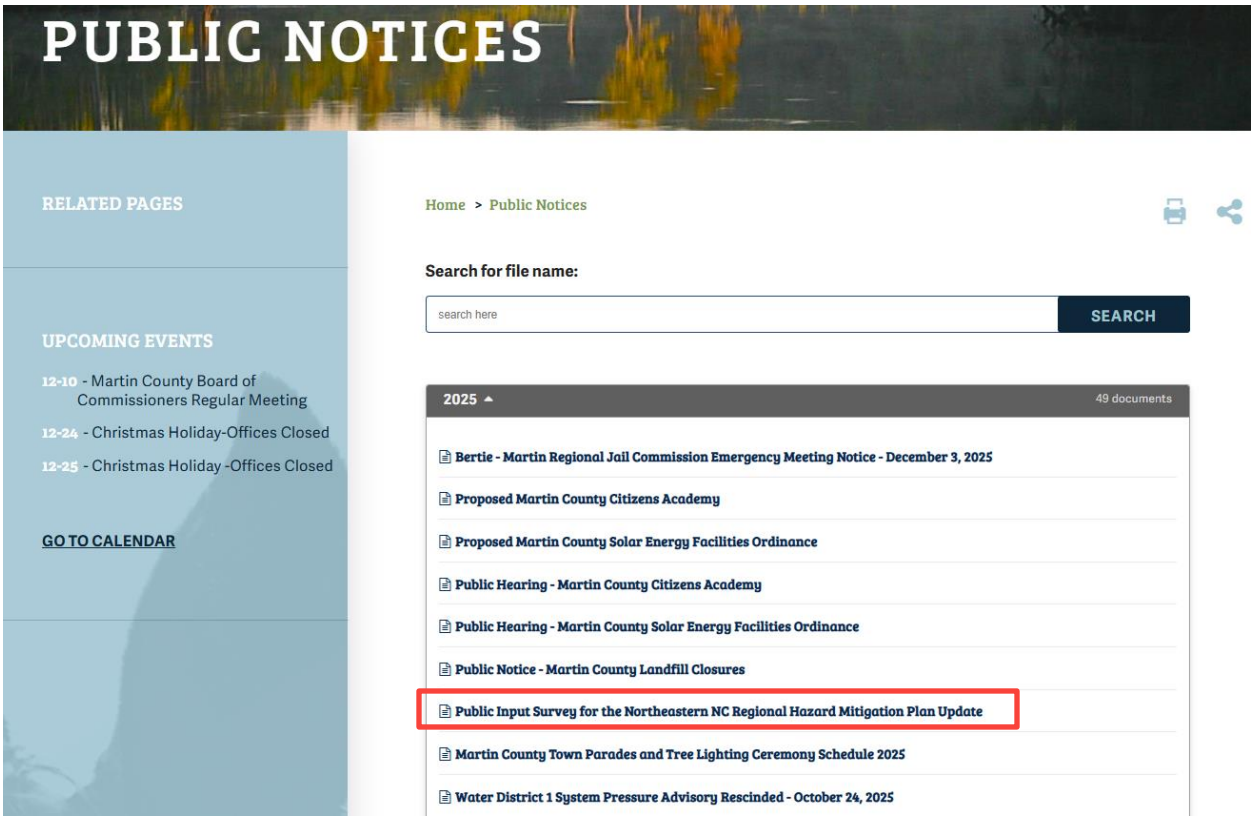



Washington County, NC
November 24 at 2:32 PM
PUBLIC MEETING
The Northeastern NC Regional Hazard Mitigation Plan update is nearly complete!
Join us on Dec. 10th at 5pm at the Bertie County Library Community Meeting Center in Windsor for a public meeting to learn about the updated plan, review mitigation measures, and provide feedback to the planning team.
Visit www.NortheasternHMP.com to learn more!
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Comment as Olivia Ranseen

## PUBLIC SURVEY & OUTREACH

The Northeastern NC region distributed a public survey, shown below, that requested public input into the Hazard Mitigation Plan planning process and the identification of mitigation activities that could lessen the risk and impact of future flood hazard events. The survey was announced at the first public meeting, provided via a link on participating jurisdictions web and social media accounts, and made available online on the plan website.





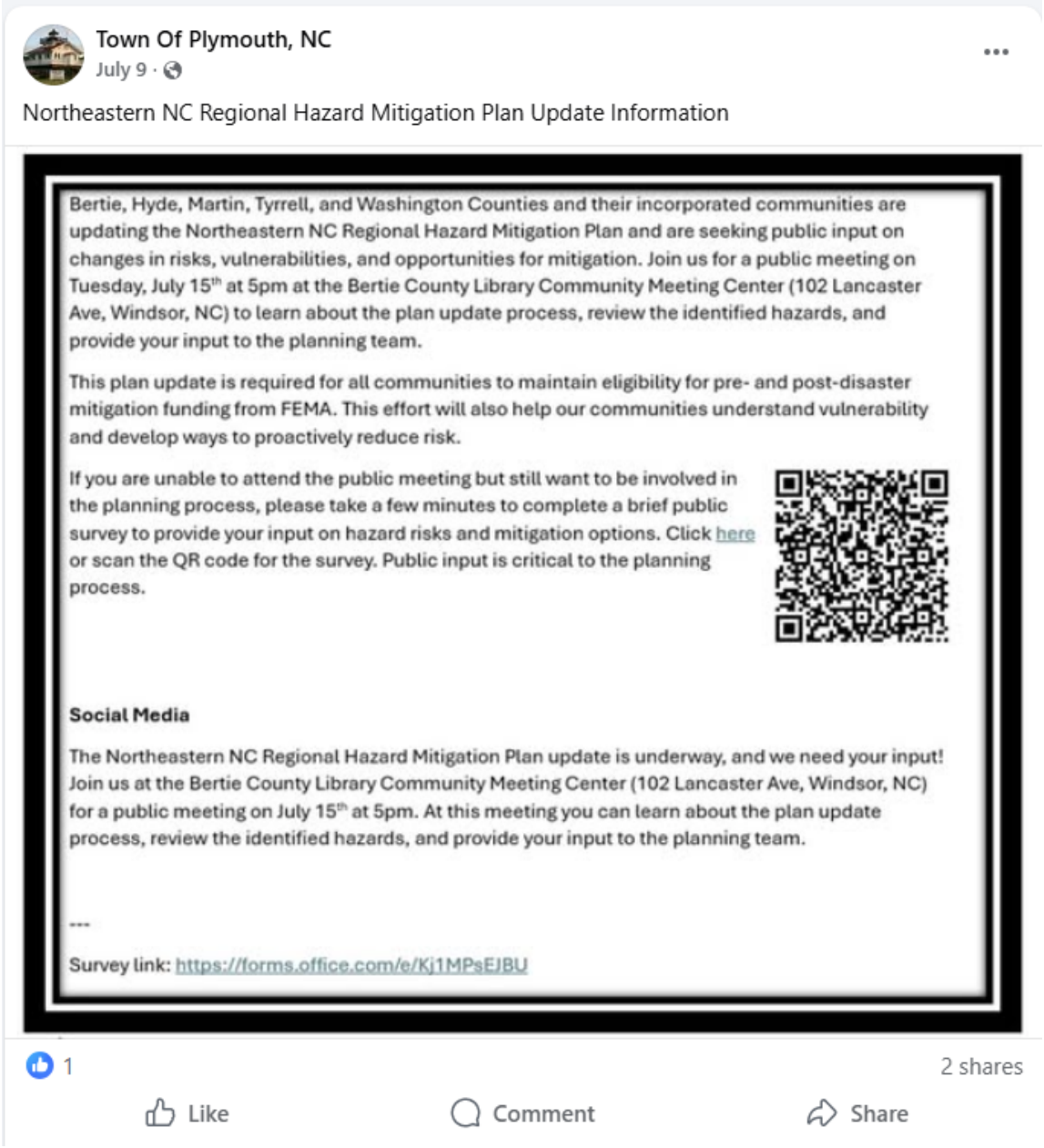

**Public Input Survey for the Northeastern NC Regional Hazard Mitigation Plan Update**

Bertie, Hyde, Martin, Tyrrell, and Washington Counties and their incorporated communities are updating the Northeastern NC Regional Hazard Mitigation Plan and are seeking public input on changes in risks, vulnerabilities, and opportunities for mitigation. This plan update is required for all communities to maintain eligibility for pre- and post-disaster mitigation funding from FEMA. This effort will also help our communities to understand vulnerability and develop ways to proactively reduce risk.

Public input is critical to the planning process. Please take a few minutes to complete a brief public survey to provide your input on hazard risks and mitigation options. Click here or scan the QR code for the survey.

For more information about the plan update, visit the project website at www.NortheasternHMP.com. On this site you will find information about upcoming and past Hazard Mitigation Planning Committee meetings and public meetings, a link for the public survey, draft documents, and other mitigation planning resources.

Survey link: https://forms.office.com/e/Kj1MPsEJBU



Town Of Plymouth, NC
July 9 ·

Northeastern NC Regional Hazard Mitigation Plan Update Information

Bertie, Hyde, Martin, Tyrrell, and Washington Counties and their incorporated communities are updating the Northeastern NC Regional Hazard Mitigation Plan and are seeking public input on changes in risks, vulnerabilities, and opportunities for mitigation. Join us for a public meeting on Tuesday, July 15th at 5pm at the Bertie County Library Community Meeting Center (102 Lancaster Ave, Windsor, NC) to learn about the plan update process, review the identified hazards, and provide your input to the planning team.

This plan update is required for all communities to maintain eligibility for pre- and post-disaster mitigation funding from FEMA. This effort will also help our communities understand vulnerability and develop ways to proactively reduce risk.

If you are unable to attend the public meeting but still want to be involved in the planning process, please take a few minutes to complete a brief public survey to provide your input on hazard risks and mitigation options. Click here or scan the QR code for the survey. Public input is critical to the planning process.

**Social Media**

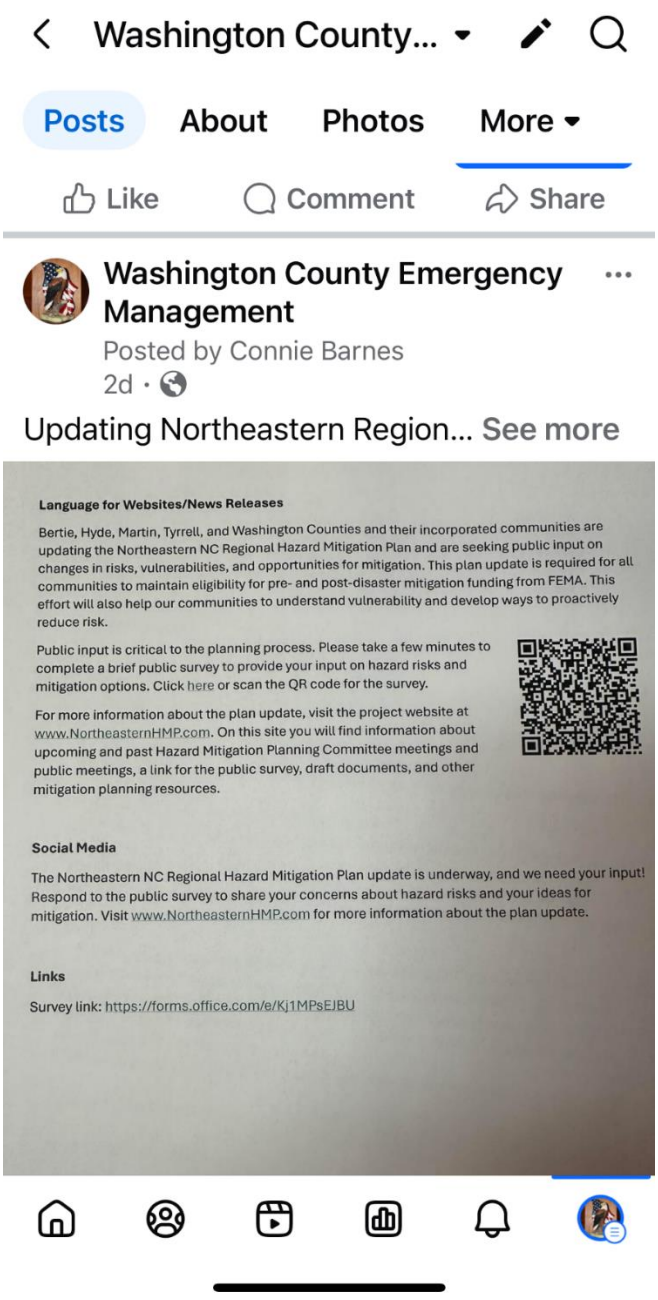
The Northeastern NC Regional Hazard Mitigation Plan update is underway, and we need your input! Join us at the Bertie County Library Community Meeting Center (102 Lancaster Ave, Windsor, NC) for a public meeting on July 15th at 5pm. At this meeting you can learn about the plan update process, review the identified hazards, and provide your input to the planning team.

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Survey link: https://forms.office.com/e/Kj1MPsEJBU

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Washington County Emergency Management
Posted by Connie Barnes
2d
Updating Northeastern Region... See more
Language for Websites/News Releases
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Social Media
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Links
Survey link: https://forms.office.com/e/Kj1MPsEJBU

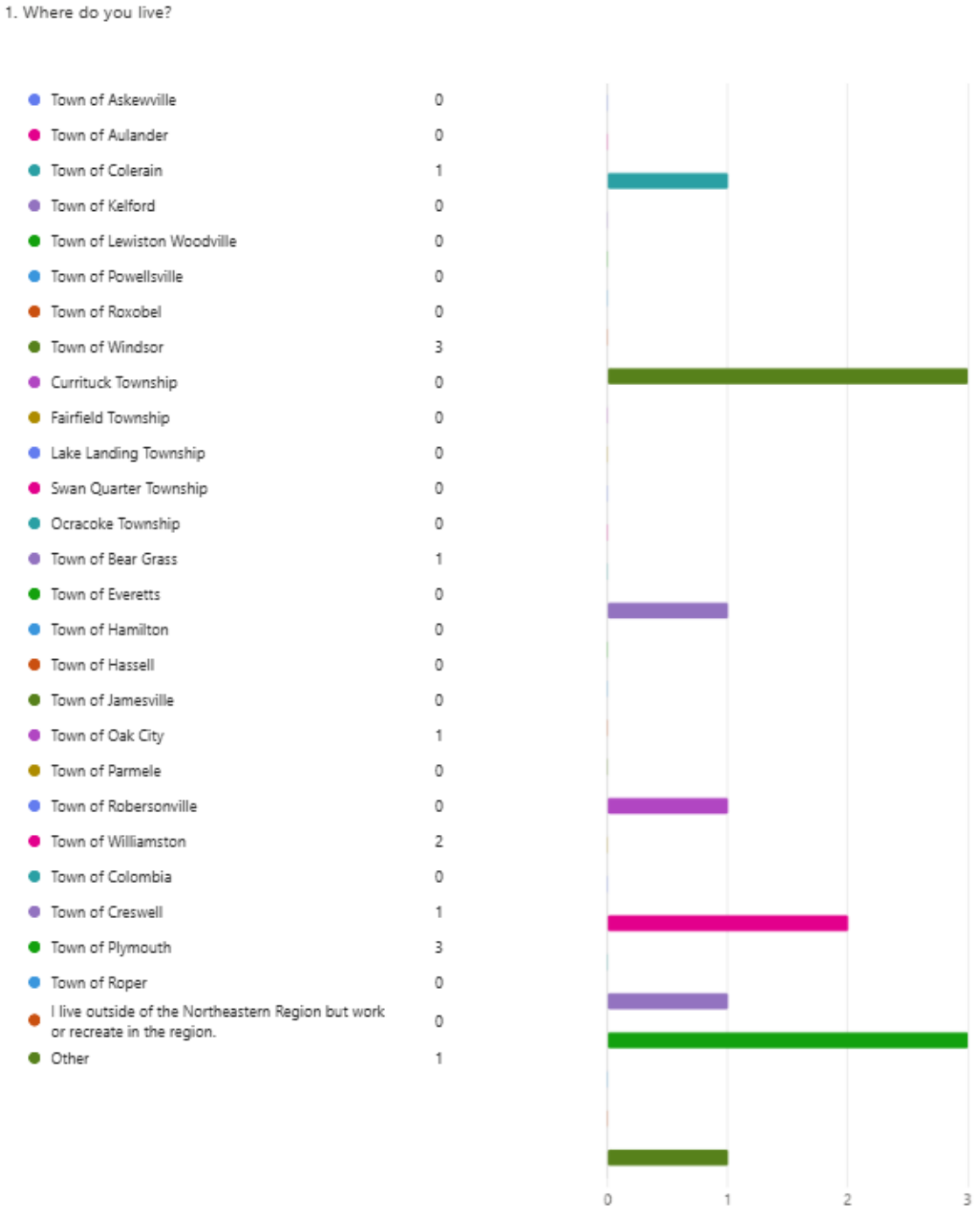
The Region received 13 responses to the survey. The following bullet points summarize significant findings from the survey. Key questions and responses are detailed in 3 responses were from Williamston, 3 from Windsor, 3 from Plymouth, and 1 each from Colerain, Oak City, Bear Grass, Creswell, and Merry Hill.

- 69% (9) of respondents reported that they had been impacted by a hazard in the Northeastern Region.
- On average, survey respondents ranked their concern about hazards impacting their community as 3.46 on a 1–5 scale.
- Hurricane & Tropical Storm was rated the most significant hazard, followed by Flood, Severe Weather, and Tornado. Dam & Levee Failure and Earthquake were consistently rated as the least significant hazards.
- 15% (2) of respondents said their homes are located in floodplains, while 23% (3) reported experiencing flooding despite living outside the floodplain. 23% (3) of respondents reported having flood insurance.
- 46% (6) of respondents reported taking steps to mitigate risk at home or in their neighborhood (examples included generators, roof/window replacement, tree maintenance, and coastal mitigation).
- 62% (8) of respondents do not know which government office to contact to learn more about hazard risks.
- Respondents favored emergency services, prevention, and property protection as the most important mitigation actions.

through Figure B.7.

- 3 responses were from Williamston, 3 from Windsor, 3 from Plymouth, and 1 each from Colerain, Oak City, Bear Grass, Creswell, and Merry Hill.
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- 62% (8) of respondents do not know which government office to contact to learn more about hazard risks.
- Respondents favored emergency services, prevention, and property protection as the most important mitigation actions.

## Figure B.1 – Survey Response, Community of Residence



## Figure B.2 – Survey Response, Disaster Impact

2. Have you ever experienced or been impacted by a hazard or disaster in the Northeastern Region?




## Figure B.3 – Survey Response, Disaster Impact Explanation

3. If you answered "Yes" to question 2, please explain your experience and where it occurred.

More details

9
Responses

Latest Responses
"Hurricane Isabel and numerous Nor'easters along the Chowan River"
"Hurricane"
...

9 respondents (100%) answered Hurricanes for this question.



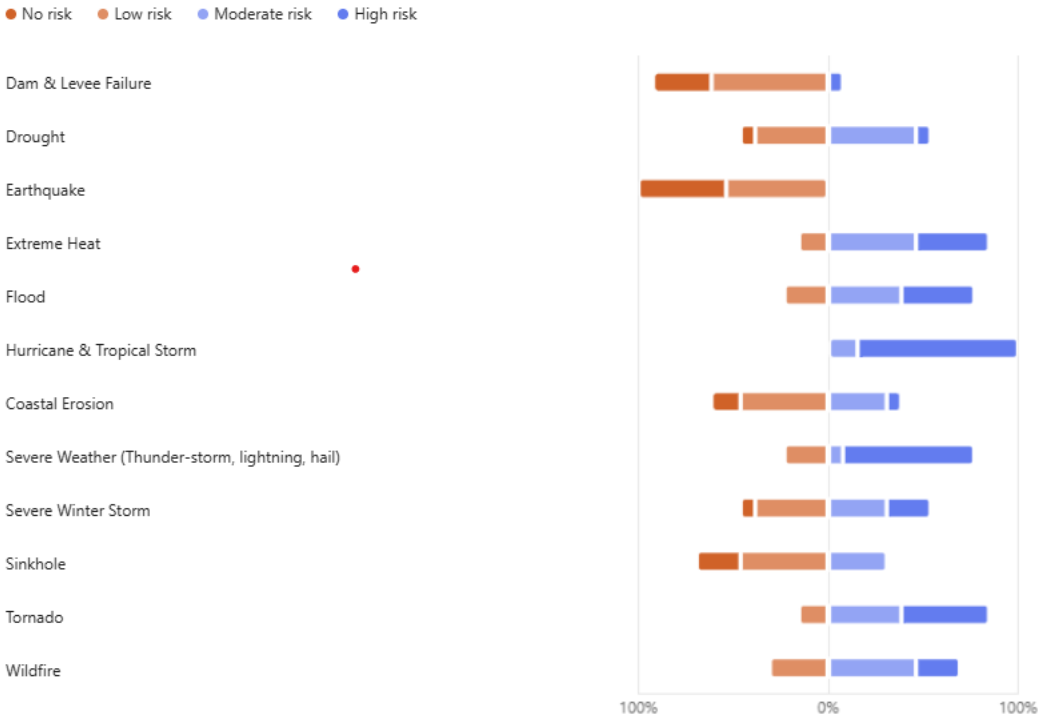
## Figure B.4 – Survey Response, Hazard Concern

4. On a scale of 1-5, how concerned are you about the possibility of your community being impacted by a hazard event?




## Figure B.5 – Survey Response, Hazard Significance Ratings

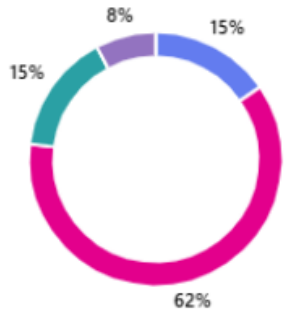
5. Please review the list of hazards below and rate each hazard based on how much risk you think it poses to your community.



## Figure B.6 – Survey Response, Floodplain Vulnerability

6. Is your home located in a floodplain?

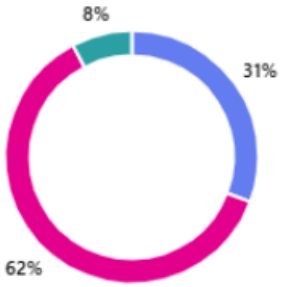
| | |
|---|---|
| Yes | 2 |
| No | 8 |
| No, but I still experience flooding | 2 |
| I don't know | 1 |




## Figure B.7 – Survey Response, Flood Insurance

7. Do you have flood insurance for your home and/or personal property?

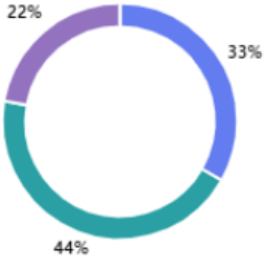
| | |
|---|---|
| Yes | 4 |
| No | 8 |
| I don't know | 1 |




## Figure B.8 – Survey Response, Lack of Flood Insurance

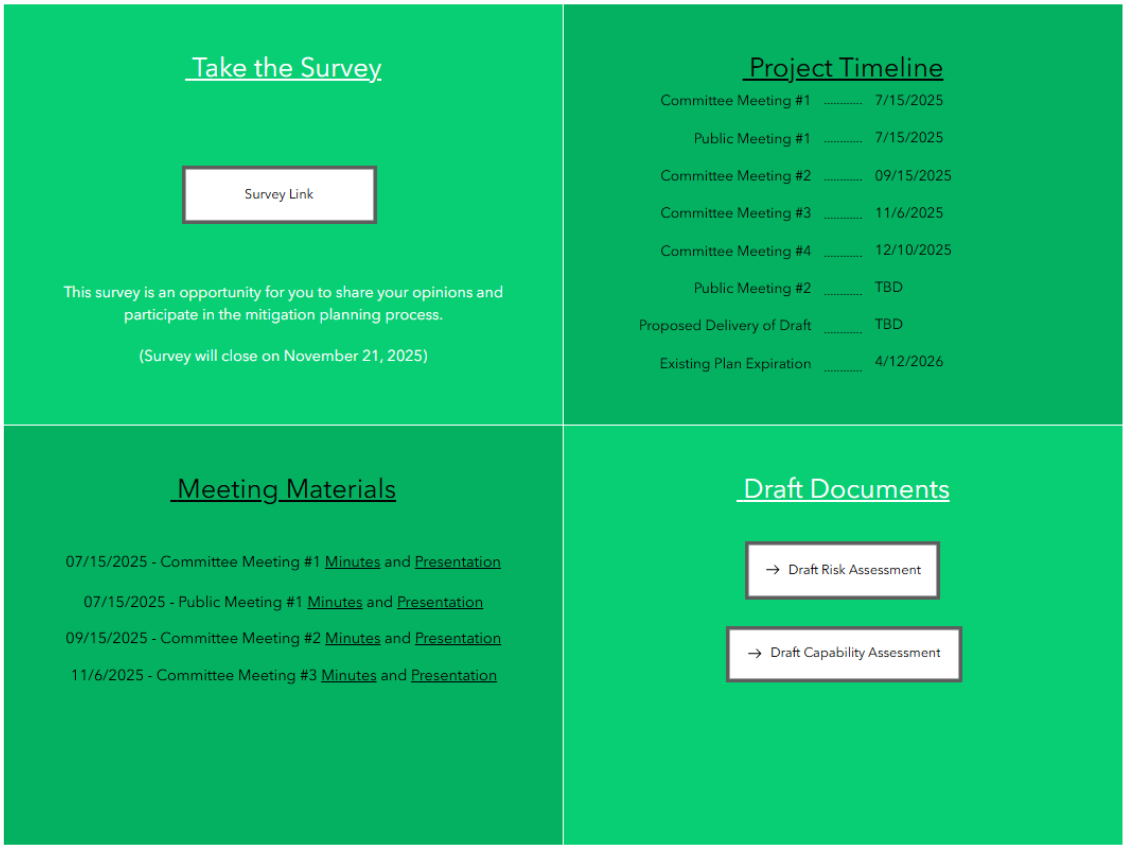
8. If you do NOT have flood insurance, what is the reason?

| | |
|---|---|
| It's too expensive | 3 |
| I never really considered it | 0 |
| I don't need it because my home is elevated or otherwise protected | 4 |
| Other | 2 |



## *PLAN WEBSITE OUTREACH & DRAFT DOCUMENTS*



# PLANNING STEP 3: COORDINATE

This planning step credits the incorporation of other plans and other agencies' efforts into the development of the Hazard Mitigation Plan. Other agencies and organizations must be contacted to determine if they have studies, plans and information pertinent to the Hazard Mitigation Plan, to determine if their programs or initiatives may affect the community's program, and to see if they could support the community's efforts. To incorporate stakeholder input into the plan, a variety of stakeholders were identified by the HMPC and sent an email inviting them to attend a public meeting, review the draft plan, and provide feedback and comments. The coordination letter sent via email is provided below. A list of stakeholders detailing their involvement is provided in Table B.3.

Stakeholders were also involved through specific requests for data to support the development of the plan.

**Moore, Abigail**

**From:** Moore, Abigail
**Sent:** Wednesday, December 10, 2025 2:46 PM
**Subject:** Northeastern NC Regional Hazard Mitigation Plan Stakeholder Notice

Good afternoon,

Bertie, Hyde, Martin, Tyrrell, and Washington Counties and their incorporated jurisdictions have updated the Northeastern NC Regional Hazard Mitigation Plan and are seeking stakeholder input on the draft plan. You are receiving this email because the plan participants identified you as a stakeholder of this plan. This plan update is required for all communities to maintain eligibility for pre- and post-disaster mitigation funding from FEMA, and it will also help the participating communities to understand vulnerabilities and proactively mitigate risk.

To learn more about the plan update and to review the draft plan, please visit www.NortheasternHMP.com. If you would like to share any information or feedback that might be relevant to the plan and local mitigation efforts, please send it to me at abigail.moore@wsp.com by Thursday, December 18, 2025 or submit your comments via the plan website.

We appreciate any input you may wish to share and thank you for your assistance with this planning effort!

**Abby Moore, AICP, CFM**
Hazard Mitigation & Resilience Planner
*She/Her*

T +1 919-767-1112

**WSP**
4021 Stirrup Creek Drive, Suite 100
Durham, NC 27703

**wsp.com**



### Table B.3 – Stakeholder List

| First Name | Last Name | Organization |
|---|---|---|
| *Non-Profit Organizations* | | |
| Tammy | Forrester | American Red Cross, Northeastern North Carolina Chapter, Executive Director |
| Bill | Blake | Albemarle Area United Way |
| *Educational Institutions* | | |
| Dr. Otis | Smallwood | Bertie County Schools, Superintendent |
| Dr. Michelle | White | Martin County Schools, Superintendent |
| Dr. David | White | Washington County Schools, Superintendent |
| Ms. Brianna | Williams | Tyrrell County Schools, Superintendent |
| Dr. Melanie | Shaver | Hyde County Schools, Superintendent |
| Tabitha | Miller | Martin Community College, President |
| *Surrounding Municipalities* | | |
| Drew | Pearson | Dare County Emergency Management, Director |
| Chris | Newkirk | Beaufort County Emergency Management, Planning & Mitigation Specialist |
| Jonas | Hill | Pitt County Planning Director |
| Daniel | Webb | Edgecombe County Emergency Services, Director |
| James | Ellen | Halifax County Emergency Services, Director |
| Tony | Burnette | Northampton Emergency Management Coordinator |
| Patrick | Dilday | Hertford County Emergency Management, Director |
| Robert | Daniel | Chowan County Planning Department, Director |
| *Federal Government* | | |
| Jason | Hunter | FEMA Region 4, Chief, Floodplain Management & Insurance Branch |
| Valerie | Anderson | FEMA Region 4, Natural Hazards Program Specialist |
| Dewana | Davis | FEMA Region 4, Insurance Specialist |
| Roy | McClure | FEMA NFIP/CRS Specialist |
| Kymberly | Kudla | FEMA Mitigation Planning Specialist |
| David | Holcomb | ISO/CRS Specialist |
| Mike | Bratcher | ISO/CRS Specialist |
| Katherine | Smith | USGS Climate Adaptation Science Center |
| *State Government* | | |
| Steve | Garrett | State NFIP Coordinator |
| Steve | McGugan | State Hazard Mitigation Officer |
| Linda | Culpepper | DEQ Division of Water Resources, Director |
| C.W. "Win" | Bridgers | NCDOT Division 1, Division Engineer |
| Hannah | Thompson-Welch | NC Forest Service, Wildfire Mitigation Specialist |
| *Business Community* | | |
| April | Cooper | Martin County Chamber of Commerce, Executive Director |
| | | Washington County Chamber of Commerce |
| Lewis | Hoggard | Windsor Bertie Chamber of Commerce, Director |
| | | Hyde County Chamber of Commerce, President |

# APPENDIX C MITIGATION ALTERNATIVES

**44 CFR Subsection D §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 buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.**

As part of the process of developing the mitigation action plans found in Section 7, the HMPC reviewed and considered a comprehensive range of mitigation options before selecting the actions identified for implementation. This section summarizes the full range of mitigation measures evaluated and considered by the HMPC, including a review of the categories of mitigation measures outlined in the 2017 CRS Coordinator's Manual, a discussion of current local implementation and CRS credits earned for those measures, and a list of the specific mitigation projects considered and recommended for implementation.

Mitigation alternatives identified for implementation by the HMPC were evaluated and prioritized using the criteria discussed in Section 6 of this plan.

## C.1 CATEGORIES OF MITIGATION MEASURES CONSIDERED

The HMPC analyzed viable mitigation options that addressed each of the identified hazards and supported the identified goals and objectives. As part of the review of mitigation alternatives, the HMPC was provided with the following list of mitigation categories which are utilized as part of the CRS planning process.

- Prevention
- Property Protection
- Natural Resource Protection
- Structural Projects
- Emergency Services
- Public Information and Outreach

Action ideas within each of these categories were discussed and considered for inclusion in the plan. The HMPC was encouraged to select actions to pursue within most if not all of these categories so as to develop a comprehensive approach to hazard mitigation.

## C.2 ALTERNATIVE MITIGATION MEASURES PER CATEGORY

This section presents a summary review of the mitigation measures that were considered by the HMPC. Note: the CRS credit recommendations are based on the 2017 CRS Coordinator's Manual and the 2021 Addendum.

## C.2.1 PREVENTATIVE AND REGULATORY MEASURES

Preventative measures are designed to keep a problem—such as flooding—from occurring or from getting worse. The objective of preventative measures is to ensure that future development is not exposed to damage and does not cause an increase in damages to other properties. Building, zoning, planning and code enforcement offices usually administer preventative measures. Some examples of types of preventative measures include:

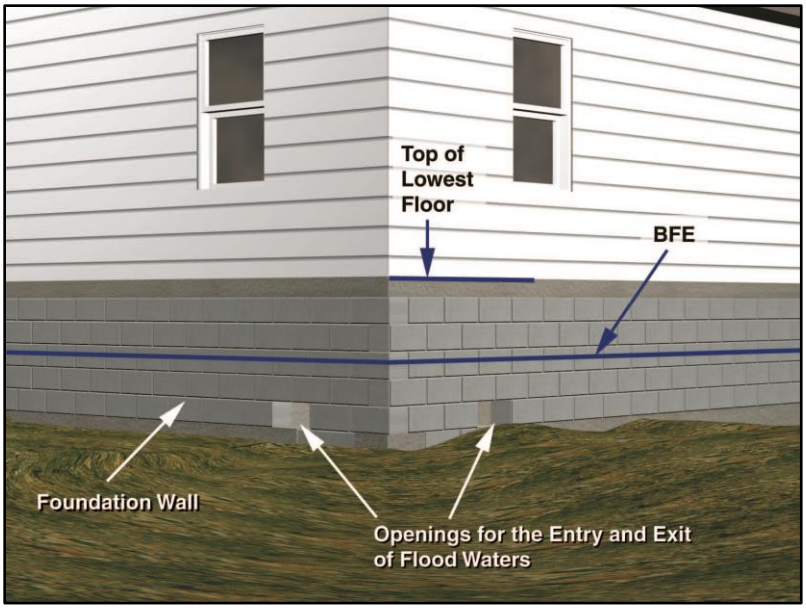
- Building codes
- Zoning ordinance
- Comprehensive or land use plan
- Open space preservation
- Floodplain regulations
- Subdivision regulations
- Stormwater management regulations

### BUILDING CODES

Building codes provide one of the best methods for addressing natural hazards. When properly designed and constructed according to code, the average building can withstand many of the impacts of natural hazards. Hazard protection standards for all new and improved or repaired buildings can be incorporated into the local building code. Building codes can ensure that the first floors of new buildings are constructed to be higher than the elevation of the 100-year flood (the flood that is expected to have a one percent chance of occurring in any given year). This is shown in Figure B.1.

Just as important as having code standards is the enforcement of the code. Adequate inspections are needed during the course of construction to ensure that the builder understands the requirements and is following them. Making sure a structure is properly elevated and anchored requires site inspections at each step.

**Figure C.1 – Building Codes and Flood Elevations**




Source: FEMA Publication: *Above the Flood: Elevating Your Floodprone House, 2000*

ASCE 24 is a referenced standard in the International Building Code. Any building or structure that falls within the scope of the IBC that is proposed in a flood hazard area is to be designed in accordance with ASCE 24. Freeboard is required as a function of the nature of occupancy and the flood zone. Dwellings and most other buildings have 1-foot of freeboard; certain essential facilities have 2-3 feet; only agricultural facilities, temporary facilities and minor storage facilities are allowed to have their lowest floors at the BFE.

## COMPREHENSIVE OR LAND USE PLAN

Building codes provide guidance on how to build in hazardous areas. Planning and zoning activities direct development away from these areas, particularly floodplains and wetlands. They do this by designating land uses that are compatible with the natural conditions of land that is prone to flooding, such as open space or recreation. Communities in the Northeastern NC Region prepare land use plans in compliance with North Carolina Coastal Area Management Act (CAMA) requirements.

## OPEN SPACE PRESERVATION

Keeping the floodplain and other hazardous areas open and free from development is the best approach to preventing damage to new developments. Open space can be maintained in agricultural use or can serve as parks, greenway corridors and golf courses.

Comprehensive and capital improvement plans should identify areas to be preserved by acquisition and other means, such as purchasing an easement. With an easement, the owner is free to develop and use private property, but property taxes are reduced, or a payment is made to the owner if the owner agrees to not build on the part set aside in the easement.

Although there are some federal programs that can help acquire or reserve open lands, open space lands and easements do not always have to be purchased. Developers can be encouraged to dedicate park land and required to dedicate easements for drainage and maintenance purposes.

## ZONING ORDINANCE

Zoning enables a community to designate what uses are acceptable on a given parcel. Zoning can ensure compatibility of land use with the land's level of suitability for development. Planning and zoning activities can also provide benefits by allowing developers more flexibility in arranging improvements on a parcel of land through the planned development approach. Zoning regulations describe what type of land use and specific activities are permitted in each district, and how to regulate how buildings, signs, parking, and other construction may be placed on a lot. Zoning regulations also provide procedures for rezoning and other planning applications. The zoning map and zoning regulations provide properties with certain rights to development. Most municipalities in the region developed zoning ordinances in the last five years.

## FLOODPLAIN REGULATIONS

A Flood Damage Prevention Ordinance sets development standards for Special Flood Hazard Areas (SFHAs). Communities participating in the National Flood Insurance Program (NFIP) are required to adopt a flood damage prevention ordinance that meets at least the minimum standards of the NFIP; however, a community can incorporate higher standards for increased protection. For example, communities can adopt higher regulatory freeboard requirements, cumulative substantial damage definitions, fill restrictions, and other standards.

Another important consideration in floodplain regulations is the protection of natural and beneficial functions and the preservation of natural barriers such as vegetation. Vegetation along a stream bank is extremely beneficial for the health of the stream. Trees and other plants have an extensive root system that strengthen stream banks and help prevent erosion. Vegetation that has sprouted up near streams

should remain undisturbed unless removing it will significantly reduce a threat of flooding or further destruction of the stream channel.

## STORMWATER MANAGEMENT REGULATIONS

Stormwater runoff is increased when natural ground cover is replaced by urban development. Development in the watershed that drains to a river can aggravate downstream flooding, overload the community's drainage system, cause erosion, and impair water quality. There are three ways to prevent flooding problems caused by stormwater runoff:

1. Regulating development in the floodplain to ensure that it will be protected from flooding and that it won't divert floodwaters onto other properties;
2. Regulating all development to ensure that the post-development peak runoff will not be greater than it was under pre-development conditions; and
3. Set construction standards so buildings are protected from shallow water.

## REDUCING FUTURE FLOOD LOSSES

Zoning and comprehensive planning can work together to reduce future flood losses by directing development away from hazard prone areas. Creating or maintaining open space is the primary way to reduce future flood losses.

Planning for open space must also be supplemented with development regulations to ensure that stormwater runoff is managed, and that development is protected from flooding. Enforcement of the flood damage prevention ordinance and the flood protection elevation requirement provides an extra level of protection for buildings constructed in the planning area.

Stormwater management and the requirement that post-development runoff cannot exceed pre-development conditions is one way to prevent future flood losses. Retention and detention requirements also help to reduce future flood losses.

## LOCAL IMPLEMENTATION RECOMMENDATIONS

The CRS encourages strong building codes. It provides credit in two ways: points are awarded based on the community's Building Code Effectiveness Grading Schedule (BCEGS) classification and points are awarded for adopting the International Code series. In North Carolina, communities are limited by the State Building Code Council which has not implemented the most current version of the International Building Code.

CRS credits are available for regulations that encourage developers to preserve floodplains or other hazardous areas away from development. There is no credit for a plan, only for the enforceable regulations that are adopted pursuant to a plan. Communities in the Northeastern NC Region could receive credit for Activity 430 – Higher Regulatory Standards and for Activity 420 – Open Space Preservation for preserving parcels within the SFHA as open space. Preserving flood prone areas as open space is one of the highest priorities of the Community Rating System. Participating communities could also receive credit for Activity 450 – Stormwater Management for enforcing regulations for stormwater management and soil and erosion control.

**Table C.1 – Prevention Mitigation Options and Recommended Projects**

| Action # | Mitigation Action | Reason for Pursuing / Not Pursuing | Funding |
|---|---|---|---|
| **Prevention Measures Considered by HMPC and Not Recommended** | | | |
| - | Join the CRS program. | This is not a priority for small communities with very few flood insurance policies. | n/a |

| Action # | Mitigation Action | Reason for Pursuing / Not Pursuing | Funding |
|---|---|---|---|
| - | Continue to enforce all regulations outlined under the NC State Building Code. | This measure is an established day to day function of participating communities | n/a |
| **Prevention Measures and Funding Recommended for Implementation** | | | |
| H9 | Continue to support the efforts of Tideland Electric and NCDOT in maintaining the county's right-of-way and utility easements. This effort involves the trimming and pruning of trees that pose an imminent threat to the county's limited infrastructure system. Maintaining clear access into and out of the county, as well as protection of the county's electrical and communications networks, is critical to effective response during natural hazard events. | Hyde County continues to work closely with all utility providers to ensure that right of ways and utility easements are properly maintained in an effort to minimize damage associated with natural hazard events. | General Fund, Electric Service Providers |
| H16 | Work to implement all recommendations outlined within the Hurricane Matthew Resilient Redevelopment Plan. | Implementing recommendations from this plan will ensure better-built buildings that are more likely to protect people and hold up against future hurricanes and storms. | General Fund, NCDPS, NCDOT, NCDEQ |
| W3 | Monitor all land development codes, including the county and town Flood Damage Prevention Ordinances, on an annual basis to ensure that they are up-to-date and address current issues and concerns. This review will also be conducted following substantial natural hazard events. | Washington County continues to closely monitor the impacts that natural hazards have on the County's built environment. These factors will be incorporated into decisions regarding amendment to the County's land development regulations. | General Fund, NCDPS |

## C.2.2 PROPERTY PROTECTION MEASURES

Generally, natural hazards do not damage vacant areas; the major impact of hazards is to people and improved property. Property protection measures are used to modify buildings or property that are subject to damage in order to reduce their vulnerability. Property protection measures fall under three approaches:

- Modify the site to keep the hazard from reaching the building;
- Modify the building (retrofit) so it can withstand the impacts of the hazard; and
- Insure the property to provide financial relief after the damage occurs.

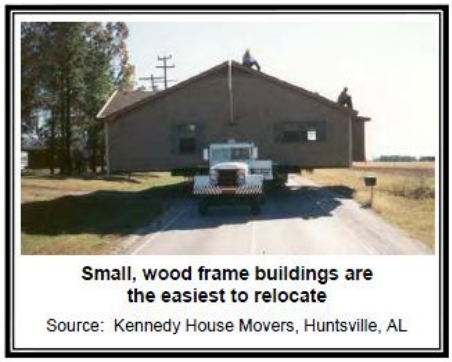
Property protection measures are normally implemented by the property owner, although in many cases technical and financial assistance can be provided by a government agency.

## KEEPING THE HAZARD AWAY

In some cases, properties can be modified so the hazard does not reach the damage-prone improvements. For example, a berm can be built to prevent floodwaters from reaching a house.

### *BARRIERS*

A flood protection barrier can be built of dirt or soil (a "berm") or concrete or steel (a "floodwall"). Careful design is needed so as not to create flooding or drainage problems on neighboring properties. Depending on how porous the ground is, if floodwaters will stay up for more than an hour or two, the design needs to account for leaks, seepage of water underneath, and rainwater that will fall inside the perimeter. This is usually done with a sump or drain to collect the internal groundwater and surface water and a pump and pipe to pump the internal drainage over the barrier. Barriers can only be built so high. They can be overtopped by a flood higher than expected. Barriers made of earth are susceptible to erosion from rain and floodwaters if not properly sloped, covered with grass, and properly maintained.



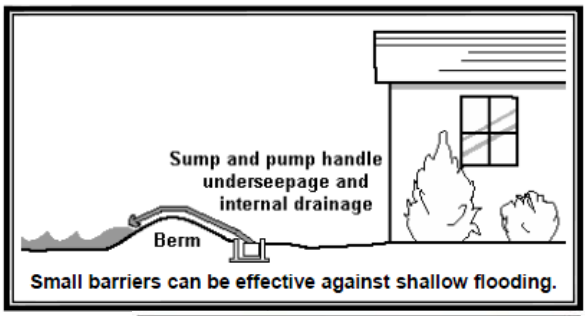
**Small, wood frame buildings are the easiest to relocate**

Source: Kennedy House Movers, Huntsville, AL

## MODIFY THE BUILDING

There are several common methods to keep a flood from reaching and damaging a building:

- Move the building out of the flood-prone area.
- Elevate the building above the flood level.
- Demolish the building.
- Replace the building with a new one that is elevated above the flood level.
- Retrofit the building to reduce the impact of flooding when it occurs.




**Small barriers can be effective against shallow flooding.**

Elevation, acquisition, and pilot reconstruction are the most effective types to consider for the planning area for flood mitigation. Note that building retrofits can also be applicable to mitigation of other hazards.



**This low floodwall has landscaping to minimize the adverse impact on the property's appearance.**

### *RELOCATION*

Moving a building out of a flood prone area to higher ground is the surest and safest way to protect it from flooding. While almost any building can be moved, the cost increases for heavier structures, such as those with exterior brick and stone walls, and for large or irregularly shaped buildings. Relocation is also preferred for large lots that include buildable areas outside the floodplain or where the owner has a new flood-free lot (or portion of the existing lot) available.

### *BUILDING ELEVATION*

Raising a building above the flood level can be almost as effective as moving it out of the floodplain. Water flows under the building, causing little or no damage to the structure or its contents. Raising a building above the flood level is cheaper than moving it and can be less disruptive to a neighborhood. Elevation has proven to be an acceptable and reasonable means of complying with floodplain regulations that require new, substantially improved, and substantially damaged buildings to be elevated above the base flood elevation.

### *DEMOLITION*

Some buildings, especially heavily damaged or repetitively flooded ones, are not worth the expense to protect them from future damages. It is cheaper to demolish them and either replace them with new, flood protected structures, or relocate the occupants to a safer site. Demolition is also appropriate for buildings that are difficult to move – such as larger, slab foundation or masonry structures – and for dilapidated structures that are not cost-beneficial to protect.



Demolishing a repetitively flooded home

### *PILOT RECONSTRUCTION*

If a building is not in good shape, elevating it may not be worthwhile or it may even be dangerous. An alternative is to demolish the structure and build a new one on the site that meets or exceeds all flood protection codes. FEMA funding programs refer to this approach as "pilot reconstruction." It is still a pilot program, and not a regularly funded option. Certain rules must be followed to qualify for federal funds for pilot reconstruction.

### *RETROFITTING*

An alternative to keeping the hazard away from a building is to modify or retrofit the site or building to minimize or prevent damage. There are a several techniques to do this, as described below.

- **Dry Floodproofing**

  Dry floodproofing means making all areas below the flood protection level watertight. Walls are coated with waterproofing compounds or plastic sheeting. Openings, such as doors, windows and vents, are closed, either permanently, with removable shields, or with sandbags. Dry floodproofing of new and existing nonresidential buildings in the regulatory floodplain is permitted under state, FEMA and local regulations. Dry floodproofing of existing residential buildings in the floodplain is also permitted as long as the building is not substantially damaged or being substantially improved. Owners of buildings located outside the regulatory floodplain can always use dry floodproofing techniques.

  Dry floodproofing is only effective for shallow flooding, such as repetitive drainage problems. It does not protect from the deep flooding along lakes and larger rivers caused by hurricanes or other storms.

- **Wet Floodproofing**

  The alternative to dry floodproofing is wet floodproofing: water is let in and everything that could be damaged by a flood is removed or elevated above the flood level. Structural components below the

flood level are replaced with materials that are not subject to water damage. For example, concrete block walls are used instead of wooden studs and gypsum wallboard. The furnace, water heater and laundry facilities are permanently relocated to a higher floor. Where the flooding is not deep, these appliances can be raised on blocks or platforms.

## INSURANCE

Technically, insurance does not mitigate damage caused by a natural hazard. However, it does help the owner repair, rebuild, and hopefully afford to incorporate some of the other property protection measures in the process. Insurance offers the advantage of protecting the property, so long as the policy is in force, without requiring human intervention for the measure to work.

- **Private Property**

  Although most homeowner's insurance policies do not cover a property for flood damage, an owner can insure a building for damage by surface flooding through the NFIP. Flood insurance coverage is provided for buildings and their contents damaged by a "general condition of surface flooding" in the area. Most people purchase flood insurance because it is required by the bank when they get a mortgage or home improvement loan. Usually these policies just cover the building's structure and not the contents. Contents coverage can be purchased separately. Renters can buy contents coverage, even if the owner does not buy structural coverage on the building. Most people don't realize that there is a 30-day waiting period to purchase a flood insurance policy and there are limits on coverage.

- **Public Property**

  Governments can purchase commercial insurance policies. Larger local governments often self-insure and absorb the cost of damage to one facility, but if many properties are exposed to damage, self-insurance can drain the government's budget. Communities cannot expect federal disaster assistance to make up the difference after a flood.

## LOCAL IMPLEMENTATION RECOMMENDATIONS

The CRS provides the most credit points for acquisition and relocation under Activity 520, because this measure permanently removes insurable buildings from the floodplain. Communities in the Northeastern NC Region could receive credit for Activity 520 – Acquisition and Relocation, for acquiring and relocating buildings from the SFHA. The HMPC recommended pursuing the purchase of repetitive loss buildings and other buildings which are subject to flood damage in order to reduce future losses and return this land to open space. At minimum, the committee recommended property protection mitigation strategies for these properties, such as elevation or floodproofing, as funding becomes available.

The CRS also credits barriers and elevating existing buildings under Activity 530. The credit for Activity 530 is based on the combination of flood protection techniques used and the level of flood protection provided. Points are calculated for each protected building. Bonus points are provided for the protection of repetitive loss buildings and critical facilities. Communities could receive credit for Activity 360 – Flood Protection Assistance by providing advice and assistance to homeowners who may want to flood proof their home or business. Advice is provided both on property protection techniques and on financial assistance programs to help fund mitigation.

Flood insurance information for each community is provided in Section 5 and in greater detail in the county annexes. There is no credit for purchasing flood insurance, but the CRS does provide credit for local public information programs that, among other topics, explain flood insurance to property owners. The CRS also reduces the premiums for those people who do buy NFIP coverage. Communities in the Northeastern NC Region could receive credit for Activity 330 – Outreach Projects. The HMPC has recommended outreach to property owners on the availability of flood insurance, including ICC coverage, which provides additional funds to repetitive loss properties and substantially damaged properties to

offset the cost of improvements needed to bring these properties up to code. This information will be provided in the county library and given to local contractors.

**Table C.2 – Property Protection Mitigation Options and Recommended Projects**

| Action # | Mitigation Action | Reason for Pursuing / Not Pursuing | Funding |
|---|---|---|---|
| **Property Protection Measures Considered by HMPC and Not Recommended** | | | |
| - | Pursue grant funding for building relocations | Requires willing homeowner participants. Prioritizing acquisitions or elevations instead of relocations. | n/a |
| **Property Protection Measures and Funding Recommended for Implementation** | | | |
| H1 | Consider revising the county's Flood Damage Prevention Ordinance to increase the current established two-foot freeboard requirement regarding base flood elevation for new structures developed within the Flood Hazard Area. This effort will also address any necessary updates required by the National Flood Insurance Program (NFIP). | Hyde County will continue to monitor the County's needs regarding required finished floor elevation. As flooding events occur, the County will assess current standards and adjust as necessary. | General Fund |
| W4 | Through implementation of this plan, consider increasing the County's required freeboard within the county's FDPO. | Washington County will review the County's minimal design standards within the defined special flood hazard area to ensure that those standards are adequate to address the potential impacts of recently occurring flooding events. | General Fund, NCDPS |
| H3 | Continue to maintain, operate, and carry out all activities outlined within the Swan Quarter Watershed Project Operation and Maintenance Checklist. This effort includes ensuring functionality of the Swan Quarter Dike. | Hyde County continues to monitor the status of the Swan Quarter flood control system and associated maintenance protocols. This will continue through implementation of this plan. | General Fund, NCDPS |

## *C.2.3 NATURAL RESOURCE PROTECTION*

Resource protection activities are generally aimed at preserving (or in some cases restoring) natural areas. These activities enable the naturally beneficial functions of fields, floodplains, wetlands, and other natural lands to operate more effectively. Natural and beneficial functions of watersheds, floodplains and wetlands include:

- Reduction in runoff from rainwater and stormwater in pervious areas
- Infiltration that absorbs overland flood flow
- Removal and filtering of excess nutrients, pollutants and sediments
- Storage of floodwaters
- Absorption of flood energy and reduction in flood scour

— Water quality improvement
— Groundwater recharge
— Habitat for flora and fauna
— Recreational and aesthetic opportunities

As development occurs, many of the above benefits can be achieved through regulatory steps for protecting natural areas or natural functions. This section covers the resource protection programs and standards that can help mitigate the impact of natural hazards, while they improve the overall environment. Six areas were reviewed:

— Wetland protection
— Erosion and sedimentation control
— Stream/River restoration
— Best management practices
— Dumping regulations
— Farmland protection



## WETLAND PROTECTION

Wetlands are often found in floodplains and topographically depressed areas of a watershed. Many wetlands receive and store floodwaters, thus slowing and reducing downstream flows. They also serve as a natural filter, which helps to improve water quality, and they provide habitat for many species of fish, wildlife and plants.

## EROSION AND SEDIMENTATION CONTROL

Farmlands and construction sites typically contain large areas of bare exposed soil. Surface water runoff can erode soil from these sites, sending sediment into downstream waterways. Erosion also occurs along stream banks and shorelines as the volume and velocity of flow or wave action destabilize and wash away the soil. Sediment suspended in the water tends to settle out where flowing water slows down. This can clog storm drains, drain tiles, culverts and ditches and reduce the water transport and storage capacity of river and stream channels, lakes and wetlands.

There are two principal strategies to address these problems: minimize erosion and control sedimentation. Techniques to minimize erosion include phased construction, minimal land clearing, and stabilizing bare ground as soon as possible with vegetation and other soil stabilizing practices.

## STREAM/RIVER RESTORATION

There is a growing movement that has several names, such as "stream conservation," "bioengineering," or "riparian corridor restoration." The objective of these approaches is to return streams, stream banks and adjacent land to a more natural condition, including the natural meanders. Another term is "ecological restoration," which restores native indigenous plants and animals to an area.

A key component of these efforts is to use appropriate native plantings along the banks that resist erosion. This may involve retrofitting the shoreline with willow cuttings, wetland plants, or rolls of landscape material covered with a natural fabric that decomposes after the banks are stabilized with plant roots.

In all, restoring the right vegetation to a stream has the following advantages:

— Reduces the amount of sediment and pollutants entering the water
— Enhances aquatic habitat by cooling water temperature

- Provides food and shelter for both aquatic and terrestrial wildlife
- Can reduce flood damage by slowing the velocity of water
- Increases the beauty of the land and its property value
- Prevents property loss due to erosion
- Provides recreational opportunities, such as hunting, fishing and bird watching
- Reduces long-term maintenance costs

Communities are required by state and federal regulations to monitor storm water drainage outfalls and control storm water runoff.

## BEST MANAGEMENT PRACTICES

Point source pollutants come from pipes such as the outfall of a municipal wastewater treatment plant. They are regulated by the US EPA. Nonpoint source pollutants come from non-specific locations and harder to regulate. Examples of nonpoint source pollutants are lawn fertilizers, pesticides, other chemicals, animal wastes, oils from street surfaces and industrial areas, and sediment from agriculture, construction, mining and forestry. These pollutants are washed off the ground's surface by stormwater and flushed into receiving storm sewers, ditches and streams.

The term "best management practices" (BMPs) refers to design, construction and maintenance practices and criteria that minimize the impact of stormwater runoff rates and volumes, prevent erosion, protect natural resources and capture nonpoint source pollutants (including sediment). They can prevent increases in downstream flooding by attenuating runoff and enhancing infiltration of stormwater. They also minimize water quality degradation, preserve beneficial natural features onsite, maintain natural base flows, minimize habitat loss, and provide multiple usages of drainage and storage facilities.

## DUMPING REGULATIONS

BMPs usually address pollutants that are liquids or are suspended in water that are washed into a lake or stream. Dumping regulations address solid matter, such as shopping carts, appliances and landscape waste that can be accidentally or intentionally thrown into channels or wetlands. Such materials may not pollute the water, but they can obstruct even low flows and reduce the channels' and wetlands' abilities to convey or clean stormwater.

Many cities have nuisance ordinances that prohibit dumping garbage or other "objectionable waste" on public or private property. Waterway dumping regulations need to also apply to "non-objectionable" materials, such as grass clippings or tree branches, which can kill ground cover or cause obstructions in channels. Regular inspections to catch violations should be scheduled.

Many people do not realize the consequences of their actions. They may, for example, fill in the ditch in their front yard without realizing that is needed to drain street runoff. They may not understand how re-grading their yard, filling a wetland, or discarding leaves or branches in a watercourse can cause a problem to themselves and others. Therefore, a dumping enforcement program should include public information materials that explain the reasons for the rules as well as the penalties.

## FARMLAND PROTECTION

Farmland protection is an important piece of comprehensive planning and zoning throughout the United States. The purpose of farmland protection is to provide mechanisms for prime, unique, or important agricultural land to remain as such, and to be protected from conversion to nonagricultural uses.

Frequently, farm owners sell their land to residential or commercial developers and the property is converted to non-agricultural land uses. With development comes more buildings, roads and other

infrastructure. Urban sprawl occurs, which can lead to additional stormwater runoff and emergency management difficulties.

Farms on the edge of cities are often appraised based on the price they could be sold for to urban developers. This may drive farmers to sell to developers because their marginal farm operations cannot afford to be taxed as urban land. The Farmland Protection Program in the United States Department of Agriculture's 2002 Farm Bill (Part 519) allows for funds to go to state, tribal, and local governments as well as nonprofit organizations to help purchase easements on agricultural land to protect against the development of the land.

## LOCAL IMPLEMENTATION RECOMMENDATIONS

There is credit for preserving open space in its natural condition or restored to a state approximating its natural condition. The credit is based on the percentage of the floodplain that can be documented as wetlands protected from development by ownership or local regulations. Communities in the Northeastern NC Region could receive credit for Activity 420 – Open Space Preservation for preserving a portion of the SFHA as open space.

Additionally, credit is available for Activity 540 – Drainage System Maintenance. Having a portion of the drainage system inspected regularly throughout the year and maintenance performed as needed would earn a community credit. Communities could also get credit under this activity for providing a listing of problem sites that are inspected more frequently, and for implementing an ongoing Capital Improvements Program.

Credit is available for the Erosion and Sediment Control (ESC) element under Activity 450 for regulating activities throughout the watershed to minimize erosion on construction sites that could result in sedimentation and water pollution. The HMPC previously proposed developing a Comprehensive Water Management Plan to monitor water supplies.

**Table C.3 – Natural Resource Protection Mitigation Options and Recommended Projects**

| Action # | Mitigation Action | Reason for Pursuing / Not Pursuing | Funding |
|---|---|---|---|
| **Natural Resource Protection Measures Considered by HMPC and Not Recommended** | | | |
| - | Enforce and support the US Army Corps of Engineers Non-Coastal Wetland Regulations | This is an established day to day function. | n/a |
| **Natural Resource Protection Measures and Funding Recommended for Implementation** | | | |
| W18 | Maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM. | By maintaining this contract, the County has plans in place to quickly and easily clean up after any disaster. | General Fund, NCDPS, FEMA |
| H14 | Develop a Comprehensive Water Management Plan to monitor the County's water supply and impose water restriction measures as deemed necessary during extreme drought conditions. | The creation of a plan and implementation of restrictions will help protect health and safety of citizens. | General Fund |

## C.2.4 EMERGENCY SERVICES MEASURES

Emergency services measures protect people during and after a disaster. A good emergency management program addresses all hazards, and it involves all local government departments. This section reviews emergency services measures following a chronological order of responding to an emergency. It starts with identifying an impending problem (threat recognition) and continues through post-disaster activities.

### THREAT RECOGNITION

The first step in responding to a hazard event is to know when weather conditions are such that an event could occur. With a proper and timely threat recognition system, adequate warnings can be disseminated.

The National Weather Service (NWS) is the prime agency for detecting meteorological threats. Severe weather warnings are transmitted through NOAA's Weather Radio System. Local emergency managers can then provide more site-specific and timely recognition after the Weather Service issues a watch or a warning. A flood threat recognition system predicts the time and height of a flood crest. This can be done by measuring rainfall, soil moisture, and stream flows upstream of the community and calculating the subsequent flood levels. North Carolina Emergency Management's Flood Inundation Mapping & Alert Network (FIMAN) provides real-time water levels and flood inundation information for much of North Carolina.

On smaller rivers and streams not covered by FIMAN, locally established rainfall and river gauges are needed to establish a flood threat recognition system. The NWS may issue a "flash flood watch." This is issued to indicate current or developing hydrologic conditions that are favorable for flash flooding in and close to the watch area, but the occurrence is neither certain nor imminent. These events are so localized and so rapid that a "flash flood warning" may not be issued, especially if no remote threat recognition equipment is available. In the absence of a gauging system on small streams, the best threat recognition system is to have local personnel monitor rainfall and stream conditions. While specific flood crests and times will not be predicted, this approach will provide advance notice of potential local or flash flooding.

### WARNING

The next step in emergency response following threat recognition is to notify the public and staff of other agencies and critical facilities. More people can implement protection measures if warnings are early and include specific detail.

The NWS issues notices to the public using two levels of notification:

- Watch: conditions are right for flooding, thunderstorms, tornadoes or winter storms.
- Warning: a flood, tornado, etc., has started or been observed.

A more specific warning may be disseminated by the community in a variety of ways. The following are the more common methods:

- CodeRED countywide mass telephone emergency communication system
- Commercial or public radio or TV stations
- The Weather Channel
- Cable TV emergency news inserts
- Telephone trees/mass telephone notification
- NOAA Weather Radio
- Tone activated receivers in key facilities
- Outdoor warning sirens

- Sirens on public safety vehicles
- Door-to-door contact
- Mobile public address systems
- Email notifications

Just as important as issuing a warning is telling people what to do in case of an emergency. A warning program should include a public information component.

## STORMREADY

The National Weather Service (NWS) established the StormReady program to help local governments improve the timeliness and effectiveness of hazardous weather-related warnings for the public. To be officially StormReady, a community must:

- Establish a 24-hour warning point and emergency operations center
- Have more than one way to receive severe weather warnings and forecasts and to alert the public
- Create a system that monitors weather conditions locally
- Promote the importance of public readiness through community seminars
- Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises

Being designated an NWS StormReady community is a good measure of a community's emergency warning program for weather hazards.

## RESPONSE

The protection of life and property is the most important task of emergency responders. Concurrent with threat recognition and issuing warnings, a community should respond with actions that can prevent or reduce damage and injuries. Typical actions and responding parties include the following:

- Activating the emergency operations center (emergency preparedness)
- Closing streets or bridges (police or public works)
- Shutting off power to threatened areas (utility company)
- Passing out sand and sandbags (public works)
- Holding children at school or releasing children from school (school superintendent)
- Opening evacuation shelters (the American Red Cross)
- Monitoring water levels (public works)
- Establishing security and other protection measures (police)

An emergency action plan ensures that all bases are covered and that the response activities are appropriate for the expected threat. These plans are developed in coordination with the agencies or offices that are given various responsibilities.

Emergency response plans should be updated annually to keep contact names and telephone numbers current and to ensure that supplies and equipment that will be needed are still available. They should be critiqued and revised after disasters and exercises to take advantage of the lessons learned and of changing conditions. The end result is a coordinated effort implemented by people who have experience working together so that available resources will be used in the most efficient manner possible.

## EVACUATION AND SHELTER

There are six key components to a successful evacuation:

- Adequate warning
- Adequate routes
- Proper timing to ensure the routes are clear
- Traffic control
- Knowledgeable travelers
- Care for special populations (e.g., disabled persons, prisoners, hospital patients, schoolchildren)

Those who cannot get out of harm's way need shelter. Typically, the American Red Cross will staff a shelter and ensure that there is adequate food, bedding, and wash facilities. Shelter management is a specialized skill. Managers must deal with problems like scared children, families that want to bring in their pets, and the potential for an overcrowded facility.

## LOCAL IMPLEMENTATION RECOMMENDATIONS

Flash flood warnings are issued by National Weather Service Offices, which have the local and county warning responsibility. Flood warnings are forecasts of coming floods, are distributed to the public by the NOAA Weather Radio, commercial radio and television, and through local emergency agencies. The warning message tells the expected degree of flooding, the affected river, when and where flooding will begin, and the expected maximum river level at specific forecast points during flood crest.

Communities in the Northeastern NC Region could receive credit for Activity 610 – Flood Warning Program for maintaining a program that provides timely identification of impending flood threats, disseminates warnings to appropriate floodplain residents, and coordinates flood response activities. Community Rating System credits are based on the number and types of warning media that can reach the community's flood prone population. Depending on the location, communities can receive credit for the telephone calling system and more credits for additional measures, like telephone trees. Being designated as a StormReady community also provides credit.

**Table C.4 – Emergency Services Mitigation Options and Recommended Projects**

| Action # | Mitigation Action | Reason for Pursuing / Not Pursuing | Funding |
|---|---|---|---|
| **Emergency Services Measures Considered by HMPC and Not Recommended** | | | |
| - | Establish telephone trees to activate for emergency warning during emergencies. | Prioritizing other emergency warning investments. | n/a |
| **Emergency Services Measures and Funding Recommended for Implementation** | | | |
| H7 | Review the vulnerability of all critical facilities identified in this plan as a component of annual county Emergency Operations Plan updates. This effort will involve an assessment of whether facilities are readily accessible before, during, or after a natural hazard event has transpired. The county will also consider all information and data outlined in this plan when making determinations on the location of all future critical facilities. | Hyde County reviews the effectiveness and security of County shelter facilities on an annual basis through the County's annual review of its Emergency Operations Plan, as well as the annual tabletop exercise. | General Fund |

| Action # | Mitigation Action | Reason for Pursuing / Not Pursuing | Funding |
|---|---|---|---|
| W1 | Continue to seek funding for assistance in constructing a new dedicated EOC. The county's existing facility is adequate; however, there is a need for a new and dedicated facility. | Washington County has been working towards establishing a new EOC for many years. The County will continue to look for opportunities to move forward with this project. | General Fund, NCDPS, FEMA |
| H8 | Continue to participate in and support the Disaster Assistance Working Group (DAWG). This effort includes maintaining a mutual aid agreement with DAWG, which makes all available Hyde County resources available to participating counties in the event of a disaster. Coordination of all county resources in concert with DAWG will be handled through the group's E-Plan web-based portal. All resources are updated as a component of the NC State Resource Management System. | Hyde County continues to support the efforts of the Disaster Assistance Working Group and the group's efforts to further emergency service effectiveness throughout the region. | General Fund, NCDPS |

## C.2.5 STRUCTURAL PROJECTS

Four general types of flood control projects are reviewed here: levees, reservoirs, diversions, and dredging. These projects have three advantages not provided by other mitigation measures:

- They can stop most flooding, protecting streets and landscaping in addition to buildings.
- Many projects can be built without disrupting citizens' homes and businesses.
- They are constructed and maintained by a government agency, a more dependable long-term management arrangement than depending on many individual private property owners.

However, as shown below, structural measures also have shortcomings. The appropriateness of using flood control depends on individual project area circumstances.

### Advantages

- They may provide the greatest amount of protection for land area used
- Because of land limitations, they may be the only practical solution in some circumstances
- They can incorporate other benefits into structural project design, such as water supply and recreational uses
- Regional detention may be more cost-efficient and effective than requiring numerous small detention basins

### Disadvantages

- They can disturb the land and disrupt the natural water flows, often destroying wildlife habitat
- They require regular maintenance
- They are built to a certain flood protection level that can be exceeded by larger floods
- They can create a false sense of security
- They promote more intensive land use and development in the floodplain

## LEVEES AND FLOODWALLS

Probably the best-known flood control measure is a barrier of earth (levee) or concrete (floodwall) erected between the watercourse and the property to be protected. Levees and floodwalls confine water to the stream channel by raising its banks. They must be well designed to account for large floods, underground seepage, pumping of internal drainage, and erosion and scour.

## RESERVOIRS AND DETENTION

Reservoirs reduce flooding by temporarily storing flood waters behind dams or in storage or detention basins. Reservoirs lower flood heights by holding back, or detaining, runoff before it can flow downstream. Flood waters are detained until the flood has subsided, and then the water in the reservoir or detention basin is released or pumped out slowly at a rate that the river can accommodate downstream.

Reservoirs can be dry and remain idle until a large rain event occurs. Or they may be designed so that a lake or pond is created. The lake may provide recreational benefits or water supply (which could also help mitigate a drought).



Retention pond

Flood control reservoirs are most commonly built for one of two purposes. Large reservoirs are constructed to protect property from existing flood problems. Smaller reservoirs, or detention basins, are built to protect property from the stormwater runoff impacts of new development.

## DIVERSION

A diversion is a new channel that sends floodwaters to a different location, thereby reducing flooding along an existing watercourse. Diversions can be surface channels, overflow weirs, or tunnels. During normal flows, the water stays in the old channel. During floods, the floodwaters spill over to the diversion channel or tunnel, which carries the excess water to a receiving lake or river.

## LOCAL IMPLEMENTATION RECOMMENDATIONS

Structural flood control projects that provide at least 100-year flood protection and that result in revisions to the Flood Insurance Rate Map are not credited by the CRS so as not to duplicate the larger premium reduction provided by removing properties from the mapped floodplain. Other flood control projects can be accepted by offering a 25-year flood protection.

**Table C.5 – Structural Projects Mitigation Options and Recommended Projects**

| Action # | Mitigation Action | Reason for Pursuing / Not Pursuing | Funding |
|---|---|---|---|
| **Structural Project Measures Considered by HMPC and Not Recommended** | | | |
| - | Consider if floodwalls may be needed to protect any critical facilities or infrastructure. | Low priority due to potential to worsen flooding elsewhere. | n/a |
| **Structural Project Measures and Funding Recommended for Implementation** | | | |
| H17 | Hyde County will continue to work diligently on efforts to address the recovery of the Village of Ocracoke from the impacts of Hurricane Dorian. The County will exhaust all resources available to carry this effort out. | The health and safety of citizens and the tourism economy depend on recovery efforts post-disaster. | General Fund, NCDPS, NCDOT, NCDEQ |

## C.2.6 PUBLIC INFORMATION

### OUTREACH PROJECTS

Outreach projects are the first step in the process of orienting property owners to the hazards they face and to the concept of property protection. They are designed to encourage people to seek out more information in order to take steps to protect themselves and their properties.

Awareness of the hazard is not enough; people need to be told what they can do about the hazard. Thus, projects should include information on safety, health and property protection measures. Research has shown that a properly run local information program is more effective than national advertising or publicity campaigns. Therefore, outreach projects should be locally designed and tailored to meet local conditions.

Community newsletters/direct mailings: The most effective types of outreach projects are mailed or distributed to everyone in the community. In the case of floods, they can be sent only to floodplain property owners.

News media: Local newspapers can be strong allies in efforts to inform the public. Local radio stations and cable TV channels can also help. These media offer interview formats and cable TV may be willing to broadcast videos on the hazards.

### LIBRARIES AND WEBSITES

The two previous activities tell people that they are exposed to a hazard. The next step is to provide information to those who want to know more. The community library and local websites are obvious places for residents to seek information on hazards, hazard protection, and protecting natural resources.

Books and pamphlets on hazard mitigation can be given to libraries, and many of these can be obtained for free from state and federal agencies. Libraries also have their own public information campaigns with displays, lectures and other projects, which can augment the activities of the local government. Today, websites are commonly used as research tools. They provide fast access to a wealth of public and private sites for information. Through links to other websites, there is almost no limit to the amount of up to date information that can be accessed on the Internet.

In addition to online floodplain maps, websites can link to information for homeowners on how to retrofit for floods or a website about floods for children.

### TECHNICAL ASSISTANCE

#### *HAZARD INFORMATION*

Residents and business owners that are aware of the potential hazards can take steps to avoid problems or reduce their exposure to flooding. Communities can easily provide map information from FEMA's FIRMs and Flood Insurance Studies. They may also assist residents in submitting requests for map amendments and revisions when they are needed to show that a building is located outside the mapped floodplain.

Some communities supplement what is shown on the FIRM with information on additional hazards, flooding outside mapped areas and zoning. When the map information is provided, community staff can explain insurance, property protection measures and mitigation options that are available to property owners. They should also remind inquirers that being outside the mapped floodplain is no guarantee that a property will never flood.

### *PROPERTY PROTECTION ASSISTANCE*

While general information provided by outreach projects or the library is beneficial, most property owners do not feel ready to retrofit their buildings without more specific guidance. Local building department staffs are experts in construction. They can provide free advice, not necessarily to design a protection measure, but to steer the owner onto the right track. Building or public works department staffs can provide the following types of assistance:

- Visit properties and offer protection suggestions
- Recommend or identify qualified or licensed contractors
- Inspect homes for anchoring of roofing and the home to the foundation
- Explain when building permits are needed for home improvements.

## PUBLIC INFORMATION PROGRAM

A Program for Public Information (PPI) is a document that receives CRS credit. It is a review of local conditions, local public information needs, and a recommended plan of activities. A PPI consists of the following parts, which are incorporated into this plan:

- The local flood hazard
- The property protection measures appropriate for the flood hazard
- Flood safety measures appropriate for the local situation
- The public information activities currently being implemented within the community, including those being carried out by non-government agencies
- Goals for the community's public information program
- The outreach projects that will be done each year to reach the goals
- The process that will be followed to monitor and evaluate the projects

## LOCAL IMPLEMENTATION RECOMMENDATIONS

Communities in the Northeastern NC Region could receive credit under Activity 330 – Outreach Projects as well as Activity 350 – Flood Protection Information. Credit is available for targeted and general outreach projects. Credit is also provided for making publications relating to floodplain management available in the reference section of the local library.

**Table C.6 – Public Information and Outreach Mitigation Options and Recommended Projects**

| Action # | Mitigation Action | Reason for Pursuing / Not Pursuing | Funding |
|---|---|---|---|
| **Public Information and Outreach Measures Considered by HMPC and Not Recommended** | | | |
| - | Develop a Program for Public Information | Limited administrative support to develop and maintain a PPI. | n/a |
| **Public Information and Outreach Measures and Funding Recommended for Implementation** | | | |
| H4 | Continue to maintain and map GIS-based data related to floodplain management and mitigation. These efforts will involve maintaining the most recent Flood Insurance Rate Maps (FIRMS), as well as GIS locations for each property either acquired or mitigated under through current and past Mitigation Grant Projects. | Hyde County will develop a GIS database, to work in concert with the information provided in this plan, to be utilized for guidance regarding development policy and regulation. | General Fund |

| Action # | Mitigation Action | Reason for Pursuing / Not Pursuing | Funding |
|---|---|---|---|
| W9 | Work with local real estate agencies to ensure that agents are informing clients when property for sale is located within an SFHA. The county will provide these agencies with brochures documenting the concerns relating to development located within flood-prone areas and ways that homeowners may make their homes more disaster-resistant to strong winds, lightning, and heavy rains. | This effort is integral to the County's Community Rating System Program and will continue through implementation of this plan. Maintaining a high CRS rating is a high priority for the County. | General Fund, Municipal Administrations |
| H5 | Make a variety of materials related to flood insurance, flood protection, floodplain management, increased cost of compliance coverage, information on floodplains, and listings of qualified contractors familiar with floodproofing and elevation techniques, available through various methods including:<br>• Placing materials in the county library<br>• Disseminating information to local contractors | The Hyde County Building Inspections Department continues to maintain materials associated with floodplain protection that are available to County residents. | General Fund, NCDPS |
| W7 | Mail a notice once annually to all property owners whose land is located within a special flood hazard area. The notice should clearly state that the recipient's property is susceptible to flooding and provide information pertinent to emergency evacuation and post-disaster recovery. Additionally, the county will notify all property owners once annually via mail, either through individual mailers or utility bill inserts, of the hazards associated with flooding and other hazards resulting from severe weather events. | This effort is currently underway and relates to the County's ongoing Community Rating System Program. These efforts will continue through implementation of his plan. | General Fund, NCDPS |

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