

Northeastern NC Regional Hazard Mitigation Plan



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INTRODUCTION

When a major natural event strikes our built environment, it is deemed a “natural disaster.” Hazard mitigation is simply about preventing natural disasters. The idea of preventing natural disasters at first seems counterintuitive if not impossible. We certainly cannot prevent natural events, like hurricanes and tornados. Yet the impacts of natural events – who and what gets hurt – are largely determined by what, where, and how we build and function. Thus, some impacts of natural hazards on our population, and economic, social, and physical environment are, in the bigger picture, self-inflicted. As citizens and local government entities, we have not inherited a perfectly planned and resilient community. Thus, we must assess current vulnerabilities resulting from past decisions relating to development design and location, in an effort to reduce the harmful impacts of natural, and in some cases, man-made hazards.

The North Carolina Department of Public Safety, Emergency Management Division summarizes hazard mitigation as follows:

“Hazard mitigation involves the use of specific measures to reduce the impact of hazards on people and the built environment. Measures may include both structural and non-structural techniques, such as protecting buildings and infrastructure from the forces of nature or wise floodplain management practices. Actions may be taken to protect both existing and/or future development. It is widely accepted that the most effective mitigation measures are implemented before an event at the local government level, where decisions on the regulation and control of development are ultimately made.”

NORTHEASTERN NC REGION

A regional hazard mitigation plan is classified by the Federal Emergency Management Agency (FEMA) as any mitigation planning effort involving two or more county jurisdictions. This Hazard Mitigation Plan (HMP) involves a five-county region including Bertie, Hyde, Martin, Tyrrell, and Washington counties. All the municipalities within these counties are also participants in this plan, including Askewville, Aulander, Bear Grass, Colerain, Columbia, Creswell, Everetts, Hamilton, Hassell, Jamesville, Kelford, Lewiston-Woodville, Oak City, Parmele, Powellsville, Plymouth, Robersonville, Roper, Roxobel, Williamston, and Windsor. Once completed and certified by FEMA, this document will replace all mitigation planning documents previously adopted by any of the participating jurisdictions. This plan is an update to the Martin-Tyrrell-Washington Regional HMP originally developed in 2011. A major change from the 2011 planning process is the addition of Bertie and Hyde counties into the 2016 Regional HMP.

Bertie, Hyde, Martin, Tyrrell, and Washington counties each maintain a Local Emergency Planning Committee. The Local Emergency Planning Committees (LEPC) are federally mandated entities composed of state and local officials, business representatives and members of the press. The role of the LEPC is to form a partnership with local governments and industries as a resource for enhancing hazardous materials preparedness. This includes incorporating planning for hazmat incidents into the local emergency management plan and annexes; assessing capabilities and developing hazmat response capability using local resources, mutual aid and contractors; training responders; and exercising the plan.

Incorporation of the LEPCs into the planning process will assist the Regional MAC in working through the development of regional mitigation strategies. Ultimately, Washington County will function as lead agency in the development of a plan that will serve the mitigation needs of all participating counties. Washington County was charged with dealing administratively with all grant program requirements; however, all jurisdictions will be addressed equally through the development of this plan.

HAZARD MITIGATION LEGISLATION

In the early 1990s, a new federal policy regarding disasters began to evolve. Rather than simply reacting whenever disasters strike communities, the federal government would encourage communities to first assess their vulnerability to various disasters, and then take actions to reduce or eliminate potential risks. The logic is simply that a disaster-resistant community can rebound from a natural disaster with less loss of property or human injury, at much lower cost, and consequently more quickly. Moreover, other costs associated with disasters, such as the time lost from productive activity by businesses and industries, are minimized.

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Pub. Law 93-288, as amended) embodies this new philosophy. Section 409 of the Stafford Act sets forth the requirements that communities evaluate natural hazards within their respective jurisdictions and develop an appropriate plan of action to mitigate those hazards.

The amended Stafford Act requires that the community identify potential hazards to the health, safety and well-being of its residents and identify and prioritize actions that can be taken by the community to mitigate those hazards – before disaster strikes. For communities to remain eligible for hazard mitigation assistance from the federal government, they must first prepare a hazard mitigation plan (this plan). These plans may be developed at the municipal, county, or regional level.

Responsibility for fulfilling the requirements of Section 409 of the Stafford Act and administering the FEMA Hazard Mitigation Program, as outlined in the Code of Federal Regulations (44 CFR 206.405), has been delegated to the State of North Carolina, specifically to the North Carolina Department of Public Safety (NCDPS).

The Disaster Mitigation Act of 2000 (DMA 2K) amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the Act) by repealing the previous mitigation planning provisions (Section 409) and replacing them with a new set of mitigation plan requirements (Section 322). This new section emphasizes the need for state, tribal, and local entities to closely coordinate mitigation planning and implementation efforts.

In 2011, FEMA issued a revised version of the Local Multi-Hazard Mitigation Planning Guidance (“Blue Book”), which is the standard utilized for preparation of this plan. Among the most significant changes in the planning guidelines reflected in this update are: 1) estimation of the numbers and types of structures that have experienced repetitive flood losses; 2) identification of actions to ensure continued local compliance with the National Flood Insurance Program (NFIP); and 3) integration of Community Rating System (CRS) planning initiatives with the overall hazard mitigation planning process.

WHAT IS HAZARD MITIGATION AND WHY IS IT IMPORTANT TO THE REGION?

What is Hazard Mitigation?

Hazard mitigation is the practice of reducing risks to people and property from natural disasters. Hazard mitigation involves recognizing and adapting to natural forces, and is defined by FEMA as any sustained action taken to reduce long-term risk to human life and property from natural hazards. A fundamental premise of hazard mitigation is that current dollars invested in mitigation will significantly reduce the demand for future expenditures by reducing the extent of emergency recovering, repair, and reconstruction following a disaster.

Why is Hazard Mitigation Important to the Northeastern NC Region?

The Northeastern NC Regional Hazard Mitigation Plan (HMP) is being completed to attain the following goals:

- Work to improve existing local government policies and codes to reduce the impacts of natural hazards.
- Design and implement specific mitigation measures to protect vulnerable public and private properties.
- Increase the protection of critical facilities and infrastructure from hazard threats through retrofit projects for existing facilities and innovative design standards for new facilities.
- Enhance public education programs to promote community awareness of natural hazards and the hazard mitigation techniques available to reduce their impact.
- Improve stormwater management through enhanced local government programs, policies, and practices.
- Enhance each county's storm evacuation procedures through increased intergovernmental coordination between the counties, the participating municipalities, and the State of North Carolina.
- Increase each county's emergency management capabilities through sustained system and technology improvements.
- Promote volunteer involvement in emergency preparedness and response through increased citizen awareness and training activities.

These goals were developed through discussions with the Regional Mitigation Advisory Committee (MAC) and served as the foundation for the development of regional and local strategies outlined within Section 6 of the plan.

Hazard mitigation planning is intended to construct a framework for the prevention and reaction to disasters if and when they may occur. The framework created by this plan will help to instill an ongoing effort to lessen the impact that disasters have on citizens and property throughout the region. There are many aspects of mitigation planning that cannot be addressed at the regional level. In order to address this issue, this plan will outline strategies that will address both regional mitigation initiatives and strategies that serve the needs of each individual participating jurisdiction.

PLAN FORMAT

In developing this plan, including all strategic initiatives and policy statements, the following factors were taken into account:

- The policy will improve upon the region's participation and role in the National Flood Insurance Program; and
- The policy meets at least one community mitigation goal; and
- The policy complies with all laws and regulations; and
- The policy is cost-beneficial; and
- The community implementing the policy has (or will have) the capability to do so; and
- The policy is environmentally sound; and
- The policy is technically feasible.

The plan format is presented in a manner that the MAC feels best represents the current situation within the region, as well as each participating jurisdiction. In developing this plan, the Northeastern NC Region has been viewed as a single entity; however, when necessary, a detailed overview of county and municipal data is provided.

The plan content is organized as follows:

Section 1. Introduction

This section of the HMP update provides the purpose of the plan, acknowledges the participants in the planning process, describes the planning process, and reviews the citizen participation and adoption process for the HMP.

Section 2. Regional Profile

This section of the HMP update outlines the existing conditions throughout the Region and the participating jurisdictions. These overviews address the following existing conditions: history, demographics, topography, climate, and other general information regarding the community. The detailed profiles provided within this section address each county independently.

Section 3. Hazard Identification and Analysis

This section of the HMP update provides relevant data and narrative descriptions of natural hazards that impact the Northeastern NC Region. The information within this section is based on interviews with local officials and on public data sources such as the National Center for Environmental Information and FEMA. Throughout this section the Region is addressed as a single entity. The hazards identified and discussed within this section generally impact each individual county equally. Thus, the weather history and likelihood of occurrence data has been presented at the regional scale.

Section 4. Community Capability Assessment

This section of the HMP update provides an assessment of each community's current hazard mitigation practices, as well as its potential to engage in mitigation activities. This section provides an overview of both regional and local mechanisms available to key decision makers. All participating jurisdictions within this plan have been addressed within this plan's capability review. The following is addressed for each county and municipal government participating in this planning effort: administrative capabilities, infrastructure policies (when applicable), land development controls, and existing local and state policy programs.

Section 5. Vulnerability Assessment

This section of the HMP update identifies specific locations throughout the Northeastern NC Region that are vulnerable to natural hazards through narrative, data, and maps. The vulnerability assessment looks at each county independently. This approach was taken due to differences in data which may exist between each individual county. In working through this assessment, the best available data was utilized to conduct a vulnerability assessment that will give an indication of existing and future "at-risk" development within each participating jurisdiction.

Section 6. Mitigation Goals, Objectives, and Strategies

This section of the HMP identifies local/regional goals, objectives, and specific strategies which will respond to identified mitigation needs by completing the following steps:

- Identifying policies to carry out the mitigation strategies
- Creating an action plan for the mitigation strategies
- Prioritizing the policies
- Identifying funding sources
- Assigning implementation responsibilities

Strategies have been developed to address both regional and local needs. In developing this plan, it was determined that although this is a regional planning effort, some mitigation efforts are carried out at the county and/or municipal level. Due to this distinction, a wide range of implementation strategies are provided ranging from very broad (regional) to very specific (local project specific strategies). All strategies specific to a participating county or municipal jurisdiction were developed through county specific MAC meetings.

Section 7. Monitoring, Evaluating and Reporting Progress

This section of the HMP provides procedures for ongoing monitoring and evaluation after the HMP is adopted by each community's governing body, NCDPS, and FEMA. Additionally, this section outlines procedures to ensure that an annual evaluation report is prepared and appropriate revisions and updates of the plan are completed.

Appendices

These sections present supporting documentation as outlined within the plan. All maps referenced throughout the HMP will be included in Appendix A.

INCORPORATION OF EXISTING PLANS, STUDIES, AND REPORTS

Each jurisdiction participating in this plan has a wide range of existing policy and regulatory documents to assist in the preparation of the Hazard Mitigation Plan. Information from each respective county's Comprehensive Plan, Zoning/Subdivision Ordinance (where applicable), and Flood Damage Prevention Ordinance were instrumental in compiling information presented in this plan. Through implementation of this plan, each participating jurisdiction will continue to reference these documents in an effort to carry out an effective mitigation program at both the local and regional level.

PLANNING PROCESS

In early 2015, Washington County applied for and received Pre-Disaster Mitigation (PDM) Program grant through the North Carolina Department of Public Safety (NCDPS) for the Northeastern NC Region. NCDPS approved the county's grant application and the hazard mitigation planning process began. Upon receipt of the aforementioned PDM grant, primary responsibility for development of the Regional Hazard Mitigation Plan was placed in the hands of the Planning Directors and/or Emergency Management Directors for Bertie, Hyde, Martin, Tyrrell, and Washington counties.

In November of 2015, Washington County procured the services of Holland Consulting Planners, Inc., (HCP) of Wilmington, North Carolina, to assist in the development of a comprehensive Regional Hazard Mitigation Plan Update for the five-county region.

Subsequent to establishing a work authorization with the planning consultant, Washington County called an initial scoping meeting with the project consultant and regional stakeholders. This meeting involved a general discussion of how the project should be carried out, including establishing a Regional Mitigation Advisory Committee (MAC) to oversee plan development.

Through discussions at the initial meeting, it was determined that the best approach to dealing with this effort would be to establish a Regional MAC, while still maintaining the presence and membership of each individual county MAC. The Regional MAC was charged with developing the overall document and establishing regional strategies. All Regional MAC meetings are open to the public, including the MAC members of each individual county jurisdiction. Each county MAC was charged with addressing the needs of their respective county, and was responsible for reviewing the draft and identifying any gaps, errors, and/or omissions.

Dealing with natural hazards and disasters is rarely the responsibility of one employee or official in any community. Rather, it is a team effort, often comprised of representatives from administration, planning/zoning, public works, fire/police, and other departments. These various interests are represented on each county MAC in order to efficiently address this "multi-disciplinary" aspect of hazard mitigation.

County MAC members were charged with the responsibility of working through the development of local strategies, and assisting the consultant through compiling the information, input, and background required to develop the overall regional plan. The following provides a listing of the county and Regional MAC members that participated in the 2016 plan update process.

Bertie County Mitigation Advisory Committee	
MAC Member	Jurisdiction/Agency
John Trent, Chairman Scott Sauer, County Manager Mitchell Cooper, EM Director Traci White, Planning Director	Bertie County
Gloria Bryant, Mayor	Askewville
Larry T. Drew, Mayor Stephen Draper, Public Works Director	Aulander
Thomas Waicul, Mayor	Colerain
Bailey N. Parker, Mayor	Kelford
Dayle Joyner Vaughan, Mayor Chris B. Cordon, Commissioner Gary L. Cordon Sr., Commissioner	Lewiston-Woodville
Thomas E. Asbell, Mayor Carlyle Hoggard, Commissioner James Peele, Commissioner	Powellsville
Alvin Simmons, Mayor	Roxobel
James F. Hoggard, Mayor Allen Castellloe, Town Administrator	Windsor

Hyde County Mitigation Advisory Committee	
MAC Member	Jurisdiction/Agency
Earl Pugh, Jr., Chairman Bill Rich, County Manager Kris Cahoon Noble, Planning & Economic Development Director Justin Gibbs, Emergency Services Director	Hyde County

Martin County Mitigation Advisory Committee	
MAC Member	Jurisdiction/Agency
Ronnie Smith, Chairman David Bone, County Manager Jody Griffin, EM Director	Martin County

Martin County Mitigation Advisory Committee	
MAC Member	Jurisdiction/Agency
Charlotte Griffin, Mayor	Bear Grass
Ray Deans, Mayor Nancy S. Hardison, Town Clerk	Everetts
Donald Gil Matthews, III, Mayor	Hamilton
Marvin G. Warfe, Mayor	Hassell
Bradley K. Davis, Mayor	Jamesville
William O. Stalls, Mayor	Oak City
Jerry M. McCrary, Mayor	Parmelee
Frank Measamer, Mayor William "Mutt" Smith, Fire Chief	Robersonville
Joyce Whichard-Brown, Mayor Brent Kanipe, Director of Planning & Development Jamie Heath, Planner / Code Enforcement Officer	Williamston

Tyrrell County Mitigation Advisory Committee	
MAC Member	Jurisdiction/Agency
Leroy Spivey, Chairman David L. Clegg, County Manager Wesley Hopkins, EM Coordinator	Tyrrell County
F. Michael Griffin, Mayor Rhett White, Town Manager	Columbia

Washington County Mitigation Advisory Committee	
MAC Member	Jurisdiction/Agency
D. Cole Phelps, Chairman Willie Mack Carawan, Jr., County Manager Ann Keyes, Planning & Safety Director Andrew Cocco, EMS Director Buster Manning, County Planning Board	Washington County
Ray Blount, Mayor Steve Barnes, County Planning Board David Clifton, County Planning Board	Creswell
Brian A. Roth, Mayor Michelle Oliver, Code Enforcement Officer Frank Winslow, County Planning Board	Plymouth
Denise Blount, Mayor Katie Walker, County Planning Board Rosalind Shields, County Planning Board Carol Stubbs, County Planning Board Charles Sharpe, County Planning Board	Roper

Northeastern NC Regional Mitigation Advisory Committee	
MAC Member	Jurisdiction/Agency
Mitchell Cooper, EM Director	Bertie County Representative
Kris Cahoon Noble, Planning & Economic Development Director	Hyde County Representative
Jody Griffin, EM Director	Martin County Representative
Wesley Hopkins, EM Coordinator	Tyrrell County Representative
Ann Keyes, Planning & Safety Director	Washington County Representative

During the planning process, the MAC members communicated through face-to-face meetings, email and telephone conversations. One (1) MAC meeting was held within each county jurisdiction, and four (4) regional partner meetings were conducted. Notification of all MAC meetings were made via email communication or hard copy letter, depending upon the preference of the jurisdiction (see Appendix B for participation documentation). The distribution list was established in concert with each participating county. Although, all MAC members could not be present at every meeting, coordination was ongoing throughout the entire planning process. In particular, the communities of Askewville, Everetts, Hassell, and Roxobel participated in the planning process through emails and phone conversations and in direct contact with the Bertie County and Martin County Emergency Services departments. Also, these jurisdictions were provided meeting materials during the planning process. The following provides a brief summary of all meetings held and what was addressed at each.

Northeastern NC Regional MAC

- December 9, 2015: Following selection of a project consultant, Washington County, acting as lead agency, held a coordination meeting with the consultant. This meeting focused on working through project logistics. All participating jurisdictions were invited to attend this meeting to kick off the planning process.
- March 30, 2016: The second Regional MAC meeting was held in Williamston, NC. An overview of the project progress to date was provided and no comments from the public were received. Additionally, the MAC discussed Regional mitigation strategies intended to foster intergovernmental relations.
- June 28, 2016: The third Regional MAC meeting focused on finalizing plan development. Regional MAC members were provided a summary of final draft Regional mitigation strategies. The Regional MAC provided detailed instructions on how the review and adoption process would be accomplished.
- August 5, 2016: The fourth Regional MAC meeting was held in Plymouth, NC. During the planning process, it was decided that Hyde County would join the BMTW plan prior to completion. This Regional MAC meeting focused on the steps necessary to merge Hyde County into the draft HMP.

Bertie County Mitigation Advisory Committee

- June 14, 2016: A meeting was held with the Bertie County MAC. This meeting was focused on a review of the existing plan including: confirmation of critical facilities, discussion of hazard events since adoption of the existing plan, a review of the current hazard summary and impact ratings, and a discussion of progress in relation to current mitigation actions. The MAC members were requested to review the existing plan policies and provide comments on the effectiveness of existing policies.

Hyde County Mitigation Advisory Committee

- August 4, 2016: The gathering of the Hyde County MAC focused on merging Hyde County into the Northeastern NC Regional Hazard Mitigation Plan. Hyde County was recently certified by FEMA (June 3, 2015), so a majority of the discussion focused on the logistics of incorporating Hyde County into the Northeastern NC Regional HMP.

Martin County Mitigation Advisory Committee

- May 11, 2016: A meeting was held with the Martin County MAC. This meeting was focused on a review of the existing plan including: confirmation of critical facilities, discussion of hazard events since adoption of the existing plan, a review of the current hazard summary and impact ratings, and a discussion of progress in relation to current mitigation actions. The MAC members were requested to review the existing plan policies and provide comments on the effectiveness of existing policies.

Tyrrell County Mitigation Advisory Committee

- June 3, 2016: A meeting was held with the Tyrrell County MAC. This meeting was focused on a review of the existing plan including: confirmation of critical facilities, discussion of hazard events since adoption of the existing plan, a review of the current hazard summary and impact ratings, and a discussion of progress in relation to current mitigation actions. The MAC members were requested to review the existing plan policies and provide comments on the effectiveness of existing policies.

Washington County Mitigation Advisory Committee

- January 21, 2016: A meeting was held with the Washington County MAC. This meeting was focused on a review of the existing plan including: confirmation of critical facilities, discussion of hazard events since adoption of the existing plan, a review of the current hazard summary and impact ratings, and a discussion of progress in relation to current mitigation actions. The MAC members were requested to review the existing plan policies and provide comments on the effectiveness of existing policies.

These meetings were advertised locally through a newspaper of general circulation in each participating county and website postings. Copies of advertisements for the meeting notices have been provided in Appendix C.

Initial draft sections of the plan were completed and distributed to the MAC on April 1, 2016, with a final draft version of the entire plan being distributed on June 30, 2016, to all Regional MAC members. Additionally, the plan was posted on the project website (<http://www.rapregionalhmp.org/>) for review by the following agencies and organizations: NC Forest Service, NC Department of Transportation, NC Cooperative Extension, NC Department of Environmental Quality, American Red Cross, Mid-East Commission, Albemarle Regional Planning & Development Commission, and the NC Office of Emergency Medical Services. All adjacent county jurisdictions were made aware that the plan was available for review as well. All entities were notified via email in an effort to solicit input, and included a link to the project website (see Appendix C). No comments have been received to date; however, any comments received prior to adoption and certification will be incorporated into the plan.

Review comments were received from Regional MAC members in August, 2016, and NCDPS on _____, 2017. Revisions were made to the final draft HMP based on these comments (see Appendix D).

AUTHORITY FOR HMP ADOPTION AND RELEVANT LEGISLATION

This HMP Update will be adopted by the Bertie, Hyde, Martin, Tyrrell, and Washington county Boards of Commissioners and the governing bodies of each of the twenty-one (21) participating municipalities under the authorities and police powers granted to county and municipal governments by the North Carolina General Statutes (see NCGS, Chapter 153A and 160A).

The HMP has been developed in accordance with the requirements of the following laws, regulations, and guidance:

- North Carolina General Statutes (N.C.G.S), Chapter 166-A: 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 Commissioner (a.k.a. Session Law 2001-214), adopted June 15, 2001; and
- Public Law 106-390, The Robert T. Stafford Disaster Mitigation Act of 2000, as amended (adopted October 30, 2000); and
- Interim Final Regulations regarding Hazard Mitigation Planning and the Hazard Mitigation Grant Program at 44 C.F.R. Parts 201 and 206 as published in the Federal Register: October 1, 2002 (Volume 67, Number 190, Page 61512-61515).

The above-listed laws, regulations and guidance should be carefully monitored to ensure continued compliance.

INTRODUCTION

As this Regional Hazard Mitigation Plan is comprised of Bertie, Hyde, Martin, Tyrrell, and Washington counties collectively, general information for the region such as location, topography/geology, and climate have been combined for this section. Information regarding history and demographics such as population, housing, and economic characteristics are summarized for each county following the combined information.

Location

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 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), CSX Railway (Martin) and Carolina Coastal Railway (Washington). 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).

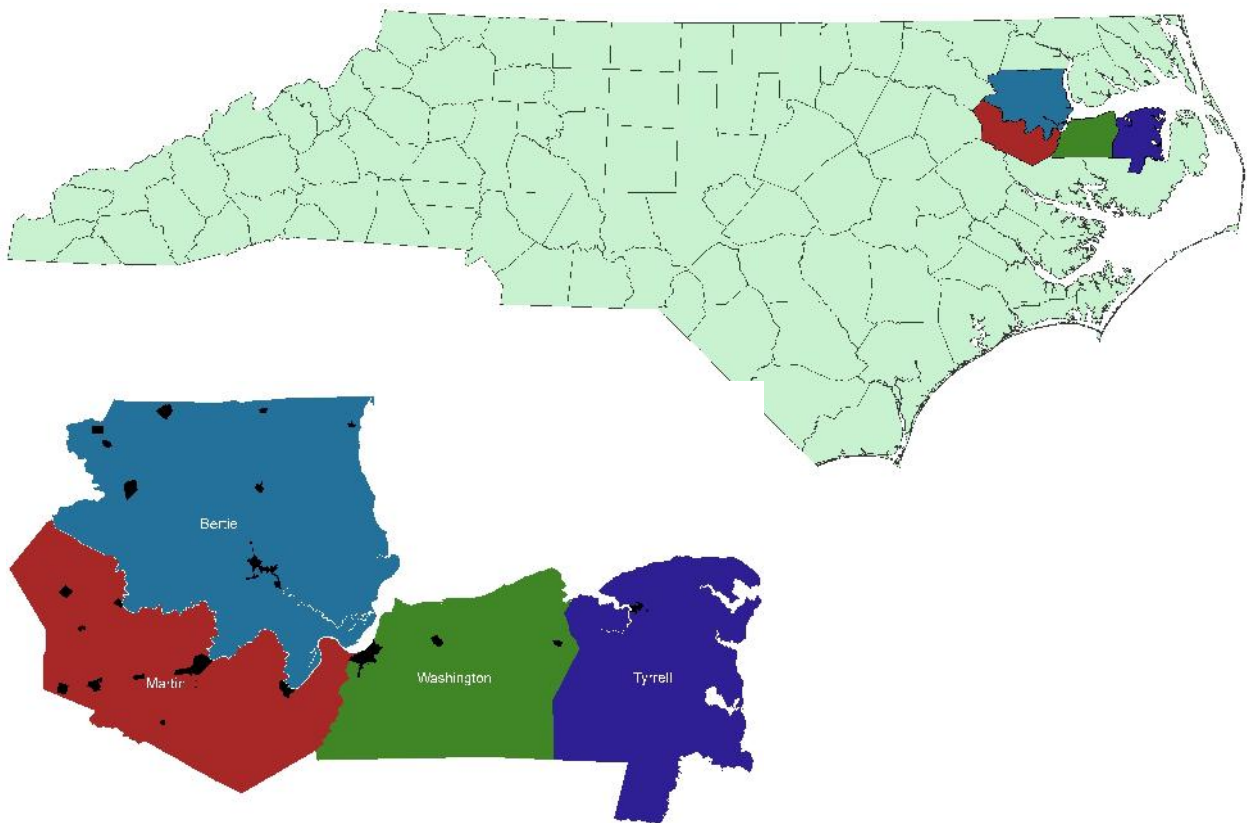


Figure 1. Regional Location *Source: HCP, Inc.*

Topography/Geology

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 Wildlife 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.



Roanoke River National Wildlife Refuge

Photo by Kevin Mills



Pocosin Lakes National Wildlife Refuge

Photo by Dale Suiter/USFWS

Climate

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 and August. Precipitation is generally adequate for all crops, and the region benefits by a lengthy growing season.

Average annual maximum temperature is 72 degrees F and the average minimum temperature is 49.9 degrees F. Average maximum temperatures range from 51.4 degrees F in January to 89.3 degrees F in July. Average minimum temperatures range from 30.9 degrees F in January to 69 degrees F in July. Rainfall is usually fairly well distributed throughout the year, with an average annual precipitation of 50.24 inches. Snowfall is rare, with less than one inch to 1.3 inches falling in December, January, February, and March, for an annual average of 3.1 inches.

BERTIE COUNTY

History

Bertie County, encompassing 741 square miles, is one of the largest counties in North Carolina. Originally part of Albemarle County, the Bertie Precinct along with Chowan County were cut from Albemarle County in 1670. Bertie Precinct was given county status in 1722 when it separated from Chowan County. Initially, Bertie County was comprised of present Bertie County as well as what are now Tyrrell, Edgecombe, Northampton, and Hertford counties. By 1780, Bertie County had been divided to resemble its current shape.

The county was named for James and Henry Bertie, who had purchased land from the original Lords' Proprietors. The county seat of Bertie is the Town of Windsor, which was established in 1766 and made county seat in 1774. The county includes seven other incorporated municipalities: Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, and Roxobel.

Population

The population for Bertie County decreased by 3.1% from 1990 to 2000, but showed a modest increase (7.7%) from 2000 to 2010. While there was also a slight decrease (2.8%) from 2010 to the 2014 estimate, the net increase from 1990 to 2014, as reported by the US Census Bureau and American Community Survey 5-Year Estimates data, was 1.4%, for a total of 20,677 people in 2014. Table 2-1 provides a summary of Bertie County's population figures by municipality and unincorporated areas.

Table 2-1. Bertie County/Municipalities Population 1990-2014

Jurisdiction	Total Population				Percent Change			
	1990	2000	2010	2014 Est.	'90-'00	'00-'10	'10-'14	'90-'14
Askewville	201	180	241	224	-10.4%	33.9%	-7.1%	11.4%
Aulander	1,209	922	895	806	-23.7%	-2.9%	-9.9%	-33.3%
Colerain	241	221	204	188	-8.3%	-7.7%	-7.8%	-22.0%
Kelford	204	245	251	184	20.1%	2.4%	-26.7%	-9.8%
Lewiston-Woodville	788	613	549	893	-22.2%	-10.4%	62.7%	13.3%
Powellsville	279	259	276	259	-7.2%	6.6%	-6.2%	-7.2%
Roxobel	244	263	240	325	7.8%	-8.7%	35.4%	33.2%
Windsor	2,209	2,324	3,630	3,546	5.2%	56.2%	-2.3%	60.5%
<i>Subtotal - All Municipalities</i>	5,375	5,027	6,286	6,425	-6.5%	25.0%	2.2%	19.5%
Unincorporated Areas	15,013	14,730	14,996	14,252	-1.9%	1.8%	-5.0%	-5.1%
Bertie County (Total)	20,388	19,757	21,282	20,677	-3.1%	7.7%	-2.8%	1.4%

Source: US Census Bureau; 2010-2014 American Community Survey 5-Year Estimates.

The Towns of Windsor and Roxobel showed marked growth in population from 1990 to 2014, with 60.5% and 33.2% increases respectively. The rest of the municipalities experienced decline in population from 1990 to 2014, with the exception of Askewville and Lewiston-Woodville, which showed increases of 11.4% and 13.3% respectively. Windsor, the county seat, has the largest population of all the county's municipalities (3,546, the 2014 estimate). The unincorporated areas of the county, which account for 68.9% of the county's total 2014 population, have experienced a slight decrease (5.1%) in population from 1990 to 2014.

Housing

The number of occupied housing units for the county, as reported in the 2010 Census, was 8,160, or 83.6% of the total number of housing units. Vacant housing units (1,593) comprised 16.3% of the total number of units. Table 2-2 summarizes the number of dwelling units by tenure for the county as well as its municipalities. The Town of Kelford has the highest vacancy rate of all the municipalities, at 33.8%. The Town of Windsor has the highest percentage of rental units, at 32.6%.

Table 2-2. Bertie County/Municipalities Summary of Housing Units by Tenure, 2010

	Number of Units	% of Total
<i>Askewville</i>		
Owner-Occupied Units	44	50.0%
Renter-Occupied Units	18	20.5%
Vacant Units	26	29.5%
Total Housing Units - Askewville	88	100.0%
<i>Aulander</i>		
Owner-Occupied Units	201	53.2%
Renter-Occupied Units	79	20.9%
Vacant Units	98	25.9%
Total Housing Units - Aulander	378	100.0%
<i>Colerain</i>		
Owner-Occupied Units	83	68.0%
Renter-Occupied Units	16	13.1%
Vacant Units	23	18.9%
Total Housing Units - Colerain	122	100.0%
<i>Kelford</i>		
Owner-Occupied Units	27	38.0%
Renter-Occupied Units	20	28.2%
Vacant Units	24	33.8%
Total Housing Units - Kelford	71	100.0%

SECTION 2. COMMUNITY PROFILES

	Number of Units	% of Total
Lewiston-Woodville		
Owner-Occupied Units	158	44.3%
Renter-Occupied Units	105	29.4%
Vacant Units	94	26.3%
Total Housing Units - Lewiston-Woodville	357	100.0%
Powellsville		
Owner-Occupied Units	73	52.9%
Renter-Occupied Units	42	30.4%
Vacant Units	23	16.7%
Total Housing Units - Powellsville	138	100.0%
Roxobel		
Owner-Occupied Units	97	59.1%
Renter-Occupied Units	41	25.0%
Vacant Units	26	15.9%
Total Housing Units - Roxobel	164	100.0%
Windsor		
Owner-Occupied Units	847	56.9%
Renter-Occupied Units	485	32.6%
Vacant Units	156	10.5%
Total Housing Units - Windsor	1,488	100.0%
Bertie County		
Owner-Occupied Units	6,277	64.4%
Renter-Occupied Units	1,883	19.3%
Vacant Units	1,593	16.3%
Total Housing Units - County	9,753	100.0%

Source: 2006-2010 American Community Survey 5-Year Estimates.

As detailed in Table 2-3 below, while a large percentage of Bertie County's housing stock (19.1%) was built in the decade between 1990 and 1999, most of the county's housing units were built prior to 1970. Table 2-3 presents the year housing structures were built for the county and its municipalities according to the 2006-2010 American Community Survey data.

Table 2-3. Bertie County/Municipalities Housing Units by Year Structure Built

Year	# of Structures	% of Total	
Askewville			
2005 or later	0	0.0%	
2000 to 2004	3	3.4%	
1990 to 1999	8	9.1%	
1980 to 1989	6	6.8%	
1970 to 1979	14	15.9%	
1960 to 1969	7	8.0%	
1950 to 1959	18	20.5%	
1940 to 1949	26	29.5%	<i>Largest % of Askewville's units built 1940-1949</i>
1939 or earlier	6	6.8%	
Total Structures	88	100.0%	
Aulander			
2005 or later	14	3.7%	
2000 to 2004	13	3.4%	
1990 to 1999	60	15.9%	
1980 to 1989	39	10.3%	
1970 to 1979	50	13.2%	
1960 to 1969	48	12.7%	
1950 to 1959	39	10.3%	
1940 to 1949	16	4.2%	
1939 or earlier	99	26.2%	<i>Largest % of Aulander's units built pre-1940</i>
Total Structures	378	100.0%	
Colerain			
2005 or later	0	0.0%	
2000 to 2004	0	0.0%	
1990 to 1999	10	8.2%	
1980 to 1989	5	4.1%	
1970 to 1979	17	13.9%	
1960 to 1969	36	29.5%	<i>Largest % of Colerain's units built 1960-1969</i>
1950 to 1959	21	17.2%	
1940 to 1949	19	15.6%	
1939 or earlier	14	11.5%	
Total Structures	122	100.0%	

SECTION 2. COMMUNITY PROFILES

Year	# of Structures	% of Total	
Kelford			
2005 or later	0	0.0%	
2000 to 2004	0	0.0%	
1990 to 1999	1	1.4%	
1980 to 1989	7	9.9%	
1970 to 1979	8	11.3%	
1960 to 1969	15	21.1%	
1950 to 1959	9	12.7%	
1940 to 1949	0	0.0%	
1939 or earlier	31	43.7%	<i>Largest % of Kelford's units built pre-1940</i>
Total Structures	71	100.0%	
Lewiston-Woodville			
2005 or later	14	3.9%	
2000 to 2004	6	1.7%	
1990 to 1999	34	9.5%	
1980 to 1989	81	22.7%	<i>Largest % of Lewiston-Woodville's units built 1980-1989</i>
1970 to 1979	48	13.4%	
1960 to 1969	33	9.2%	
1950 to 1959	57	16.0%	
1940 to 1949	18	5.0%	
1939 or earlier	66	18.5%	
Total Structures	357	100.0%	
Powellsville			
2005 or later	3	2.2%	
2000 to 2004	0	0.0%	
1990 to 1999	19	13.8%	
1980 to 1989	4	2.9%	
1970 to 1979	26	18.8%	
1960 to 1969	11	8.0%	
1950 to 1959	7	5.1%	
1940 to 1949	20	14.5%	
1939 or earlier	48	34.8%	<i>Largest % of Powellsville's units built pre-1940</i>
Total Structures	138	100.0%	

SECTION 2. COMMUNITY PROFILES

Year	# of Structures	% of Total	
Roxobel			
2005 or later	0	0.0%	
2000 to 2004	5	3.0%	
1990 to 1999	9	5.5%	
1980 to 1989	26	15.9%	
1970 to 1979	31	18.9%	
1960 to 1969	9	5.5%	
1950 to 1959	10	6.1%	
1940 to 1949	15	9.1%	
1939 or earlier	59	36.0%	<i>Largest % of Roxobel's units built pre-1940</i>
Total Structures	164	100.0%	
Windsor			
2005 or later	45	3.0%	
2000 to 2004	40	2.7%	
1990 to 1999	193	13.0%	
1980 to 1989	126	8.5%	
1970 to 1979	244	16.4%	
1960 to 1969	261	17.5%	
1950 to 1959	301	20.2%	<i>Largest % of Windsor's units built 1950-1959</i>
1940 to 1949	92	6.2%	
1939 or earlier	186	12.5%	
Total Structures	1,488	100.0%	
Bertie County			
2005 or later	173	1.8%	
2000 to 2004	743	7.6%	
1990 to 1999	1867	19.1%	<i>Largest % of Bertie County's units built 1990-1999</i>
1980 to 1989	1397	14.3%	
1970 to 1979	1624	16.7%	
1960 to 1969	1416	14.5%	
1950 to 1959	767	7.9%	
1940 to 1949	493	5.1%	
1939 or earlier	1273	13.1%	
Total Structures	9,753	100.0%	

Source: 2006-2010 American Community Survey 5-Year Estimates.

Economy

In 2010, there were a total of 8,312 persons employed in Bertie County, representing a 10.3% increase over the 2000 figure of 7,539 employed persons. In spite of this increase, the number of unemployed persons also increased, for a 2010 unemployment rate of 11.9%, as opposed to the 7.1% rate in 2000. Table 2-4 provides the county's and municipalities' unemployment rates for the civilian labor force for selected years. The Town of Lewiston-Woodville had the highest unemployment rate, at 25.5%, while the Town of Askewville had an impressive 0% unemployment rate for 2010. All of the municipalities, except for Askewville, Powellsville, and Windsor, experienced increases in the unemployment rate between 2000 and 2010. Bertie County's 2010 unemployment rate is slightly higher than the state's rate of 11.1%.

Table 2-4. Bertie County/Municipalities Civilian Unemployment Rate, 16 years and over

	2000	2010	% Change
Askewville			
Civilian Labor Force	103	96	-6.8%
Number Employed	101	96	-5.0%
Number Unemployed	2	0	-100.0%
Askewville Unemployment Rate	1.9%	0.0%	-100.0%
Aulander			
Civilian Labor Force	354	316	-10.7%
Number Employed	341	268	-21.4%
Number Unemployed	13	48	269.2%
Aulander Unemployment Rate	3.7%	15.2%	310.8%
Colerain			
Civilian Labor Force	117	94	-19.7%
Number Employed	114	78	-31.6%
Number Unemployed	3	16	433.3%
Colerain Unemployment Rate	2.6%	17.0%	553.8%
Kelford			
Civilian Labor Force	81	48	-40.7%
Number Employed	77	43	-44.2%
Number Unemployed	4	5	25.0%
Kelford Unemployment Rate	4.9%	10.4%	112.2%
Lewiston-Woodville			
Civilian Labor Force	194	361	86.1%
Number Employed	172	269	56.4%
Number Unemployed	22	92	318.2%
Lewiston-Woodville Unemployment Rate	11.3%	25.5%	125.7%

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	2000	2010	% Change
Powellsville			
Civilian Labor Force	109	115	5.5%
Number Employed	98	106	8.2%
Number Unemployed	11	9	-18.2%
Powellsville Unemployment Rate	10.1%	7.8%	-22.8%
Roxobel			
Civilian Labor Force	140	201	43.6%
Number Employed	131	173	32.1%
Number Unemployed	9	28	211.1%
Roxobel Unemployment Rate	6.4%	13.9%	117.2%
Windsor			
Civilian Labor Force	826	1,629	97.2%
Number Employed	763	1,507	97.5%
Number Unemployed	63	122	93.7%
Windsor Unemployment Rate	7.6%	7.5%	-1.3%
Bertie County			
Civilian Labor Force	8,112	9,440	16.4%
Number Employed	7,539	8,312	10.3%
Number Unemployed	573	1,128	96.9%
Bertie County Unemployment Rate	7.1%	11.9%	67.6%
North Carolina Unemployment Rate	5.3%	11.1%	109.4%

Source: 2000 US Census; 2006-2010 American Community Survey 5-Year Estimates.

The two industries employing most of Bertie County's workers are the manufacturing industry (employing 24.6%) and the educational services, and health care and social assistance industry (employing 25.7%). Table 2-5 indicates the county's total employment by industry for 2010.

Table 2-5. Bertie County Employment by Industry, 2010

Categories	Total Employment	% of Total
Agriculture, forestry, fishing and hunting, and mining	496	6.0%
Construction	391	4.7%
Manufacturing	2,043	24.6%
Wholesale trade	210	2.5%
Retail trade	827	9.9%
Transportation and warehousing, and utilities	347	4.2%
Information	24	0.3%
Finance and insurance, and real estate and rental and leasing	117	1.4%

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Categories	Total Employment	% of Total
Professional, scientific, and management, and administrative and waste management services	339	4.1%
Educational services, and health care and social assistance	2,137	25.7%
Arts, entertainment, and recreation, and accommodation and food services	354	4.3%
Other services (except public administration)	442	5.3%
Public administration	585	7.0%
Total	8,312	100.0%

Source: 2006-2010 American Community Survey 5-Year Estimates.

Per capita income can be considered a good indicator of an area's income producing capability or strength. Table 2-6 provides a comparison of per capita incomes for the county, its municipalities, and North Carolina.

Table 2-6. Bertie County and North Carolina Per Capita Income, 2000, 2010, and 2014

	2000 Census	2010 Census	2014 Estimate
Askewville	\$18,184	\$33,691	\$28,989
Aulander	\$13,767	\$13,005	\$13,188
Colerain	\$24,573	\$22,823	\$24,923
Kelford	\$9,945	\$25,866	\$13,128
Lewiston-Woodville	\$12,911	\$12,247	\$15,429
Powellsville	\$14,065	\$20,994	\$17,379
Roxobel	\$12,798	\$14,359	\$16,477
Windsor	\$18,006	\$20,132	\$15,038
Bertie County	\$14,096	\$17,614	\$16,557
North Carolina	\$20,307	\$24,745	\$25,608

Source: 2000 US Census; 2010 US Census; 2010-2014 American Community Survey 5-Year Estimates.

The Towns of Askewville (\$28,989) and Colerain (\$24,923) demonstrate the highest per capita incomes of the county's municipalities estimated in 2014 by the 2010-2014 American Community Survey 5-Year Estimates data. The county's overall per capita income of \$16,557 is well below the state's figure of \$25,608.



Bertie County Courthouse

Photo Courtesy of Bertie County



Hope Mansion - c.1830

Photo Courtesy of www.hopeplantation.org.

HYDE COUNTY

History

Hyde County is one of the oldest counties in North Carolina, originally included in Bath County. In 1705, Bath County was divided into three precincts, one of them being "Wickam." In 1711, Wickham was changed to "Hyde," in honor of Edward Hyde, a cousin of Queen Anne who was made Colonial governor of North Carolina.

A fact not generally known is that Bath, the oldest town in North Carolina and in Colonial days the state seat of government, was at one time in the old Hyde Precinct. Hyde County's first seat of government was in Woodstock (now in Beaufort County). It was eventually moved to Germantown and then to Lake Landing. In 1836, it was moved to Swan Quarter, its present location.

Many refer to Hyde County as the "land of many waters," as it is surrounded by the Pamlico Sound, the Alligator and Pungo Rivers, and is home to North Carolina's largest natural lake, Lake Mattamuskeet. It is also bisected by the 3,000-mile long Atlantic Intracoastal Waterway which facilitates navigation along the eastern seaboard of the United States. Blessed with the bounties of nature, this unspoiled region was referred to as "the land of the huntsman's delight," and also known as the "Canada Goose Hunting Capital of the World." In its heyday, Mattamuskeet Lodge hosted hunters from throughout the world. Located in the Atlantic flyway, the county is still the annual migration home for thousands of tundra swan from Alaska, Canada geese, and over 200 species of other waterfowl.

Ocracoke Island was a part of Carteret County until 1845 when it was annexed to Hyde County. Some of the earliest recorded names for Ocracoke Island (Wokokon, Wocokon) reflect the Island's Native American connection. Ocracoke's first residents were members of the pre-Columbian Wocon tribe. Eventually the "W" was dropped and spellings such as "Okok" and "Ocrokok" evolved into the present-day. The European history of the Island begins on November 11, 1719, when John Lovick, Secretary of the Colony of North Carolina and a Deputy of the Lords Proprietors, was granted the Island of Ocracoke, containing 2,110 acres. During the early eighteenth century, Ocracoke was used chiefly for raising cattle and sheep. Because larger vessels were unable to navigate the shallow Pamlico Sound, Ocracoke Island soon became a settlement for pilots who transported sought-after goods to ports on the North Carolina mainland.

There are no incorporated municipalities in Hyde County. Swan Quarter serves as the county seat, and Engelhard is Hyde County's largest village. In addition, there are the communities of Scranton, Fairfield, Ponzer, and Ocracoke.

Population

Table 2-7 provides a summary of Hyde County population figures for 1990, 2000, and 2010. The population for Hyde County increased by 7.7% from 1990 to 2000, and decreased by 0.3% from 2000 to 2010. The NC Office of State Planning predicts a continuing slight decreasing trend for Hyde County's overall population, with the total 2015 county population projection estimated at 5,710 persons, a 1.7% decrease from the 2010 population.

Table 2-7. Hyde County Population 1990-2014

	Total Population				Percent Change			
	1990	2000	2010	2014 Est.	'90-'00	'00-'10	'10-'14	'90-'14
Hyde County	5,411	5,826	5,810	5,757	7.7%	-0.3%	-0.9%	6.4%

Source: US Census Bureau; 2010-2014 American Community Survey 5-Year Estimates.

There are reasons for Hyde County's decline in population. First, there are very limited employment opportunities within the county. Most mainland residents have traditionally made their living through farming or commercial fishing, industries not as prosperous as they once were. Those who live on Ocracoke Island depend heavily on the seasonal tourist industry. This lack of stable employment opportunities has forced non-retired people to look elsewhere for a place to live and work. Secondly, while other areas have seen significant economic growth, Hyde County remains very rural and is isolated from mainstream shopping, medical facilities, and daily routines. This isolation has driven some residents to relocate to other areas where much needed goods and services are most easily accessible.

There are no incorporated municipalities in Hyde County; however, the US Census Bureau recognizes Census Designated Places (CDP) as the statistical counterparts of incorporated places such as cities, towns, and villages. CDPs are populated areas that lack separate municipal government, but which otherwise physically resemble incorporated places. The US Census provides 2010 and 2014 data for the following CDPs in Hyde County: Engelhard CDP, Fairfield CDP, Ocracoke CDP, and Swan Quarter CDP (see Table 2-8).

Table 2-8. Hyde County Census Designated Places Population 2010-2014

	Total Population		Percent Change
	2010	2014 Est.	'10-'14
Engelhard CDP	445	545	22.5%
Fairfield CDP	258	363	40.7%
Ocracoke CDP	948	556	-41.4%
Swan Quarter CDP	324	239	-26.2%

Source: US Census Bureau; 2010-2014 American Community Survey 5-Year Estimates.

Housing

The number of occupied housing units for the county, as reported in the 2010 American Community Survey, was 1,921, or 59.7% of the total number of housing units. Vacant housing units (1,295) comprised 40.3% of the total number of units. Table 2-9 summarizes the county's and municipalities' dwelling units by tenure. Ocracoke CDP has the highest vacancy rate of Hyde County's CDPs, at 71.6%, while Engelhard CDP has the highest percentage of rental units, at 26.5%.

Table 2-9. Hyde County/Census Designated Places Summary of Housing Units by Tenure, 2010

	Number of Units	% of Total
Engelhard CDP		
Owner-Occupied Units	95	39.9%
Renter-Occupied Units	63	26.5%
Vacant Units	80	33.6%
Total Housing Units - Engelhard CDP	238	100.0%
Fairfield CDP		
Owner-Occupied Units	236	94.8%
Renter-Occupied Units	13	5.2%
Vacant Units	0	0.0%
Total Housing Units - Fairfield CDP	249	100.0%
Ocracoke CDP		
Owner-Occupied Units	132	17.9%
Renter-Occupied Units	77	10.4%
Vacant Units	528	71.6%
Total Housing Units - Ocracoke CDP	737	100.0%
Swan Quarter CDP		
Owner-Occupied Units	146	49.7%
Renter-Occupied Units	59	20.1%
Vacant Units	89	30.3%
Total Housing Units - Swan Quarter CDP	294	100.0%
Hyde County		
Owner-Occupied Units	1,587	49.3%
Renter-Occupied Units	334	10.4%
Vacant Units	1,295	40.3%
Total Housing Units - County	3,216	100.0%

Source: 2006-2010 American Community Survey 5-Year Estimates.

The county's housing stock is aging – the majority of units (69.4%) were built prior to 1990. Table 2-10 presents housing units for the county and its CDPs by year the structures were built.

Table 2-10. Hyde County/Census Designated Places Housing Units by Year Structure Built, 2010

Year	# of Structures	% of Total	
Engelhard CDP			
2005 or later	0	0.0%	
2000 to 2004	3	1.3%	
1990 to 1999	41	17.2%	
1980 to 1989	0	0.0%	
1970 to 1979	32	13.4%	
1960 to 1969	0	0.0%	
1950 to 1959	53	22.3%	
1940 to 1949	71	29.8%	<i>Largest % of Engelhard CDP's units built pre-1950</i>
1939 or earlier	38	16.0%	
Total Structures	238	100.0%	
Fairfield CDP			
2005 or later	0	0.0%	
2000 to 2004	22	8.8%	
1990 to 1999	52	20.9%	
1980 to 1989	0	0.0%	
1970 to 1979	50	20.1%	
1960 to 1969	29	11.6%	
1950 to 1959	0	0.0%	
1940 to 1949	0	0.0%	
1939 or earlier	96	38.6%	<i>Largest % of Fairfield CDP's units built pre-1940</i>
Total Structures	249	100.0%	
Ocracoke CDP			
2005 or later	0	0.0%	
2000 to 2004	40	5.4%	
1990 to 1999	191	25.9%	
1980 to 1989	109	14.8%	
1970 to 1979	76	10.3%	
1960 to 1969	69	9.4%	
1950 to 1959	0	0.0%	
1940 to 1949	33	4.5%	
1939 or earlier	219	29.7%	<i>Largest % of Ocracoke CDP's units built pre-1940</i>
Total Structures	737	100.0%	

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Year	# of Structures	% of Total	
Swan Quarter CDP			
2005 or later	0	0.0%	
2000 to 2004	14	4.8%	
1990 to 1999	78	26.5%	
1980 to 1989	0	0.0%	
1970 to 1979	48	16.3%	
1960 to 1969	0	0.0%	
1950 to 1959	18	6.1%	
1940 to 1949	0	0.0%	
1939 or earlier	136	46.3%	<i>Largest % of Swan Quarter CDP's units built pre-1940</i>
Total Structures	294	100.0%	
Hyde County			
2005 or later	50	1.6%	
2000 to 2004	276	8.6%	
1990 to 1999	655	20.4%	
1980 to 1989	264	8.2%	<i>Largest % of Hyde County's units built pre-1990</i>
1970 to 1979	537	16.7%	
1960 to 1969	387	12.0%	
1950 to 1959	142	4.4%	
1940 to 1949	130	4.0%	
1939 or earlier	775	24.1%	
Total Structures	3,216	100.0%	

Source: 2006-2010 American Community Survey 5-Year Estimates.

Economy

In 2010, there was a total of 2,055 employed persons in Hyde County. The number employed decreased by 12.9% from 2000 to 2010. Table 2-11 provides the county's unemployment rates for the civilian labor force for selected years.

Table 2-11. Hyde County Civilian Unemployment Rate, 16 years and over

Hyde County	2000	2010	% Change
Civilian Labor Force	2,360	2,055	-12.9%
Number Employed	2,236	1,956	-12.5%
Number Unemployed	124	99	-20.2%
Hyde County Unemployment Rate	5.3%	4.8%	-9.4%
North Carolina Unemployment Rate	3.7%	8.8%	137.8%

Source: 2000 US Census; 2006-2010 American Community Survey 5-Year Estimates.

Hyde County's civilian employment is heavily concentrated in the agriculture/forestry/fishing and hunting/mining and education/health/social assistance sectors. The largest single employment category is the educational services, and health care and social assistance sector, which constitutes 23.7% of all those employed who are 16 years of age and older. Agriculture, forestry, fishing and hunting, and mining accounts for the second largest category with 16.9%. Of the county's total 2010 employed labor force, 11.4% were employed in public administration sector and 9.2% in the arts/entertainment/recreation and accommodation/food services sector. Table 2-12 provides a summary of Hyde County's employment by industry.

Table 2-12. Hyde County Employment by Industry, 2010

Categories	Total Employment	% of Total
Agriculture, forestry, fishing and hunting, and mining	330	16.9%
Construction	82	4.2%
Manufacturing	105	5.4%
Wholesale trade	46	2.4%
Retail trade	145	7.4%
Transportation and warehousing, and utilities	102	5.2%
Information	0	0.0%
Finance and insurance, and real estate and rental and leasing	41	2.1%
Professional, scientific, and management, and administrative and waste management services	162	8.3%
Educational services, and health care and social assistance	464	23.7%
Arts, entertainment, and recreation, and accommodation and food services	179	9.2%
Other services (except public administration)	77	3.9%

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Categories	Total Employment	% of Total
Public administration	223	11.4%
Total	1,956	100.0%

Source: 2006-2010 American Community Survey 5-Year Estimates.

Normally, per capita income is considered a good indicator of an area's income producing capability or strength. Table 2-13 provides a comparison of per capita incomes for Hyde County and North Carolina.

Table 2-13. Hyde County and North Carolina Per Capita Income, 2000, 2010, and 2014

	2000 Census	2010 Census	2014 Estimate
Hyde County	\$13,164	\$14,992	\$19,796
North Carolina	\$20,307	\$24,745	\$25,608

Source: 2000 US Census; 2010 US Census; 2010-2014 American Community Survey 5-Year Estimates.

Overall, from 2000 to 2010, the gap between Hyde County per capita income level and that of the State increased significantly. In addition, the county's per capita income only increased by \$1,828, or 13.9%.



Hyde County Courthouse

Photo Courtesy of www.hydecourtnc.gov



Lake Mattamuskeet

Photo Courtesy of www.hydecounty.org

MARTIN COUNTY

History

Martin County's richly supplied forests and streams provided a thriving way of life for Native Americans long before it was first visited by English explorers. In 1774, Martin County was formed from Tyrrell and Halifax counties, only a few months before the first meeting of the North Carolina Provincial Congress independent of royal authority in August of that year. Four years prior to that time, attempts to establish a new county had been launched as residents of the area had been experiencing difficulty and expense in attending to their affairs at the seats of the government. William Slade, a representative in the Colonial House of Commons, co-sponsored a number of bills during 1769, 1770, and 1771, to have the new county created from upper Tyrrell and lower Halifax.

The county was named in honor of Josiah Martin, the last Royal Governor of North Carolina. It is probable that this county's name would have been changed but for the popularity of Alexander Martin, who was governor, 1782-1785 and 1789-1792. In 1779, Williamston, first called Squhawky, was laid out on the land of Thomas Hunter. Williamston remains the county seat.

Population

The population for Martin County as reported in the 2010 Census was 24,505, a decrease of 4.2% from the 2000 figure of 25,991. The 2014 estimate from the 2010-2014 American Community Survey was reported as 23,947, with another decrease from 2010 of 2.3%. Table 2-14 shows the population summary for the county as well as its municipalities for selected years.

Table 2-14. Martin County/Municipalities Population 1990-2014

Jurisdiction	Total Population				Percent Change			
	1990	2000	2010	2014 Est.	'90-'00	'00-'10	'10-'14	'90-'14
Bear Grass	77	68	73	138	-11.7%	7.4%	89.0%	79.2%
Everetts	143	179	164	133	25.2%	-8.4%	-18.9%	-7.0%
Hamilton	544	516	408	337	-5.1%	-20.9%	-17.4%	-38.1%
Hassell	95	76	84	34	-20.0%	10.5%	-59.5%	-64.2%
Jamesville	612	502	491	535	-18.0%	-2.2%	9.0%	-12.6%
Oak City	389	376	317	314	-3.3%	-15.7%	-0.9%	-19.3%
Parmelee	321	290	278	324	-9.7%	-4.1%	16.5%	0.9%
Robersonville	1,940	1,731	1,488	1,351	-10.8%	-14.0%	-9.2%	-30.4%
Williamston	5,503	5,946	5,511	5,410	8.1%	-7.3%	-1.8%	-1.7%
<i>Subtotal - All Municipalities</i>	9,624	9,684	8,814	8,576	0.6%	-9.0%	-2.7%	-10.9%
Unincorporated Areas	15,454	15,907	15,691	15,371	2.9%	-1.4%	-2.0%	-0.5%
Martin County (Total)	25,078	25,591	24,505	23,947	2.0%	-4.2%	-2.3%	-4.5%

Source: US Census Bureau; 2010-2014 American Community Survey 5-Year Estimates.

During the period 1990 to 2014, all of Martin County's municipalities experienced a decline in population, except for the Towns of Bear Grass (a significant 79.2% increase) and Parmele (a slight 0.9% increase). Williamston, the county seat, has the largest population of all the municipalities.

Housing

The number of occupied housing units in Martin County for 2010 totaled 9,954, or 85.7% of the total. Vacant units (1,654) comprise 14.2% of the total number of units (11,608). Table 2-15 details the number of dwelling units by tenure for the county and its municipalities. Communities with high vacancy rates include Everetts (34.5%), Hassell (44.7%), Jamesville (33.8%), and Oak City (29.1%). The Town of Robersonville has a relatively high rental unit rate (41.8%).

Table 2-15. Martin County/Municipalities Summary of Housing Units by Tenure, 2010

	Number of Units	% of Total
<i>Bear Grass</i>		
Owner-Occupied Units	42	70.0%
Renter-Occupied Units	8	13.3%
Vacant Units	10	16.7%
Total Housing Units - Bear Grass	60	100.0%
<i>Everetts</i>		
Owner-Occupied Units	42	38.2%
Renter-Occupied Units	30	27.3%
Vacant Units	38	34.5%
Total Housing Units - Everetts	110	100.0%
<i>Hamilton</i>		
Owner-Occupied Units	142	53.0%
Renter-Occupied Units	59	22.0%
Vacant Units	67	25.0%
Total Housing Units - Hamilton	268	100.0%
<i>Hassell</i>		
Owner-Occupied Units	22	46.8%
Renter-Occupied Units	4	8.5%
Vacant Units	21	44.7%
Total Housing Units - Hassell	47	100.0%
<i>Jamesville</i>		
Owner-Occupied Units	93	41.3%
Renter-Occupied Units	56	24.9%
Vacant Units	76	33.8%
Total Housing Units - Jamesville	225	100.0%

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	Number of Units	% of Total
Oak City		
Owner-Occupied Units	88	62.4%
Renter-Occupied Units	12	8.5%
Vacant Units	41	29.1%
Total Housing Units - Oak City	141	100.0%
Parmelee		
Owner-Occupied Units	80	61.1%
Renter-Occupied Units	38	29.0%
Vacant Units	13	9.9%
Total Housing Units - Parmelee	131	100.0%
Robersonville		
Owner-Occupied Units	387	47.8%
Renter-Occupied Units	338	41.8%
Vacant Units	84	10.4%
Total Housing Units - Robersonville	809	100.0%
Williamston		
Owner-Occupied Units	1,253	48.4%
Renter-Occupied Units	919	35.5%
Vacant Units	415	16.0%
Total Housing Units - Williamston	2,587	100.0%
Martin County		
Owner-Occupied Units	6,968	60.0%
Renter-Occupied Units	2,986	25.7%
Vacant Units	1,654	14.2%
Total Housing Units - County	11,608	100.0%

Source: 2006-2010 American Community Survey 5-Year Estimates.

Martin County has an aging housing stock. The majority of its dwelling units (59%) were built prior to 1980. Table 2-16 presents the county's and municipalities' housing units by year structure built, according to the 2006-2010 American Community Survey. It is important to note that several municipalities did not report any dwelling units built during certain time periods: Bear Grass (2000 or later); Everetts (1990 or later); Hamilton (2000-2004); Hassell (1940-1959, 1990-1999, and 2005 or later); Jamesville (2005 or later); Oak City (1940-1949, and 2000 or later); Parmelee (2005 or later); and Robersonville (2005 or later).

Table 2-16. Martin County/Municipalities Housing Units by Year Structure Built

Year	# of Structures	% of Total	
<i>Bear Grass</i>			
2005 or later	0	0.0%	
2000 to 2004	0	0.0%	
1990 to 1999	9	15.0%	
1980 to 1989	11	18.3%	
1970 to 1979	5	8.3%	
1960 to 1969	13	21.7%	
1950 to 1959	6	10.0%	
1940 to 1949	14	23.3%	<i>Largest % of Bear Grass's units built 1940-1949</i>
1939 or earlier	2	3.3%	
Total Structures	60	100.0%	
<i>Everetts</i>			
2005 or later	0	0.0%	
2000 to 2004	0	0.0%	
1990 to 1999	0	0.0%	
1980 to 1989	12	10.9%	
1970 to 1979	9	8.2%	
1960 to 1969	24	21.8%	
1950 to 1959	8	7.3%	
1940 to 1949	8	7.3%	
1939 or earlier	49	44.5%	<i>Largest % of Everetts' units built pre-1940</i>
Total Structures	110	100.0%	
<i>Hamilton</i>			
2005 or later	13	4.9%	
2000 to 2004	0	0.0%	
1990 to 1999	27	10.1%	
1980 to 1989	53	19.8%	<i>Largest % of Hamilton's units built 1980-1989</i>
1970 to 1979	39	14.6%	
1960 to 1969	51	19.0%	
1950 to 1959	25	9.3%	
1940 to 1949	20	7.5%	
1939 or earlier	40	14.9%	
Total Structures	268	100.0%	

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Year	# of Structures	% of Total	
Hassell			
2005 or later	0	0.0%	
2000 to 2004	8	17.0%	
1990 to 1999	0	0.0%	
1980 to 1989	2	4.3%	
1970 to 1979	17	36.2%	<i>Largest % of Hassell's units built 1970-79 (tied with pre-1940)</i>
1960 to 1969	3	6.4%	
1950 to 1959	0	0.0%	
1940 to 1949	0	0.0%	
1939 or earlier	17	36.2%	<i>Largest % of Hassell's units built pre-1940 (tied with 1970-79)</i>
Total Structures	47	100.0%	
Jamesville			
2005 or later	0	0.0%	
2000 to 2004	7	3.1%	
1990 to 1999	4	1.8%	
1980 to 1989	14	6.2%	
1970 to 1979	86	38.2%	<i>Largest % of Jamesville's units built 1970-1979</i>
1960 to 1969	38	16.9%	
1950 to 1959	25	11.1%	
1940 to 1949	23	10.2%	
1939 or earlier	28	12.4%	
Total Structures	225	100.0%	
Oak City			
2005 or later	0	0.0%	
2000 to 2004	0	0.0%	
1990 to 1999	17	12.1%	
1980 to 1989	13	9.2%	
1970 to 1979	5	3.5%	
1960 to 1969	55	39.0%	<i>Largest % of Oak City's units built 1960-1969</i>
1950 to 1959	20	14.2%	
1940 to 1949	0	0.0%	
1939 or earlier	31	22.0%	
Total Structures	141	100.0%	

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Year	# of Structures	% of Total	
<i>Parmele</i>			
2005 or later	0	0.0%	
2000 to 2004	7	5.3%	
1990 to 1999	6	4.6%	
1980 to 1989	14	10.7%	
1970 to 1979	26	19.8%	
1960 to 1969	19	14.5%	
1950 to 1959	32	24.4%	<i>Largest % of Parmele's units built 1950-1959</i>
1940 to 1949	6	4.6%	
1939 or earlier	21	16.0%	
Total Structures	131	100.0%	
<i>Robersonville</i>			
2005 or later	0	0.0%	
2000 to 2004	11	1.4%	
1990 to 1999	39	4.8%	
1980 to 1989	92	11.4%	
1970 to 1979	227	28.1%	<i>Largest % of Robersonville's units built 1970-1979</i>
1960 to 1969	129	15.9%	
1950 to 1959	136	16.8%	
1940 to 1949	47	5.8%	
1939 or earlier	128	15.8%	
Total Structures	809	100.0%	
<i>Williamston</i>			
2005 or later	8	0.3%	
2000 to 2004	42	1.6%	
1990 to 1999	189	7.3%	
1980 to 1989	292	11.3%	
1970 to 1979	347	13.4%	
1960 to 1969	407	15.7%	
1950 to 1959	594	23.0%	<i>Largest % of Williamston's units built 1950-1959</i>
1940 to 1949	276	10.7%	
1939 or earlier	432	16.7%	
Total Structures	2,587	100.0%	

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Year	# of Structures	% of Total	
Martin County			
2005 or later	152	1.3%	
2000 to 2004	624	5.4%	
1990 to 1999	2,054	17.7%	
1980 to 1989	1,933	16.7%	
1970 to 1979	2,223	19.2%	<i>Largest % of Martin County's units built 1970-1979</i>
1960 to 1969	1,416	12.2%	
1950 to 1959	1,242	10.7%	
1940 to 1949	782	6.7%	
1939 or earlier	1,182	10.2%	
Total Structures	11,608	100.0%	

Source: 2006-2010 American Community Survey 5-Year Estimates.

Economy

As reported in the 2006-2010 American Community Survey, Martin County had 10,186 employed person in 2010, a decrease of 4.3% from the 2000 figure of 10,649. The county's unemployment rate was 10.1% in 2010, which, while it represents an increase of 26.3% from 2000, compares slightly favorably with the state 2010 unemployment rate of 11.1%. The Towns of Bear Grass, Everetts, and Hassell all had impressive 0% unemployment rates for the year 2010, and both Bear Grass and Hassell had a 0% unemployment rate in 2000 as well. While most municipalities demonstrated either a decrease or the same unemployment rate from 2000 to 2010, the Towns of Oak City, Parmele, and Robersonville all reported increases, with Oak City and Parmele indicated large increases (313.9% and 362.2% respectively). Table 2-17 presents civilian unemployment rate data for the years 2000 and 2010 for Martin County and its municipalities.

Table 2-17. Martin County/Municipalities Civilian Unemployment Rate, 16 years and over

	2000	2010	% Change
Bear Grass			
Civilian Labor Force	33	42	27.3%
Number Employed	33	42	27.3%
Number Unemployed	0	0	-
Bear Grass Unemployment Rate	0.0%	0.0%	-
Everetts			
Civilian Labor Force	87	60	-31.0%
Number Employed	75	60	-20.0%
Number Unemployed	12	0	-100.0%
Everetts Unemployment Rate	13.8%	0.0%	-100.0%

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	2000	2010	% Change
<i>Hamilton</i>			
Civilian Labor Force	240	197	-17.9%
Number Employed	203	191	-5.9%
Number Unemployed	37	6	-83.8%
Hamilton Unemployment Rate	15.4%	3.0%	-80.5%
<i>Hassell</i>			
Civilian Labor Force	21	25	19.0%
Number Employed	21	25	19.0%
Number Unemployed	0	0	-
Hassell Unemployment Rate	0.0%	0.0%	-
<i>Jamesville</i>			
Civilian Labor Force	212	145	-31.6%
Number Employed	189	142	-24.9%
Number Unemployed	23	3	-87.0%
Jamesville Unemployment Rate	10.8%	2.1%	-80.6%
<i>Oak City</i>			
Civilian Labor Force	137	94	-31.4%
Number Employed	132	80	-39.4%
Number Unemployed	5	14	180.0%
Oak City Unemployment Rate	3.6%	14.9%	313.9%
<i>Parmele</i>			
Civilian Labor Force	112	95	-15.2%
Number Employed	101	52	-48.5%
Number Unemployed	11	43	290.9%
Parmele Unemployment Rate	9.8%	45.3%	362.2%
<i>Robersonville</i>			
Civilian Labor Force	686	739	7.7%
Number Employed	646	695	7.6%
Number Unemployed	40	44	10.0%
Robersonville Unemployment Rate	5.8%	6.0%	3.4%
<i>Williamston</i>			
Civilian Labor Force	2,355	1,892	-19.7%
Number Employed	1,995	1,664	-16.6%
Number Unemployed	360	228	-36.7%
Williamston Unemployment Rate	15.3%	12.1%	-20.9%

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	2000	2010	% Change
Martin County			
Civilian Labor Force	11,577	11,330	-2.1%
Number Employed	10,649	10,186	-4.3%
Number Unemployed	928	1,144	23.3%
Martin County Unemployment Rate	8.0%	10.1%	26.3%
North Carolina Unemployment Rate	5.3%	11.1%	109.4%

Source: 2000 US Census; 2006-2010 American Community Survey 5-Year Estimates.

The majority of Martin County's workers are employed in the manufacturing and the educational services, and health care and social assistance industries. Table 2-18 indicates employment by industry for the county for 2010, from the 2006-2010 American Community Survey. The largest single employment category is the educational services/health care/social assistance sector, which employs 2,750 workers, or 27%. Manufacturing accounts for the second largest category, with 1,683 workers, or 16.5% of the labor force. Other top industries include retail trade (9.7%); professional, scientific, and management, and administrative and waste management services (7.2%); and arts, entertainment, and recreation, and accommodation and food services (7%).

Table 2-18. Martin County Employment by Industry, 2010

Categories	Total Employment	% of Total
Agriculture, forestry, fishing and hunting, and mining	468	4.6%
Construction	673	6.6%
Manufacturing	1,683	16.5%
Wholesale trade	274	2.7%
Retail trade	992	9.7%
Transportation and warehousing, and utilities	423	4.2%
Information	128	1.3%
Finance and insurance, and real estate and rental and leasing	466	4.6%
Professional, scientific, and management, and administrative and waste management services	733	7.2%
Educational services, and health care and social assistance	2,750	27.0%
Arts, entertainment, and recreation, and accommodation and food services	717	7.0%
Other services (except public administration)	360	3.5%
Public administration	519	5.1%
Total	10,186	100.0%

Source: 2006-2010 American Community Survey 5-Year Estimates.

Table 2-19 provides a comparison of per capita income for Martin County, its municipalities, and the state from the 2000 and 2010 Censuses, and the 2014 estimate. The county's per capita income increased by a substantial 24% from 2000 (\$15,201) to 2010 (\$18,728), and increased slightly again (by 3.1%) from 2010 to the 2014 estimate (\$19,313).

Table 2-19. Martin County and North Carolina Per Capita Income, 2000, 2010, and 2014

	2000 Census	2010 Census	2014 Estimate
Bear Grass	\$18,562	\$19,451	\$16,830
Everetts	\$13,390	\$17,506	\$14,498
Hamilton	\$12,832	\$16,933	\$15,963
Hassell	\$12,497	\$30,595	\$21,191
Jamesville	\$16,682	\$12,924	\$14,226
Oak City	\$15,302	\$16,778	\$17,230
Parmele	\$16,976	\$11,992	\$25,552
Robesonville	\$14,431	\$18,884	\$19,856
Williamston	\$14,125	\$14,119	\$15,038
Martin County	\$15,102	\$18,728	\$19,313
North Carolina	\$20,307	\$24,745	\$25,608

Source: 2000 US Census; 2010 US Census; 2010-2014 American Community Survey 5-Year Estimates.

All municipalities except Jamesville, Parmele, and Williamston experienced increases in per capita income from 2000 to 2010, and all except Bear Grass, Everetts, Hamilton, and Hassell, experienced increases from 2010 to the 2014 estimate. Comparatively, the county's per capita income in 2010 was 75.7% of the state's figure, and 75.4% that of the state's figure for the 2014 estimate.



Martin County Courthouse

Photo Courtesy of Martin County



Asa Biggs House - 1835

Photo Courtesy of the Town of Williamston

TYRRELL COUNTY

History

Tyrrell County was formed from Chowan, Bertie, Currituck, and Pasquotank counties in 1729. The county was named for Sir John Tyrrell, one of the Lords' Proprietors of the Carolina colony. Elizabethtown, later renamed Columbia, was established on the banks of the Scuppernong River in 1793 and become the county seat in 1799.

While settlers from Virginia streamed southward into the Albemarle region during the early eighteenth century, the development of Tyrrell County proceeded slowly. The county is part of the region's most extensive tract of low-lying, poorly drained land that extends between Albemarle Sound and Pamlico Sound. The swamp forest and vast wetlands of peat, pocosins, and pines restricted penetration of the interior. Consequently, the county has been one of the most isolated and sparsely populated parts of the state.

The first permanent White occupation probably occurred about 1700 at Fort Landing, located near the mouth of the Alligator River. Other families later occupied tracts along the Scuppernong River and Kendrick Creek or ventured up the Alligator River and cleared lands along the coves and creeks in the southeastern part of the county. This section became characterized by modest farms, river landings, and hamlets, all linked together by canals that facilitated farming and small-boat transportation. Although small-scale agriculture marked the area in the colonial period, this land also sustained a collection of large plantations.

Population

Tyrrell County's population was reported as 4,407 persons in 2010, a 6.2% increase over 2000. The Town of Columbia, the only incorporated town in Tyrrell County, also increased (by 8.8%) from 2000 to 2010. The county's population experienced a slight decrease (by 4.3%) from 2010 to 2014, according to the estimate from the 2006-2010 American Community Survey. Overall, the county has experienced a net increase in population of 9.4% from 1990 to 2014. Table 2-20 provides a summary of Tyrrell County's and Columbia's population figures from 1990 to 2014.

Table 2-20. Tyrrell County/Town of Columbia Population 1990-2014								
Jurisdiction	Total Population				Percent Change			
	1990	2000	2010	2014 Est.	'90-'00	'00-'10	'10-'14	'90-'14
Columbia	904	819	891	850	-9.4%	8.8%	-4.6%	-6.0%
Unincorporated Areas	2,952	3,329	3,516	3,369	12.8%	5.6%	-4.2%	14.1%
Tyrrell County (Total)	3,856	4,148	4,407	4,219	7.6%	6.2%	-4.3%	9.4%

Source: US Census Bureau; 2010-2014 American Community Survey 5-Year Estimates.

Housing

Roughly three-fourths (75.3%) of Tyrrell County's 2,209 housing units are occupied. Most of the units are owner-occupied (57.6%); whereas, for the Town of Columbia, the percentage of owner-occupied and renter-occupied units are almost even (41.8% and 41.1%, respectively). Table 2-21 provides a summary of dwelling units by tenure for Tyrrell County and the Town of Columbia for 2010.

Table 2-21. Tyrrell County/Town of Columbia Summary of Housing Units by Tenure, 2010

	Number of Units	% of Total
Columbia		
Owner-Occupied Units	238	41.8%
Renter-Occupied Units	234	41.1%
Vacant Units	97	17.0%
Total Housing Units - Columbia	569	100.0%
Tyrrell County		
Owner-Occupied Units	1,272	57.6%
Renter-Occupied Units	391	17.7%
Vacant Units	546	24.7%
Total Housing Units - County	2,209	100.0%

Source: 2006-2010 American Community Survey 5-Year Estimates.

Tyrrell County's housing stock is aged. The largest percentage of both the county's and the Town of Columbia's dwelling units were built pre-1940. Table 2-22 details the county's and Town of Columbia's housing units by year structure built, according to the 2006-2010 American Community Survey 5-Year Estimates data.

Table 2-22. Tyrrell County/Town of Columbia Housing Units by Year Structure Built

Year	# of Structures	% of Total	
Columbia			
2005 or later	5	0.9%	
2000 to 2004	12	2.1%	
1990 to 1999	69	12.1%	
1980 to 1989	82	14.4%	
1970 to 1979	79	13.9%	
1960 to 1969	93	16.3%	
1950 to 1959	59	10.4%	
1940 to 1949	19	3.3%	
1939 or earlier	151	26.5%	<i>Largest % of Columbia's units built pre-1940</i>
Total Structures	569	100.0%	

SECTION 2. COMMUNITY PROFILES

Year	# of Structures	% of Total	
Tyrrell County			
2005 or later	61	2.8%	
2000 to 2004	142	6.4%	
1990 to 1999	377	17.1%	
1980 to 1989	297	13.4%	
1970 to 1979	314	14.2%	
1960 to 1969	314	14.2%	
1950 to 1959	135	6.1%	
1940 to 1949	91	4.1%	
1939 or earlier	478	21.6%	<i>Largest % of Tyrrell County's units built pre-1940</i>
Total Structures	2,209	100.0%	

Source: 2006-2010 American Community Survey 5-Year Estimates.

Economy

The county's civilian labor force represents 1,522 employed persons for 2010. The county's 2010 unemployment rate of 15.7% is above the state's rate of 11.1%, and represents a 157.4% increase over the 2000 rate of 6.1%. The Town of Columbia's unemployment rate has decreased by 16.9% from 2000 to 2010, to 7.4%. Table 2-23 details the civilian labor force data and unemployment rates for the county and Columbia.

Table 2-23. Tyrrell County/Town of Columbia Civilian Unemployment Rate, 16 years and over

	2000	2010	% Change
Columbia			
Civilian Labor Force	305	419	37.4%
Number Employed	278	388	39.6%
Number Unemployed	27	31	14.8%
Columbia Unemployment Rate	8.9%	7.4%	-16.9%
Tyrrell County			
Civilian Labor Force	1,669	1,805	8.1%
Number Employed	1,568	1,522	-2.9%
Number Unemployed	101	283	180.2%
Tyrrell County Unemployment Rate	6.1%	15.7%	157.4%
North Carolina Unemployment Rate	5.3%	11.1%	109.4%

Source: 2000 US Census; 2006-2010 American Community Survey 5-Year Estimates.

Civilian employment for Tyrrell County is concentrated in the educational services/health care/social assistance sector (17.9%), as well as the public administration (13.4%), retail trade (12.7%), and manufacturing (10.9%) categories. Table 2-24 details the county's employment by industry for 2010.

Table 2-24. Tyrrell County Employment by Industry, 2010

Categories	Total Employment	% of Total
Agriculture, forestry, fishing and hunting, and mining	145	9.5%
Construction	72	4.7%
Manufacturing	166	10.9%
Wholesale trade	21	1.4%
Retail trade	194	12.7%
Transportation and warehousing, and utilities	22	1.4%
Information	16	1.1%
Finance and insurance, and real estate and rental and leasing	71	4.7%
Professional, scientific, and management, and administrative and waste management services	59	3.9%
Educational services, and health care and social assistance	273	17.9%
Arts, entertainment, and recreation, and accommodation and food services	123	8.1%
Other services (except public administration)	156	10.3%
Public administration	204	13.4%
Total	1,522	100.0%

Source: 2006-2010 American Community Survey 5-Year Estimates.

In spite of an increasing unemployment rate, per capita income for the county has increased slightly but steadily from 2000 to 2010 and from 2010 to the 2014 estimate. The 2010 reported per capita income for the county, \$15,812, was still well below the state's figure of \$24,745.

Table 2-25. Tyrrell County, Town of Columbia, and North Carolina Per Capita Income, 2000, 2010, and 2014

	2000 Census	2010 Census	2014 Estimate
Columbia	\$12,216	\$12,827	\$17,686
Tyrrell County	\$13,326	\$15,812	\$16,217
North Carolina	\$20,307	\$24,745	\$25,608

Source: 2000 US Census; 2010 US Census; 2010-2014 American Community Survey 5-Year Estimates.

The Town of Columbia demonstrated a slight increase (5%) in per capita income from 2000 to 2010, and a sizeable increase (37.9%) was expected from the 2010 figure (\$12,827) to the 2014 estimate (\$17,686).



Tyrrell County Courthouse

Photo Courtesy of www.nccourts.org



Tyrrell County Visitor's Center

Photo Courtesy of www.albemarle-nc.com

WASHINGTON COUNTY

History

Typical of the region, Washington County was inhabited by Native Americans for thousands of years before the appearance of the first European settlers. During the colonial period, Brick House Landing was established as an important river port, and gained its current name of "Plymouth" from the large number of ships and sailors from Plymouth, Massachusetts, who frequented the port. Washington County, formed in 1799 from Tyrrell County, was named for George Washington. In 1807, Plymouth was established as the first incorporated town in Washington County. Large plantations sprang up during the antebellum period along with the growth of the naval stores trade. During the Civil War, Plymouth was a hotly contested strategic port for both the Union and the Confederacy. Plymouth remains as the county seat of Washington County.

Population

Washington County's 2010 population was reported as 13,228 persons, a slight decrease (by 3.6%) from the 2000 figure of 13,723. The population is expected to further decline slightly. The 2014 estimate was 12,837, a decrease of 3% from the 2010 figure. Table 2-26 represents the county's and its municipalities' population from 1990 to 2014.

Table 2-26. Washington County/Municipalities Population 1990-2014

Jurisdiction	Total Population				Percent Change			
	1990	2000	2010	2014 Est.	'90-'00	'00-'10	'10-'14	'90-'14
Creswell	301	278	276	370	-7.6%	-0.7%	34.1%	22.9%
Plymouth	4,298	4,107	3,878	3,782	-4.4%	-5.6%	-2.5%	-12.0%
Roper	640	613	611	598	-4.2%	-0.3%	-2.1%	-6.6%
<i>Subtotal - All Municipalities</i>	5,239	4,998	4,765	4,750	-4.6%	-4.7%	-0.3%	-9.3%
Unincorporated Areas	8,758	8,725	8,463	8,087	-0.4%	-3.0%	-4.4%	-7.7%
Washington County (Total)	13,997	13,723	13,228	12,837	-2.0%	-3.6%	-3.0%	-8.3%

Source: US Census Bureau; 2010-2014 American Community Survey 5-Year Estimates.

Washington County's municipalities, Creswell, Plymouth, and Roper, as well as its unincorporated areas, all experienced declines in population from 1990 to 2000, and from 2000 to 2010. The Town of Creswell, however, demonstrated an increase from 2010 to the 2014 estimate of 34.1%, and a net increase of 22.9% from 1990 to 2014.

Housing

Over three-fourths (76.2%) of the county's 6,445 dwelling units are occupied, according to the 2006-2010 American Community Survey. Vacant units (1,534) comprise 23.8% of the total number of units. Table 2-27 provides a summary of the county's and its municipalities' housing units by tenure for 2010. The Town of Plymouth has roughly the same vacancy rate (23.7%) as the county (23.8%). The Town of Roper has the highest percentage (41.3%) of rental units of the county's municipalities.

Table 2-27. Washington County/Municipalities Summary of Housing Units by Tenure, 2010

	Number of Units	% of Total
Creswell		
Owner-Occupied Units	81	43.8%
Renter-Occupied Units	63	34.1%
Vacant Units	41	22.2%
Total Housing Units - Creswell	185	100.0%
Plymouth		
Owner-Occupied Units	780	40.8%
Renter-Occupied Units	679	35.5%
Vacant Units	452	23.7%
Total Housing Units - Plymouth	1,911	100.0%
Roper		
Owner-Occupied Units	160	44.9%
Renter-Occupied Units	147	41.3%
Vacant Units	49	13.8%
Total Housing Units - Roper	356	100.0%
Washington County		
Owner-Occupied Units	3,457	53.6%
Renter-Occupied Units	1,454	22.6%
Vacant Units	1,534	23.8%
Total Housing Units - County	6,445	100.0%

Source: 2006-2010 American Community Survey 5-Year Estimates.

Washington County's housing stock is aged. The largest percentage of housing units were built between 1970 and 1979, with 46.2% being built prior to 1970. Table 2-28 details housing units by year structure built for the county and its municipalities. The largest percentages of dwelling units for Creswell and Plymouth were built prior to 1940, and the largest percentage of Roper's units were built between 1940 and 1949.

Table 2-28. Washington County/Municipalities Housing Units by Year Structure Built

Year	# of Structures	% of Total	
Creswell			
2005 or later	0	0.0%	
2000 to 2004	6	3.2%	
1990 to 1999	12	6.5%	
1980 to 1989	39	21.1%	
1970 to 1979	17	9.2%	
1960 to 1969	12	6.5%	
1950 to 1959	9	4.9%	
1940 to 1949	7	3.8%	
1939 or earlier	83	44.9%	<i>Largest % of Creswell's units built pre-1940</i>
Total Structures	185	100.0%	
Plymouth			
2005 or later	0	0.0%	
2000 to 2004	58	3.0%	
1990 to 1999	10	0.5%	
1980 to 1989	128	6.7%	
1970 to 1979	319	16.7%	
1960 to 1969	449	23.5%	
1950 to 1959	325	17.0%	
1940 to 1949	156	8.2%	
1939 or earlier	466	24.4%	<i>Largest % of Plymouth's units built pre-1940</i>
Total Structures	1,911	100.0%	
Roper			
2005 or later	0	0.0%	
2000 to 2004	28	7.9%	
1990 to 1999	28	7.9%	
1980 to 1989	44	12.4%	
1970 to 1979	63	17.7%	
1960 to 1969	9	2.5%	
1950 to 1959	69	19.4%	
1940 to 1949	70	19.7%	<i>Largest % of Roper's units built 1940-1949</i>
1939 or earlier	45	12.6%	
Total Structures	356	100.0%	

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Year	# of Structures	% of Total	
Washington County			
2005 or later	65	1.0%	
2000 to 2004	349	5.4%	
1990 to 1999	887	13.8%	
1980 to 1989	968	15.0%	
1970 to 1979	1194	18.5%	<i>Largest % of Washington County's units built 1970-1979</i>
1960 to 1969	842	13.1%	
1950 to 1959	641	9.9%	
1940 to 1949	323	5.0%	
1939 or earlier	1176	18.2%	
Total Structures	6,445	100.0%	

Source: 2006-2010 American Community Survey 5-Year Estimates.

Economy

The number of employed persons in Washington County for 2010 was 4,705, representing a 13.1% decline from the 2000 figure of 5,417. The number of unemployed persons jumped by 120.7% from 2000 to 2010 for the county, for a 2010 unemployment rate of 16.3%. The county's 2010 unemployment rate (16.3%) is above that of the state's (11.1%). Table 2-29 provides a summary of the unemployment rates for the county and its municipalities as well as for North Carolina, for the years 2000 and 2010.

Table 2-29. Washington County/Municipalities Civilian Unemployment Rate, 16 years and over

	2000	2010	% Change
Creswell			
Civilian Labor Force	101	187	85.1%
Number Employed	94	147	56.4%
Number Unemployed	7	40	471.4%
Creswell Unemployment Rate	6.9%	21.4%	210.1%
Plymouth			
Civilian Labor Force	1,467	1474	0.5%
Number Employed	1,299	1215	-6.5%
Number Unemployed	168	259	54.2%
Plymouth Unemployment Rate	11.5%	17.6%	53.0%
Roper			
Civilian Labor Force	230	259	12.6%
Number Employed	201	199	-1.0%
Number Unemployed	29	60	106.9%
Roper Unemployment Rate	21.6%	23.2%	7.4%

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	2000	2010	% Change
Washington County			
Civilian Labor Force	5,833	5623	-3.6%
Number Employed	5,417	4705	-13.1%
Number Unemployed	416	918	120.7%
Washington County Unemployment Rate	7.1%	16.3%	129.6%
North Carolina Unemployment Rate	5.3%	11.1%	109.4%

Source: 2000 US Census; 2006-2010 American Community Survey 5-Year Estimates.

Unemployment rates for each of the county's municipalities for 2010 were well above the 11.1% state figure: 21.4% for Creswell, 17.6% for Plymouth, and 23.2% for Roper. The county's unemployment rate increased by 129.6% from 2000 (7.1%) to 2010 (16.3%).

The majority of Washington County's workers are employed in the educational services/health care/ social assistance sector, with 28.9%. Other industries employing most of Washington County's workers include manufacturing (12.4%), arts/entertainment/recreation/accommodation and food services (10.3%), and agriculture/forestry/fishing and hunting/mining (9.7%). Table 2-30 provides a summary of county employment by industry for 2010.

Table 2-30. Washington County Employment by Industry, 2010

Categories	Total Employment	% of Total
Agriculture, forestry, fishing and hunting, and mining	456	9.7%
Construction	216	4.6%
Manufacturing	584	12.4%
Wholesale trade	201	4.3%
Retail trade	403	8.6%
Transportation and warehousing, and utilities	157	3.3%
Information	84	1.8%
Finance and insurance, and real estate and rental and leasing	126	2.7%
Professional, scientific, and management, and administrative and waste management services	227	4.8%
Educational services, and health care and social assistance	1358	28.9%
Arts, entertainment, and recreation, and accommodation and food services	486	10.3%
Other services (except public administration)	113	2.4%
Public administration	294	6.2%
Total	4,705	100.0%

Source: 2006-2010 American Community Survey 5-Year Estimates.

While unemployment rates have increased, the per capita income for the county has also increased, from \$14,994 in 2000 to \$16,982 in 2010. The upward trend is expected to continue, with the 2014 estimate reporting \$18,794 for the county's per capita income. The 2010 per capita income is still well below the state's figure of \$24,745.

Table 2-31. Washington County and North Carolina Per Capita Income, 2000, 2010, and 2014

	2000 Census	2010 Census	2014 Estimate
Creswell	\$11,769	\$15,153	\$18,961
Plymouth	\$12,067	\$14,057	\$15,502
Roper	\$14,736	\$10,852	\$10,942
Washington County	\$14,994	\$16,982	\$18,794
North Carolina	\$20,307	\$24,745	\$25,608

Source: 2000 US Census; 2010 US Census; 2010-2014 American Community Survey 5-Year Estimates.

The Town of Roper has the lowest per capita income (\$10,852) of the county's municipalities, and all of the municipalities have per capita incomes well below the state's figure.



Washington County Courthouse

Photo Courtesy of www.nccourts.org



Roanoke River Lighthouse & Maritime Museum

Photo Courtesy of www.learnnc.org

INTRODUCTION

As part of Bertie, Hyde, Martin, Tyrrell, and Washington counties' hazard mitigation efforts and the preparation of this plan, the five-county region will need to decide on which specific hazards it should focus its attention and resources. To plan for hazards and to reduce losses, the Northeastern NC Region needs to know:

- 1) the type of natural hazards that threaten the region,
- 2) the characteristics of each hazard,
- 3) the likelihood of occurrence (or probability) of each hazard,
- 4) the magnitude of the potential hazards, and
- 5) the possible impacts of the hazards on the community.

The following section identifies each hazard that poses an elevated threat to Bertie, Hyde, Martin, Tyrrell, and Washington counties and the participating municipalities. A rating system that evaluates the potential for occurrence for each identified threat is provided (see Table 3-8). The following natural hazards were determined to be of concern for the five-county region:

1. Hurricanes
2. Nor'easters
3. Flooding
4. Severe Winter Storms
5. Thunderstorms/Windstorms
6. Tornados
7. Wildfire
8. Earthquakes
9. Sinkholes
10. Dam/Levee Failure
11. Tsunamis
12. Droughts/Heat Waves

A detailed explanation of these hazards and how they have impacted the five-county region is provided on the following pages. The weather history summaries provided throughout this discussion have been compiled from the National Oceanic and Atmospheric Administration (NOAA) as provided through the National Centers for Environmental Information (NCEI), formerly the National Climatic Data Center. The NCEI compiles monthly reports that track weather events and any financial or life loss associated with a given occurrence. These reports are compiled and stored in an online database that is organized by state and county for the entire United States. The data presented within this section as well as Appendix E are the results of this research. Additionally, Appendix E provides a summary of statewide disaster declarations dating back to 1954, many of which had substantial impacts on the Northeastern NC Region.

HURRICANES

Hurricanes are cyclonic storms that originate in tropical ocean waters poleward of about 5° latitude. Basically, hurricanes are heat engines, fueled by the release of latent heat from the condensation of warm water. Their formation requires a low pressure disturbance, sufficiently 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.

Hurricanes that impact North Carolina form in the so-called Atlantic Basin, from the west coast of Africa westward into the Caribbean Sea and Gulf of Mexico. Hurricanes in this basin generally form between June 1 and November 30, with a peak around mid-September. As a hurricane develops, barometric pressure at its center falls and winds increase. Winds at or exceeding 39 mph result in the formation of a tropical storm, which is given a name and closely monitored by the NOAA National Hurricane Center in Miami, Florida. When winds are at or exceed 74 mph, the tropical storm is deemed a hurricane.

Because hurricanes derive their strength from warm ocean waters, they are generally subject to deterioration once they make landfall. The forward momentum of a hurricane can vary from just a few miles per hour to up to 40 mph. This forward motion, combined with a counterclockwise surface flow make the right front quadrant of the hurricane the location of the most potentially damaging winds.

Hurricane intensity is measured using the Saffir-Simpson Scale, ranging from 1 (minimal) to 5 (catastrophic). The following scale categorizes hurricane intensity linearly based upon maximum sustained winds, minimum barometric pressure and storm surge potential.

- Category 1: Winds of 74 to 95 miles per hour. 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.
- Category 2: Winds of 96 to 110 miles per hour. 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.
- Category 3: Winds of 111 to 129 miles per hour. 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.
- Category 4: Winds of 130 to 156 miles per hour. Catastrophic damage will occur: Well-built homes can sustain severe damage with loss of most of the roof structure and/or 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.

- Category 5: Winds greater than 157 miles per hour. 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.

North Carolina has had an extensive hurricane history dating back to colonial times. During the nineteenth century, storms occurred in 1837, 1846, 1856, 1879, 1883, and 1899. During the 1950s, North Carolina was impacted by several hurricanes, including Hazel, Connie, Diane, and Ione. Between 1960 - 1990, there was a decrease in landfalling hurricanes, with the exception of Hurricane Donna in 1960, Hurricane Diana in 1984, and Hurricane Hugo in 1989. However, during the 1990s, North Carolina was ravaged by several hurricanes, including Hazel, Connie, Diane, and Ione. Recent history has included a number of hurricanes, including several major storms, with Emily (1993), Opal (1995), Bertha (1996), Fran (1996), Bonnie (1998), Dennis (1999), Floyd (1999), Irene (1999), Isabel (2003), Charley (2004), Ophelia (2005), Ernesto (2006), Hanna (2008), Irene (2011), Sandy (2012), Andrea (2013), and Arthur (2014) all leaving their mark on North Carolina. These storms had varying impacts on the Northeastern NC Region. Following are brief descriptions of several storms in recent history which had a significant impact on the region (many of these storms resulted in Major Disaster Declarations by FEMA - see Appendix E).

July 5 to July 12, 1996 (Hurricane Bertha)

Hurricane Bertha formed on July 5, 1996. As a Category One hurricane, Bertha moved across the northeastern Caribbean. The storm's highest sustained winds reached 115 mph north of Puerto Rico. Bertha made landfall near Wilmington on July 12 as a Category Two hurricane, with estimated winds of 105 mph. Bertha claimed two lives in North Carolina and did substantial damage to agricultural crops and forestland. Storm surge flooding and beach erosion were severe along the coast. Damages were estimated to exceed \$60 million for homes and structures, and over \$150 million for agriculture. Corn, tobacco, and other crops received severe damage from the storm. Rainfall totals of over 5 inches were common in eastern North Carolina. The Northeastern NC Region experienced approximately \$4,500,000 in crop damage and \$550,000 in property damage. Power was out in some areas for 2-3 days.



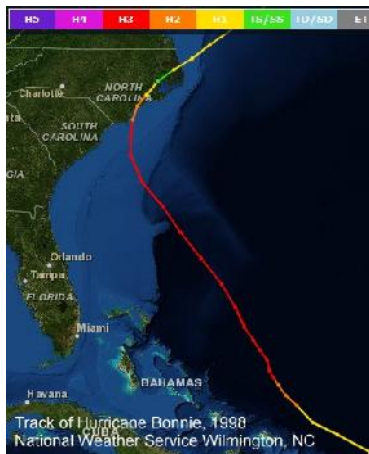
August 23 to September 5, 1996 (Hurricane Fran)

Hurricane Fran was the most destructive hurricane of the 1996 season. The storm was created on August 23, reaching hurricane status on August 29, while about 450 miles to the northeast of the Leeward Islands. It strengthened to a Category Three hurricane northeast of the central Bahamas on September 4. Hurricane Fran, with winds estimated at 115 mph, made landfall over Cape Fear on the evening of September 5, then continued northward over the eastern United States causing widespread damage. Fran was responsible for 34 deaths overall (24 in North Carolina alone), mostly caused by flash flooding in the Carolinas, Virginia, West Virginia, and Pennsylvania.

The storm surge on the North Carolina coast destroyed or seriously damaged thousands of beach front structures. Immediately following the storm, nearly 1.8 million people were without electrical power. Most electrical service was restored within 8-10 days. In Carteret County, Emerald Isle reported 67 homes destroyed and 409 with major damage. Thirty-three mobile homes were destroyed. The Emerald Isle fishing pier was destroyed, and Bogue Sound Pier lost 150 feet. Erosion along the dunes ranged from 5 to 20 feet. Winds gusted to 100 mph at Atlantic Beach. Storm surges approaching nine (9) feet flooded portions of Washington and Belhaven. New Bern had a storm surge on the Neuse River of 10 feet. More than 890 businesses and 30,000 homes were damaged by the storm which also damaged or destroyed 8.25 million acres of forest. The damage in North Carolina alone was estimated at \$5.2 billion. The Northeastern NC Region experienced approximately \$650,000 in property damage.



August 19 to 30, 1998 (Hurricane Bonnie)

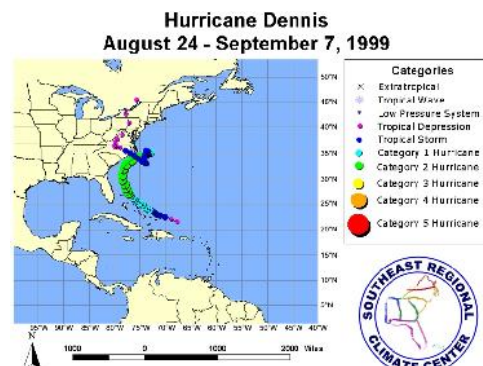


Hurricane Bonnie originated as a tropical wave over Africa. It slowly increased speed and made its way across the Atlantic, near the Leeward Islands and then Hispaniola. It made landfall near Wilmington as a border Category 2/3 hurricane with approximately 115 mph winds and a diameter of 400 miles on August 27, 1998. Rainfall totals between 8-11 inches were recorded in portions of eastern North Carolina. The Southeast Cape Fear River in Duplin County had the most significant flooding with areas near Chinquapin reporting high water.

The storm slowly moved off land on August 28, 1998. In its wake, the total damage was estimated in the \$1 billion range. There was an estimated \$360 million in insured property damage, including \$240 million in North Carolina alone. The Northeastern NC Region experienced approximately \$3,400,000 in property damage.

August 24 to September 7, 1999 (Hurricane/Tropical Storm Dennis)

Hurricane Dennis developed over the eastern Bahamas on August 26, 1999, and drifted parallel to the southeastern United States from the 26th to the 30th. The center of Dennis approached to within 60 miles of the Carolina coastline on August 30th as a strong Category 2 hurricane. Although, the storm never made landfall, rainfall amounts approached ten inches in coastal southeastern North Carolina and beach erosion was substantial. Dennis made a return visit in September as a tropical storm, moving west-northwest through eastern and central North Carolina and then lingering off the coast for several days.



For most counties, Tropical Storm Dennis left relatively little in its wake although on the Outer Banks beach erosion and the storm tide effects were extreme. Unfortunately, the hurricane approached eastern North Carolina during one of the highest astronomical tides of the month. For almost a week after Tropical Storm Dennis made landfall, associated rain fell on inland counties. This allowed most of the rivers to rise above flood stage which set the stage for the next hurricane, Hurricane Floyd and its associated record flooding. The Northeastern NC Region experienced approximately \$19,000,000 in crop damage.

September 7 to 18, 1999 (Hurricane Floyd)



Hurricane Floyd brought flooding rains, high winds, and rough seas to a good portion of the United States coastline from September 14th through the 18th. Although Hurricane Floyd reached Category 4 intensity in the Bahamas, it weakened to a Category 2 hurricane by the time it made landfall in North Carolina. Due to Floyd's large size, heavy rainfall covered a larger area and lasted longer than a typical Category 2 storm. Flooding caused major problems across the region resulting in at least 77 deaths and damages estimated in the billions. In North Carolina alone, 7,000 homes were destroyed; 17,000 homes were inhabitable; and 56,000 homes were damaged.

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 Northeast Cape Fear River in Chinquapin was 8 to 10 feet above the flood stage of 13 feet. Unbelievable numbers of homes were covered with water and over half a million customers throughout the warning area were without power. Unofficially the flooding from Hurricane Floyd has been compared to a 500-year flood. The Northeastern NC Region experienced approximately \$55,200,000 in crop damage and \$8,824,000 in property damage.

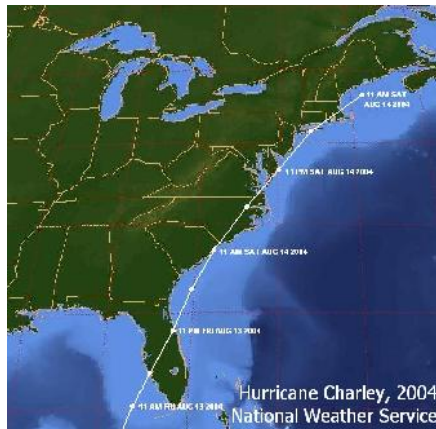
September 6 to 19, 2003 (Hurricane Isabel)

Hurricane Isabel began her path to the east coast of the United States as a tropical storm around September 6, 2003. On September 7th, Isabel was upgraded to a hurricane with 90 mile per hour (mph) sustained winds. By September 8th, Isabel became the third major hurricane of the year at a Category 4 with winds reaching almost 135 mph. Isabel continued her path towards the east coast with a well-formed eye and catastrophic winds that eventually reached 160 mph on September 11, 2003. According to the National Oceanic and Atmospheric Administration (NOAA), at that point Isabel's hurricane force winds extended 60 miles out from the center and tropical storm force winds extended approximately 185 miles out. The storm began to weaken and on September 16th was reduced to a Category 2. Large ocean swells and dangerous surf were experienced from South Carolina to New Jersey.



The hurricane made landfall on September 19th along the southern Outer Banks. Widespread power outages were experienced in eastern North Carolina and Virginia. Major ocean overwash and beach erosion occurred along the North Carolina Outer Banks where waves up to 20 feet accompanied a 6 to 8 foot storm surge. The highest storm surges were experienced in the lower reaches of the Neuse River where water levels rose to as high as 10.5 feet at the mouth of Adams Creek. Hurricane force winds resulted in structural damage to homes. Numerous trees and power lines were downed across the area resulting in a loss of electricity for several weeks in some locations. The Northeastern NC Region experienced approximately \$14,500,000 in property damage.

August 9 to 15, 2004 (Hurricane/Tropical Storm Charley)

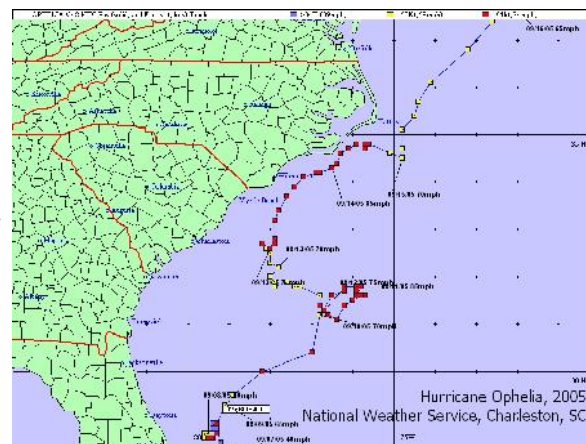


Hurricane Charley initially made landfall on the west coast of Florida between Fort Myers and Tampa as a Category 4 hurricane. The storm crossed Florida, and exited the coast as a Category 1 storm. It continued northeast and made landfall again near Cape Romain as a weak Category 1 hurricane with sustained winds at 75 mph. It moved up the coast and then inland around Myrtle Beach. In Horry and Georgetown counties, insurance claims totaled \$5 million, mostly along the Grand Strand. There were downed trees, roof damage, and flooding along the coast in this area.

Tropical Storm Charley moved northeast across the Coastal Plains of Eastern North Carolina during the afternoon hours of August 14th. Onslow County received the most damage, with estimates over 5 million dollars, as winds gusted to near hurricane force toppling trees and power lines with structural damage to homes and businesses. Winds gusted from 60-70 mph across inland areas near the center of the storm resulting in wind damage to structures, and damage to crops reaching into the millions. Vegetative debris was widespread, plugging storm drains and contributing to ponding and flooding the next day. Storm total rainfall, estimated between 4 to 6 inches, occurred across a large part of the area resulting in freshwater flooding in 7 counties across the Coastal Plains. The Northeastern NC Region experienced approximately \$450,000 in crop damage and \$125,000 in property damage.

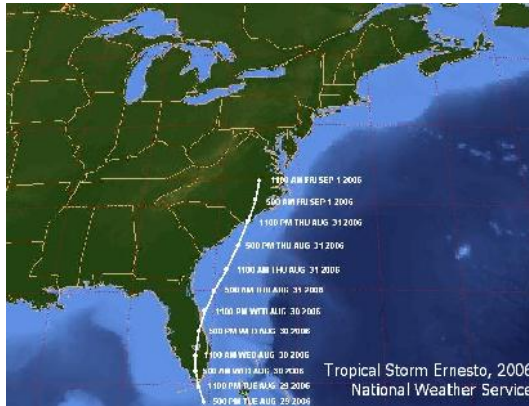
September 6 to 17, 2005 (Hurricane Ophelia)

Category One Hurricane Ophelia, with maximum sustained winds of 85 mph, approached the North Carolina coast on the 13th. The hurricane remained offshore brushing the southern coastal counties of Onslow and Carteret on the 14th and 15th. Highest winds and damages occurred across this area where winds gusted to near 100 mph, and storm surges of up to 6 feet resulted in structural damages totaling near \$35 million.



The highest surge was reported along the lower reaches of the Neuse River where water levels rose to eight feet during the night of the 14th. Ophelia brushed by Outer Banks Hyde and Dare counties on the 16th with hurricane force wind gusts. Minor wind damage occurred across the inland counties of Duplin, Jones, Lenoir, and Craven where tropical storm force wind gusts blew shingles off roofs, and downed trees and power lines.

August 24 to September 1, 2006 (Tropical Storm Ernesto)



Tropical Storm Ernesto, with maximum sustained winds of 70 mph, made landfall on August 31st during the late evening hours. The strong tropical storm moved across the coastal plains region during the early morning hours of September 1st. In general, wind gusts ranged from 40 to 60 mph with the highest gusts near 70 mph along the coastal sections of Onslow County. Minor storm surge flooding and beach erosion occurred along the Onslow and Carteret County coastlines and the Neuse River. Storm total rainfall ranged from 4 inches to near 10 inches. This heavy rainfall resulted in extensive freshwater flooding and eventual river flooding

across the area with some primary and many secondary roads flooded. The Northeast Cape Fear River at Chinquapin remained in major flood from September 2nd through September 7th resulting in flooding of primary roads and homes forcing the evacuation of many residents in the Chinquapin area. Heavy rainfall during the evening of August 31st through the early morning hours of September 1st resulted in extensive flooding of low-lying areas, roads, and streams across eastern North Carolina. Area flood warnings were issued for most of the county warning area as Ernesto moved across the Coastal Plains counties of eastern North Carolina. The Northeastern NC Region experienced approximately \$55,000 in property damage.

August 28 to September 7, 2008 (Hurricane/Tropical Storm Hanna)

Hurricane Hanna was the deadliest storm of the 2008 Atlantic hurricane season. The storm was the eighth tropical cyclone and fourth hurricane of the 2008 Atlantic hurricane season. It formed east-northeast of the northern Leeward Islands on August 28. The cyclone struck Myrtle Beach, South Carolina, before moving up the Eastern Seaboard to become an extratropical cyclone. Hurricane Hanna was downgraded to a tropical storm by the time it moved across eastern North Carolina during the morning hours of September 6th resulting in minor storm surge, beach erosion, and wind damage. Storm surge along the coast was estimated at 2 to 3 feet.



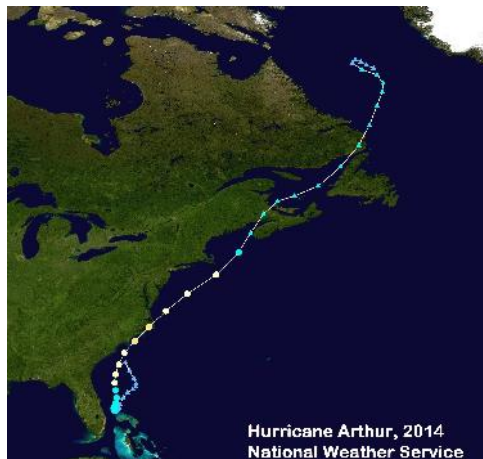
Water levels rose 2 to 4 feet above normal along the lower reaches of the Neuse River and 4.5 feet above normal along the Pamlico River in Washington. Wind gusts near 60 mph resulted in minor wind damage across the Northeastern NC Region with some trees and power lines down and sporadic power outages.

August 26 to 27, 2011 (Hurricane Irene)

Hurricane Irene made landfall during the morning of the 27th, near Cape Lookout, as a large Category 1 hurricane. Due to the large size of the hurricane, strong damaging winds, major storm surge, and flooding rains were experienced across much of eastern North Carolina. Several destructive tornados occurred during the evening of the 26th associated with the hurricane. Millions of dollars in damages were reported across the area. Property and crop damages were estimated to be 209 million dollars. Storm surge damages were estimated at 420 million dollars. The Northeastern NC Region experienced approximately \$45,000,000 in crop damage and \$8,300,000 in property damage.

June 5 to 7, 2013 (Tropical Storm Andrea)

Tropical Storm Andrea made landfall in the Florida Big Bend area during the late afternoon on June 6th. Andrea had the greatest impacts across Eastern NC on June 7th as it moved inland across the area. Minor wind damage was mainly confined to trees. Minor localized flooding occurred mainly across the coastal plains counties.

*July 1 to 9, 2014 (Hurricane Arthur)*

Hurricane Arthur was the earliest known hurricane to make landfall in the U.S. state of North Carolina. The first named storm of the 2014 Atlantic hurricane season, Arthur developed from an initially non-tropical area of low pressure over the Southeastern United States that emerged into the western Atlantic Ocean. Arthur made landfall as a Category 2 hurricane over North Carolina's Shackleford Banks, positioned between Cape Lookout and Beaufort. After producing storm surge flooding and high winds on the Outer Banks, Arthur continued northeastward but stayed offshore of the Mid-Atlantic coast and New England. Rain bands associated with Hurricane Arthur produced generally one to two inches of rainfall across portions of the Northeastern NC Region.

August 28 to September 6, 2016 (Tropical Storm Hermine)

Hurricane Hermine developed from a tropical wave in the Caribbean. On August 29, Hermine intensified to a Category 1 hurricane in the south central Gulf of Mexico before making landfall in the northeast Florida Panhandle near Cedar Key on September 2. The storm weakened quickly and transitioned to a post-tropical cyclone before moving off the coast over the Outer Banks on September 3. The system produced very heavy rainfall, rip currents and three tornadoes in eastern North Carolina. Rainfall totals were in the range of 5 to 7 inches across the five-county region.

*September 28 to October 11, 2016 (Hurricane Matthew)*

Hurricane Matthew moved north off the Florida east coast as a major hurricane before weakening to a Category 2 hurricane off the Georgia coast and then eventually making landfall around Cape Romain, South Carolina as a Category 1 hurricane during the late morning hours on October 8. Hurricane Matthew moved northeast offshore of the North Carolina coast late on October 8th through October 9th with widespread heavy rain. Rainfall ranged from 2 to 4 inches on the southern beaches to 8 to 12 inches inland. This rain led to significant flash flooding over much of eastern North Carolina. Many roads were washed out and impassable for days from the serious flash flooding. Devastating river flooding then occurred several days after Matthew as most main-stem rivers exceeded major flood levels. Strong winds of 40 to 60 mph inland and 60 to 80 mph along the coast occurred as Matthew passed offshore. These winds led to numerous downed trees and power lines across the region with widespread power outages that lasted several days in some areas.

Retired Names

Some hurricanes are so significant and have such a great impact on an area that the names are retired. The name of a hurricane may be retired if the country affected by the storm makes the request to the World Meteorological Organization (WMO). When the name is retired it may not be used again for at least ten years to avoid public confusion with other storms. Several of the hurricanes that affected the region were so destructive that their names were retired. The following is a list of those hurricanes: Hazel, Connie, Ione, Donna, Fran, Floyd, Isabel, Charley, Irene, and Matthew.

Extent

North Carolina's geographic location of the Atlantic Ocean and its proximity to the Gulf Stream make it prone to hurricanes. In fact, North Carolina has experienced the fourth greatest number of hurricane landfalls of any state in the twentieth century (trailing Florida, Texas and Louisiana).

The Northeastern NC region is located in the northeastern North Carolina coastal plain. The Intracoastal Waterway/Alligator River borders Tyrrell County on the east, the Albemarle Sound borders both Tyrrell County and Washington County on the north side, the Albemarle Sound/Chowan River borders Bertie County on the east, the Pamlico Sound borders Hyde County to the southeast, the Alligator River lies to the north of Hyde County, and Alligator Lake and Lake Mattamuskeet occupy a large percentage of Hyde County's area. The geographic location of the Northeastern NC Region to the coast greatly increases the likelihood of occurrence for hurricanes. Using Table 3-8 as a guide, it was determined that hurricanes are "likely" to occur in the Northeastern NC Region.

NOR'EASTERS

In the past decade, research meteorologists have recognized the significance of nor'easters and their potential to cause damage along the coast. Nor'easters share many of the same characteristics of hurricanes. However, unlike hurricanes, these storms are extratropical, deriving their strength from horizontal gradients in temperature. The presence of the warm Gulf Stream waters off the eastern seaboard during the winter acts to dramatically increase surface horizontal temperature gradients within the coastal zone. During winter offshore cold periods, these horizontal temperature gradients can result in rapid and intense destabilization of the atmosphere directly above and shoreward of the Gulf Stream. This period of instability often precedes wintertime coastal extratropical cyclone development.

The temperature structure of the continental air mass and the position of the temperature gradient along the Gulf Stream drive this cyclone development. As a low pressure deepens, winds and waves can uninhibitedly increase and cause serious damage to coastal areas as the storm generally moves to the northeast. The proximity of North Carolina's coast to the Gulf Stream makes it particularly prone to nor'easters. The Dolan-Davis Nor'easter Intensity Scale categorizes nor'easters based upon levels of coastal degradation (see Table 3-1).

Table 3-1. The Dolan-Davis Nor'easter Intensity Scale

Storm Class	Beach Erosion	Dune Erosion	Overwash	Property Damage
1 (Weak)	Minor changes	None	No	No
2 (Moderate)	Modest; mostly to lower beach	Minor	No	Modest
3 (Significant)	Erosion extends across beach	Can be significant	No	Loss of many structures at local level
4 (Severe)	Severe beach erosion and recession	Severe dune erosion or destruction	On low beaches	Loss of structures at community-scale
5 (Extreme)	Extreme beach erosion	Dunes destroyed over extensive areas	Massive in sheets and channels	Extensive at regional-scale; millions of dollars

Source: NC Division of Emergency Management, Local Hazard Mitigation Planning Manual.

A number of notable nor'easters have impacted North Carolina in recent decades, including the Ash Wednesday Storm of March 1962, but they were typically only of local concern. One exception was the nor'easter of late October and early November, 1990, which loosened a dredge barge that struck and destroyed approximately five roadway segments of the Bonner Bridge in Dare County. Another nor'easter struck the Outer Banks on Halloween, 1991, causing substantial beach erosion. More recently, a nor'easter buffeted the North Carolina coast on May 6, 2005, with hurricane force wind gusts, torrential rain, and high surf.

Although nor'easters are more diffuse and less intense than hurricanes, they occur more frequently and cover larger areas and longer coastal reaches at one time. As a result, the likelihood of a nor'easter occurring in the Northeastern NC Region is similar to that of a hurricane. However, the potential for significant damage to the region resulting from a nor'easter is much less than that of a hurricane.

Analysis of nor'easter frequency by researchers reveals fewer nor'easters during the 1980s. However, the frequency of major nor'easters (Class 4 and 5 on the Dolan-Davis scale) has increased in recent years. In the period 1987 to 1993, at least one Class 4 or 5 storm has occurred each year along the Atlantic seaboard of the United States, a situation duplicated only once in the last 50 years. The likelihood of occurrence, based on Table 3-8, is "likely."

FLOODING

Flooding is a localized hazard that is generally the result of excessive precipitation. It is the most common environmental hazard, due to the widespread geographical distribution of river valleys and coastal areas, and the attraction of residents to these areas. However, in coastal areas, storm surge and wind-driven waves are significant components of flooding. Floods can be generally considered in two categories: flash floods, the product of heavy localized precipitation in a short time period over a given location; and general floods, caused by precipitation over a longer time period and over a given river basin.

Flash floods occur within a few minutes or hours of heavy amounts of rainfall or from a dam or levee failure. Flash floods can destroy buildings and bridges, uproot trees, and scour out new drainage channels. Heavy rains that produce flash floods can also trigger mudslides. Most flash flooding is caused by slow-moving thunderstorms, repeated thunderstorms in a local area, or by heavy rains from hurricanes and tropical storms. Although flash flooding occurs often along mountain streams, it is also common in urban areas where much of the ground is covered by impervious surfaces.

The severity of a flooding event is determined by a combination of river basin physiography, local thunderstorm movement, past soil moisture conditions, and the degree of vegetative clearing. Abnormal weather patterns may also contribute to flooding of a local area. Large-scale climatic events, such as the El Nino-Southern Oscillation in the Pacific have been linked to increased storm activity and flooding in the United States. Nationally, July is the month in which most flash flooding events occur, and nearly 90% of flash floods occur during the April through September period.

While flash floods occur within hours of a rain event, general flooding is a longer-term event, and may last for several days. The primary types of general flooding are riverine flooding, coastal flooding, and urban flooding.

Periodic flooding of lands adjacent to non-tidal rivers and streams is a natural and inevitable occurrence. When stream flow exceeds the capacity of the normal water course, some of the above-normal stream flow spills over onto adjacent lands within the floodplain. Riverine flooding is a function of precipitation levels and water runoff volumes within the watershed of the stream or river. The recurrence interval of a flood is defined as the average time interval, in years, expected to take place between the occurrence of a flood of a particular magnitude and an equal or larger flood. Flood magnitude increases as the recurrence interval increases.

Floodplains are divisible into areas expected to be inundated by spillovers from stream flow levels associated with specific flood-return frequencies. The National Flood Insurance Program (NFIP) uses flood zone designations to indicate the magnitude of flood hazards in specific areas. The following are flood hazard zones located within the Northeastern NC Region and a definition of what each zone means.

- Zone 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.
- Zone AE: The base floodplain where base flood elevations are provided.
- Zone VE: Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones.
- Zone X-500: Areas of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods.
- Zone X: Areas of minimal flood hazard, usually depicted on FIRMs as above the 500-year flood level.

Coastal flooding is typically a result of storm surge, wind-driven waves, and heavy rainfall. These conditions are produced by hurricanes during the summer and fall, and nor'easters and other large coastal storms during the winter and spring. Storm surges may overrun barrier islands and push sea water up coastal rivers and inlets, blocking the downstream flow of inland runoff. Thousands of acres of crops and forestlands may be inundated by both saltwater and freshwater. Escape routes, particularly from barrier islands, may be cut off quickly, stranding residents in flooded areas and hampering rescue efforts.

Urban flooding occurs where there has been development within stream floodplains. This is partly a result of the use of waterways for transportation purposes in earlier times. Sites adjacent to rivers and coastal inlets provided convenient places to ship and receive commodities. The price of this accessibility was increased flooding in the ensuing urban areas. Urbanization increases the magnitude and frequency of floods by increasing impermeable surfaces, increasing the speed of drainage collection, reducing the carrying capacity of the land, and occasionally overwhelming sewer systems.

From 1996-2016, the five-county region experienced fifty-one (51) flooding events that were reported to the National Climatic Data Center (see Appendix E for a detailed description of hazard events). On average, the flood level during these events was reported to be 12 feet. Further information on the history of flooding events associated with hurricanes in the region is provided in the hurricane discussion of this plan.

Flood hazard varies by location and type of flooding. Coastal areas are most at risk from flooding caused by hurricanes, tropical storms, and nor'easters. Low-lying coastal areas in close proximity to the shore, sounds, or estuaries are exposed to the threat of flooding from storm surge and wind-driven waves, as well as from intense rainfall. Areas bordering rivers may also be affected by large discharges caused by heavy rainfall over upstream areas.

Inland areas are most at risk from flash flooding caused by intense rainfall over short periods of time. Urban areas are particularly susceptible to flash floods. Large amounts of impervious surfaces in urban areas increase runoff amounts and decrease the lag time between the onset of rainfall and stream flooding. Man-made channels may also constrict stream flow and increase flow velocities.

The dominant sources of flooding in Northeastern NC Region are storm surge inundation, riverine flooding, and local ponding of stormwater runoff. Storm surge from the Atlantic Ocean propagates into Albemarle Sound, which further propagates into rivers and creeks throughout the region; riverine flooding from heavy rainfall also occurs throughout the many creeks and streams within the region. Not all storms which pass close to the Northeastern NC Region produce extremely high surge. Similarly, storms which produce flooding conditions in one area may not necessarily produce flooding conditions in other parts of the region. Based on Table 3-8, the likelihood of occurrence of flooding in the Northeastern NC Region is "likely."

SEVERE WINTER STORMS

Severe winter storms can produce an array of hazardous weather conditions, including heavy snow, blizzards, freezing rain and ice pellets, and extreme cold. Severe winter storms are extratropical cyclones fueled by strong temperature gradients and an active upper-level jet stream. The winter storms that impact North Carolina generally form in the Gulf of Mexico or off the southeast Atlantic Coast. Few of these storms result in blizzard conditions, defined by the presence of winds in excess of 35 mph, falling and blowing snow, and a maximum temperature of 20° Fahrenheit. While the frequency and magnitude of snow events are highest in the mountains due to the elevation, the geographical orientation of the mountains and piedmont contribute to a regular occurrence of freezing precipitation events (e.g., ice pellets and freezing rain) in the piedmont.

Severe winter weather is typically associated with much colder climates; however, in some instances winter storms do occur in the warmer climate of North Carolina. On occasion, the Northeastern NC region has had moderate winter weather as a result of a nor'easter originating in the Gulf Stream and producing frozen precipitation. Winter storms can paralyze a community by shutting down normal day-to-day operations. Winter storms produce an accumulation of snow and ice on trees and utility lines resulting in loss of electricity and blocked transportation routes. Frequently, especially in rural areas, loss of electric power means loss of heat for residential customers, which poses an immediate threat to human life. Because of the rare occurrence of these events, central and eastern North Carolina communities are often not prepared because

they cannot afford to purchase expensive road and debris clearing equipment for these relatively rare events. From 1996-2016, there were seventy (70) occurrences of severe winter weather within the Northeastern NC Region (see Appendix E for a detailed description of hazard events). The most significant recorded snow depth over the last 50 years took place on March 3, 1980, with recorded depth at seventeen inches in Williamston, NC.

The entire State of North Carolina has a likelihood of experiencing severe winter weather. The threat varies by location and by type of storm. Coastal areas typically face their greatest threat from nor'easters and other severe winter coastal storms. These storms can contain strong waves and result in extensive beach erosion and flooding. Freezing rain and ice storms typically occur once every several years at coastal locations, and severe snowstorms have been recorded occasionally in coastal areas.

The Northeastern NC Region is unlikely to be hit with severe blizzard conditions (i.e., high winds and blowing snow), but is subject to freezing rain, icing, and snowfall. Based on historic information and the geographic location of the five-county area, the likelihood of occurrence for a severe winter storm is "possible."

SEVERE THUNDERSTORMS/WINDSTORMS

Thunderstorms are underrated in the damage, injury, and death they can bring. Lightning precedes thunder, because lightning causes thunder. As lightning moves through the atmosphere, it can generate temperatures of up to 54,000 degrees Fahrenheit. This intense heating generates shockwaves which turn into sound waves, thus generating thunder.

Warm, humid conditions encourage thunderstorms as the warm, wet air updrafts into the storm. As warm, moisture rich air rises, it forms cumulus nimbus clouds, or thunderstorm clouds, usually with a flattened top or an anvil shape, reaching to altitudes of over 40,000 feet. If this air is unstable, the conditions are favorable for causing hail, damaging winds, and tornados.

Damage to property from direct or indirect lightning can take the form of an explosion or a burn. Damage to property has increased over the last 35 years. This increase is probably due to increased population. The National Weather Service recorded 19,814 incidents of property damage between 1959 and 1994. Yearly losses are estimated at \$35 million by the National Weather Service. This amount is compiled from newspaper reports, but many strikes are not reported. Lightning causes an average of between 55 and 60 fatalities and 300 injuries per year. Between 1995 and 2008, there were 648 fatalities in the United States attributed to lightning strikes. The National Lightning Safety Institute estimates US lightning costs and losses between \$5 and \$6 billion per year. This information is compiled from insurance reports and other sources that keep track of weather damages.

Thunderstorm winds also cause widespread damage and death. Thunderstorm "straight line" wind occurs when rain-cooled air descends with accompanying precipitation. According to the National Weather Service, a severe thunderstorm is a storm which produces tornados, hail 0.75 inches or more in diameter, or winds greater than 58 mph. At the very extreme, winds of 160 mph have been recorded. These winds can smash buildings and uproot and snap trees, and are often mistaken for tornados.

'Downbursts' are often spawned during thunderstorms. Downbursts are an excessive burst of wind that is sometimes mistaken for tornadic activity. These are defined as surface winds in excess of 125 mph, which are caused by small scale downdrafts from the base of a convective cloud. A downburst occurs when rain-cooled air within a convective cloud becomes heavier than its surroundings. Since cool air is heavier than warm air, it rushes toward the ground with a destructive force. Exactly what triggers the sudden downward rush is still unknown.

Downbursts appear to strike at a central point and blow outward. (Picture a bucket of water dashed against grass. If it hits straight on, the grass will be flattened in a circular pattern. If it hits at an angle, the grass will be flattened in a teardrop pattern).

Downbursts can be further classified into two categories:

- Microburst: Less than 2 ½ miles wide at the surface, duration less than 5 minutes and winds up to 146 miles per hour.
- Macroburst: Greater than 2 ½ miles wide at the surface, duration of 5-30 minutes with winds up to 117 miles per hour.

The Northeastern NC Region is extremely susceptible to thunderstorms and windstorms, suffering 224 such events from 1959 to 2016. These storms have caused four deaths, three injuries and approximately \$944,300 in property damage regionally. Additionally, the Northeastern NC Region suffered 138 hail events from 1962 to 2016 (see Appendix E for detailed descriptions of hazard events), with totals of \$1,072,000 in property damage and \$2,004,000 in crop damage reported for the region. Based on Table 3-8, the likelihood of occurrence is "likely."

TORNADOS

Tornados are produced during severe thunderstorms, which are created near the convergence zone between warm, moist air and cold, dry air. Tornados derive their energy from the heat contained in warm, moist air masses. Tornados do not form during every thunderstorm. They occur when the moist, warm air is trapped beneath a stable layer of cold, dry air by an intervening layer of warm, dry air. This effect is called an inversion. If this inversion is disturbed, the moist air will push through the stable air that is holding it down. This warm air will then condense as the latent heat it holds is released. This air will then spiral upwards. With the help of different types of winds, this spiral gains speed, producing a tornado.

The path of a tornado is generally less than 0.6 mile wide. The length of the path ranges from a few hundred yards to dozens of miles. A tornado will rarely last longer than 30 minutes. The combinations of conditions that cause tornados are common across the southern U.S. in early spring, especially in April and May. Tornados have been reported lifting and moving objects weighing more than 300 tons up to 30 feet in the air. They can also lift homes off their foundations and move them 300 feet. They collect an incredible amount of debris, which then can be projected outward at high velocities. Typically, tornados are accompanied by heavy rain.

The National Weather Service issues a tornado watch for a specific geographic area when conditions favor tornadic activity. A tornado warning is issued when a tornado has actually been sighted or indicated by weather radar.

The intensity, path length, and width of tornados are rated according to a scale originally developed by T. Theodore Fujita and Allen D. Pearson in 1971. At the time Fujita derived the scale, little information was available on damage caused by wind, so the original scale presented little more than educated guesses at wind speed ranges for specific tiers of damage. Further research suggested that wind speeds for strong tornados on the Fujita scale were greatly overestimated, and on February 1, 2007, the Fujita scale was decommissioned (in the US only) in favor of what scientists believe is a more accurate Enhanced Fujita (EF) Scale. The EF Scale is thought to improve on the F-scale on many counts – it accounts for different degrees of damage that occur with different types of structures, both man-made and natural. The expanded and refined damage indicators and degrees of damage standardize what was somewhat ambiguous. It also is thought to provide a much better estimate for wind speeds, and sets no upper limit on the wind speeds for the strongest level, EF5. The Enhanced Fujita Scale is provided in Table 3-2.

Table 3-2. Enhanced Fujita Tornado Scale

Category	Wind Speed	Equivalent Saffir-Simpson Scale	Potential Damage
EF0	65-85 mph	N/A	Light Damage: Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF1	86-110 mph	Cat 1/2/3	Moderate Damage: Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111-135 mph	Cat 3/4/5	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.
EF3	136-165 mph	Cat 5	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.
EF4	166-200 mph	Cat 5	Devastating Damage: Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF5	>200 mph	N/A	Explosive Damage: Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 300 feet; steel reinforced concrete structures badly damaged; high-rise buildings have significant structural deformation.

Source: National Oceanic and Atmospheric Administration.

A total of eighty-one (81) tornado events have been documented by the NCEI in the Northeastern NC Region from 1952 to 2016, resulting in 18 deaths, 111 injuries and approximately \$36.7 million in property damage (see Appendix E for detailed descriptions of hazard events). In conclusion, tornados represent a significant threat to the Northeastern NC Region due primarily to their relative frequency and large impact. Based on Table 3-8, the likelihood of occurrence is “likely.”

WILDFIRE

A wildfire is an uncontrolled burning of grasslands, brush, or woodlands. The potential for wildfire depends upon surface fuel characteristics, recent climate conditions, current meteorological conditions and fire behavior. Hot, dry summers and dry vegetation increase susceptibility to fire in the fall, a particularly dangerous time of year for wildfire.

While natural fires occur in any area in which there is vegetation, flammability varies by species, moisture content, and is influenced by the climate. Temperate, primarily deciduous forests, such as those in North Carolina, are most vulnerable to fire in autumn, when the foliage dries out. Grasses are least prone to ignition in the morning, when their moisture content is greatest.

Many wildfires have been caused by lightning strikes; however, humans are the greatest cause of wildfires. The progressive expansion of human activities into heavily vegetated areas has not only increased the number of wildfires but also increased the losses to life and property. The majority of fires which threaten life and property has been due to human actions. Main sources of ignition have been agricultural fires, discarded cigarette butts, and campfires which have gotten out of control.

According to Forest Statistics for North Carolina, 2002, published by the USDA-Forest Service, 943,300 acres of the Region's total acreage (1,608,000 acres) are in forestland. This figure represents approximately 58.7% of the Region. Table 3-3 provides acres of timberland by ownership class.

County	All Ownership	National Forest	Miscellaneous Federal	State	County and Municipal	Forest Industry	Private Ownership
Bertie	304,900	—	18,000	—	—	55,300	231,500
Hyde	280,500	—	64,100	5,200	—	35,300	125,900
Martin	177,200	—	—	17,100	—	42,700	117,400
Tyrrell	147,500	—	50,300	27,900	—	19,700	49,700
Washington	83,200	—	12,600	3,200	—	22,800	44,600

Source: Forest Statistics for North Carolina, 2002.

Table 3-4 provides a five-year summary of wildfire occurrences by county for the entire region. Complete fire data for 2015 was not available. From 2010 to 2014, 489 wildfires occurred, damaging a total of 862 acres. The largest wildfire event recorded for the Region was the Evans Road Fire in 2008, which resulted in a Fire Management Assistance Declaration by FEMA. This fire burned approximately 6,000 acres in Tyrrell and Washington counties combined.

Table 3-4. Northeastern NC Region Wildfire Data, 2010-2014

	Bertie		Hyde		Martin		Tyrrell		Washington	
Year	Fires	Acres	Fires	Acres	Fires	Acres	Fires	Acres	Fires	Acres
2010	10	30	13	40	23	55	13	31	24	18
2011	13	87	13	143	31	60	12	21	19	40
2012	4	14	7	6	12	21	5	18	15	50
2013	17	31	22	11	17	32	16	24	28	25
2014	29	26	72	8	41	22	23	31	10	18
Totals	73	188	127	208	124	190	69	125	96	151

Source: NC Forest Service.

As population densities spread out into areas surrounding the forestland, citizens and private property increasingly become more susceptible to the effects of wildfires. While the incorporated government jurisdictions in the Northeastern NC Region have significantly less forestland within their corporate limits and extraterritorial jurisdictions (ETJs) than in the unincorporated areas, the municipal governments' boundaries exist at the "urban/wildland interface" - the area where human development meets undeveloped, forested areas which provide fuel for fires. This "urban/wildland interface" presents the greatest risk to life and property from wildfires.

Overall, however, the risk of wildfire damages in the Northeastern NC Region is mitigated by the fact that forested tracts are generally of manageable size, accessible to firefighting equipment and personnel, and circumscribed by roadways or waterways that limit the extent and severity of wildfires. Based on Table 3-8, the likelihood of occurrence is "possible."

EARTHQUAKES

Earthquakes are geologic events that involve movement or shaking of the Earth's crust. Earthquakes are usually 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 generally follow the outlines of the continents.

Earthquakes are measured in terms of their magnitude and intensity. Magnitude is measured using the Richter Scale, an open-ended logarithmic scale that describes the energy release of an earthquake through a measure of shock wave amplitude. Each unit increase in magnitude on the Richter Scale corresponds to a ten-fold increase in wave amplitude, or a 244-fold increase in energy. Intensity is most commonly measured using the Modified Mercalli Intensity (MMI) Scale. It is a twelve-level scale based on direct and indirect measurements of seismic effects. The scale levels are typically described using roman numerals. Table 3-5 provides a summary of the Modified Mercalli Scale of Earthquake Intensity and its relation to the Richter Scale.

Table 3-5. Modified Mercalli Scale of Earthquake Intensity

Scale	Intensity	Description of Effects	Maximum Acceleration (mm/sec)	Corresponding Richter Scale
I	Instrumental	Detected only on seismographs	<10	
II	Feeble	Some people feel it	<25	<4.2
III	Slight	Felt by people resting; like a truck rumbling by	<50	
IV	Moderate	Felt by people walking	<100	
V	Slightly Strong	Sleepers awake, church bells ring	<250	<4.8
VI	Strong	Trees sway; suspended objects swing; objects fall off shelves	<500	<5.4
VII	Very Strong	Mild alarm; walls crack; plaster falls	<1000	<6.1
VIII	Destructive	Moving cars uncontrollable; masonry fractures; poorly constructed buildings damaged	<2500	
IX	Ruinous	Some houses collapse; ground cracks; pipes break open	<5000	<6.9
X	Disastrous	Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread	<7500	<7.3
XI	Very Disastrous	Most buildings and bridges collapse; roads, railways, pipes and cables destroyed; general triggering of other hazards	<9800	<8.1
XII	Catastrophic	Total destruction; trees fall; ground rises and falls in waves	>9800	>8.1

Source: Local Hazard Mitigation Planning Manual, North Carolina Division of Emergency Management.

Earthquakes are relatively infrequent but not uncommon in North Carolina. The earliest North Carolina earthquake on record is that of March 8, 1735, near Bath. It is likely that this earthquake was less than Intensity V (slightly strong; sleepers awake). During the great earthquake of 1811 (Intensity VI), centered in the Mississippi Valley near New Madrid, Missouri, tremors were felt throughout North Carolina. The most property damage in North Carolina ever attributed to an earthquake was caused by the August 31, 1886, Charleston, South Carolina, shock. The quake left approximately 65 people dead in Charleston and caused chimney collapses, fallen plaster, and cracked walls in Abbottsburg, Charlotte, Elizabethtown, Henderson, Hillsborough, Raleigh, Waynesville, and Whiteville. On February 21, 1916, the Asheville area was the center for a large intensity VI earthquake, which was felt in Alabama, Georgia, Kentucky, South Carolina, Tennessee, and Virginia. Subsequent minor earthquakes have caused damage in North Carolina in 1926, 1928, 1957, 1959, 1971, 1973, and 1976. The most recent tremor, measured at 2.9 magnitude, happened near Charlotte on March 21, 2011. There is no history of damage in the Northeastern NC Region resulting from earthquakes.

In North Carolina, earthquake epicenters are generally concentrated in the active Eastern Tennessee Seismic Zone. The Eastern Tennessee Seismic Zone is part of a crescent of moderate seismic activity risk extending from Charleston, South Carolina, northwestward into eastern Tennessee and then curving northeastward into central Virginia. While there have been no earthquakes with a MMI intensity greater than IV since 1928 in this area, it has the potential to produce an earthquake of significant intensity in the future.

North Carolina's susceptibility to earthquakes decreases from west to east in relation to the Eastern Tennessee Seismic Zone. Generally, there are three different zones of seismic risk in North Carolina. The eastern portion of the State faces minimal effects from seismic activity. Locations in the middle and southeastern areas of the State face a moderate hazard from seismic activity, while the area from Mecklenburg County west through the Blue Ridge faces the greatest risk from seismic activity. These different levels of risk correspond to proximity to areas with historical seismic activity and changes in topography. Bertie, Hyde, Martin, Tyrrell, and Washington counties are located in the portion of North Carolina that is less susceptible to the effects of earthquakes. The likelihood of occurrence for earthquakes is "unlikely."

SINKHOLES

A sinkhole is a depression or hole in the ground caused by a collapse of the ground's surface. Sinkholes are usually associated with Karst topography, which is a maze of underground caves, caverns, and aquifers. Sinkholes vary in size with the impact being largely contained to the area of the sinkhole itself. However, the impact of the sinkhole on groundwater is much larger. If the area where the sinkhole occurs is contaminated or polluted in anyway, the sinkhole offers an ideal place for the pollution to enter the groundwater.

According to the USGS, sinkholes typically occur in areas having limestone, carbonate rock, salt beds, or rocks easily dissolved by water. Sinkholes have also been known to occur above abandoned mines, in areas that have experienced a drought, and they are occurring more frequently in areas experiencing rapid growth. Altering the drainage in an area and groundwater pumping often times lowers local and regional groundwater levels to the extent that it causes a sinkhole.

The USGS reports that most of the damage that occurs as a result of sinkholes occurs in the states of Florida, Texas, Alabama, Missouri, Kentucky, Tennessee, and Pennsylvania. The geology of these states lends themselves to the likelihood of a sinkhole occurrence. Bertie, Martin, Tyrrell, and Washington counties are located in the coastal plain of North Carolina. Based on the North Carolina Geologic Survey, this region consists of sand, clay, gravel, and peat deposits and not consistent with the geology associated with sinkholes. Sinkholes rarely impact the Northeastern NC Region, but can occur periodically on a localized basis. Sinkholes that occur within the Northeastern NC Region on average impact an area of four square feet and a depth of 36 inches. The likelihood of occurrence for sinkholes is "unlikely."

DAM/LEVEE FAILURE

According to the Dam Safety Law of 1967, a dam is defined as a structure erected to impound or divert water. This term is roughly synonymous with the term "levee" and these terms can be used interchangeably. Dams provide tremendous benefits, including water for drinking, power generation, and flood protection. At the

same time, however, dams also represent a great risk to public safety, the environment, and local and regional economies when they fail. Flooding may result at many points along a watercourse when a dam failure occurs. Dams are dynamic structures that experience both internal and external changes in their conditions over time. Old pipes may deteriorate and continued development along rivers can cause more runoff. That runoff can result in the overtopping of dams. In addition, large storm events, such as hurricanes or severe thunderstorms, can overwhelm a dam's ability to function properly.

According to "Success and Challenges: National Dam Safety Program 2002" completed in 2002 by the Association of State Dam Safety Officials, forty (40) dams failed in North Carolina following Hurricane Floyd in September of 1999 and over 100 dams overtopped, causing property damage and requiring evacuation of downstream areas to avoid injury and loss of life.

According to data obtained from the North Carolina Dam Safety Program within the Division of Land Resources of the NC Department of Environmental and Natural Resources, there are thirteen dams located in the Northeastern NC Region. Those dams are located only in Bertie, Hyde, and Martin counties, and an additional seven (located in Northampton County) are situated such that a Martin County municipality is the nearest municipality to be affected by a dam failure. Table 3-6 provides information regarding those dams.

Table 3-6. Dams in or Affecting the Northeastern NC Region

State ID Code	Dam Name	River or Stream	Dam Status	Hazard Classification	Nearest Town
BERTI-001	Beasley Pond Dam	Chowan-Tr	Exempt	Low	Colerain
BERTI-002	Taylor-Brown Pond Dam	Salmon Creek-Tr	Exempt	Low	
HYDE-001	COOP Plan		Exempt	Low	
MARTI-001	Rainbow Pond Dam	Roanoke River-Tr	Exempt	Low	Williamston
MARTI-002	Leggett Pond Dam	Mill Branch-Tr	Exempt	Low	Williamston
MARTI-003	Lilleys Pond Dam Upper	Sweetwater Creek-Tr	Exempt	Low	Jamesville
MARTI-004	Lilleys Pond Dam Lower	Sweetwater Creek-Tr	Exempt	Low	Jamesville
MARTI-005	Copeland Pond Dam	Roanoke River-Tr	Impounding	Low	Williamston
MARTI-006	Old Peel Farm Dam	Roanoke-Tr	Exempt	Low	Hamilton
MARTI-007	J.E. Griffin Dam	Beaver Dam Creek-Tr	Exempt	Low	Williamston
MARTI-008	Davenport Pond Dam	Welch Creek-Tr	Exempt	Low	Plymouth
MARTI-009	Knowles Pond Dam	Welch Creek-Tr	Exempt	Low	Plymouth
MARTI-010	Modlin Pond Dam	Deep Run Swamp-Tr	Exempt	Low	
NORTH-004	Boone Millpond Dam	Gumberry Swamp	Exempt	Intermediate	Hamilton
NORTH-005	Morris Lake Dam	Roanoke River-Tr	Exempt	Low	Hamilton
NORTH-007	Johnson Millpond Dam #1	Occoneecree Creek	Exempt	Low	Hamilton
NORTH-008	Johnson Millpond Dam #2	Occoneecree Creek	Exempt	Low	Hamilton
NORTH-009	Johnson Lake Dam #3	Occoneecree Creek	Exempt	Low	Hamilton
NORTH-010	Johnson Lake Dam #4	Occoneecree Swamp	Exempt	Low	Hamilton
NORTH-012	Turner Lake Dam	Bull Neck Swamp	Exempt	Low	Hamilton

Source: North Carolina Dam Inventory December 2, 2014, North Carolina Dam Safety Program.

Nineteen of the dams are considered exempt. Exempt status means that a dam is not regulated by dam safety laws because of the size of the dam and/or a low hazard classification. Nineteen of the twenty dams have a low hazard classification and one has an intermediate classification.

As of 2010, North Carolina had 1,152 “high hazard” dams – the largest number of “high hazard” dams in the United States. Another 748 dams in the State are classified as “intermediate hazard,” meaning that significant property damage would occur in the event of a dam failure. There have been no historical occurrences of dam/levee failure impacting the Northeastern NC Region. In the event of a dam breach or levee failure, the extent of flooding would be similar to that of a flooding event which on average was reported to be 12 feet. There have been no historical occurrences of dam/levee failure; thus, no data has been reported regarding this issue. The likelihood of occurrence of a dam failure affecting the Northeastern NC Region is “unlikely.”

TSUNAMIS

A tsunami is a series of waves in a large body of water generated by a disturbance that vertically displaces large amounts of water. Tsunamis are typically caused by earthquakes but can also occur as a result of landslides, volcanic eruptions, explosions, and the impact of cosmic bodies such as meteorites.

Tsunamis have very long wavelengths and periods, and can have an average speed of 450 miles per hour. They can travel unnoticed in deep ocean waters sometimes with a wave height of only twelve inches. However, when the waves reach shallower water the wave speed slows and the wave height increases significantly. Some tsunamis can reach 100 feet in height and can cause devastation to a coastline.

An indication of an approaching tsunami would be rapid change in water levels on the coastline. The successive crests and troughs can occur from five to ninety minutes apart. Typically the first wave is not the biggest one; therefore, it is not safe to return to the area until authorities deem it safe to return. Areas less than fifty feet above sea level and one mile inland would be at greatest risk for the impact of a tsunami.

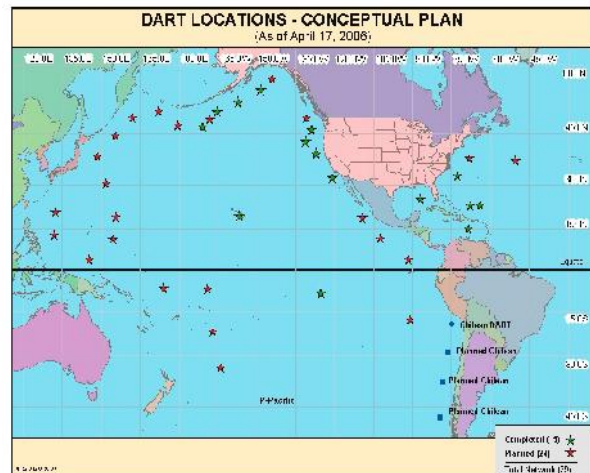


Figure 2. DART Locations - Conceptual Plan
Source: National Oceanic and Atmospheric Administration.

There are two types of bulletins to inform an area of the possibility of a tsunami. A Tsunami Watch Bulletin is released following an earthquake of a 6.75 or greater and a Tsunami Warning Bulletin is released when information from a tidal station indicates that the characteristics of the sea match those of a destructive tsunami. Unfortunately 75% of all warnings since 1948 have been false alarms. At the time the current MTW Regional Hazard Mitigation Plan was adopted, a Tsunami Warning System was not available on the East Coast of the United States. However, due to the devastation of the Tsunami in South East Asia in December, 2004, NOAA has taken steps to expand the US Tsunami Detection and Warning System. In April, 2006, NOAA finished installation of five (5) Deep-Ocean Assessment and Reporting of Tsunami (DART) buoy stations off

the East and Gulf Coasts of the US and in the Caribbean sea that can relay wave information (see Figure 2). In the remote chance that a tsunami were to be detected heading toward the East Coast, alerts would be sent out over the National Weather Service radio network that is used to warn of tornadoes, hurricanes, and other weather hazards.

The only tsunami ever reported on the east coast was in 1929. The tsunami resulted from an earthquake in the Grand Banks of Newfoundland. The quake was felt as far away as Charleston, South Carolina. This tsunami caused considerable property damage and loss of life.

Tsunamis can devastate coastlines, destroy property, and cause an extensive loss of life. It is very hard to detect a tsunami because of its small wave height as it travels through deep water. They are also difficult to predict because of the difficulty in predicting earthquakes.

In the United States, the areas that are most likely to experience a tsunami are on the West Coast. Alaska, Hawaii, Washington, Oregon, and California have received the majority of the tsunamis. Tsunamis are rare on the East Coast. However, there is a fault line in the Atlantic Ocean off the coast of the United States, and cracks have recently been discovered on the continental shelf off the coast of North Carolina and Virginia. According to NCEM, these cracks suggest instability in the continental shelf. If the sea floor falls, it could result in a tsunami along the coast. Based on Table 3-8, the likelihood of occurrence for tsunamis in the Northeastern NC Region is “unlikely.”

DROUGHTS/HEAT WAVES

The National Drought Mitigation Center (NDMC) generally defines a drought as a hazard of nature that is a result of a deficient supply of precipitation to meet the demand. Droughts occur in all types of climate zones and have varying effects on the area experiencing the drought. Droughts tend to be associated with heat waves. An extended drought period may have economic impacts (agriculture, industry, tourism, etc.), social impacts (nutrition, recreation, public safety, etc.), and environmental impacts (animal/plant, wetland, and water quality).

NDMC also reports that droughts are related to the balance between precipitation and evapotranspiration or to the timing of seasonal occurrences such as rainy seasons. Oftentimes, development and human involvement aggravate the impact of droughts. Planning for droughts has become increasingly more important. Thirty-eight states have some type of drought plan in place. North Carolina is one of those states with a drought plan focusing on response.

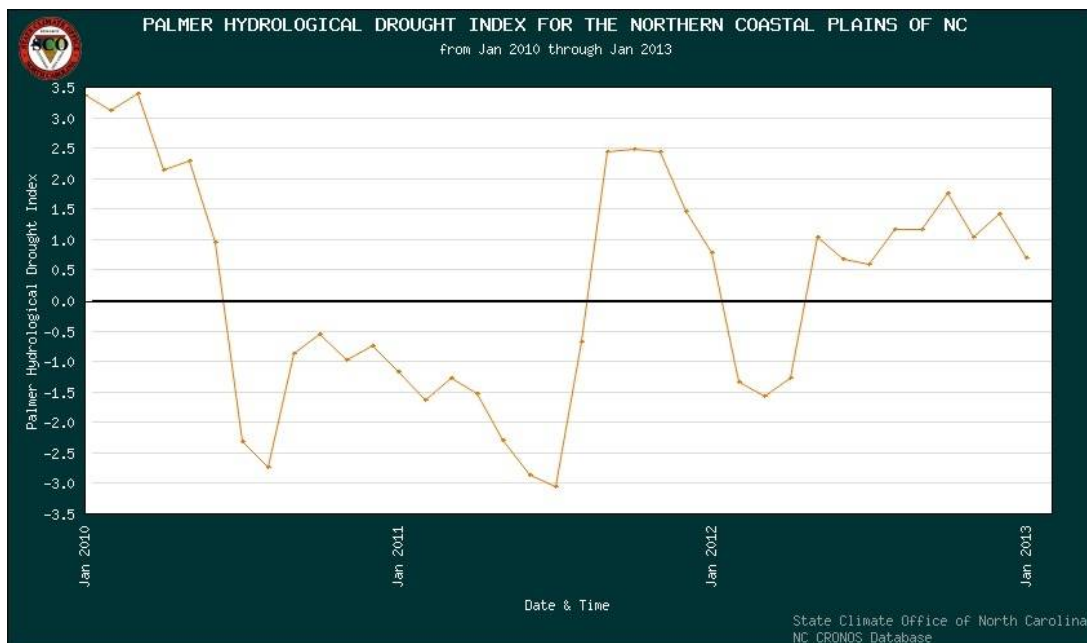
By January of 2001, the Northeastern NC Region was classified on the US Drought Monitor of North Carolina as “Abnormally Dry.” As drought continued in North Carolina into the summer of 2002, it led to a declaration of disaster for agriculture drought.

Drought effects are often severe. Drought can last for extended periods and it affects all citizens, businesses and government. Bertie, Hyde, Martin, Tyrrell, and Washington counties and the municipalities within those counties have the authority to restrict use of certain water resources. These restrictions and how they are imposed are found in local ordinances.

The Drought Monitoring Council was an interagency coordination and information exchange body created in 1992. In 2002, the council did a creditable job monitoring and coordinating drought responses, while increasing public awareness of the council's function and effectiveness. In 2003, the General Assembly recognized the Drought Monitoring Council's leadership and performance by giving them official statutory status and assigning them the responsibility for issuing drought advisories. The council's name was changed to the Drought Management Advisory Council (DMAC) to reflect the broader role of the council, which extends beyond monitoring drought conditions. The drought advisories provide accurate and consistent information to assist local governments and other water users in taking appropriate drought response actions in specific areas of the state that are exhibiting impending or existing drought conditions.

According to the NC Drought Management Advisory Council, there are four categories of drought. From least detrimental to worst, the drought categories are moderate, severe, extreme, and exceptional. State and federal officials use the different drought categories as a barometer to assist local governments and other water users in taking appropriate drought response actions. For instance, drought officials recommend to water users and local governments experiencing moderate drought to minimize non-essential water uses. Non-essential uses include those that do not have health or safety impacts such as car washing and cleaning streets or sidewalks. However, officials recommend that water users eliminate non-essential water use when areas are experiencing severe drought, a category that is one step worse than moderate drought.

In addition to the DMAC classifications, the Palmer Drought Severity Index (PDSI) attempts to measure the duration and intensity of the long-term drought-inducing circulation patterns. Long-term drought is cumulative, so the intensity of drought during the current month is dependent on the current weather patterns plus the cumulative patterns of previous months. Since weather patterns can change almost literally overnight from a long-term drought pattern to a long-term wet pattern, the PDSI can respond fairly rapidly. Note that man-made changes are not considered in this calculation. PDSI index values generally range from -6 to +6, where negative values denote dry spells, and positive values denote wet spells. The following graph depicts the PDSI ratings throughout the Region since adoption of the last plan.



There are two ways of monitoring drought outlined in this plan. For the purposes of this plan, the PDSI as outlined above will be utilized to determine extent. The National Centers for Environmental Information indicated that all the counties in the Northeastern NC Region experienced severe drought conditions during the summer months of 2011 (-3.1 PDSI in July 2011). Drought effects are often severe. Drought can last for extended periods and it affects all citizens, businesses, and government. Bertie, Hyde, Martin, Tyrrell, and Washington counties and the municipalities within those counties have the authority to restrict use of certain water resources. These restrictions and how they are imposed are found in local ordinances. Based on Table 3-8, the likelihood of occurrence for drought is “possible.”

EXPLANATION OF HAZARDS NOT IDENTIFIED

The following hazards were not identified within the context of this document for the reasons indicated.

Hazard	Why Not Identified
Landslides	There is no history of landslides in the Northeastern NC Region.
Volcanoes	There is no history of volcanic activity in the Northeastern NC Region.

RANKING OF NATURAL HAZARD POTENTIAL

The hazards outlined within the preceding sections, as well as hazards that have occurred in years prior to 2012 (when the last Hazard Mitigation Plans were prepared), have been ranked below based on a score derived from several factors. Each hazard was ranked based on frequency, number of injuries caused, number of resulting deaths, and dollar amount of property damage losses since 1960. These factors have been ranked on a scale of 1 (High) to 12 (Low). The table is organized to display the ranking of each hazard with respect to a given factor. As evidenced by the table, the hazards have been listed in order by total hazard potential. Refer to Appendix E for a listing of natural hazard events by year.

Table 3-7. Northeastern NC Region Ranking of Hazard Potential					
Hazard	Ranking by Frequency	Ranking by Injuries	Ranking by Deaths	Ranking by Property Damage Loss	Total All Factors
Tornados	2	1	1	3	7
Severe Thunderstorms/ Windstorms	1	3	3	4	11
Flooding	4	4*	2	1	11
Severe Winter Storms	3	2	4	5	14
Hurricanes	5	4*	5*	2	16
Droughts/Heat Waves	6	4*	5*	6	21
Earthquakes**	7	5	6	7	25
Sinkholes**	7	5	6	7	25
Dam/Levee Failure**	7	5	6	7	25

Hazard	Ranking by Frequency	Ranking by Injuries	Ranking by Deaths	Ranking by Property Damage Loss	Total All Factors
Tsunamis**	7	5	6	7	25
Nor'easters**	7	5	6	7	25
Wildfire**	7	5	6	7	25

*Indicates a tie score.

**Due to the lack of historical data, nor'easters, wildfire, earthquakes, sinkholes, dam/levee failure, and tsunamis were given the same score for all factors.

Source: National Oceanic and Atmospheric Administration.

HAZARD DAMAGE AND LIKELIHOOD OF OCCURRENCE SUMMARY

The following table provides an estimate of damage potential and likelihood of occurrence based on the preceding sections. All factors were taken into account when filling out this table including input from county/municipal staff members, data documenting historical occurrences, and instances of storms impacting the region since the last Hazard Mitigation Plan Updates in 2012.

Table 3-8. Northeastern NC Region Hazard Impact

Type of Hazard & Associated Elements	Likelihood of Occurrence ¹ (Highly Likely, Likely, Possible, Unlikely)	Impact Rating ² (Intensity Scales or Relative Terms)	Potential Impact ³ (Catastrophic, Critical, Limited, Negligible)
Hurricanes	Likely	Severe	Critical
Nor'easters	Likely	Moderate	Limited
Flooding	Likely	Severe	Critical
Severe Winter Storms	Likely	Severe	Limited
Severe Thunderstorms/ Windstorms	Highly Likely	Severe	Critical
Tornados	Likely	Severe	Critical
Wildfire	Possible	Moderate	Negligible
Earthquakes	Unlikely	Moderate	Negligible
Sinkholes	Unlikely	Moderate	Negligible
Dam/Levee Failure	Unlikely	Moderate	Negligible
Tsunamis	Unlikely	Moderate	Limited
Droughts/Heat Waves	Possible	Moderate	Negligible

NOTES:

¹ Likelihood of occurrence was estimated using historic data and the following chart (based on the 2012 plan):

Likelihood	Frequency of Occurrence
Highly Likely	Near 100% probability in the next year.
Likely	Between 10 and 100% probability in the next year, or at least one chance in the next 10 years.
Possible	Between 1 and 10% probability in the next year, or at least one chance in the next 100 years.
Unlikely	Less than 1% probability in the next year, or less than one chance in the next 100 years.

² The hazard's intensity was estimated using historic data and various standardized scales as outlined in Table 3-7 Ranking of Hazard Potential. This table provides a composite score of hazard impact and potential based on four factors including: frequency, number of injuries, number of deaths, ranking based on total property damage losses. The classification listed in the table above is based on the following classifications:

Severe: Hazard potential ranking of 0 to 20

Moderate: Hazard potential ranking of 21 or greater

³ The potential impact was estimated by considering the magnitude of the event, how large an area within the community is affected, and the amount of human activity in that area, then using the following chart as a tool (based on the 2012 plan):

Level	Area Affected	Impact
Catastrophic	More than 50%	<ul style="list-style-type: none"> • Multiple deaths • Complete shutdown of facilities for 30 days or more • More than 50 percent of property is severely damaged
Critical	25 to 50%	<ul style="list-style-type: none"> • Multiple severe injuries • Shutdown of critical facilities for 1-2 weeks • More than 25 percent of property is severely damaged
Limited	10 to 25%	<ul style="list-style-type: none"> • Some injuries • Shutdown of some critical facilities 24 hours to one week • More than 10 percent of property is severely damaged
Negligible	Less than 10%	<ul style="list-style-type: none"> • Minor injuries • Minimal quality-of-life impact • Shutdown of some critical facilities and services for 24 hours or less • Less than 10 percent of property is severely damaged
N/A	Hazard has no discernable impact on the built environment	

INTRODUCTION

This section of the HMP is intended to analyze each regional jurisdiction's capacity to address the threats that natural hazards pose to them. In order to provide a thorough review of each entity involved in this planning effort, this section provides a detailed overview of capability with regard to Bertie, Hyde, Martin, Tyrrell, and Washington counties, as well as each municipal jurisdiction.

Section 4 will identify those areas in which the participating jurisdictions are already undertaking positive hazard mitigation efforts that should be supported or enhanced, and may also identify areas where their current policies may be worsening hazard risks. In order to achieve these goals, this section contains the following subsections:

- 1) Agency/Organizational Review
- 2) Existing Policies and Program Review
- 3) Community Capability Assessment
- 4) Legal Capability Review
- 5) Fiscal Capability Review
- 6) Political Acceptability Review

Elements 1 and 2 noted above are further broken down by county and subsequently each participating municipal jurisdiction within each county. The overall review of each jurisdiction varies based on the complexity of a locale's organizational structure. Under the community capability assessment, the review of each municipality is provided in a summary format due to the significant number of entities involved in this plan. This plan denotes the programs and policies in place within each jurisdiction; however, further information relating to these documents is available through each respective government's administration. This information has been updated to reflect current 2016 conditions.

AGENCY/ORGANIZATIONAL REVIEW

The purpose of this subsection of the HMP is to list and describe all local government departments, agencies and organizations that have a direct (or indirect) impact on hazard mitigation and/or hazard control through specific responsibilities in these areas or through seemingly unrelated responsibilities (e.g., site selection for school facilities), and to describe these responsibilities.

Bertie County

The Bertie County Administration office is located at 106 Dundee Street, Windsor. The county operates under a Board of Commissioners-Manager form of government. Table 4-1 provides an overview of offices, organizations, and agencies responsible for hazard control and hazard mitigation activities in the county. The table provides a summary of each department's function, as well as each respective department's relative impact on mitigation issues. Table 4-2 provides an overview of capability for each participating municipal jurisdiction within Bertie County.

Table 4-1. Agency/Organizational Review for Bertie County

County Department	Description	Applicable to Mitigation	Contact
Planning and Zoning (includes building inspections)	Bertie County maintains a full-service Planning and Zoning Department. This department oversees the implementation of all local plans and studies, as well as enforcement of all state and local land development regulations. Additionally, this office performs all building inspections for unincorporated Bertie County and all county municipalities with the exception of the Town of Williamston.	X	Bertie County Building Inspections (252) 794-5336
Engineering (includes capital improvements)	The county does not staff a licensed professional engineer. Engineering services are contracted on an “as needed” basis.	X	Bertie County Public Works (252) 794-5350
Sewer	The county does not operate any central wastewater treatment facilities.	X	Bertie County Public Works (252) 794-5350
Water	The Bertie County Water System is the largest system in the county, serving the unincorporated areas within the planning area and the Towns of Lewiston-Woodville, Kelford, Roxobel, Colerain, and Askewville. According to the most recent Water Supply Plan, the Bertie County system serves an estimated population of 10,750 with approximately 4,565 connections. The largest type of use is residential, which accounts for 99% of usage. The system’s source of water supply is ground water. The system has an estimated capacity of 2.867 million gallons per day (mgd). The system currently pumps approximately 1.2 mgd, and its net available capacity is approximately 1.67 mgd, or nearly 42% of total capacity. The Towns of Aulander, Powellsville, and Windsor are served by independent municipal water systems.	X	Bertie County Public Works (252) 794-5350
Fire	Bertie County is served by twelve volunteer fire departments. Each fire district maintains a separate tax rate assessed through annual taxation efforts. Currently, existing fire response services are adequate to meet current demand.	X	Bertie County Emergency Services (252) 794-5300
Law Enforcement	Law enforcement is provided by the Bertie County Sheriff’s Department. The Department is located at 104 Dundee Street, Windsor. The Sheriff’s Department provides law enforcement to unincorporated Bertie County as well as all municipalities, with the exception of the Town of Windsor, which maintains its own municipal police force.		Bertie County Sheriff’s Department (252) 794-5330

SECTION 4. COMMUNITY CAPABILITY ASSESSMENT

County Department	Description	Applicable to Mitigation	Contact
Electricity	Electric service is provided throughout Bertie County by Duke Energy. Duke Energy provides service to unincorporated Bertie County as well as all municipalities, with the exception of the Town of Windsor. Windsor operates an independent electric utility grid under ElectriCities.		Duke Energy (252) 366-4357
Roads/Streets	The county does not own or maintain streets – this function falls under the jurisdiction of NCDOT and respective municipalities located throughout the county.	X	N/A
Stormwater Management	Bertie County supports state regulations related to stormwater runoff resulting from development (Stormwater Disposal Policy 15A NCAC 2H.001-.1003) and the NCDENR Coastal Stormwater Rules; however, there is currently no county-wide stormwater management program.	X	Bertie County Planning and Inspections (252) 794-5336
Parks, Greenways, Open Space	Bertie County maintains a Parks and Recreation Department that oversees recreational programs as well as county park facilities. It should also be noted that the Town of Windsor has an active recreation program.	X	Bertie County Emergency Services (252) 794-5300
Health Care	Bertie County residents are provided health care by Bertie Memorial Hospital located in Windsor. This hospital is a partner in the Vidant Network. More demanding procedures and health care treatment is provided through the Brody School of Medicine located at East Carolina University in Greenville.		Bertie County Emergency Services (252) 794-5300
Shelters	Primary Shelter: Bertie High School	X	Bertie County Emergency Services (252) 794-5300

Source: Bertie County.

Table 4-2. Bertie County Municipalities Overview of Capability

Municipality	Type of Government	Fire/EMS	Police	Planning	Public Works
Askewville	Mayor-Council				
Aulander	Mayor-Council				
Colerain	Mayor-Council			X	
Kelford	Mayor-Council				
Lewiston-Woodville	Mayor-Council				
Powellsville	Mayor-Council				
Roxobel	Mayor-Council				
Windsor	Council-Administrator		X	X	X

Source: Bertie County Municipalities.

Hyde County

The Hyde County Government Center is located at 30 Oyster Creek Road, Swan Quarter. The county operates under a Board of Commissioners-Manager form of government. Table 4-3 provides an overview of offices, organizations, and agencies responsible for hazard control and hazard mitigation activities in the county. The table provides a summary of each departments' function, as well as each respective departments' relative impact on mitigation issues. There are no incorporated municipalities in Hyde County.

Table 4-3. Agency/Organizational Review for Hyde County

County Department	Description	Applicable to Mitigation	Contact
Planning and Zoning (includes building inspections)	<p>The Planning & Economic Development Department administers the Subdivision and Manufactured Home Parks Ordinances for the county and provides staff support for the county Board of Commissioners. These ordinances support and guide the proper subdivision and development of land within the jurisdiction of the county in order to promote the public health, safety, and general welfare of the citizens.</p> <p>Building permits must be obtained from the Inspections Office. An inspections of the building site must be done prior to the permit being issued. A fire inspection is also required and can be arranged through the Inspections Office as well. Elevation maps are available to the public for viewing; however, to obtain an Elevate Certificate, the property must be surveyed by a licensed surveyor. The purpose of the Code Enforcement Officer is to enforce state and county building codes. These codes are designed to protect the homeowner and the local environment.</p>	X	Hyde County Planning & Economic Development (252) 926-4180
Engineering (includes capital improvements)	Hyde County does not provide in-house engineering services. These services are contracted on an as-needed basis.	X	Hyde County Planning & Economic Development (252) 926-4180
Sewer	In June 2002, a sanitary sewer system began operation in the Swan Quarter area. The system serves approximately 250 customers and is permitted to discharge 39,000 gallons per day of treated effluent. The system is operated by the Swan Quarter Sanitary District. On Ocracoke Island, wastewater disposal is provided by privately-owned, on-site septic systems or small package systems.	X	Hyde County Utilities (252) 926-4196

SECTION 4. COMMUNITY CAPABILITY ASSESSMENT

County Department	Description	Applicable to Mitigation	Contact
Water	Hyde County water system production is processed by two state-of-the-art water treatment plants known as Reverse Osmosis. One is located in the Ponzer area just off NC Highway 45, and the other is located just off State Road 1305 in the Fairfield area. There are two production wells located near each treatment plant, and these wells operate on alternating days. Current service areas on the mainland are near Ponzer, Fairfield, Swan Quarter, and Engelhard. The county's water system has approximately 2,000 service connections and a capacity of 1,152,000 gallons per day. The system operates and maintains approximately 380 miles of water lines.	X	Hyde County Utilities (252) 926-4196
Fire	On the mainland of Hyde County, fire suppression services are provided by five volunteer fire departments, as follows: Engelhard, Swan Quarter, Fairfield, Scranton, and Pungo River. Pungo River is based in eastern Beaufort County (near the Pungo community) and serves the northwestern portion of Hyde County. The remaining departments are based in Hyde County and serve the aforementioned communities and surrounding areas (up to approximately six miles from each fire house). The county Emergency Management Director serves as the Fire Marshal and supports the aforementioned volunteer fire departments. Ocracoke Island is served by the Ocracoke Volunteer Fire Department located on State Route 1324 (Firehouse Road). Through a mutual aid agreement with the National Park Service, the Ocracoke VFD maintains a 250-gallon per minute trailer-mounted pump to assist it with maintaining/establishing water pressure. Emergency Medical Services (EMS) are provided on the mainland through the county and are dispatched by the Sheriff's Department (via 9-1-1). The county contracts EMS to the Ocracoke Health Center (Ocracoke EMS) for Ocracoke Island and to Belhaven Fire and EMS for mainland areas of the county west of the Walter B. Jones Intracoastal Waterway Bridge. Hyde County EMS serves the remainder of the county. NCFS has jurisdiction to suppress all wildfires in cooperation with local Fire Departments and Emergency Management officials.	X	Hyde County Emergency Services (252) 542-0806

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County Department	Description	Applicable to Mitigation	Contact
Law Enforcement	Because there are no incorporated towns in Hyde County, there are no municipal police departments. The Hyde County Sheriff's Office has the responsibility to cover the entire county, with the assistance of the North Carolina State Highway Patrol, the North Carolina Marine Patrol, the North Carolina Wildlife Commission, and the National Park Service on Ocracoke Island. There are currently three full-time State Trooper positions in Hyde County. The Sheriff's Department employs twelve sworn officers - the Sheriff, one chief deputy, three sergeants, six deputies, and a DARE drug education officer. The department also employs three auxiliary officers who can be used seasonally, in emergency situations, or to fill in for full-time officers in case of sickness or vacation. The department employs five dispatchers who also serve as jailers and three auxiliary jailers/dispatchers.		Hyde County Sheriff's Department (252) 926-3171
Electricity	Electrical power service is provided to all of Hyde County by the Tideland Electric Membership Corporation (EMC). Tideland EMC is a distribution electric cooperative that purchases its power from Duke Energy Progress and serves over 21,000 accounts in six northeastern North Carolina counties.		Tideland EMC (252) 943-3046
Roads/Streets	Hyde County does not own or maintain any roads, streets, or highways. All right-of-ways are maintained by NCDOT.	X	N/A
Stormwater Management	Hyde County supports state regulations relating to stormwater runoff resulting from development (Stormwater Disposal Policy 15A NCAC 2H.001-.1003) and the Neuse River buffer rules, but currently there is no county-wide stormwater management program.	X	Hyde County Planning & Economic Development (252) 926-4180
Parks, Greenways, Open Space	Hyde County does not formally maintain a Parks and Recreation Department, but does maintain several passive and active recreation facilities. The following provides a comprehensive listing of these facilities: Swan Quarter Community Park, Davis Youth Center/Engelhard Community Park, Ponzer Community Park, Hyde County Health Department (active living facilities), Ocracoke Community Park.	X	Hyde County Planning & Economic Development (252) 926-4180
Health Care	Beaufort County Hospital, located approximately 60 miles from Swan Quarter, is the closest acute care community hospital to Hyde County. Residents also rely heavily on Vidant Medical Center in Pitt County, which is located roughly 80 miles from Swan Quarter and serves as the Region's Level 1 Trauma Center. The Hyde County Health Department provides basic screening and wellness programs/services.		Hyde County Emergency Services (252) 542-0806

County Department	Description	Applicable to Mitigation	Contact
Shelters	Shelters in the county are managed and operated by Emergency Services in cooperation with the American Red Cross. The county does not operate any pre-storm shelters; however, Mattamuskeet High School does serve as the county's post-storm shelter.	X	Hyde County Emergency Services (252) 542-0806 American Red Cross (252) 792-2661

Source: Hyde County.

Martin County

The Martin County Administration Office is located at 305 East Main Street, Williamston. The county operates under a Board of Commissioners-Manager form of government. Table 4-4 provides an overview of offices, organizations, and agencies responsible for hazard control and hazard mitigation activities in the county. The table provides a summary of each department's function, as well as each respective department's relative impact on mitigation issues. Table 4-4 provides an overview of capability for each participating municipal jurisdiction within Martin County.

Table 4-4. Agency/Organizational Review for Martin County

County Department	Description	Applicable to Mitigation	Contact
Planning and Zoning (includes building inspections)	Martin County does not currently enforce zoning regulations within the unincorporated portions of the county. The county does have an adopted CAMA Land Use Plan that was recently completed, which establishes long-range land use policies for environmentally sensitive portions of the county. The county maintains a full-service building inspections department which also serves many of the municipal jurisdictions throughout the county. Additionally, the building inspections department enforces the county's Flood Damage Prevention, Watershed Protection, and Minimum Housing Code Ordinances.	X	Martin County Building Inspections (252) 789-4310
Engineering (includes capital improvements)	The county does not have a licensed professional engineer on staff, and contracts for engineering services on an "as needed" basis.	X	Martin County Water Dept. (252) 789-4347
Sewer	The county does not operate sewage collection or treatment facilities.	X	Martin County Water Dept. (252) 789-4347
Water	Martin County has established public water service districts to serve certain portions of the county. Water District #1 serves the Towns of Oak City and Hassell. Water District #2 serves the Town of Bear Grass and the Griffin and Williams Townships.	X	Martin County Water Dept. (252) 789-4347

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County Department	Description	Applicable to Mitigation	Contact
Fire	Martin County has a total of seven fire departments, all of which operate on a volunteer basis. Each district has its own separate taxing district and rate. Currently, fire protection is adequate to meet demands and there are no plans in the immediate future to add new districts. Equipment acquisition is handled on an as-needed basis.	X	Martin County Emergency Management (252) 789-4530
Law Enforcement	Law enforcement is provided to the county by the Martin County Sheriff's Department. The department is located at the Martin County Governmental Center, 305 East Main Street, Williamston. The department has three (3) divisions: Detective, Patrol, and Civil.		Martin County Sheriff's Office (252) 789-4500
Electricity	Electric service throughout Martin County is provided through three utility service providers depending upon location in the county: Dominion Virginia Power, Edgecombe-Martin County EMC, and Town of Robersonville (ElectriCities).		Dominion Virginia Power (866) 366-4357 Edgecombe-Martin County EMC (252) 823-2171 Town of Robersonville (252) 795-3157
Roads/Streets	The county does not own or maintain streets – this function is served by NCDOT and select municipalities.	X	N/A
Stormwater Management/ Drainage Maintenance	Martin County supports state regulations related to stormwater runoff resulting from development (Stormwater Disposal Policy 15A NCAC 2H.001-.1003) and the NCDENR Coastal Stormwater Rules; however, there is currently no county-wide stormwater management program.	X	Martin County Building Inspections (252) 789-4310
Parks, Greenways, Open Space	Martin County does not maintain a dedicated Parks and Recreation Department. There are several recreation areas within the county that are either operated by a municipal jurisdiction or the State of North Carolina.	X	N/A

SECTION 4. COMMUNITY CAPABILITY ASSESSMENT

County Department	Description	Applicable to Mitigation	Contact
Health Care	<p>Martin General Hospital is located in Williamston and provides medical care to regional residents. The hospital is staffed with over 80 healthcare professionals. The hospital offers a variety of medical and surgical services such as neurosurgical, intensive and intermediate care, women's care, pediatric care, and cancer care. Citizens of Martin County also have regional access to Vidant Health. Vidant Health includes Vidant Medical Center in Greenville, NC, community hospitals, physician practices, home health, and other independently operated health services. Vidant Medical Center is affiliated with the Brody School of Medicine and East Carolina University.</p> <p>EMS providers within the county include: Williamston Fire and Rescue, Hamilton EMS, Jamesville Community EMS, Oak City EMS, and Robersonville Rescue.</p>		Martin County Emergency Management (252) 789-4530
Shelters	<p>Primary Shelter: Riverside High School Secondary Shelter: Riverside Middle School, South Creek Middle School</p>	X	<p>Martin County Emergency Management (252) 789-4530</p> <p>American Red Cross (252) 792-2661</p>

Source: Martin County.

Table 4-5. Martin County Municipalities Overview of Capability

Municipality	Type of Government	Fire/EMS	Police	Planning	Public Works
Bear Grass	Mayor-Council				
Everetts	Mayor-Council				X
Hamilton	Mayor-Council	X			X
Hassell	Mayor-Council				
Jamesville	Council-Manager	X		X	X
Oak City	Council-Manager	X			X
Parmele	Mayor-Commissioner				X
Robersonville	Council-Manager	X	X		X
Williamston	Council-Manager	X	X	X	X

Source: Martin County Municipalities.

Tyrrell County

The Tyrrell County Administrative Office is located at 108 S. Water Street, Columbia. The county has an administrative form of government overseen by a five-person Board of Commissioners. Table 4-6 below provides an overview of offices, organizations, and agencies responsible for hazard control and hazard mitigation activities in the county. The table provides a summary of each department's function, as well as each respective department's relative impact on mitigation issues. Table 4-6 provides an overview of capability for each participating municipal jurisdiction within Tyrrell County.

Table 4-6. Agency/Organizational Review for Tyrrell County			
County Department	Description	Applicable to Mitigation	Contact
Planning and Zoning (includes building inspections)	Tyrrell County does not maintain zoning regulations within unincorporated portions of the county. The county does have subdivision regulations that address subdivision development of varying degrees. The county does not maintain a planning staff and the subdivision regulations are enforced by the county Building Inspector. A six-member Planning Board serves as an advisory board to the county Commissioners. The Tyrrell County Building Inspections Department provides inspection services to unincorporated portions of the county, as well as the Town of Columbia.	X	Tyrrell County Building Inspections (252) 796-1371
Engineering (includes capital improvements)	The county does not have a licensed professional engineer on staff, and contracts for engineering services on an "as needed" basis.	X	Tyrrell County Administration (252) 796-1371
Sewer	The county does not operate sewage collection or treatment facilities. The county is working with the Town of Creswell to construct sewer lines that will serve the central portion of the county. Installation of this service will help alleviate issues relating to sewerage within the county and spark development activity.	X	Tyrrell County Administration (252) 796-1371
Water	Tyrrell County installed and brought online a new water system in 2002 which serves a large portion of the county. The system is owned and maintained by the county and serves approximately 1,485 residential and 12 non-residential properties.	X	Tyrrell County Administration (252) 796-1371
Fire	Tyrrell County is served by six volunteer fire departments which are located throughout the county. The departments are funded through a fire tax and employ approximately 65 volunteer firefighters.	X	Tyrrell County Emergency Management (252) 796-1371
Law Enforcement	Law enforcement throughout the county is provided by the Tyrrell County Sheriff's Department. The department is located in Columbia and consists of a sheriff, eight deputies, and a school resource officer.		Tyrrell County Sheriff's Department (252) 796-2251

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County Department	Description	Applicable to Mitigation	Contact
Electricity	Electric service in Tyrrell County is provided by Dominion Virginia Power.		Dominion Virginia Power (866) 366-4357
Roads/Streets	The county does not own or maintain streets – this function is served by NCDOT and the Town of Columbia.	X	N/A
Stormwater Management/ Drainage Maintenance	Tyrrell County supports state regulations related to stormwater runoff resulting from development (Stormwater Disposal Policy 15A NCAC 2H.001-.1003) and the NCDENR Coastal Stormwater Rules; however, there is currently no county-wide stormwater management program.	X	Tyrrell County Administration (252) 796-1371
Parks, Greenways, Open Space	Tyrrell County maintains a standing recreation committee, but does not own or operate any park facilities. The county does provide some recreation services that take place at park facilities maintained by the Town of Columbia. The county does not currently have a greenway or open space plan.	X	Tyrrell County Administration (252) 796-1371
Health Care	The closest health care provider to Tyrrell County is Chowan Hospital in Edenton, which offers a wide range of services and health care specialties. The hospital maintains 71 acute care and 40 skilled care beds. Additionally, the hospital provides intensive care service, a surgical center, an emergency department, a specialty care clinic, and a dedicated outpatient surgery area. Citizens of Tyrrell County also have regional access to University Health Systems of Eastern North Carolina located in Pitt County. University Health Systems includes Pitt County Memorial Hospital in Greenville, NC, community hospitals, physician practices, home health, and other independently operated health services. University Health Systems is affiliated with the Brody School of Medicine and East Carolina University.		Tyrrell County Emergency Management (252) 796-1371
Shelters	Primary Shelters: Columbia High School	X	Tyrrell County Emergency Management (252) 796-1371 American Red Cross (252) 792-2661

Source: Tyrrell County.

Table 4-7. Town of Columbia Overview of Capability

Municipality	Type of Government	Fire/EMS	Police	Planning	Public Works
Columbia	Council-Manager			X	X

Source: Town of Columbia.

Washington County

The Washington County Administrative Building is located at 116 Adams Street, Plymouth. The county operates under a Board of Commissioners-Manager form of government. Table 4-8 below provides an overview of offices, organizations, and agencies responsible for hazard control and hazard mitigation activities in the county. The table provides a summary of each department's function, as well as each respective department's relative impact on mitigation issues. Table 4-9 provides an overview of capability for each participating municipal jurisdiction within Washington County.

Table 4-8. Agency/Organizational Review for Washington County			
County Department	Description	Applicable to Mitigation	Contact
Planning and Zoning (includes building inspections)	Washington County maintains zoning and subdivision regulations throughout a majority of the unincorporated portions of the county. The Washington County Planning and Safety Office is charged with overseeing the enforcement of these regulations. Additionally, the county maintains a six-member Planning Board charged with serving as an advisory board to the county Board of Commissioners. The Washington County Building Inspections Department provides inspection services to the Towns of Roper, Creswell, and Plymouth.	X	Washington County Planning and Safety Office (252) 793-4114
Engineering (includes capital improvements)	The county does not have a licensed professional engineer on staff, and contracts for engineering services on an "as needed" basis.	X	Washington County Public Utilities (252) 793-4285
Sewer	The county does not operate sewage collection or treatment facilities.	X	N/A
Water	Washington County maintains a water system that serves a majority of unincorporated Washington County. The system was developed in three phases dating back to 1986, and has been fully functional since 2001. The water system is maintained by the Washington County Public Utilities Department.	X	Washington County Public Utilities (252) 793-4285
Fire	Washington County provides fire service through a network of volunteer fire departments funded with a county-wide fire tax. There are 5 volunteer fire departments throughout the county.	X	Washington County Planning and Safety Office (252) 793-4114
Law Enforcement	Washington County maintains a 23-member Sheriff's Department charged with providing police protection for unincorporated Washington County, as well as Roper, Plymouth, and Creswell.		Washington County Sheriff's Department (252) 793-2422
Electricity	Electric service is provided by one of two utility service providers depending upon location within Washington County: Dominion Virginia Power or Tideland EMC.		Dominion Virginia Power (866) 366-4357 Tideland EMC (252) 943-3046

SECTION 4. COMMUNITY CAPABILITY ASSESSMENT

County Department	Description	Applicable to Mitigation	Contact
Roads/Streets	The county does not own or maintain streets – this function is served by NCDOT and select municipalities.	X	N/A
Stormwater Management/ Drainage Maintenance	Washington County supports state regulations related to stormwater runoff resulting from development (Stormwater Disposal Policy 15A NCAC 2H.001-.1003) and the NCDENR Coastal Stormwater Rules; however, there are currently no county-wide stormwater management program.	X	Washington County Planning and Safety Office (252) 793-4114
Parks, Greenways, Open Space	Washington County maintains a Parks and Recreation Department. This department oversees the management of several recreational facilities including an indoor gym and several athletic fields. Currently, the county does not maintain an open space plan.	X	Washington County Recreation Department (252) 793-6607
Health Care	Washington County Hospital is a 49-bed, JCAHO accredited Critical Access acute care facility located in Plymouth, NC, which provides a wide range of medical services to county residents. The hospital is staffed with four physicians and 34 registered nurses. Citizens of Washington County also have regional access to University Health Systems of Eastern North Carolina located in Pitt County. University Health Systems includes Pitt County Memorial Hospital in Greenville, NC, community hospitals, physician practices, home health, and other independently operated health services. University Health Systems is affiliated with the Brody School of Medicine and East Carolina University.		Washington County Planning and Safety Office (252) 793-4114
Shelters	Primary Shelters: Pines Elementary School	X	Washington County Planning and Safety Office (252) 793-4114 American Red Cross (252) 792-2661

Source: Washington County.

Table 4-9. Washington County Municipalities Overview of Capability

Municipality	Type of Government	Fire/EMS	Police	Planning	Public Works
Creswell	Mayor-Council				X
Plymouth	Council-Manager		X	X	X
Roper	Mayor-Council				X

Source: Washington County Municipalities.

EXISTING POLICIES AND PROGRAM REVIEW

The purpose of this subsection of the HMP update is to describe the policies, programs, ordinances, and practices that each participating community has in place affecting hazard control and/or hazard mitigation. Whereas many participating communities have similar policies and ordinances, several of the most common of these policies and ordinances will be described generally or generically in the following overview section. Deviations from the “generic” descriptions provided below will be noted if applicable.

Flood Damage and Prevention Ordinance

Each community that participates in the National Flood Insurance Program (NFIP) must adopt a flood damage prevention ordinance. In general, this ordinance requires the following provisions in all areas of special flood hazard (100-year floodplain) identified by the Federal Emergency Management Agency in its Flood Insurance Rate Map (FIRM):

1. All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure;
2. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damages;
3. All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damages;
4. Electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;
5. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;
6. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters;
7. On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding; and,
8. Any alteration, repair, reconstruction, or improvements to a structure which is in compliance with the provisions of this ordinance, shall meet the requirements of “new construction” as contained in this ordinance.

In areas designated as floodways, no encroachments, including fill, new construction, substantial improvements, and other developments shall be permitted unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in the flood levels during the occurrence of the base flood. Implementation responsibility is typically through the town/county Planning Department as a condition of a zoning permit.

New FIRMs produced by the State of North Carolina Floodplain Mapping Program and the Federal Emergency Management Agency have been recently adopted throughout Bertie, Hyde, Martin, Tyrrell, and Washington counties.

North Carolina State Building Code

The North Carolina State Building Codes regulate for fire resistance, in addition to seismic, flooding, and high wind resilience. These codes are reviewed annually and amended as new requirements and materials are introduced. Building codes apply primarily to new construction or buildings undergoing substantial alteration.

Enforcement at the local level is provided by Bertie, Hyde, Martin, Tyrrell, and Washington counties Inspections Department for most of the participating municipal jurisdictions, and similar departments in the Towns of Williamston and Robersonville. An applicant for a building permit must submit plans to the appropriate inspections department for approval. The inspections department reviews the plans and elects to approve or reject them or to require revisions. Construction cannot begin until local officials confirm that the plans are in accordance with the code.

A building inspector must then visually monitor the construction of the building. The inspector's duty is to make sure that the project follows the plans as approved. Inspectors are empowered to stop work on projects that fail to conform to the plans. Any observed errors must be fixed before work can continue. The inspector must perform a final review before an occupancy permit is issued.

Zoning Ordinance

Zoning is the traditional and nearly ubiquitous tool available to local governments to control the use of land. Broad enabling authority for municipalities in North Carolina to engage in zoning is granted in N.C.G.S. 160A-381. The statutory purpose for the grant of power is to promote health, safety, morals, or the general welfare of the community. Land "uses" controlled by zoning include the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height and setbacks, density of population, and the like. The local government is authorized to divide its territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair, or use of buildings, structures, or land within those districts. Districts may include general use districts, overlay districts, and special use districts or conditional use districts. Zoning ordinances consist of maps and written text.

Subdivision Ordinance

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that subdividers install adequate drainage facilities, and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land subject to flooding, unless flood hazards are overcome through filling or other measures and prohibit filling of floodway areas. They require that subdivision plans be approved prior to the sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures.

Broad subdivision control enabling authority for municipalities is granted in N.C.G.S. 160-371. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street (N.C.G.S. 160A-376). The definition of subdivision does not include the division of land into parcels greater than 10 acres where no street right-of-way dedication is involved.

The community thus possesses great power (in theory, anyway) to prevent unsuitable development in hazard-prone areas.

Capital Improvements Plan

A capital improvements program is a planned schedule of capital expenditures for physical improvements within a local government's jurisdiction, usually over a five-year period, listed according to priority.

Coastal Area Management Act (CAMA) Plans

In 1972, Congress enacted the Coastal Zone Management Act (CZMA) to protect the coastal environment from growing demands associated with residential, recreational, commercial, and industrial uses (e.g., State and Federal offshore oil and gas development). Through the CZMA, states are encouraged to develop coastal zone management programs (CZMPs) to allow economic growth that is compatible with the protection of natural resources, the reduction of coastal hazards, the improvement of water quality, and sensible coastal development. The CZMA provides financial and technical incentives for coastal states to manage their coastal zones in a manner consistent with CZMA standards and goals.

The nation's coastal and ocean resources are under increasing pressure from population growth and development. Coastal areas host over 50% of the total U.S. population within only 17% of the nation's land area. Between 1994 and 2015, coastal population is projected to increase by 28 million people. This movement to the coast has presented difficult challenges for coastal resource managers.

The Coastal Zone Management Program (CZMP) is authorized by the Coastal Zone Management Act of 1972 and administered at the federal level by the Coastal Programs Division (CPD) within the National Oceanic and Atmospheric Administration's (NOAA's) Office of Ocean and Coastal Resource Management (OCRM). The CZMP's leaves day-to-day management decisions at the state level in the 34 states and territories with

federally approved coastal management programs. Currently, 95,376 national shoreline miles (99.9%) are managed by the Program.

In 1974, the State of North Carolina adopted the Coastal Area Management Act (CAMA) in compliance with the CZMA. CAMA established a cooperative program of coastal area management between local and State governments.

COMMUNITY CAPABILITY ASSESSMENT

The following tables provide a capability assessment and assessment of existing programs and policies for each participating jurisdiction. A summary table is outlined for each participating county and their respective municipal jurisdictions.

Table 4-10. Bertie County Jurisdictional Functions/Capabilities									
Policies and Programs	Bertie County	Askewville	Aulander	Colerain	Kelford	Lewiston-Woodville	Powellsville	Roxobel	Windsor
Comprehensive Land Use Plan (CLUP)	X	X		X					X
Parks & Recreation/ Open Space Plan	X								X
Zoning Ordinance		X	X	X	X	X	X	X	X
Subdivision Ordinance	X	X		X			X		X
Stormwater Ordinance									
Flood Damage Prevention Ordinance	X	X	X	X	X	X	X	X	X
Building Inspections/ Permitting	X*	X*	X*	X*	X*	X*	X*	X*	X*
Capital Improvements Plan	X								X
NFIP Participant	X		X	X	X			X	X
CRS Participant									

*Inspections provided by the Bertie County Planning Department.

Table 4-11. Hyde County Jurisdictional Functions/Capabilities	
Policies and Programs	Hyde County
Comprehensive Land Use Plan (CLUP)	X
Parks & Recreation/ Open Space Plan	X
Zoning Ordinance	
Subdivision Ordinance	X
Stormwater Ordinance	
Flood Damage Prevention Ordinance	X
Building Inspections/ Permitting	X
Capital Improvements Plan	
NFIP Participant	X
CRS Participant	X

SECTION 4. COMMUNITY CAPABILITY ASSESSMENT

Table 4-12. Martin County Jurisdictional Functions/Capabilities

Policies and Programs	Martin County	Bear Grass	Everetts	Hamilton	Hassell	Jamesville	Oak City	Parmeale	Robersonville	Williamston
Comprehensive Land Use Plan (CLUP)	X	X	X	X	X	X	X	X	X	X
Parks & Recreation/ Open Space Plan	X									X
Zoning Ordinance		X	X	X	X	X	X	X	X	X
Subdivision Ordinance	X	X	X	X	X	X	X	X	X	X
Stormwater Ordinance										X
Flood Damage Prevention Ordinance	X	X	X	X	X	X	X	X	X	X
Building Inspections/ Permitting	X	X*	X*	X*	X*	X*	X*	X*	X*	X
Capital Improvements Plan	X									X
NFIP Participant	X	X		X	X	X	X		X	X
CRS Participant										

*Inspections provided by the Martin County Planning Department.

Table 4-13. Tyrrell County Jurisdictional Functions/Capabilities

Policies and Programs	Tyrrell County	Columbia
Comprehensive Land Use Plan (CLUP)	X	X
Parks & Recreation/Open Space Plan	X	
Zoning Ordinance	X	X
Subdivision Ordinance	X	X
Stormwater Ordinance		
Flood Damage Prevention Ordinance	X	X
Building Inspections/ Permitting	X	X*
Capital Improvements Plan	X	X
NFIP Participant	X	X
CRS Participant		

*Inspections provided by the Tyrrell County Planning Department.

Table 4-14. Washington County Jurisdictional Functions/Capabilities

Policies and Programs	Washington County	Creswell	Plymouth	Roper
Comprehensive Land Use Plan (CLUP)	X	X*	X*	X*
Parks & Recreation/Open Space Plan	X			
Zoning Ordinance	X	X	X	X
Subdivision Ordinance	X	X	X	X
Stormwater Ordinance				
Flood Damage Prevention Ordinance	X	X	X	X
Building Inspections/ Permitting	X	X**	X**	X**
Capital Improvements Plan	X		X	

Policies and Programs	Washington County	Creswell	Plymouth	Roper
NFIP Participant	X	X	X	X
CRS Participant	X	X	X	X

*Municipality was a participant in the Washington County CAMA Land Use Plan and this document serves as the communities' primary land use management tool.

**Inspections provided by the Washington County Planning Department.

LEGAL CAPABILITY REVIEW

The following overview provides an account of the legal mechanisms available to Bertie, Hyde, Martin, Tyrrell, and Washington counties, as well as their respective municipal jurisdictions to implement policies and practices aimed at furthering mitigation objectives outlined within this plan. These tools are equally available to each community; however, some communities do not have the administrative capacity to effectively make use of all land use management tools available to them through the State's enabling legislation.

As a general rule, local governments have only that legal authority which is granted to them by their home state. This principle, that all power is vested in the State and can only be exercised to the extent it is delegated, is known as "Dillon's Rule," and applies to all North Carolina's political subdivisions. Enabling legislation in North Carolina grants a wide array of powers to its cities, towns, and counties.

Local regulations which are enacted within the bounds of the state's enabling authority do not automatically meet with judicial acceptance. Any restrictions which local governments impose on land use or building practices must follow the procedural requirements of the Fourteenth Amendment, or risk invalidation.

These and other constitutional mandates apply to federal and state governments, and all their political subdivisions. Any mitigation measures that are undertaken by the local government in its regulatory capacity must be worded and enforced carefully within the parameters established by the state and federal Constitutions, even when such measures are authorized by the General Statutes of North Carolina, and even when such measures are enacted in order to protect public health and safety by protecting the community from the impacts of natural hazards.

Within the limits of Dillon's Rule and the federal and state Constitutions, local governments in North Carolina have a wide latitude within which to institute mitigation programs, policies, and actions. All local government powers fall into one of four basic groups (although some governmental activities may be classified as more than one type of power): regulation, acquisition, taxation, and spending. Hazard mitigation measures can be carried out under each of the four types of power. Following are a list of these powers and how they may be useful tools for hazard mitigation:

Regulations

General Police Power

Local governments in North Carolina have been granted broad regulatory powers in their jurisdictions. North Carolina General Statutes bestow the general police power on local governments, allowing them to enact and enforce ordinances which define, prohibit, regulate, or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety, and welfare), towns, cities, and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate "nuisances," which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard.

Building Codes and Building Inspections

Many structural mitigation measures involve constructing and retrofitting homes, businesses, and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through the building code. North Carolina has a compulsory building code which applies throughout the state (N.C.G.S. 143-138). However, municipalities and counties may adopt codes for the respective areas if approved by the state as providing "adequate minimum standards." However, local regulations cannot be less restrictive than the state code.

Local governments in North Carolina are also empowered to carry out building inspection. North Carolina General Statute Chapter 160A, Article 19, Part 5; and Chapter 153A, Article 18, Part 4, empower cities and counties to create an inspection department and enumerate its duties and responsibilities, which include enforcing state and local laws relating to the construction of buildings; installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters.

Land Use

Regulatory powers granted by the state to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development; all these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers include the power to engage in planning, enact and enforce zoning ordinances, floodplain ordinances, and subdivision controls.

Zoning: See Existing Policies and Program Review section above..

Floodway Regulation: The North Carolina General Statutes declare that the channel and a portion of the floodplain of all the state's streams will be designated as a floodway, either by the local government or by the state. The legislatively declared purpose of designating these areas as a floodway is to help control and minimize the extent of floods by preventing obstructions which inhibit water flow and increase flood height and damage and other losses (both public and private) in flood hazard areas, and to promote the public health, safety, and welfare of citizens of North Carolina in flood hazard areas.

To carry out this purpose, local governments are empowered to grant permits for the use of the floodways, including the placement of any artificial obstruction in the floodway. No permit is required for certain uses, including agricultural, wildlife and related uses; ground level uses such as parking areas, rotary aircraft ports; lawns, gardens, golf courses, tennis courts, parks, open space, and similar private and public recreational uses. Existing artificial obstructions in the floodway may not be enlarged or replaced without a permit, and local governments are empowered to acquire existing obstructions by purchase, exchange, or condemnation if necessary to avoid flood damages.

The procedures that are laid out for issuing permits for floodway use require the local government to consider the dangerous effects a proposed artificial obstruction may create by causing water to be backed up or diverted; or the danger that the obstruction will be swept downstream to the injury of others; and by the injury or damage that may occur at the site of the obstruction itself. Local governments are to take into account anticipated development in the foreseeable future which may be adversely affected by the obstruction, as well as existing development.

Planning: In order to exercise the regulatory powers conferred by the General Statutes, local governments in North Carolina are required to create or designate a planning agency. The planning agency may perform a number of duties, including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties. The importance of the planning powers of local governments is emphasized in N.C.G.S. 160A-383, which requires that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted "in accordance with a plan," the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community.

Subdivision Regulation: See Existing Policies and Program Review section above.

Acquisition

The power of acquisition can be a useful tool for pursuing mitigation goals. Local governments may find that the most effective method for completely "hazard-proofing" a particular piece of property or area is to acquire the property (either in fee or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring.

North Carolina legislation empowers cities, towns, and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease, or eminent domain.

Taxation

Taxation is yet another power granted to local governments by North Carolina law which can be used as a hazard mitigation tool. The power of taxation extends beyond merely the collection of revenue. Many communities set preferential tax rates for areas which are unsuitable for development (e.g., agricultural land, wetlands) and can be used to discourage development in hazardous areas.

Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending, or otherwise building or improving beach erosion control or flood and hurricane protection works within a designated area. This effort can serve to increase the cost of building in such areas, thereby discouraging development.

Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of services a city deems necessary within its boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development.

Spending

The fourth major power that has been delegated from the North Carolina State General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles should be made a routine part of all spending decisions made by the local government, including annual budgets and Capital Improvement Plans.

A capital program is usually a timetable by which a city indicates the timing and level of municipal services it intends to provide over a specified duration. Capital programming, by itself, can be used as a growth management technique, with a consideration of hazard mitigation planning. By tentatively committing itself to a timetable for the provision of capital to extend municipal services, a community can control its growth to some extent especially where the surrounding area is such that the provision of on-site sewage disposal and water supply are unusually expensive.

In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to municipal services.

A capital improvement program (CIP) that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective in directing growth away from environmentally sensitive or high hazard areas, for example, it can reduce environmental costs.

FISCAL CAPABILITY REVIEW

There are many diverse sources of funding available to communities to implement local hazard mitigation plans, including both government and private programs. Often an organization with a particular focus will fund only part of a project. However, with coordination, the community can combine the funding efforts of one program with those of another, thereby serving multiple missions. The grant and loan programs described in this section of the plan are a significant – although certainly not a sole – source of funding options available to each of the local government entities participating in this plan.

While federal and national programs carry out the bulk of disaster relief programs that provide funds for mitigation, local governments are encouraged to open the search field as widely as possible, and include alternative funding sources to supplement the local hazard mitigation budget. For instance, local businesses and organizations will frequently support projects that benefit their customers or employees, or which constitute good public relations ("PR"). Other groups or individuals may be willing to donate "in-kind" services, eliminating the need for cash. Often the in-kind and volunteer services of local community members can be counted toward the local share that is typically needed to match an outside source of funds.

Local governments may also engage in their own "fund-raising" efforts to pay for mitigation programs that benefit the community at-large. In North Carolina, local governments are granted limited powers to raise revenue for public purpose. The General Assembly has conferred upon cities, towns, and counties the power to levy property taxes for various purposes, including: "ambulance services, rescue squads, and other emergency medical services; beach erosion and natural disasters (including shoreline protection, beach erosion control, and flood and hurricane protection); civil defense; drainage projects or programs; fire protection; hospitals; joint undertakings with other county, city, or political subdivisions; planning; sewage; solid waste; water; water resources; watershed improvement projects," N.C.G.S. §16A-209. These statutorily enumerated purposes make it clear that local governments are empowered to finance certain emergency management activities, including mitigation activities, with property taxes.

Appendix F provides a list and description of several programs which offer funding for hazard mitigation, redevelopment, and post disaster recovery.

POLITICAL ACCEPTABILITY REVIEW

This subsection of the plan is intended to address the participating communities' "political willpower" to address hazards threats in a proactive manner. This "political willpower" is a significant component of a community's capability to implement hazard mitigation. It is, however, a very difficult factor to assess and evaluate as it is constantly changing based on the turnover in elected officials and the (perceived and actual) frequency and severity of natural hazard events.

The following principles of political acceptability are applicable for all of the local governments participating in this plan:

1. Independent of existing regulations that directly address hazard mitigation (e.g., floodplain management ordinance), hazard mitigation is not a goal that should be addressed independent of other goals and objectives of the local government, due to limited local government resources; and
2. Hazard mitigation should be considered and incorporated into policies, procedures, and programs which affect land use and development, such as siting of roadways, siting and building of public facilities, zoning and subdivision ordinances, and extension of infrastructure necessary for growth; and
3. Local revenues are insufficient to support hazard mitigation projects for mitigation of existing hazards at the local level; however, Federal and State grant funds for priority hazard mitigation projects should be pursued when available; and
4. One of local government's primary roles in implementing hazard mitigation is educating the public about the risks of natural hazards and how to reduce these risks and/or the costs of these risks.

INTRODUCTION

This section of the Regional Hazard Mitigation Plan assists with gauging the present level of vulnerability throughout the Northeastern NC Region. Vulnerability is defined as the extent to which people experience harm and property damage from a hazard. This section provides an overview of unincorporated and incorporated portions of each participating county by discussing the physical layout, existing development, and hazard locations.

As a component of the HMP update, the vulnerability analysis was updated to reflect the 2016 development characteristics of each county. Due to the inconsistency of available data resources, the data presented for each county varies.

The development of Section 5 also involved updating the critical facilities inventory initially established through each respective jurisdiction's 2011/2012 planning process. This section of the plan outlines the methodology utilized to prepare the vulnerability analysis and information relative to all participating jurisdictions.

This section of the HMP also identifies specific locations and facilities vulnerable to natural hazards with narrative, data and maps, and identifies the existing threat posed by each hazard outlined within Section 3 of the plan. Many of the hazards listed pose a direct threat to a defined geographic area, while others are considered to impact each county, and the Region as a whole. Maps have been provided to further clarify the impact area of a respective hazard type. See Appendix A for maps of each participating jurisdiction.

DEVELOPMENT VULNERABILITY

This section defines vulnerability for each jurisdiction participating in the regional plan. The information presented throughout this section reflects the data that is currently available for use in this plan. As noted, the quality of this data will vary by jurisdiction.

Vulnerability to Non-Specific Hazards

Several of the hazards outlined within Section 3 result in impacts that are not geographically targeted at a specific area or portion of the counties. The following hazards typically impact unincorporated and incorporated portions of Bertie, Hyde, Martin, Tyrrell, and Washington counties overall, but may have significant impacts on specific portions of the counties: severe winter storms, severe thunderstorms, tornadoes, wildfire, nor'easters, and earthquakes. Hurricanes/tropical storms are also considered to potentially impact large portions of the Region, but these hazards potentially may have serious impacts on fairly specific portions of each county. Refer to maps in Appendix A for an overview of the area impacted by these hazards.

Bertie County Existing Vulnerability

In order to assess existing vulnerability within Bertie County, properties are broken down by land use. The process for determining the land use of a given piece of property was based on information provided by the Bertie County Tax Office in conjunction with field observations. The following table provides an overview of existing land use for the unincorporated and incorporated portions of Bertie County. The information provided within this section is intended to provide a snapshot of development vulnerability. It should be noted that Bertie County will aim to improve vulnerability data during this five-year planning cycle.

Table 5-1. Bertie County Non-Specific Hazards Development Vulnerability			
Development Category	# of Properties	Acres	Building Value
Developed	8,459	47,797	\$719,377,399
Undeveloped	10,348	395,613	N/A

Source: Bertie County, FEMA, HCP, Inc.

Bertie County Future Vulnerability

At this time, Bertie County does not have the database required to perform a detailed analysis of potential future conditions in relation to the non-specific hazard area. The county will continue to work on improving its GIS capabilities and aim to incorporate this element into future updates of this plan.

Hyde County Existing Vulnerability

In order to assess existing vulnerability within Hyde County, properties are broken down by land use. The process for determining the land use of a given piece of property was based on information provided by the Hyde County Tax Office in conjunction with field observations. The following table provides an overview of existing land use for the unincorporated portions of Hyde County (Note: There are no incorporated jurisdictions in the county). The information provided within this section is intended to provide a snapshot of development vulnerability. It should be noted that Hyde County will aim to improve vulnerability data during this five-year planning cycle.

Table 5-2. Hyde County Non-Specific Hazards Development Vulnerability			
Development Category	# of Properties	Acres	Building Value
Developed	3,085	125,577.59	\$269,252,747
Undeveloped	4,887	301,397.00	N/A

Source: Hyde County, US Census Bureau, HCP, Inc.

Hyde County Future Vulnerability

At this time, Hyde County does not have the database (including recently developed accurate and usable information) required to perform a detailed analysis of potential future conditions in relation to the non-specific hazard area. The county will continue to work on improving its GIS capabilities and aim to incorporate this element into future updates of this plan.

Martin County Existing Vulnerability

Martin County does not currently maintain a full-service GIS department, which makes compiling a detailed overview of existing vulnerability not feasible at this time. In order to meet the requirements of this section, the information provided in the county's 2011 plan has been updated. This information was originally calculated based on 2010 US Census housing counts, population, and established property tax values. This information has been revised to reflect 2016 conditions. The data was updated based on the assumption that the county has experienced very low growth, according to the NC State Planning Office, since the year 2010. It should be noted that the table below addresses the entire county including all participating municipal jurisdictions. The following provides an overview of existing vulnerability to non-specific hazards:

Table 5-3. Martin County Non-Specific Hazards Development Vulnerability		
Land Use	# of Existing Structures	Current Value (Thousands)
Single-Family Residential	7,913	\$352,264
Multi-Family Residential	774	\$9,423
Mobile Homes (Boat, RV, Van)	2,668	\$40,065
Subtotal Residential	11,355	\$401,752
Commercial/Industrial	239	\$83,650
Other	435	\$43,500
Subtotal Non-Residential	674	\$127,150
Total	12,039	\$528,902

Source: Martin County, US Census Bureau, HCP, Inc.

Martin County Future Vulnerability

At this time, Martin County does not have the database required to perform a detailed analysis of potential future conditions in relation to the non-specific hazard area. The county will continue to work on improving its GIS capabilities and aim to incorporate this element into future updates of this plan.

Tyrrell County Existing Vulnerability

In order to assess existing vulnerability within Tyrrell County, properties are broken down by land use. The process for determining the land use of a given piece of property was based on information provided by the Tyrrell County Tax Office in conjunction with field observations. The following table provides an overview of existing land use for the unincorporated and incorporated portions of Tyrrell County. The information provided within this section is intended to provide a snapshot of development vulnerability. The numbers in the following table address all land uses including: residential, commercial, industrial, etc. It should be noted that the table below addresses the entire county including the Town of Columbia.

Table 5-4. Tyrrell County/Town of Columbia Non-Specific Hazards Development Vulnerability				
	Tyrrell County		Town of Columbia	
Land Use	# of Parcels	Current Value (Thousands)	# of Parcels	Current Value (Thousands)
Residential	1,746	\$89,353,403	326	\$17,444,790
Nonresidential	129	\$19,494,176	103	\$24,918,101
Total	1,875	\$108,847,579	429	\$42,362,891

Source: Tyrrell County, FEMA, HCP, Inc.

Tyrrell County Future Vulnerability

At this time, Tyrrell County does not have the database required to perform a detailed analysis of potential future conditions in relation to the non-specific hazard area. The county will continue to work on improving its GIS capabilities and aim to incorporate this element into future updates of this plan.

Washington County Existing Vulnerability

The methodology utilized to compile the vulnerability assessment for Washington County is consistent with that utilized above for Martin County. The information provided within this section is intended to provide a snapshot of development vulnerability. The numbers in the following table address all land uses including: residential, commercial, industrial, etc. It should be noted that the table below addresses the entire county including all participating municipal jurisdictions.

Table 5-5. Washington County Non-Specific Hazards Development Vulnerability		
Land Use	# of Parcels	Current Value (Thousands)
Single-Family Residential	5,585	\$405,945
Multi-Family Residential	51	\$4,289
Mobile Homes (Boat, RV, Van)	11	\$1,551
Subtotal Residential	5,647	\$411,785

Land Use	# of Parcels	Current Value (Thousands)
Commercial/Industrial	331	\$66,879
Other	194	\$52,686
Subtotal Non-Residential	525	\$119,565
Total	6,172	\$531,350

Source: Washington County, FEMA, HCP, Inc.

Washington County Future Vulnerability

At this time, Washington County does not have the database required to perform a detailed analysis of potential future conditions in relation to the non-specific hazard area. The county will continue to work on improving its GIS capabilities and aim to incorporate this element into future updates of this plan.

Flooding

Flooding primarily impacts the Northeastern NC Region during thunderstorm events, heavy rains, and in some cases when upstream precipitation results in downstream drainage issues. Hurricanes and tropical storm events can also result in heavy flooding. The following section provides an analysis of vulnerability for properties within the Region's flood zones and provides an overview of the impacts associated with: riverine flooding, hurricanes/tropical storms, and dam/levee failure.

Flood Insurance Rate Maps (FIRMS)

Maps provided in Appendix A graphically depict the extent of the high risk flooding areas within each participating jurisdiction as defined by the Flood Insurance Rate Maps (FIRMS) developed by the Federal Emergency Management Agency (FEMA). FEMA defines areas within "flood zones," based on varying levels of risk of flooding in each area. Properties in Zones "A" and "AE" are considered to be high-risk flood zones, as there is a 1% or greater chance of flooding each year. Properties in Zone "X-500" have an approximately 0.02, or 1 in 500, chance of flooding each year.

Bertie County Existing Vulnerability

The following provides an estimate of existing vulnerability relating to the "AE" and "A" flood zones, utilizing the same methodology outlined in the previous section. The numbers in the following table address all land uses including: residential, commercial, industrial, agricultural, etc. Estimates for development within the floodplain are based on actual existing conditions within the AE flood hazard area. The AE flood zone was singled out for this analysis because the owners of the properties must carry flood insurance, and the properties are typically the focus of specific mitigation measures.

Table 5-6. Bertie County Floodprone Structures

	# of Parcels	# of Acres	Building Value (Thousands)
Developed	1,321	23,095	\$223,755,365
Undeveloped	2,499	243,003	N/A

Source: Bertie County, FEMA, HCP, Inc.

Bertie County Future Vulnerability

At this time, Bertie County does not have the database required to perform a detailed analysis of potential future conditions in relation to flood hazard areas. The county will continue to work on improving its GIS capabilities and aim to incorporate this element into future updates of this plan.

Hyde County Existing Vulnerability

The following provides an overview of existing conditions for portions of Hyde County located within a defined flood hazard area, utilizing the same methodology outlined above. Data is not currently available to provide a more detailed breakdown.

Table 5-7. Hyde County Floodprone Structures

	# of Parcels	# of Acres	Building Value (Thousands)
Developed	2,981	124,358	\$263,521,377
Undeveloped	4,734	279,775	N/A

Source: Hyde County, US Census Bureau, HCP, Inc.

Hyde County Future Vulnerability

At this time, Hyde County does not have the database required to perform a detailed analysis of potential future conditions in relation to flood hazard areas. The county will continue to work on improving its GIS capabilities and aim to incorporate this element into future updates of this plan.

Martin County Existing Vulnerability

The following provides an overview of existing conditions for portions of Martin County located within a defined flood hazard area, utilizing the same methodology outlined in the previous section. Data is not currently available to provide a more detailed breakdown.

Table 5-8. Martin County Floodprone Structures

Location	# of Existing Structures	Current Value (Thousands)
Single-Family Residential	793	\$36,141
Multi-Family Residential	75	\$914
Mobile Homes (Boat, RV, Van)	264	\$3,960
Subtotal Residential	1,132	\$41,015

Location	# of Existing Structures	Current Value (Thousands)
Commercial/Industrial	23	\$8,050
Other	44	\$4,348
Subtotal Non-Residential	67	\$12,398
Total	1,199	\$53,413

Source: Martin County, US Census Bureau, HCP, Inc.

Martin County Future Vulnerability

At this time, Martin County does not have the database required to perform a detailed analysis of potential future conditions in relation to flood hazard areas. The county will continue to work on improving its GIS capabilities and aim to incorporate this element into future updates of this plan.

Tyrrell County Existing Vulnerability

The following provides an estimate of existing vulnerability relating to the "AE" and "A" flood zones, utilizing the same methodology outlined in the previous section. The numbers in the following table address all land uses including: residential, commercial, industrial, agricultural, etc. Estimates for development within the floodplain are based on actual existing conditions within the AE flood hazard area. The AE flood zone was singled out for this analysis because the owners of the properties must carry flood insurance, and the properties are typically the focus of specific mitigation measures.

Table 5-9. Tyrrell County and Town of Columbia Floodprone Structures				
	Tyrrell County		Town of Columbia	
Land Use	# of Parcels	Current Value (Thousands)	# of Parcels	Current Value (Thousands)
Residential	1,294	\$66,462,043	321	\$16,906,430
Nonresidential	90	\$10,578,216	98	\$23,708,486
Total	1,384	\$77,040,259	419	\$57,578,098

Source: Tyrrell County, FEMA, HCP, Inc.

In addition to traditional flooding issues within Tyrrell County, there are unique concerns relating to the Alligator and Goat Neck communities located between Highway 64 and the Albemarle Sound. Much of the area is near sea-level. With the irrigation canals that once criss-crossed the swamps no longer in active use, many of the homes in the communities are suffering from structural problems. Some homes are sinking in the ground causing cracks in the house or in the foundation. Septic systems are also malfunctioning as many of the drainfields remain underwater for extended periods of time. Therefore, wastewater is not treated and flows directly into the high groundwater table. Although large ditches were cleared in the recent past due to downed trees and other debris, the recent series of severe storms caused flood damage to homes as recently as November 2010. Through

community meetings and surveys, many residents have repeatedly requested assistance from local, state, and federal governments to help address their severe flooding issues. Depending on the site specific features at each property, the method to alleviate these problems will vary. Some homes will need to be raised and put on a more solid foundation. This effort will prevent further sinking and reduce the potential for flood damage. Addressing the septic tank issues will depend on several items including the soil type, level of water table, local/state permits, and other items. There are a variety of different technologies and methods to tackle each scenario, such as raised drainfields, pumps, secondary treatment, and relocation. These methods can be evaluated only after further study.

Tyrrell County Future Vulnerability

At this time, Tyrrell County does not have the database required to perform a detailed analysis of potential future conditions in relation to flood hazard areas. The county will continue to work on improving its GIS capabilities and aim to incorporate this element into future updates of this plan.

Washington County Existing Vulnerability

The following provides an estimate of existing vulnerability relating to the "AE" and "A" floodplain zones, utilizing the same methodology outlined in the previous section. The numbers in the following table address all land uses including: residential, commercial, industrial, agricultural, etc. Estimates for development within the floodplain are based on actual existing conditions within the AE flood hazard area. The AE flood zone was singled out for this analysis because the owners of the properties must carry flood insurance, and the properties are typically the focus of specific mitigation measures.

Table 5-10. Washington County Floodprone Structures		
Land Use	# of Parcels	Current Value (Thousands)
Single-Family Residential	699	\$59,036
Multi-Family Residential	1	\$167
Mobile Homes (Boat, RV, Van)	5	\$280
Subtotal Residential	705	\$59,483
Commercial/Industrial	51	\$11,797
Other	25	\$2,619
Subtotal Non-Residential	76	\$14,416
Total	781	\$73,899

Source: Washington County, FEMA, HCP, Inc.

Washington County Future Vulnerability

At this time, Washington County does not have the database required to perform a detailed analysis of potential future conditions in relation to flood hazard areas. The county will continue to work on improving its GIS capabilities and aim to incorporate this element into future updates of this plan.

Drought/Extreme Heat

No analysis was performed to address the drought/extreme heat hazard within the Northeastern NC Region. All properties and citizens are equally vulnerable to this risk within Bertie, Hyde, Martin, Tyrrell, and Washington counties. The counties and the participating municipalities will continue to monitor the drought situation in conjunction with the State of North Carolina to ensure that water supply resources are protected and maintained. Over the last few years, each has nearly been required to institute mandatory water restrictions as a result of persistent drought conditions. The Regional MAC will continue to work closely with all participating jurisdictions to ensure that water resources are protected.

FRAGILE AREAS

Fragile areas are areas which could easily be damaged or destroyed by inappropriate, unplanned, or poorly planned development. These areas include Areas of Environmental Concern (AECs), Natural Resource Fragile Areas, and 404 Wetlands. The AECs located in the Northeastern NC Region include wetlands and public trust areas. The presence and protection of fragile areas can provide natural hazard mitigation benefits. Wetlands and open space areas in general act as natural flood controls by storing tremendous amounts of floodwater and slowing/reducing downstream flows. Riparian (vegetated buffer) habitat protection programs can help preserve the natural mitigating features of streams while also achieving wildlife preservation objectives. Following are definitions of the types of fragile areas that can be found throughout Bertie, Hyde, Martin, Tyrrell, and Washington counties. These areas are protected from haphazard development by Coastal Area Management Act (CAMA) regulations.

Public Trust Areas (AECs)

Public trust areas are all waters of the Atlantic Ocean and the lands thereunder from the mean high water mark to the seaward limit of state jurisdiction; all natural bodies of water subject to measurable lunar tides and lands thereunder to the mean high water mark; all navigable natural bodies of water and lands thereunder to the mean high water level or mean water level as the case may be, except privately-owned lakes to which the public has no right to access; all water in artificially-created bodies of water containing significant public fishing resources or other public resources which are accessible to the public by navigation; and all waters in artificially-created bodies of water in which the public has acquired rights by prescription, custom, usage, dedication, or any other means.

Natural Resource Fragile Areas

Natural resource fragile areas are generally recognized to be of educational, scientific, or cultural value because of the natural features of the particular site. Features in these areas serve to distinguish them from the vast majority of the landscape. These areas include complex natural areas, areas that sustain remnant species, pocosins, wooded swamps, prime wildlife habitats, or registered natural landmarks.

404 Wetlands

404 wetlands are areas covered by water or that have water-logged soils for long periods during the growing season. Plants growing in wetlands are capable of living in soils lacking oxygen for at least part of the growing season. Identification of some wetlands, such as swamps, is obvious. Others are sometimes difficult to identify because they may be dry during part of the year. Wetlands include, but are not limited to, bottomlands, forests, swamps, pocosins, pine savannahs, bogs, marshes, and wet meadows.

Section 404 of the Clean Water Act requires that anyone interested in depositing dredged or fill material into “waters of the United States,” including wetlands, must apply for and receive a permit for such activities. 404 wetland areas are scattered throughout the Northeastern NC Region. Specific wetlands locations must be delineated in the field on a case-by-case basis by the US Army Corps of Engineers.

CRITICAL FACILITIES (including participating jurisdictions)

After a hazard event, it is important to be aware of those facilities that are essential to the health, safety, and viability of each county. The damage or destruction of publicly-owned facilities could disrupt the everyday lives of citizens throughout the Northeastern NC Region. For the purpose of completing this plan, critical facilities are defined as those facilities that are essential to the preservation of life and property during a disaster, those that are critical to the continuity of government operations, those necessary to ensure timely recovery, and those that provide shelter to individuals needing that service. Following are lists of the most critical facilities for Bertie, Hyde, Martin, Tyrrell, and Washington counties (including all participating municipalities). Critical facilities located throughout each county are mapped in Appendix A. The critical facilities listing and associated maps were compiled by the MAC through the planning process associated with this update.

Table 5-11. Bertie County Critical Facilities

Map ID	Facility	Type	Location
MAP 2 - UNINCORPORATED BERTIE COUNTY			
1	Aulander Elementary	Schools	Aulander
2	West Bertie Elementary	Schools	Kelford
3	Bertie High	Schools	Windsor
4	Bertie Early College High	Schools	Windsor
5	Bertie Middle	Schools	Windsor
6	Bertie STEM High	Schools	Windsor

SECTION 5. VULNERABILITY ASSESSMENT

Map ID	Facility	Type	Location
7	Trap Fire Department	Emergency Services	Colerain
8	Perrytown Fire Department	Emergency Services	Perrytown
9	Merry Hill-Midway Fire Department	Emergency Services	Merry Hill
10	NC Division of Forest Resources District 7	Emergency Services	Windsor
11	Blue Jay Fire Department	Emergency Services	Windsor
12	White Oak Medical Transport	Emergency Services	Windsor
13	Medi-Port, Inc.	Emergency Services	Windsor
MAP 3 - ASKEWVILLE			
1	Askewville Volunteer Fire Department	Emergency Services	Askewville
2	Askewville Town Hall	Government	Askewville
MAP 4 - AULANDER			
1	Aulander Police & Fire Department	Emergency Services	Aulander
2	Preferred Medical Transport	Emergency Services	Aulander
3	Aulander Town Hall	Government	Aulander
MAP 5 - COLERAIN			
1	Colerain Elementary	Schools	Colerain
2	Colerain Volunteer Fire Department	Emergency Services	Colerain
3	Colerain Rescue Squad	Emergency Services	Colerain
4	Colerain Town Hall	Government	Colerain
MAP 6 - KELFORD			
1	Kelford Fire Department	Emergency Services	Kelford
2	Kelford Town Hall	Government	Kelford
MAP 7 - LEWISTON-WOODVILLE			
1	Lewiston-Woodville Police Department	Emergency Services	Lewiston-Woodville
2	Lewiston-Woodville Volunteer Fire Department & EMS	Emergency Services	Lewiston-Woodville
3	Lewiston-Woodville Town Hall	Government	Lewiston-Woodville
MAP 8 - POWELLVILLE			
1	Powellville Volunteer Fire Department	Emergency Services	Powellville
2	Powellville Town Hall	Government	Powellville
MAP 9 - ROXOBEL			
1	Roxobel Volunteer Fire Department	Emergency Services	Roxobel
2	Roxobel Town Hall	Government	Roxobel
MAP 10 - WINDSOR			
1	Windsor Elementary	Schools	Windsor
2	Windsor Police Department	Emergency Services	Windsor
3	Bertie County Sheriff's Office	Emergency Services	Windsor
4	NC State Bureau of Investigation	Emergency Services	Windsor
5	Bertie Memorial Hospital	Emergency Services	Windsor

SECTION 5. VULNERABILITY ASSESSMENT

Map ID	Facility	Type	Location
6	Windsor Fire Department	Emergency Services	Windsor
7	Coastal Medical Transport	Emergency Services	Windsor
8	Bertie County Rescue Squad	Emergency Services	Windsor
9	Bertie Ambulance Squad	Emergency Services	Windsor
10	Bertie County Emergency Management	Government	Windsor
11	Windsor Town Hall	Government	Windsor

Source: Bertie County and all participating municipalities.

Table 5-12. Martin County Critical Facilities

Map ID	Facility	Type	Location
MAP 12 - UNINCORPORATED MARTIN COUNTY			
1	Edna Andrews Elementary	Schools	Hamilton
2	South Creek High	Schools	Robersonville
3	East End Elementary	Schools	Robersonville
4	South Creek Middle	Schools	Robersonville
5	Riverside High	Schools	Williamston
6	Rodgers Elementary	Schools	Williamston
7	Martin Community College Campus Police	Emergency Services	Williamston
8	Griffins Township Fire Department	Emergency Services	Williamston
9	Bear Grass Fire Rescue	Emergency Services	Bear Grass
10	Riverside Middle School	Schools	Williamston
MAP 13 - BEAR GRASS			
1	Bear Grass Charter School	Schools	Bear Grass
2	Bear Grass Town Hall	Government	Bear Grass
MAP 14 - EVERETTS			
1	Everetts Town Hall	Government	Everetts
MAP 15 - HAMILTON			
1	Hamilton District Volunteer Fire Department & EMS	Emergency Services	Hamilton
2	Midway Medical Transport, Inc.	Emergency Services	Hamilton
3	Hamilton Town Hall	Government	Hamilton
MAP 17 - JAMESVILLE			
1	Jamesville Elementary	Schools	Jamesville
2	Jamesville Community Volunteer Fire Department	Emergency Services	Jamesville
3	Jamesville Community EMS & Rescue	Emergency Services	Jamesville
4	Jamesville Town Hall	Government	Jamesville
MAP 18 - OAK CITY			
1	Oak City Volunteer Fire Department and Rescue Squad	Emergency Services	Oak City
2	Oak City Town Hall	Government	Oak City
MAP 19 - PARMELE			
1	Parmelee Town Hall	Government	Parmelee

Table 5-12. Martin County Critical Facilities

Map ID	Facility	Type	Location
MAP 20 - ROBBERSONVILLE			
1	Robersonville Police Department	Emergency Services	Robersonville
2	Robersonville Fire Department	Emergency Services	Robersonville
3	Robersonville Rescue Squad and EMS	Emergency Services	Robersonville
4	Robersonville Town Hall	Government	Robersonville
MAP 21 - WILLIAMSTON			
1	Williamston Primary	Schools	Williamston
2	E.J. Hayes Elementary	Schools	Williamston
3	Williamston Police Department	Emergency Services	Williamston
4	Martin County Sheriff's Department	Emergency Services	Williamston
5	Martin General Hospital	Emergency Services	Williamston
6	Williamston Fire and Rescue EMS	Emergency Services	Williamston
7	Williamston Rescue Squad	Emergency Services	Williamston
8	Coastal Medical Transport, Inc.	Emergency Services	Williamston
9	Williamston Town Hall	Government	Williamston
10	Martin County Emergency Management	Government	Williamston

Source: Martin County and participating municipalities.

Table 5-13. Tyrrell County Critical Facilities

Map ID	Facility	Type	Location
MAP 23 - UNINCORPORATED TYRRELL COUNTY			
1	Tyrrell Elementary	Schools	Columbia
2	Gum Neck Fire Department	Emergency Services	County
3	Scuppernong Fire Department	Emergency Services	Columbia
4	Alligator Fire Department	Emergency Services	County
5	NC Division of Forest Resources	Emergency Services	Columbia
6	Frying Pan Fire Department	Emergency Services	County
7	Kilkenny Fire Department	Emergency Services	County
MAP 24 - COLUMBIA			
1	Tyrrell County Emergency Management	Government	Columbia
2	Columbia Town Hall	Government	Columbia
3	Columbia High	Schools	Columbia
4	Columbia Middle	Schools	Columbia
5	Tyrrell County Sheriff's Department	Emergency Services	Columbia
6	Tyrrell County Emergency Medical Services, Inc.	Emergency Services	Columbia
7	Tyrrell Volunteer Fire Department and EMS	Emergency Services	Columbia

Source: Tyrrell County and Town of Columbia.

Table 5-14. Washington County Critical Facilities

Map ID	Facility	Type	Location
MAP 26 - WASHINGTON COUNTY			
1	Pines Elementary	Schools	Plymouth
2	Northeast Regional School of Biotechnology and Agriscience	Schools	Plymouth
3	Washington County Union Middle	Schools	Roper
4	NC Division of Parks - Pettigrew State Park	Emergency Services	County
5	Lake Phelps Volunteer Fire Department	Emergency Services	County
6	Mid-County Volunteer Fire Department	Emergency Services	County
MAP 27 - CRESWELL			
1	Creswell Town Hall	Government	Creswell
2	Creswell High	Schools	Creswell
3	Creswell Elementary	Schools	Creswell
4	Creswell Volunteer Fire Department	Emergency Services	Creswell
MAP 28 - PLYMOUTH			
1	Plymouth High	Schools	Plymouth
2	Plymouth Police Department	Emergency Services	Plymouth
3	Plymouth Town Hall	Government	Plymouth
4	Plymouth Fire Department Station 2	Emergency Services	Plymouth
5	Washington County Emergency Medical Services	Emergency Services	Plymouth
6	Washington County Hospital	Emergency Services	Plymouth
7	Washington County Emergency Management	Government	Plymouth
MAP 29 - ROPER			
1	Roper Town Hall	Government	Roper
2	Roper Police Department	Emergency Services	Roper
3	Roper Volunteer Fire Department	Emergency Services	Roper

Source: Washington County and participating municipalities.

Table 5-15. Hyde County Critical Facilities

Map ID	Facility	Type	Location
MAP 31 - HYDE COUNTY			
1	Engelhard Volunteer Fire Department Incorporated	Emergency Services	Engelhard
2	Fairfield Volunteer Fire Department	Emergency Services	Fairfield
3	Hyde County Emergency Medical Services	Emergency Services	Swan Quarter
4	Hyde County Sheriff's Office - Ocracoke Island Station	Emergency Services	Ocracoke
5	Hyde County Sheriff's Office - Hyde County Jail	Emergency Services	Swan Quarter

Table 5-15. Hyde County Critical Facilities

Map ID	Facility	Type	Location
6	National Park Service - Cape Hatteras National Seashore - Ocracoke Island Ranger Station	Emergency Services	Ocracoke
7	North Carolina Division of Forest Resources District 13 - Hyde County	Emergency Services	Scranton
8	Ocracoke Island Emergency Medical Services District 2	Emergency Services	Ocracoke
9	Ocracoke Volunteer Fire Department	Emergency Services	Ocracoke
10	Scranton Volunteer Fire Department	Emergency Services	Scranton
11	Swan Quarter Volunteer Fire Department Incorporated	Emergency Services	Swan Quarter
12	Ocracoke School	Schools	Ocracoke
13	Mattamuskeet Elementary	Schools	Swan Quarter
14	Mattamuskeet Early College High	Schools	Swan Quarter
15	Hyde County Emergency Operations Center	Government	Swan Quarter
16	Hyde County Emergency Operations Center-Alternate	Government	Swan Quarter

Source: Hyde County.

It should be noted that infrastructure components have not been included within this listing. All infrastructure components associated with the provision of water service and wastewater treatment are considered critical facilities. This information has been withheld from this document due to public safety concerns.

REPETITIVE LOSS STRUCTURES

Repetitive loss structures are those that have suffered damage from repeated hazard events. A Repetitive Loss (RL) property is technically defined as any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period, since 1978. A RL property may or may not be currently insured by the NFIP. The only reliable source of information on repetitive loss structures is flood insurance claims data available through the National Flood Insurance Program (NFIP). Table 5-16 provides the RL properties located within Bertie, Hyde, Martin, Tyrrell, and Washington counties.

Table 5-16. Northeastern NC Region Repetitive Loss Properties			
County	Non-Residential	Residential	Total
Unincorporated Bertie County	0	4	4
Askewville	0	0	0
Aulander	0	0	0
Colerain	0	0	0
Kelford	0	0	0
Lewiston-Woodville	0	0	0
Powellsville	0	0	0
Roxobel	0	0	0
Windsor	1	0	1
Hyde County	3	12	15
Unincorporated Martin County	0	0	0
Bear Grass	0	0	0
Everetts	0	0	0
Hamilton	0	0	0
Hassell	0	0	0
Jamesville	0	0	0
Oak City	0	0	0
Parmeale	0	0	0
Robersonville	0	0	0
Williamston	0	2	2
Unincorporated Tyrrell County	0	6	6
Columbia	0	0	0
Unincorporated Washington County	0	0	0
Creswell	0	0	0
Plymouth	0	0	0
Roper	0	0	0

Source: NC Emergency Management.

KEY ISSUES REGARDING TORNADOS

This section is intended to address the key issues regarding each participating jurisdiction's most vulnerable structures and key infrastructure. These issues and, in turn, strategies (see Section 6) are intended to address the community's vulnerability to tornados. Implementation strategies addressing each of these issues are defined within Section 6 of the plan. This hazard has been identified as the region's most significant hazard as defined in Table 3-7, page 3-24.

Bertie County

Efforts to address the following key issues will be overseen by Bertie County Administration. However, the municipalities of Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, and Windsor will also benefit from these efforts.

- Bertie County, in concert with the participating municipalities listed above, will continue to enforce all NC State Building Code regulations in an effort to minimize wind-related damage as well as wind-borne debris.
- Bertie County and all participating municipalities listed above will continue to work on the implementation and update of this plan in an effort to identify more effective solutions regarding mitigation from tornados.

Hyde County

Efforts to address the following key issues will be overseen by Hyde County Administration:

- Hyde County will monitor the ongoing status and conditional of all repetitive loss properties as outlined in Table 5-16, page 5-16 (if applicable).
- Hyde County will work closely with the Engelhard Volunteer Fire Department, Fairfield Volunteer Fire Department, Hyde County EMS, Hyde County Sheriff - Ocracoke Island, Hyde County Sheriff, Ocracoke Island EMS, Ocracoke Volunteer Fire Department, Scranton Volunteer Fire Department, Swan Quarter Volunteer Fire Department, Ocracoke School, Mattamuskeet Elementary School, and Mattamuskeet Early College High School to mitigate flood damage to these facilities. This issue will be revisited following all tropical storm and hurricane events.

Martin County

Efforts to address the following key issues will be overseen by Martin County Administration. However, the municipalities of Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, and Williamston will also benefit from these efforts.

- Martin County, in concert with the participating municipalities listed above, will continue to enforce all NC State Building Code regulations in an effort to minimize wind-related damage as well as wind-borne debris.
- Martin County and all participating municipalities listed above will continue to work on the implementation and update of this plan in an effort to identify more effective solutions regarding mitigation from tornados.

Tyrrell County

Efforts to address the following key issues will be overseen by Tyrrell County Administration. However, the Town of Columbia will also benefit from these efforts.

- Tyrrell County and the Town of Columbia will continue to enforce all NC State Building Code regulations in an effort to minimize wind-related damage as well as wind-borne debris.
- Tyrrell County and the Town of Columbia will continue to work on the implementation and update of this plan in an effort to identify more effective solutions regarding mitigation from tornados.

Washington County

Efforts to address the following key issues will be overseen by Washington County Administration. However, the municipalities of Creswell, Plymouth, and Roper will also benefit from these efforts.

- Washington County, in concert with the participating municipalities listed above, will continue to enforce all NC State Building Code regulations in an effort to minimize wind-related damage as well as wind-borne debris.
- Washington County and all participating municipalities listed above will continue to work on the implementation and update of this plan in an effort to identify more effective solutions regarding mitigation from tornados.

CHANGE IN LAND USE FORM

The economy throughout eastern North Carolina has been hit extremely hard by the recession that began in 2008. One sector of the economy that has been impacted most significantly was the construction and development industry. The recession left many communities with planned subdivisions and commercial ventures that never materialized. In the wake of this recession, limited construction and, in turn, building permits have been issued for development throughout the five-county region.

Due to the limited and sporadic development activity that has occurred over the last five years throughout the Region, a summary of how land use characteristics have shifted is provided in the Table 5-17 below. The results and categories defined in the table are a combination of building permit activity by jurisdiction and

discussions with each county Mitigation Advisory Committee. The limited development as outlined in Table 5-14 is also based on the results of the Development Vulnerability discussion presented on page 5-1. This information is presented for both the community at large, as well as portions of each jurisdiction located within the FEMA-defined Flood Hazard Areas. What limited development that has occurred in the floodplain has been subject to each jurisdiction's respective Flood Damage Prevention Ordinance. A summary of communities participating in the National Flood Insurance Program (NFIP), as well as communities maintaining current Flood Damage Prevention Ordinances, is provided in Section 4, Community Capability Assessment.

The following three categories of development activity provide an indicator of shifts in land use characteristics for each community participating in this plan:

- No/Low Growth: Average of less than 50 building permits annually
- Moderate Growth: Average of 51 to 150 building permits annually
- High Growth: Average of more than 150 building permits issued annually

Table 5-17. Northeastern NC Region Development Activity

County	Non-Specific Hazard Area	Flood Hazard Area
Unincorporated Bertie County	No/Low	No/Low
Askewville	No/Low	No/Low
Aulander	No/Low	No/Low
Colerain	No/Low	No/Low
Kelford	No/Low	No/Low
Lewiston-Woodville	No/Low	No/Low
Powellsville	No/Low	No/Low
Roxobel	No/Low	No/Low
Windsor	No/Low	No/Low
Hyde County	No/Low	No/Low
Unincorporated Martin County	No/Low	No/Low
Bear Grass	No/Low	No/Low
Everetts	No/Low	No/Low
Hamilton	No/Low	No/Low
Hassell	No/Low	No/Low
Jamesville	No/Low	No/Low
Oak City	No/Low	No/Low
Parmeale	No/Low	No/Low
Robersonville	No/Low	No/Low
Williamston	No/Low	No/Low
Unincorporated Tyrrell County	No/Low	No/Low
Columbia	No/Low	No/Low
Unincorporated Washington County	No/Low	No/Low
Creswell	No/Low	No/Low
Plymouth	No/Low	No/Low
Roper	No/Low	No/Low

Source: Regional and County MAC's.

INTRODUCTION

This section of the Regional Hazard Mitigation Plan Update outlines all of the goals, policies, and strategies that will be implemented at the regional, county, and municipal level. It should be noted that all goals, objectives and implementing strategies relating to the individual counties are based on mitigation actions developed through each community's 2011 planning process. The modifications of these plan elements was based on the direction and input of the MAC. All actions have been updated and are intended to reflect the current needs and desires of the Regional Mitigation Advisory Committee and their respective jurisdictions. The mitigation strategies developed through the planning process will be implemented at the regional, county, and in some cases, municipal level. Washington County will take the lead in undertaking all strategies outlined within this plan relating to the region overall, with support and assistance from Bertie, Hyde, Martin, and Tyrrell counties as well as all participating jurisdictions.

As the MAC worked through the development of this action plan, the group focused on six primary mitigation focus areas for the region, as well as each participating jurisdiction. These focus areas define the various aspects of mitigation, and provide guidance toward the development of a truly comprehensive solution to mitigation planning.

1. Prevention Mechanisms include regulatory methods such as planning and zoning, building regulations, open space planning, land development regulations, and stormwater management.
2. Property Protection actions diminish the risk of structural damage through acquisition of land, relocation of buildings, modifying high-risk structures, and floodproofing high-risk structures.
3. Natural Resource Protection can soften hazard impacts through mechanisms such as erosion and sediment control or wetlands protection.
4. Emergency Services measures include warning, response capabilities, critical infrastructures protection, and health and safety maintenance.
5. Structural Mitigation controls natural hazards through projects such as reservoirs, levees, diversions, channel modifications and storm sewers.
6. Public Education includes providing hazard maps and information, outreach programs, real estate disclosure, technical assistance and education.

2012 MITIGATION PROGRESS REPORT

Public Participation

All participating jurisdictions work very closely with the citizens to provide programs and support that will improve each county's resiliency to natural disasters. Over the last five years, all five counties have taken significant steps to improve upon existing emergency service functions and programs. The public was an integral part in carrying out all of these efforts. All issues relating to emergency management policy and programs have been thoroughly discussed with the respective county Board of Commissioners and Town/City Councils. In more specific terms, the public has been involved in discussions relating to regulatory tools, mitigation, and emergency services through county Planning Board and Board of Commissioners meetings. All meetings involving these two bodies are locally advertised and open to the public. Through this Hazard Mitigation Plan update, the Regional MAC intends to expand public outreach efforts, as outlined in the updated strategies.

Monitoring and Evaluation

Martin, Tyrrell, and Washington counties, as well as participating jurisdictions, have and will continue to utilize the information within this document for day-to-day planning efforts. Bertie and Hyde counties, not having participated in the 2012 regional plan, utilizes its existing Multi-Jurisdictional Hazard Mitigation Plan for mitigation guidance. Through monitoring the status of each jurisdiction's existing Mitigation Plan, each county has improved upon the data utilized throughout this document. Each county's administration maintains a dialogue with its respective county Board of Commissioners regarding mitigation/emergency management issues, and provides the public with information when deemed necessary.

Incorporation of Mitigation Plan into Other Planning Mechanisms

Over the last five years, Bertie, Hyde, Martin, Tyrrell, and Washington counties, as well as all participating jurisdictions, have made several land development policy amendments involving either zoning/subdivision regulations and/or land use planning policies. The information and strategies outlined within each county's existing HMP were factored into discussions during the development of these documents. This coordination ensures that information outlined in the hazard mitigation plan is carrying over into land use policy. Additionally, each county and pertinent municipal jurisdictions reviewed their Flood Damage Prevention Ordinances to ensure compliance with current standards. All entities also considered the HMP during decisions relating to capital expenditures such as infrastructure improvements.

Mitigation Strategy Progress

Over the last five years, each jurisdiction participating in this update process has implemented strategies at both the county and municipal levels. Through these implementation efforts, each jurisdiction has strengthened its respective mitigation programs, as well as improved the resiliency of its respective community. A comprehensive status report of each participating jurisdiction's existing mitigation actions is provided in Appendix G of the plan. Please note that the Hyde County actions were carried over from the Pamlico Sound Regional Hazard Mitigation Plan.

Review of Possible Alternatives for Mitigation Program Expansion

Refer to Appendix H for a summary regarding Community Rating System (CRS) Step 7.

MITIGATION STRATEGIES

The overall hazard mitigation planning effort is focused on providing the region and each participating jurisdiction with an action plan that will strive toward the achievement of the goals outlined below. In order to establish this plan, the Regional MAC decided that the best approach would be to define goals to guide the development of strategies developed through this plan. In taking this approach, the goals as defined in each respective community's 2012 plan have been updated where necessary. The overall intent is consistent; however, the language and content of the statements has been slightly modified.

The following provides definitions of how goals and implementing strategies relate to one another:

- Goals – A broad based statement of intent that establishes the direction for the Regional Hazard Mitigation Plan. Goals state desired outcomes for the overall implementation process.
- Implementing Strategies – A project specific strategy aimed at mitigation and involving a specific entity, interest, and funding mechanism.

As noted, goals are statements of desirable future conditions that are to be achieved. They are broad in scope and assist in setting community priorities. The following goals will provide the basis for the implementation strategies that will be included in this section, some of which are already being administered and implemented locally.

1. Promote the public health, safety, and general welfare of residents and minimize public and private losses due to natural hazards.
2. Reduce the risk and impact of future natural disasters by regulating development in known high hazard areas.
3. Pursue funds to reduce the risk of natural hazards to existing developments where such hazards are clearly identified and the mitigation efforts are cost-effective.
4. Effectively expedite post-disaster reconstruction.
5. Provide education to citizens that empower them to protect themselves and their families from natural hazards.
6. Protect fragile natural and scenic areas within the planning jurisdiction.

Tables 6-1 to 6-6 outline all implementing strategies developed through the Northeastern NC regional planning process. The tables also provide guidance relating to funding sources, priority, and a variety of other information required to effectively implement the plan.

The actions in the following tables have been ranked based on a cost-benefit review conducted by the Regional MAC through the planning process. Each implementing action has been provided a priority of low, medium, or high based on this review. The following provides a breakdown of the factors utilized to conduct this cost benefit review:

- High Priority – Highly cost-effective, administratively feasible and politically feasible policies that should be implemented in fiscal years 2017/2018 and 2018/2019.
- Medium Priority – Policies that have at least two of the following characteristics (but not all three) and should be implemented in fiscal years 2018/2019 to 2019/2020:
 - Highly cost-effective; or
 - Administratively feasible, given current levels of staffing and resources; or
 - Are politically popular and supportable given the current environment.
- Low Priority – Policies that have at least one of the following characteristics (but not two or three) and should be implemented in the next five (5) years (by the end of 2020/2021):
 - Highly cost-effective; or
 - Administratively feasible, given current levels of staffing and resources; or
 - Are politically popular and supportable given the current environment.

Policies will be implemented earlier if resources are available. It should also be noted that projects or initiatives given low priority may be ultimately contingent upon grant funding.

The following tables provide a detailed breakdown of specific mitigation strategies that will aid the region and all participating jurisdictions in furthering the goals discussed within this section of the plan. These implementing strategies are intended to address the next five years. Subsequent to this period, the MAC will revisit these actions as outlined within Section 7, Plan Maintenance. The implementing strategies have been broken down into four independent sections including: Regional mitigation strategies, Bertie County mitigation strategies, Hyde County mitigation strategies, Martin County mitigation strategies, Tyrrell County mitigation strategies, and Washington County mitigation strategies.

It should be noted that in devising the strategies outlined in this section, the Regional MAC took the following factors into consideration:

- The strategy will solve the problem it is intended to solve, or begin to develop a solution.
- The strategy meets at least one community mitigation goal.
- The strategy complies with all laws and regulations.
- The strategy is cost-beneficial.
- The community implementing the strategy has (or will have) the capability to do so.
- The strategy is environmentally sound.
- The strategy is technically feasible.
- The strategy will further the county's standing in the NFIP.

The overriding consideration in deciding whether a strategy should be established and/or maintained was whether the project or initiative was cost-beneficial. The MAC reviewed each potential statement based on the overall benefit in relation to the financial and staff resources required for implementation.

Acronyms provided in the funding source column of Tables 6-2 to 6-6 are defined as follows:

- GF - General Funds
- HMGP - Hazard Mitigation Grant Program
- PDM - Pre-Disaster Mitigation
- UHMA - Unified Hazard Mitigation Assistance
- PA - Public Assistance
- USACE - US Army Corps of Engineers
- NCDEQ - NC Department of Environmental Quality
- NCDOT - NC Department of Transportation
- NCDPS - NC Department of Public Safety
- NCDPH - NC Department of Public Health
- NCCE - NC Cooperative Extension
- NCFS - NC Forest Service
- NFIP - National Flood Insurance Program
- ARC - American Red Cross
- SBA - Small Business Administration

SECTION 6. MITIGATION STRATEGIES

Table 6-1. Northeastern NC Regional Mitigation Strategies

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Priority	Responsible Party/Dept.
R1	Bertie, Hyde, Martin, Tyrrell, and Washington counties will maintain the existing regional Hyper-Reach system. This system provides residents with emergency notifications. The Regional MAC will review the system and associated cost annually to ensure the most efficient and effective system is in place.	1, 2, 5	1, 3, 4, 5, 6, 7, 10, 11	High	Regional Mitigation Advisory Committee Governing boards of Bertie, Hyde, Martin, Tyrrell, and Washington counties
R2	The Northeastern NC Regional MAC will work together to further the region's outreach efforts with regards to a Special Needs Registry. Establishing a comprehensive registry relies heavily on outreach and coordination among local government entities.	1, 2	1, 2, 3, 4, 6, 7, 8, 10, 11		Regional Mitigation Advisory Committee Governing boards of Bertie, Hyde, Martin, Tyrrell, and Washington counties
R3	The Northeastern NC Regional MAC in conjunction with the LEPC will hold an annual elected officials workshop. This workshop will focus on providing these officials with an overview of mitigation and emergency management concerns and issues.	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	High	Regional Mitigation Advisory Committee Governing boards of Bertie, Hyde, Martin, Tyrrell, and Washington counties
R4	Once annually, the Regional MAC representative for each participating county will provide a status update to its respective Board of Commissioners regarding plan implementation. This discussion may also involve any financial considerations relating to mitigation activities.	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	High	Regional Mitigation Advisory Committee Governing boards of Bertie, Hyde, Martin, Tyrrell, and Washington counties
R5	The Regional MAC will work closely together to discuss and identify solutions to longstanding drainage issues throughout the Region. This issue will require coordination with state agencies including NCDOT and NCDEQ.	2, 6	1, 2, 3, 5, 10, 11	Medium	Regional Mitigation Advisory Committee Governing boards of Bertie, Hyde, Martin, Tyrrell, and Washington counties
R6	The Regional MAC will review county sheltering plans and facilities to assess where gaps and/or provision of inadequate facilities exist. Through this effort, deficiencies will be identified and addressed. This effort will require close intergovernmental coordination, as well as the participation of the American Red Cross.	1, 2, 4, 5	1, 2, 3, 4, 6, 7, 8, 10, 11	Medium	Regional Mitigation Advisory Committee American Red Cross
R7	The Regional MAC will work to identify grant funding that may be utilized to acquire narrow band pagers for all emergency management personnel. This effort will result in more efficient coordination throughout the region during emergency events.	3	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Medium	Regional Mitigation Advisory Committee Governing boards of Bertie, Hyde, Martin, Tyrrell, and Washington counties

SECTION 6. MITIGATION STRATEGIES

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Priority	Responsible Party/Dept.
R8	The Regional MAC will work to improve upon Community Emergency Response Team (CERT) participation throughout the region. This effort will require cooperation between all five county Emergency Management Departments.	1, 2, 4, 5	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Medium	Regional Mitigation Advisory Committee Citizens of Bertie, Hyde, Martin, Tyrrell, and Washington counties
R9	The Regional MAC will continue to coordinate closely with State Regional Planning entities, including both the Eastern Regional Advisory Committee (ERAC) and the Domestic Preparedness and Readiness Regions (DPR).	1, 2, 4	1, 2, 3, 4, 5, 6, 7, 8, 10, 11	High	Regional Mitigation Advisory Committee Regional Hospital Facilities

SECTION 6. MITIGATION STRATEGIES

Table 6-2. Bertie County Mitigation Strategies

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
B1	Revise/update regulatory maps upon completion of FIRM update.	1, 2, 3, 4, 5, 6	1, 2, 3, 10, 11	Bertie Co., Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor	High	County Board of Commissioners County Administration Municipal Administrations	GF, NFIP
B2	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	1, 2, 4, 6	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Bertie Co., Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor	High	County Administration Municipal Administrations	GF, NCDEQ
B3	Consider participating in the Community Rating System (CRS) to reduce flood insurance premiums for citizens.	2, 5	1, 2, 3, 5, 10, 11	Bertie Co., Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor	Medium	County Board of Commissioners Municipal Administrations	GF, NCDPS, NFIP
B4	Accomplish the following during the next CAMA Land Use Plan update: <ul style="list-style-type: none"> Establish more specific growth guidelines and policies and specifically delineate sensitive environmental areas for protection; Adopt a more limited policy on the types of uses allowed within flood hazard areas; Adopt a policy to not extend public services and utilities into flood hazard or other environmentally sensitive areas to discourage growth. 	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Bertie Co., Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor	Medium	County Board of Commissioners Municipal Administrations	GF, NCDEQ

SECTION 6. MITIGATION STRATEGIES

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
B5	Consider adopting a zoning ordinance that: <ul style="list-style-type: none"> Establishes zoning districts and sets standards for future development. Includes standards for clustering of residential lot development to help preserve flood hazard areas from development. Includes a flood hazard overlay zone to ensure that inappropriate development is adequately controlled. 	1, 6	1, 2, 3, 4, 5, 6, 7, 11	Bertie Co.	Medium	County Board of Commissioners County Administration	GF, NCDPS
B6	Consider adopting subdivision regulations that include minimum standards for property divisions.	1,6	1, 2, 3, 4, 5, 6, 7, 11	Bertie Co.	Medium	County Board of Commissioners County Administration	GF
B7	Review and update the flood damage prevention ordinance to: <ul style="list-style-type: none"> Ensure maximum protection from flood hazard events. 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. Consider prohibiting any fill within the 100-year floodplain to discourage development. Prohibit enclosures to the lower areas of elevated buildings, including breakaway walls. 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. 	1, 2, 5	1, 2, 3, 10, 11	Bertie Co., Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor	High	County Board of Commissioners County Administration Municipal Administrations	GF, NFIP
B8	Inventory existing lots and structures within flood hazard areas to establish baseline data regarding current state of development within flood hazard areas.	5	1, 2, 3, 10, 11	Bertie Co., Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor	Medium	County Administration Municipal Administrations	GF, NFIP

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Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
B9	Identify repetitive flood loss properties for acquisition and relocation. Seek Federal and State funding (voluntary program).	3	1, 2, 3, 10, 11	Bertie Co., Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor	High	County Administration Municipal Administrations	GF, NFIP
B10	Establish a coordinating committee to ensure that all parties responsible for stormwater management within the county communicate to ensure maximum cooperation in developing and maintaining stormwater drainage systems.	1, 2, 6	1, 2, 3, 10, 11	Bertie Co., Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor	High	County Administration Municipal Administrations	GF, NCDEQ, NCDPS
B11	Establish and maintain a coordinated debris inspection and removal program.	4	1, 2, 3, 4, 5, 6, 7, 8, 9 10, 11, 12	Bertie Co., Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor	High	County Administration Municipal Administrations	GF, NCDPS
B12	Review rebuilding activities in wake of recent hurricanes and flooding and establish policies/procedures for minimizing repetitive flood losses.	1, 2, 5	1, 2, 3, 10, 11	Bertie Co., Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor	High	County Board of Commissioners County Administration Municipal Administrations	GF, NFIP, NCDPS
B13	Advise/assist property owners in retrofitting homes and businesses.	1, 4, 5	1, 2, 3, 10, 11	Bertie Co., Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor	High	County Administration Municipal Administrations	GF, SBA, NCDPS
B14	Continue to support enforcement of the NC State Building Code.	1, 2, 4, 5	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Bertie Co., Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor	High	County Building Inspections Municipal Administrations	GF

SECTION 6. MITIGATION STRATEGIES

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
B15	Support Bertie County in maintaining a hazard warning system to alert citizens of the possibility of a natural hazard event.	1, 3, 4, 5	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Bertie Co., Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor	High	County Emergency Management County Board of Commissioners Municipal Administrations	GF, NCDPS
B16	Continue to monitor trees and branches in public area at risk of breaking or falling in windstorms, or any other natural hazardous event.	1, 2	1, 4, 5	Bertie Co., Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, Roxobel, Windsor	High	County Administration Municipal Administrations	GF, Electric Service Providers

SECTION 6. MITIGATION STRATEGIES

Table 6-3. Hyde County Mitigation Strategies

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
H1	Consider revising the county's Flood Damage Prevention Ordinance to establish a one foot freeboard requirement regarding base flood elevation for new structures developed within the Flood Hazard Area.	1, 2, 6	1, 2, 3, 10, 11	Hyde County	High	County Administration County Board of Commissioners	GF, NCDPS
H2	Promote the availability of flood insurance available through the National Flood Insurance Program (NFIP) using the following means: <ul style="list-style-type: none"> • Post on county website • Provide information on building permit applications • Make available at county library 	1, 2, 5	1, 2, 3, 10, 11	Hyde County	High	County Building Inspections County Administration	GF, NCDPS, NFIP
H3	Continue to maintain, operate, and carry out all activities outlined within the Swan Quarter Watershed Project Operation and Maintenance Checklist (latest inspection 5/7/13). This effort includes ensuring functionality of the Swan Quarter Dike.	1, 4, 6	1, 2, 3, 10, 11	Hyde County	High	Hyde Soil & Water Conservation District County Administration County Board of Commissioners	GF, NCDPS, NCDEQ
H4	Continue to monitor drainage conditions throughout both the mainland and barrier island portions of the county. Additionally, the county will continue to enforce and support the following programs relating to stormwater management: <ul style="list-style-type: none"> • NCDEQ Coastal Stormwater Rules • NCDEQ Sedimentation & Erosion Control Regulations • NCDEQ Statewide Stormwater Regulations • NCDEQ CAMA Regulations • US Army Corps of Engineers Non Coastal Wetland Regulations 	1, 5, 6	1, 2, 3, 10, 11	Hyde County	High	County Administration County Board of Commissioners	GF, NCDPS, NCDEQ
H5	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 current or prior year Mitigation Grant Projects.	2, 4, 5	1, 2, 3, 10, 11	Hyde County	High	County Administration County EMS	GF, NCDPS, HMGP, PDM, UHMA

SECTION 6. MITIGATION STRATEGIES

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
H6	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: <ul style="list-style-type: none"> Placing materials in the county library Disseminating information to local contractors 	2, 4	1, 2, 3, 10, 11	Hyde County	High	County Building Inspections County Administration	GF, NCDPS
H7	Continue to proactively seek out grant funding through NCEM and FEMA for mitigation of repetitive loss properties (RLP) 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.	2, 3	1, 2, 3, 10, 11	Hyde County	High	County Administration County Board of Commissioners	GF, NCDPS, HMGP, PDM, UHMA
H8	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. The Hyde County Emergency Operations Plan was last updated in September 2013.	2, 4	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Hyde County	High	County Emergency Services County Administration	GF, NCDPS
H9	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.	2, 4, 5	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Hyde County	Medium	County Emergency Services County Board of Commissioners	GF, NCDPS

SECTION 6. MITIGATION STRATEGIES

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
H10	Review the county's Flood Damage Prevention Ordinance on an annual basis to assess whether any revisions and/or updates have been mandated by FEMA or NCEM.	1, 2, 4	1, 2, 3, 10, 11	Hyde County	High	County Administration County Board of Commissioners County CRS Coordinator	GF, NCDPS
H11	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. 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.	2, 4	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Hyde County	Medium	County Administration County Board of Commissioners	GF, NCDOT, Electric Service Providers
H12	Continue to enforce all regulations outlined under the NC State Building Code. Although not a requirement, the county will encourage the use of wind resistant design techniques for all new residential construction.	1, 2, 4	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Hyde County	High	County Building Inspections County Administration	GF
H13	Maintain an informational booth at both the Engelhard Seafood Festival and the Ocracoke Festival in an effort to inform and educate citizens about county efforts to increase public safety and mitigate private property losses.	2, 5, 6	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Hyde County	Medium	County Emergency Services County Administration	GF, NCDPS
H14	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.	1, 4	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Hyde County	Medium	County Emergency Services County Administration County Board of Commissioners American Red Cross	GF, NCDPS, NCDOT, ARC

SECTION 6. MITIGATION STRATEGIES

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
H15	Continue to provide detailed information regarding properties located within flood hazard areas as outlined under CRS Manual Section 322.a through 322.g.	1, 3, 4	1, 2, 3, 10, 11	Hyde County	High	County Administration County Board of Commissioners	GF, NCDPS, HMGP, PDM, UHMA
H16	Continue to participate in the Community Rating System (CRS) made available through the NFIP Program.	1, 2, 5, 6	1, 2, 3, 10, 11	Hyde County	High	County Administration County Board of Commissioners	GF, NCDPS, HMGP, PDM, UHMA
H17	Seek grant funding for mitigation reconstruction projects within the county's political boundaries. This action will be based upon the needs and willing participation of property owners in Hyde County.	1, 3, 4, 5	1, 2, 3, 10, 11	Hyde County	High	County Planning & Economic Development County Emergency Services	GF, NCDPS, HMGP, PDM, UHMA

SECTION 6. MITIGATION STRATEGIES

Table 6-4. Martin County Mitigation Strategies

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
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.	1, 2, 4, 6	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston	High	County Administration County Board of Commissioners Municipal Administrations	GF, NCDPS
M2	Consider applying for participation in the Community Rating System Program. Strategies required for establishing inclusion in this program are outlined beginning on page 6-28.	2, 5	1, 2, 3, 5, 10, 11	Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston	Medium	County Administration County Board of Commissioners Municipal Administrations	GF, NCDPS
M3	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.	1, 6	1, 2, 3, 4, 5, 6, 7, 11	Martin Co.	Low	County Board of Commissioners County Administration	GF, NCDPS, NCDEQ
M4	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.	1, 6	1, 2, 3, 4, 5, 6, 7, 11	Martin Co.	Low	County Board of Commissioners County Administration	GF, NCDEQ
M5	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.	1, 2, 6	1, 2, 3, 10, 11	Martin Co., Bear Grass, Hamilton, Hassell, Jamesville, Oak City, Robersonville, Williamston	High	County Board of Commissioners County Administration Municipal Administrations	GF, NFIP, NCDEQ

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Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
M6	Work in conjunction with the Regional MAC 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.	1, 2, 6	1, 2, 3, 10, 11	Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston	Medium	County Administration Northeastern NC Regional MAC Municipal Administrations	GF, NCDOT, NCDEQ
M7	Continue to maintain a post-disaster debris management contract with a qualified service provider. The county will review this contract on an annual basis.	4	1, 2, 3, 5, 8	Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston	High	County Emergency Management County Board of Commissioners Municipal Administrations	GF, NCDPS
M8	Maintain a proactive stance toward structural mitigation projects. The county will continue to monitor repetitive loss properties following storm events. If and when structures become eligible for mitigation funding, the county will assist property owners with this effort.	3	1, 2, 3, 10, 11	Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston	High	County Emergency Management County Board of Commissioners Municipal Administrations	GF, NCDPS, NFIP
M9	Work closely with county Emergency Management and the Regional MAC 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.	1, 2, 5	1, 2, 3, 4, 10, 11	Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston	High	County Emergency Management Northeastern NC Regional MAC Municipal Administrations	GF, NCDPS, NFIP
M10	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.	5	1, 2, 3, 10, 11	Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston	High	County Building Inspections County Administration Municipal Administrations	GF, NCDPS, NFIP

SECTION 6. MITIGATION STRATEGIES

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
M11	Work closely on addressing mitigation needs, including the identification of structural mitigation projects and the establishment of new mitigation policies and initiatives.	1, 2, 3	1, 2, 3, 10, 11	Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston	High	County Emergency Management Municipal Administrations	GF, NCDOT, NCDPS
M12	Apply for hazard mitigation grant funding following a disaster to assist with clean-up and post-disaster recovery needs. Potential funding will be utilized to mitigate against potential future losses.	3	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Martin Co., Bear Grass, Everetts, Hamilton, Hassell, Jamesville, Oak City, Parmele, Robersonville, Williamston	High	County Emergency Management County Board of Commissioners Municipal Administrations	GF, NCDPS, NFIP

SECTION 6. MITIGATION STRATEGIES

Table 6-5. Tyrrell County Mitigation Strategies

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
T1	Apply for hazard mitigation grant funding following a disaster to assist with clean-up and post-disaster recovery needs. Potential funding will be utilized to mitigate against potential future losses.	3	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Tyrrell Co., Columbia	High	County Emergency Management County Board of Commissioners Municipal Administration	GF, NFIP, NCDPS
T2	Work closely with the Regional MAC and LEPC to closely plan for man-made and natural disaster events. This effort will involve the planning of exercises and annual corrective action planning. The Regional MAC will involve utility service providers in these discussions.	1, 2, 4	1, 2, 3, 5, 6, 7, 8, 10, 11	Tyrrell Co., Columbia	High	County Emergency Management Northeastern NC Regional MAC Municipal Administration	GF, N CDPS
T3	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.	5	1, 2, 3, 10, 11	Tyrrell Co., Columbia	High	County Emergency Management County Building Inspections Municipal Administration	GF, NFIP, NCDPS
T4	Maintain a policy of keeping branches and limbs from encroaching upon the right-of-way and power lines. The county will assist in this effort through ensuring that this issue is properly addressed by utility providers throughout unincorporated portions of the county.	1, 2	1, 4, 5	Columbia	High	County Administration Municipal Administration	GF, NFIP, NCDPS
T5	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 Funds to acquire any identified needs.	1, 3	1, 2, 3, 6, 7, 8, 10, 11	Tyrrell Co., Columbia	High	County Emergency Management County Board of Commissioners Municipal Administration	GF, NCDPS
T6	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.	1, 2, 5	1, 2, 3, 10, 11	Tyrrell Co., Columbia	Medium	County Emergency Management County Administration Municipal Administration	GF

SECTION 6. MITIGATION STRATEGIES

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
T7	Advertise the availability of federal flood insurance offered through the National Flood Insurance Program once annually in the local newspaper. Additionally, the county will assist property owners in acquiring this insurance.	1, 2, 5	1, 2, 3, 10, 11	Tyrrell Co., Columbia	Medium	County Administration County Building Inspections Municipal Administration	GF
T8	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.	5	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Tyrrell Co., Columbia	Medium	County Emergency Management County Administration Municipal Administration	GF
T9	Educate property owners about the importance of keeping private drives and curtilage free of debris to ensure access for emergency service vehicles. The county will advertise this policy through county newsletters, informational handouts, and website.	1, 5	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Tyrrell Co., Columbia	Medium	County Emergency Management County Administration Municipal Administration	GF, NCDPS
T10	Consider applying for participation in the Community Rating System Program. Strategies required for establishing inclusion in this program are outlined beginning on page 6-28.	1, 2, 3, 4, 5, 6	1, 2, 3, 10, 11	Tyrrell Co., Columbia	Low	County Administration County Board of Commissioners Municipal Administration	GF, NCDPS
T11	Establish a long-range plan in conjunction with the US Army Corps of Engineers to clean out the arterial canals located throughout the county.	1, 2, 3, 4, 5, 6	1, 2, 3, 10, 11	Tyrrell Co.	Medium	County Administration County Board of Commissioners	GF, USACE, NCDEQ
T12	Work towards a long-term solution to the flooding and drainage issues impacting the Alligator and Goat Neck communities within the county.	1, 2, 3, 4, 5, 6	1, 2, 3, 10, 11	Tyrrell Co.	High	County Administration County Board of Commissioners	GF, USACE, NCDEQ
T13	Seek grant funding for mitigation reconstruction projects within the County's political boundaries. This action will be based upon the needs and willing participation of property owners in Tyrrell County.	1, 3, 4, 5	1, 2, 3, 10, 11	Tyrrell Co., Columbia	High	County Emergency Management County Building Inspections Municipal Administration	GF, NCDPS, HMGP, PDM, UHMA

SECTION 6. MITIGATION STRATEGIES

Table 6-6. Washington County Mitigation Strategies

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
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.	3, 4	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Washington Co., Creswell, Plymouth, Roper	Low	County Board of Commissioners County Emergency Management Municipal Administrations	GF, NCDPS, NCDEQ
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.	1, 2	1, 2, 3, 10, 11	Washington Co., Plymouth	Medium	Municipal Administration County Emergency Management	GF, NCDOT, NCDPS
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.	1, 2, 6	1, 2, 3, 10, 11	Washington Co., Creswell, Plymouth, Roper	High	County Planning and Inspections County Board of Commissioners Municipal Administrations	GF, NCDPS
W4	Through implementation of this plan, consider increasing the required freeboard within the county's FDPO from 1 to 2 feet.	1, 2	1, 2, 3, 10, 11	Washington Co.	Medium	County Board of Commissioners County Administration	GF, NCDPS
W5	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.	4, 5	1, 2, 3, 4, 5, 10, 11	Washington Co.	Medium	County Board of Commissioners County Administration	GF, NCDPS
W6	The Washington County Planning and Building Inspections office will aim to acquire a new permitting program that will be helpful in tracking floodplain development activity.	4, 5, 6	1, 2, 3, 4, 5, 10, 11	Washington Co., Creswell, Plymouth, Roper	Medium	County Planning and Inspections County Administration Municipal Administrations	GF

SECTION 6. MITIGATION STRATEGIES

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
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.	1, 5	1, 2, 3, 10, 11	Washington Co., Creswell, Plymouth, Roper	High	County Planning and Inspections County Administration Municipal Administrations	GF, NCDPS
W8	Require a finished floor elevation certificate for all development within the special flood hazard area (SFHA). All elevation certificates should be submitted on an official FEMA elevation certificate. No certificate of occupancy shall be issued for any development within a defined special flood hazard area without the submittal of the required elevation certificate.	1, 4, 5	1, 2, 3, 10, 11	Washington Co., Creswell, Plymouth, Roper	High	County Planning and Inspections County Administration Municipal Administrations	GF, NFIP
W9	Maintain a map information service involving the following: <ul style="list-style-type: none"> ● 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. ● Provide information regarding the flood insurance purchase requirement. ● Maintain historical and current FIRMs. ● Locally advertise once annually in the local newspaper. ● Provide information to inquirers about local floodplain management requirements. 	1, 4, 5	1, 2, 3, 10, 11	Washington Co., Creswell, Plymouth, Roper	High	County Planning and Inspections County Administration	GF, NCDPS

SECTION 6. MITIGATION STRATEGIES

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
W10	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.	1, 4, 5	1, 2, 3, 10, 11	Washington Co., Creswell, Plymouth, Roper	High	County Planning and Inspections County Administration Municipal Administrations	GF, NCDPS
W11	<p>Make information regarding hazards and development regulations within floodplains available through the following:</p> <ul style="list-style-type: none"> • Ensure that the local library maintains information relating to flooding and flood protection. • Provide a link on county/town websites to FEMA resources addressing flooding and flood protection. • Maintain information pertinent to local development conditions and make this information readily available to the public, including being posted at the local library. 	1, 4, 5	1, 2, 3, 10, 11	Washington Co., Creswell, Plymouth, Roper	High	County Planning and Inspections County Administration	GF, NCDPS

SECTION 6. MITIGATION STRATEGIES

Number	Strategy	Goal Addressed (see page 6-3)	Hazard Addressed (see page 3-1)	Applicable Jurisdictions	Priority	Responsible Party/Dept.	Funding Sources
W12	<p>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:</p> <ul style="list-style-type: none"> • Provide site-specific flood and flood related information on an as-needed basis. • Maintain a list of contractors with experience in floodproofing and retrofit techniques. • Provide information on methods of windproofing construction methods for new and renovated structures. • Maintain materials providing an overview of how to select a qualified contractor. • 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. • Provide advice and assistance regarding CRS Activity 530 (Flood Protection). • Advertise the availability of this service in the local newspaper once annually. • Maintain a log of all individuals assisted through this service, including all site visits. 	1, 4, 5	1, 2, 3, 10, 11	Washington Co, Creswell, Plymouth, Roper	High	County Planning and Inspections County Administration Municipal Administrations	GF, NCDPS, NCDEQ
W13	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.	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12	Washington Co., Creswell, Plymouth, Roper	High	County Planning and Inspections County Administration Municipal Administrations	GF, NCDPS

SUMMARY OF CRS RATING OF STRATEGIES

All jurisdictions participating in this plan which are members of the Community Rating System (CRS) program should focus on the implementation of the following guidance. These efforts should be carried out above and beyond the strategies defined in Tables 6-2 through 6-6. All communities participating in the CRS program are identified on pages 4-17 to 4-19 of this plan.

Table 6-7. CRS Rating System Summary

CRS Number	CRS Activity	National Average Awarded CRS Points	CRS Documentation
310	Elevation Certificates	69	All required elevation certificates shall be kept on file within the responsible party's Building Inspections Department.
320	Map Information Service	138	The responsible party shall maintain the following information relating to the map information service: <ul style="list-style-type: none"> • A log of inquiries including: date, FIRM zone of subject property, address/location of subject property, indication that inquirer was informed of insurance purchase requirement. • Records of all agencies who have inquired, or were provided information. • Copies of historical and current FIRM's within the local government Planning and Inspections department. • A copy of the affidavit documenting that this service was publicized in the local newspaper once annually.
330	Outreach Activities	90	The responsible party shall maintain a copy of the following information: <ul style="list-style-type: none"> • A copy of the notice mailed to all property owners located within an SFHA • A listing of all property owners the notice was mailed to • A notice certifying the date the notices were mailed • Copies of the outreach projects conducted during the year
340	Hazard Disclosure	19	The responsible party shall maintain a copy of the following information relating to hazard disclosure: <ul style="list-style-type: none"> • Disclosure statements from five local real estate agents stating that it is their agencies policy to inform clients if a property is located within an SFHA • A copy of the brochure that the county has disseminated to real estate agents
350	Flood Protection Information	24	The responsible party shall maintain the following information regarding the provision of flood protection insurance: <ul style="list-style-type: none"> • A listing of publication dates for all materials on file at the local library • A statement from the Librarian that the flood related materials are listed within the libraries resource management system

SECTION 6. MITIGATION STRATEGIES

CRS Number	CRS Activity	National Average Awarded CRS Points	CRS Documentation
360	Flood Protection Assistance	53	<p>The responsible party shall maintain the following information regarding the provision of flood protection assistance program:</p> <ul style="list-style-type: none"> ● Affidavit of publication for the advertisement regarding the provision of flood protection assistance ● A copy of the contractor's list on file in the Building Inspections Department ● A copy of the document outlining how to hire a contractor on file in the Building Inspections Department
410	Additional Flood Data	86	<p>The responsible party shall maintain the following information regarding additional flood data:</p> <ul style="list-style-type: none"> ● Develop new flood elevation, floodway delineations, wave heights, or other regulatory flood hazard data for an area not mapped in detail by the flood insurance study. ● Have a more restrictive mapping standard.
420	Open Space Preservation	191	<p>The responsible party shall maintain the following information regarding the county's current inventory of open space parcels:</p> <ul style="list-style-type: none"> ● A copy of all deed restrictions in place for all properties acquired through FEMA sponsored acquisition projects to prevent future development ● A map for the file showing all open space parcels within the county
430	Higher Regulatory Standards	166	<p>The responsible party shall maintain the following information:</p> <ul style="list-style-type: none"> ● Records of annual review by the MAC and participating jurisdictions ● Records of revisions to all local ordinances
440	Flood Data Maintenance	79	<p>The responsible party shall maintain the following information regarding the county's flood data maintenance efforts:</p> <ul style="list-style-type: none"> ● A hard copy of all digital tax parcel records maintained within the GIS ● A summary of what data is included within the county's GIS
450	Stormwater Management	98	<ul style="list-style-type: none"> ● Document at the county and municipal level, where applicable, review of development proposals for consistency with North Carolina State Coastal stormwater drainage management rules which regulate size and improve water quality ● Maintain documentation correspondence indicating coordination with the North Carolina Division of Water Quality
510	Floodplain Management Planning	115	Maintain a current certified Northeastern NC Regional Hazard Mitigation Plan
520	Acquisition and Relocation	213	<ul style="list-style-type: none"> ● Document identification of properties suitable for acquisition and relocation ● Actively pursue available funding to assist with property acquisition and relocation

SECTION 6. MITIGATION STRATEGIES

CRS Number	CRS Activity	National Average Awarded CRS Points	CRS Documentation
540	Drainage System Maintenance	232	<ul style="list-style-type: none"> ● Maintain records of inspections conducted in concert with NCDOT and resulting actions taken to remove debris. ● Incorporate provisions for continuous maintenance of retention ponds into local ordinances, including debris removal ● Maintain records of all county and municipal stormwater projects
610	Flood Warning Program	93	Provide early flood warnings to the public, and have a detailed flood response plan keyed to flood crest predictions
630	Dam Safety	66	No documentation required; State Approved Plan
Total Average Points		1732	

INTRODUCTION

The Plan Maintenance and Implementation Procedures section of the plan has been completely revised to reflect the region's intentions for implementation, maintenance, and public participation over the next five years. It was determined by the MAC that this section should establish a clear explanation of how the strategies detailed throughout Section 6 will be implemented.

IMPLEMENTATION

Implementation of the Bertie-Martin-Tyrrell-Washington Regional Hazard Mitigation Plan will commence upon adoption of the document by all participating jurisdictions. Resolutions of Adoption are provided as Appendix I of the plan.

Upon adoption, the BMTW Regional Hazard Mitigation Plan faces the truest test of its worth – implementation. Implementation implies two closely related concepts: action and priority. While this plan puts forth many worthwhile and high priority recommendations, the decision about which action to undertake initially will be the first task facing the Mitigation Advisory Committee (MAC). There are two factors to consider in making that decision: the priority of the item; and available funding. Thus, pursuing low- or no-cost high-priority recommendations will have the greatest likelihood of success. What sets this plan apart is the need for regional coordination regarding implementation of some of the mitigation strategies.

Another important implementation mechanism that is both highly effective and low-cost is incorporation of the hazard mitigation plan recommendations and their underlying principles into other regional, county, and municipal plans and regulatory mechanisms, such as Capital Improvements Plans and Land Use Plans. The counties and participating municipalities will utilize this plan as a starting point toward implementing policies and programs to reduce losses to life and property from natural hazards. Each participating county will be charged with ensuring implementation of strategies specific to its jurisdiction. If these efforts require intergovernmental coordination, the Regional MAC should also be involved. If a strategy has been documented as regional, all participating jurisdictions should assist in carrying out the function and/or strategy.

Mitigation is most successful when it is incorporated into the day-to-day functions and priorities of government and development. This integration is accomplished by constant efforts to network, identify, and highlight the multi-objective benefits to each program, and its stakeholders. This effort is achieved through the routine actions of monitoring implementation efforts, attending meetings, and promoting a safe, sustainable community. Additional mitigation strategies could include consistent and ongoing enforcement of existing policies and review of regional, county, and municipal programs for coordination and regional multi-objective opportunities.

Simultaneous with these efforts, it is important to maintain a constant monitoring of funding opportunities that can be leveraged to implement some of the more costly recommended actions. This effort will include creating and maintaining ideas on how any required local match or participation requirement can be met.

When funding does become available, MAC members will be in a position to capitalize on the opportunity for their respective jurisdictions. Funding opportunities to be monitored include special pre- and post-disaster funds, special district budgeted funds, state or federal earmarked funds, and grant programs, including those that can serve or support multi-objective implementing actions.

ROLE OF THE MITIGATION ADVISORY COMMITTEE IN IMPLEMENTATION & MAINTENANCE

With adoption of this plan, the Regional MAC will be tasked with plan implementation and maintenance. The MAC, led by Ann Keyes of the Washington County Planning and Safety Department, agrees to:

- Act as a forum for hazard mitigation issues;
- Disseminate hazard mitigation ideas and activities to all participants;
- Pursue the implementation of high-priority, low-/no-cost recommended actions;
- Keep the concept of mitigation in the forefront of community decision-making by identifying plan recommendations when other community goals, plans, and activities overlap, influence, or directly affect increased community vulnerability to disasters;
- Continuously monitor multi-objective cost-share opportunities to help the community implement the plan's recommended actions for which no current funding exists;
- Monitor and assist in implementation and update of this plan;
- Report on plan progress and recommended changes to the county Boards of Commissioners; and
- Inform and solicit input from the public.

The MAC will not have any powers over county or municipal staff personnel; it will be a purely advisory body. Its primary duty is to see the plan successfully carried out and to report to the community governing boards and the public on the status of plan implementation and mitigation opportunities for the region, counties, and participating municipal jurisdictions. Other duties include reviewing and promoting mitigation proposals, considering stakeholder concerns about hazard mitigation, passing concerns on to appropriate entities, and posting relevant information on the counties' websites.

EVALUATION, MONITORING, AND UPDATING

Plan maintenance implies an ongoing effort to monitor and evaluate plan implementation and to update the plan as progress, roadblocks, or changing circumstances are recognized.

In order to track progress and update the mitigation strategies identified in the policy section of the plan, the Regional MAC will revisit this plan on an annual basis and after a hazard event. Ann Keyes, acting as

chair of the MAC, is responsible for initiating this review and will consult with members of the MAC. This monitoring and updating will take place through a formal review by the MAC annually, and a five-year written update to be submitted to the NCEM and FEMA Region IV, unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule.

Evaluation of progress can be achieved by monitoring changes in vulnerabilities identified in the plan. Changes in vulnerability can be identified by noting:

- Decreased vulnerability as a result of implementing recommended actions;
- Increased vulnerability as a result of failed or ineffective mitigation actions; and/or
- Increased vulnerability as a result of new development (and/or annexation).

Updates to this plan will:

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

In order to best evaluate any changes in vulnerability as a result of plan implementation, the MAC will use the following process:

- A representative from the responsible office identified in each mitigation strategy will be responsible for tracking and reporting on an annual basis to the MAC on project status, and provide input on whether the project as implemented meets the defined objectives and is likely to be successful in reducing vulnerabilities.
- If the project does not meet identified objectives, the MAC will determine what additional measures may be implemented and an assigned individual will be responsible for defining project scope, implementing the project, monitoring success of the project, and making any required modifications to the plan.

Changes will be made to the plan to accommodate for projects that have failed or are not considered feasible after a review for their consistency with established criteria, the time frame, county priorities, and/or funding resources. Priorities that were identified as potential mitigation strategies will also be reviewed during the monitoring and update of this plan to determine feasibility of future implementation.

Updating of the plan will be accomplished by written changes and submissions, as the MAC deems appropriate and necessary, and as approved by the Board of Commissioners for each participating county or the participating municipality's governing board, if applicable. In keeping with the process of adopting the plan, a public involvement process to receive public comment on plan maintenance and updating will be held once annually, and the final product will be adopted by each county and all participating municipalities.

CONTINUED PUBLIC INVOLVEMENT

Continued public involvement is also imperative to the overall success of the plan's implementation. The update process provides an opportunity to publicize success stories from plan implementation and seek additional public comment. A public hearing(s) to receive public comment on plan maintenance and updating will be held once during the defined annual review process within each participating county. When the Regional MAC reconvenes for updates, it will coordinate with all stakeholders participating in the planning process – including those that joined the committee since the planning process began (if applicable). The plan maintenance and update process will include continued public and stakeholder involvement and input through attendance at designated committee meetings, web postings, and press releases to local media.

INCORPORATION INTO EXISTING PLANS AND DOCUMENTS

The MAC, which will meet a minimum of once annually, will provide a mechanism for ensuring that the actions identified in this plan are incorporated into ongoing county and municipal planning activities for each participating jurisdiction. The participating jurisdictions currently utilize comprehensive land use planning and building codes to guide and control development in their communities. After all participating jurisdictions adopt the Regional Hazard Mitigation Plan, these existing mechanisms will have hazard mitigation strategies integrated into them.

After the adoption of the HMP, the participating jurisdictions will work with the State Building Code office to make sure the jurisdictions adopt and enforce the minimum standards established in the new State Building Code. This effort will ensure that life/safety criteria are met for new construction. These efforts will be carried out by the Regional MAC, as well as each respective county MAC. The following county MAC participants will be responsible for implementation at the county level:

Bertie County Mitigation Advisory Committee	
MAC Member	Jurisdiction/Agency
John Trent, Chairman Scott Sauer, County Manager Mitchell Cooper, EM Director Traci White, Planning Director	Bertie County
Gloria Bryant, Mayor	Askewville
Larry T. Drew, Mayor Stephen Draper, Public Works Director	Aulander

SECTION 7. PLAN MAINTENANCE & IMPLEMENTATION PROCEDURES

MAC Member	Jurisdiction/Agency
Thomas Waicul, Mayor	Colerain
Bailey N. Parker, Mayor	Kelford
Dayle Joyner Vaughan, Mayor Chris B. Cordon, Commissioner Gary L. Cordon Sr., Commissioner	Lewiston-Woodville
Thomas E. Asbell, Mayor Carlyle Hoggard, Commissioner James Peele, Commissioner	Powellsville
Alvin Simmons, Mayor	Roxobel
James F. Hoggard, Mayor Allen Castelloe, Town Administrator	Windsor

Martin County Mitigation Advisory Committee	
MAC Member	Jurisdiction/Agency
Ronnie Smith, Chairman David Bone, County Manager Jody Griffin, EM Director	Martin County
Charlotte Griffin, Mayor	Bear Grass
Ray Deans, Mayor Nancy S. Hardison, Town Clerk	Everetts
Donald Gil Matthews, III, Mayor	Hamilton
Marvin G. Warfe, Mayor	Hassell
Bradley K. Davis, Mayor	Jamesville
William O. Stalls, Mayor	Oak City
Jerry M. McCrary, Mayor	Parmelee
Frank Measamer, Mayor William "Mutt" Smith, Fire Chief	Robersonville
Joyce Whichard-Brown, Mayor Brent Kanipe, Director of Planning & Development Jamie Heath, Planner / Code Enforcement Officer	Williamston

Tyrrell County Mitigation Advisory Committee	
MAC Member	Jurisdiction/Agency
Leroy Spivey, Chairman David L. Clegg, County Manager Wesley Hopkins, EM Coordinator	Tyrrell County
F. Michael Griffin, Mayor Rhett White, Town Manager	Columbia

Washington County Mitigation Advisory Committee	
MAC Member	Jurisdiction/Agency
D. Cole Phelps, Chairman Willie Mack Carawan, Jr., County Manager Ann Keyes, Planning & Safety Director Andrew Coccaro, EMS Director Buster Manning, County Planning Board	Washington County
Ray Blount, Mayor Steve Barnes, County Planning Board David Clifton, County Planning Board	Creswell
Brian A. Roth, Mayor Michelle Oliver, Code Enforcement Officer Frank Winslow, County Planning Board	Plymouth
Denise Blount, Mayor Katie Walker, County Planning Board Rosalind Shields, County Planning Board Carol Stubbs, County Planning Board Charles Sharpe, County Planning Board	Roper

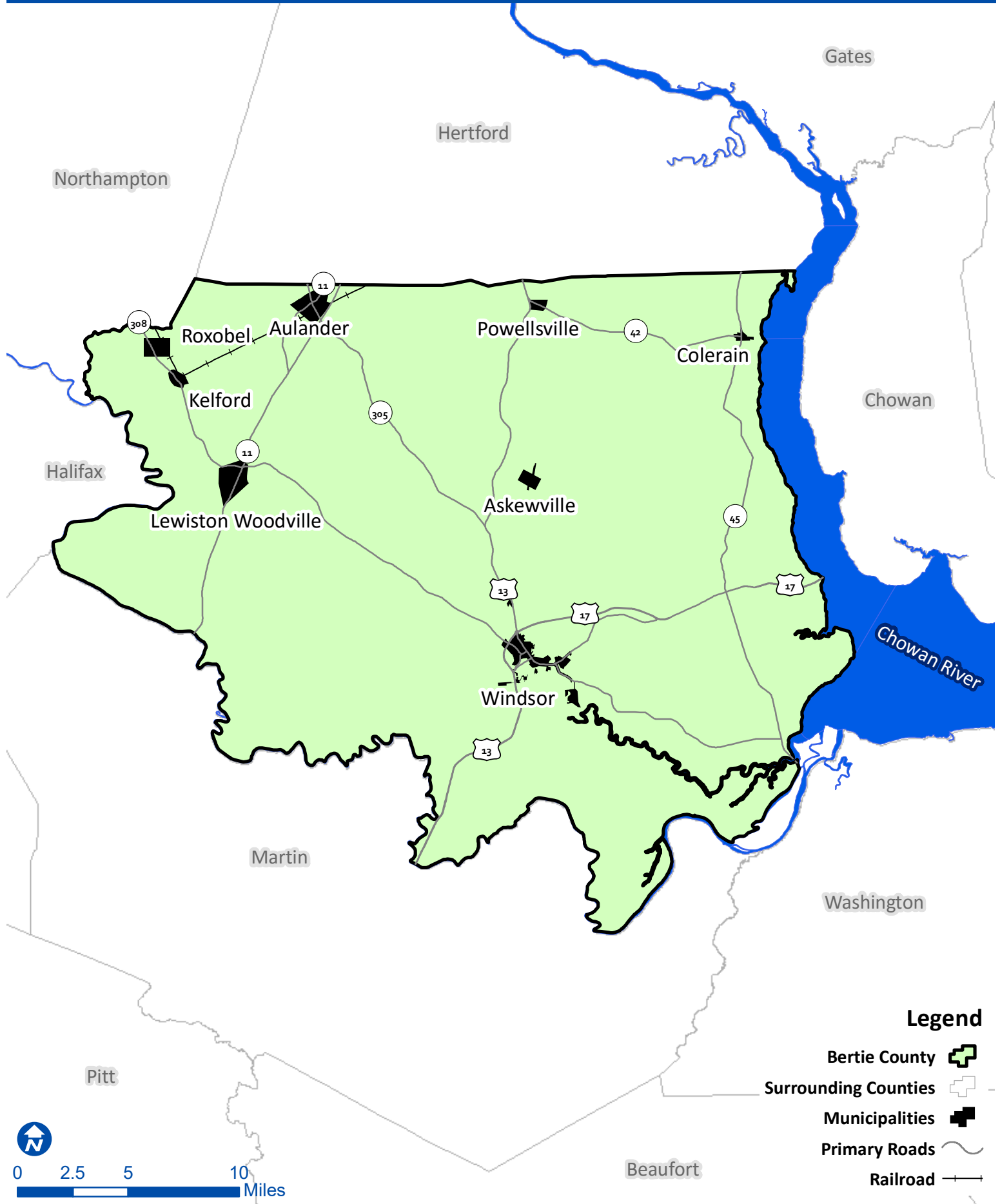
Capital improvements planning that may occur in the future will also contribute to the goals in the HMP. The jurisdictions will work with capital improvement planners to secure high-hazard areas for low risk uses.

During the HMP planning/implementation period, each participating jurisdiction will strive for the objective of formal adoption of the HMP policies.

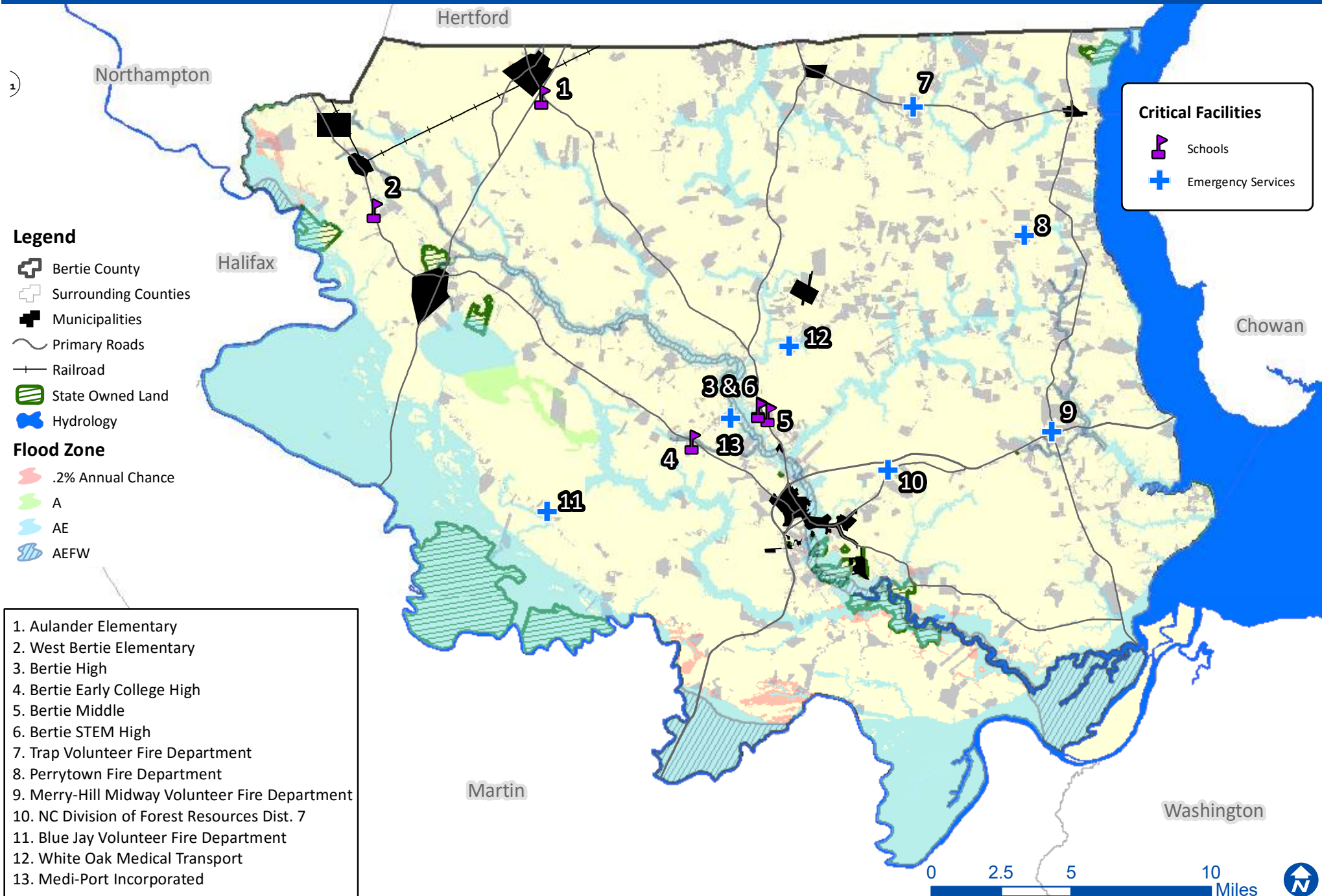
Appendix A

Maps

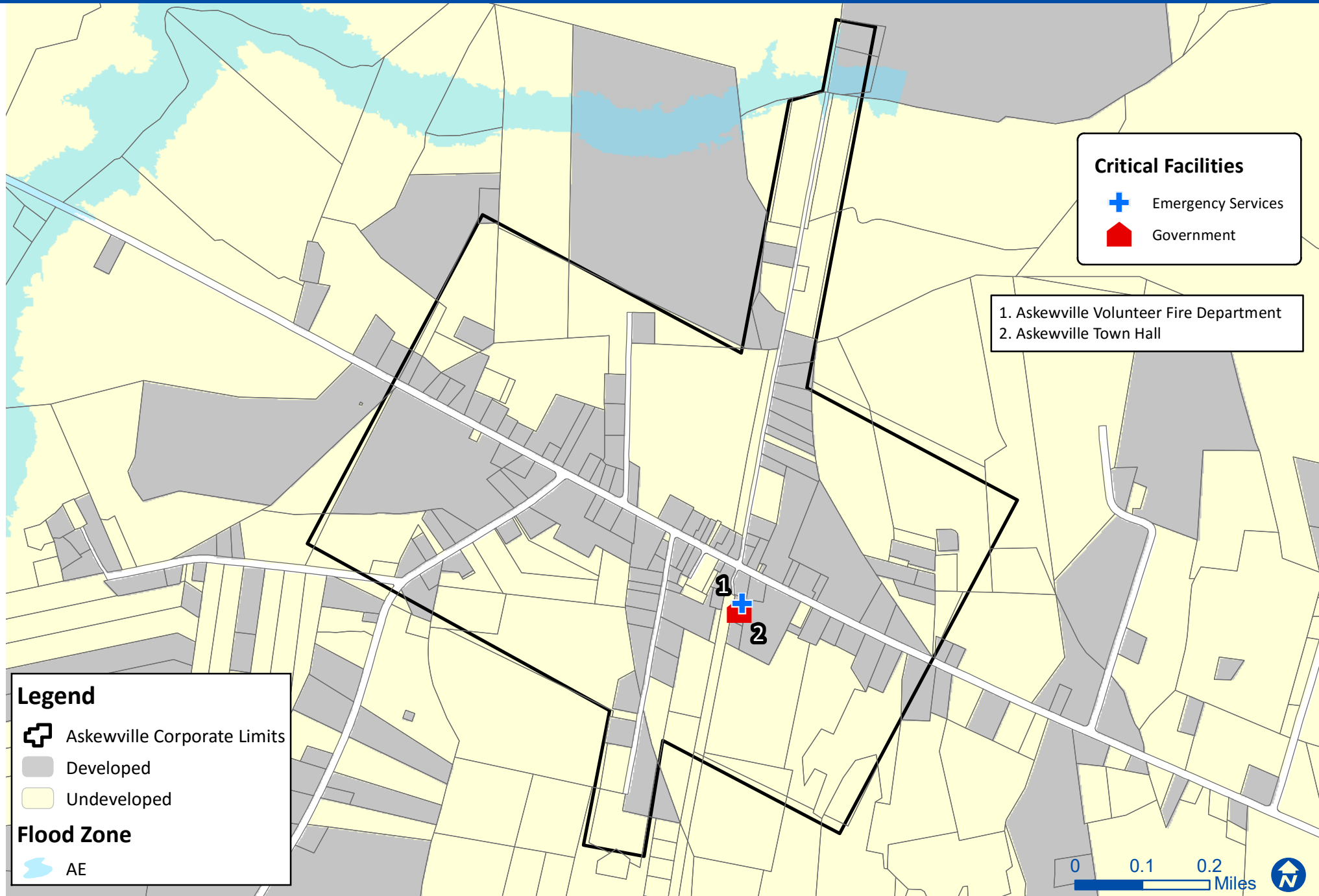
Map 1 - Bertie County Non-Specific Hazards



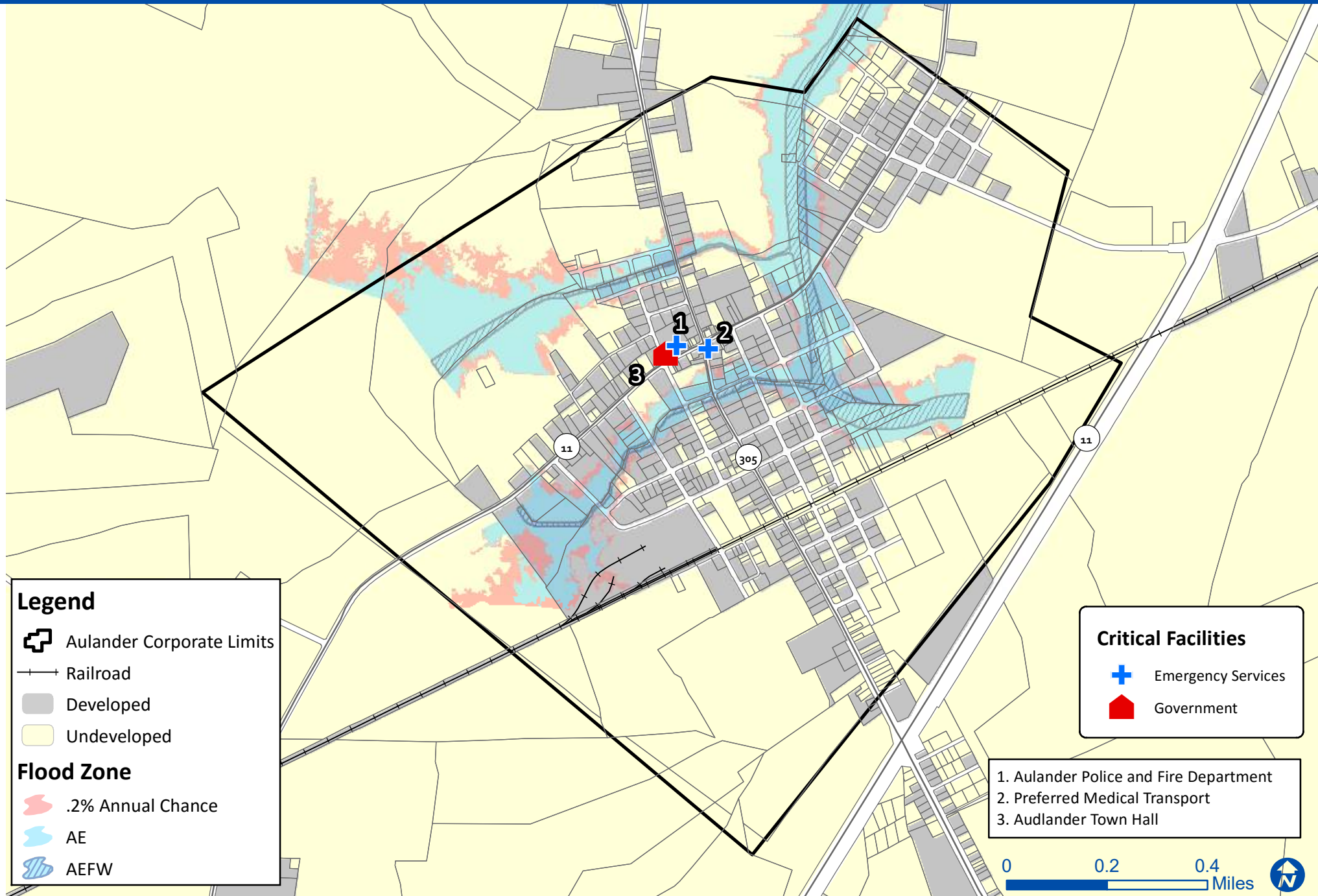
Map 2 - Bertie County Specific Hazards



Map 3 - Askewville Flood Hazard Areas & Critical Facilities



Map 4 - Aulander Flood Hazard Areas & Critical Facilities



Map 5 - Colerain Flood Hazard Areas & Critical Facilities

Legend

- Colerain Corporate Limits
- Primary Roads
- Developed
- Undeveloped

Critical Facilities

- Schools
- Emergency Services
- Government

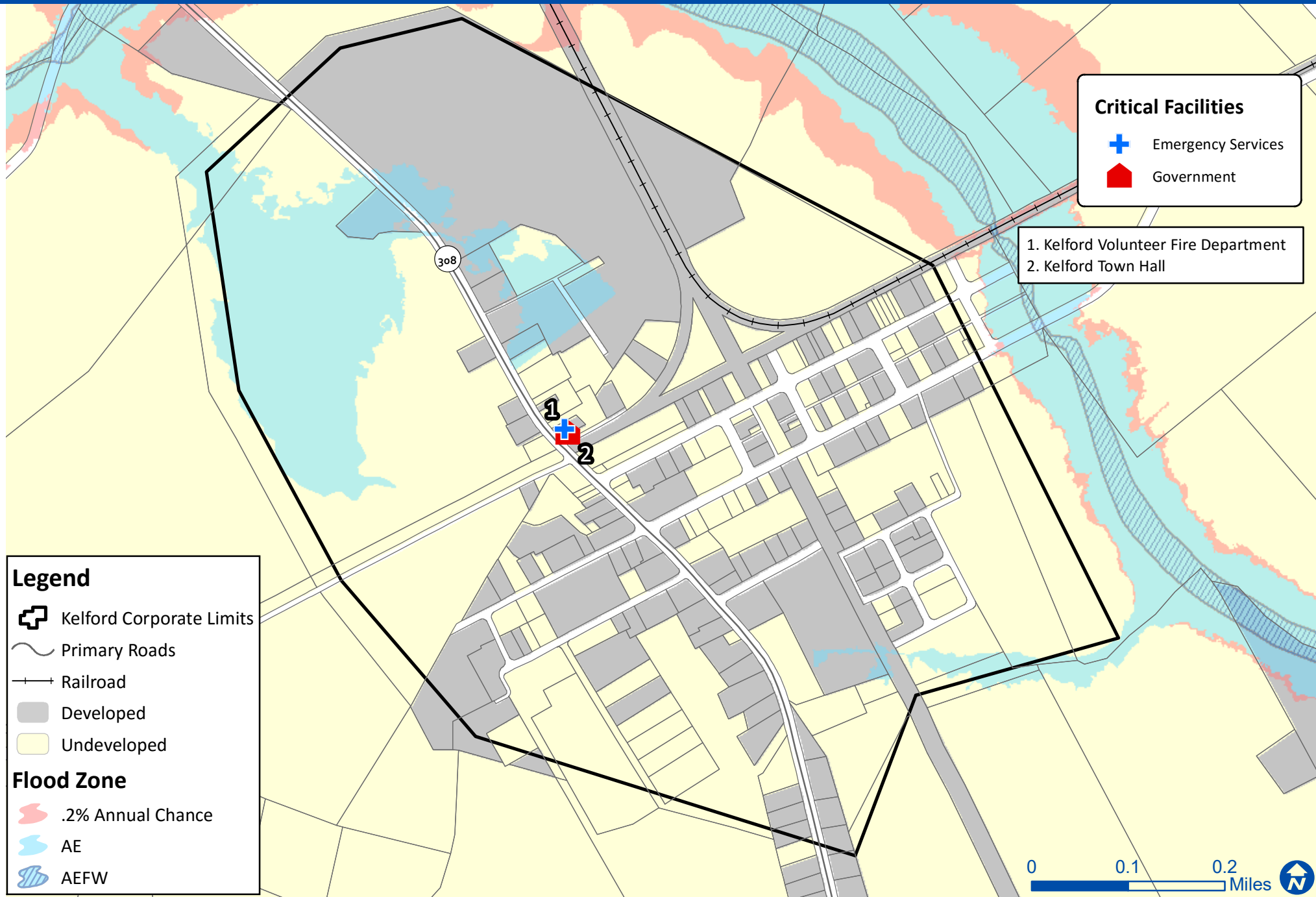
1. Colerain Elementary
2. Colerain Volunteer Fire Department
3. Colerain Rescue Squad
4. Colerain Town Hall

Note: Flood zones do not extend into the Town of Colerain.

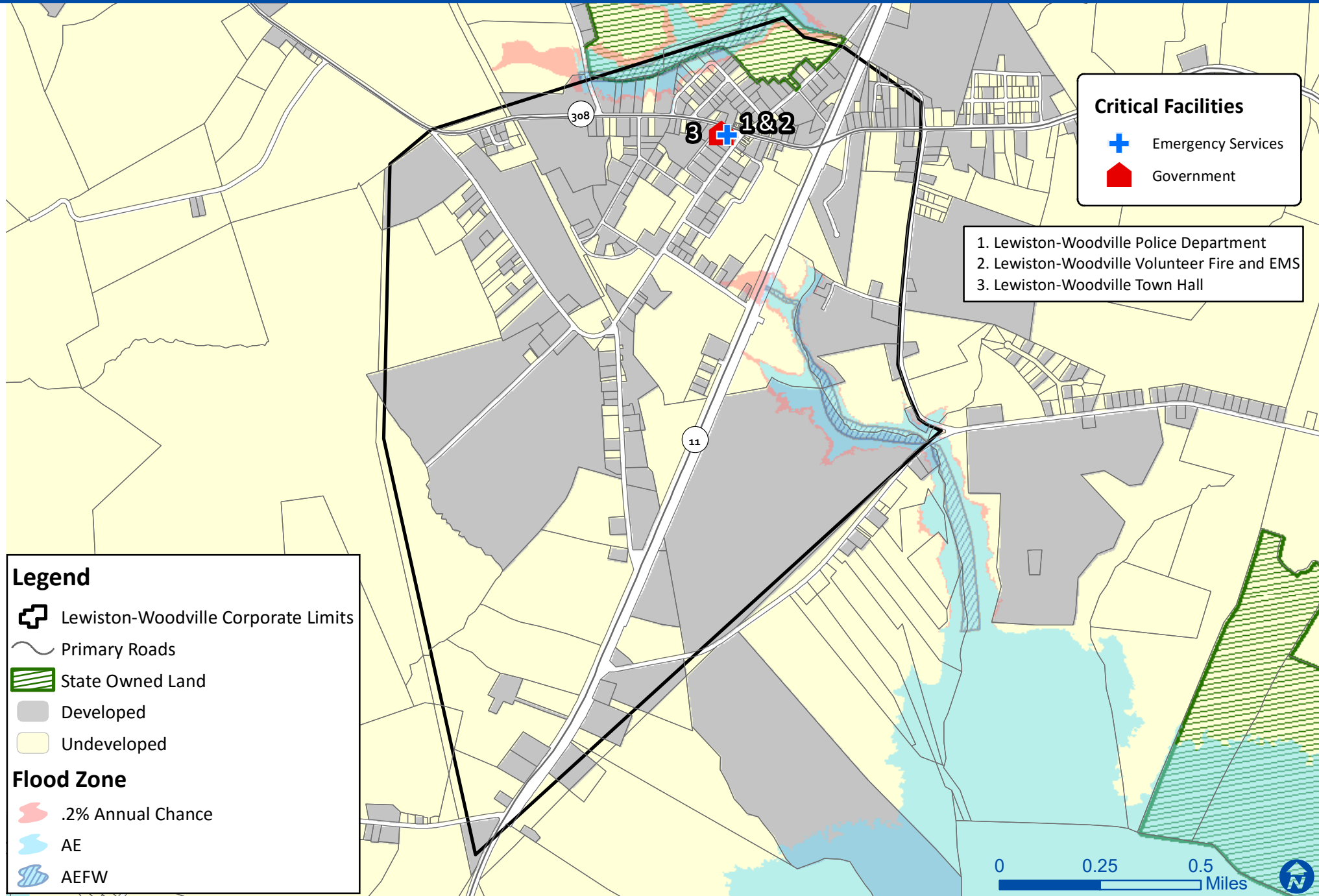


Map 6 - Kelford

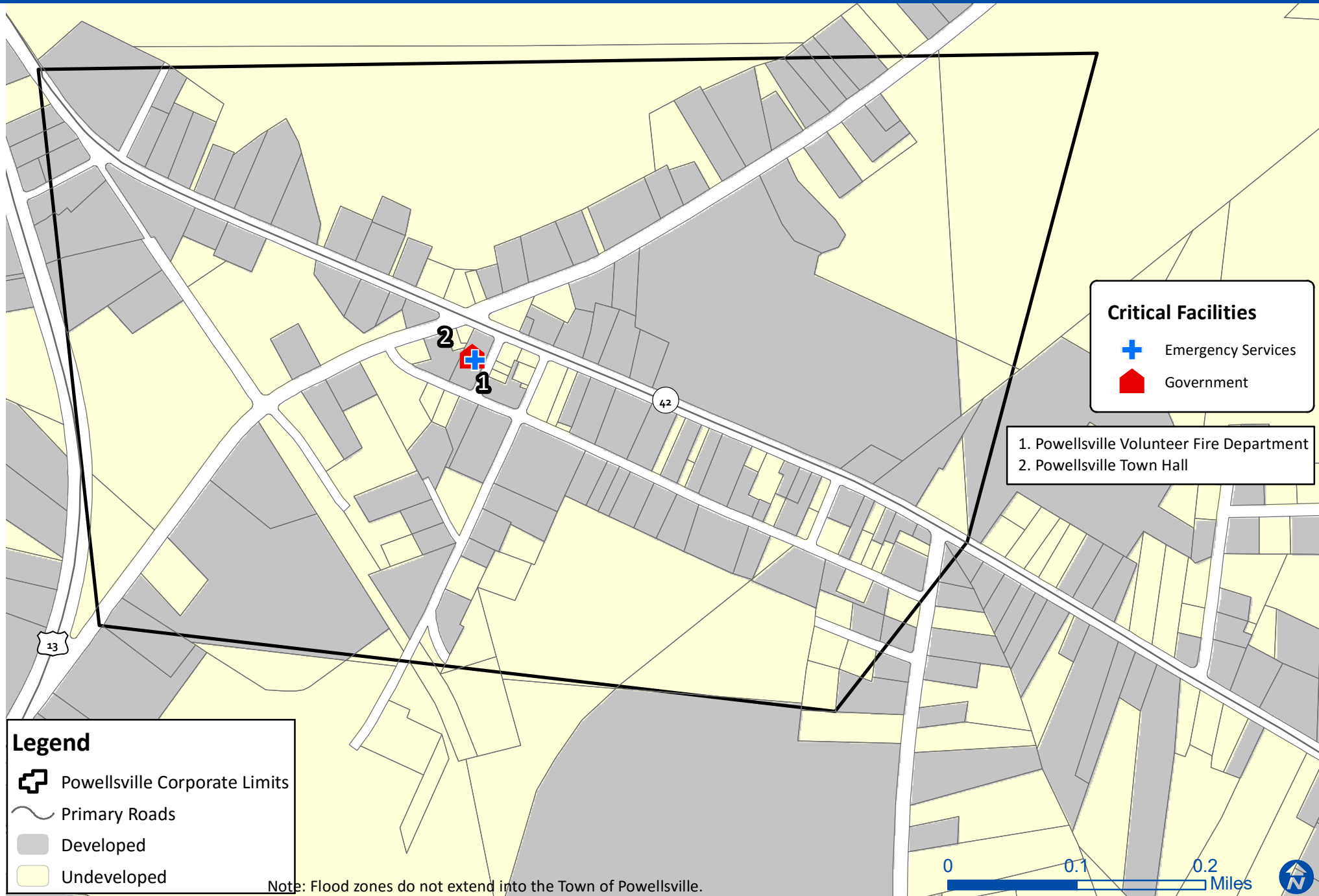
Flood Hazard Areas & Critical Facilities



Map 7 - Lewiston Woodville Flood Hazard Areas & Critical Facilities

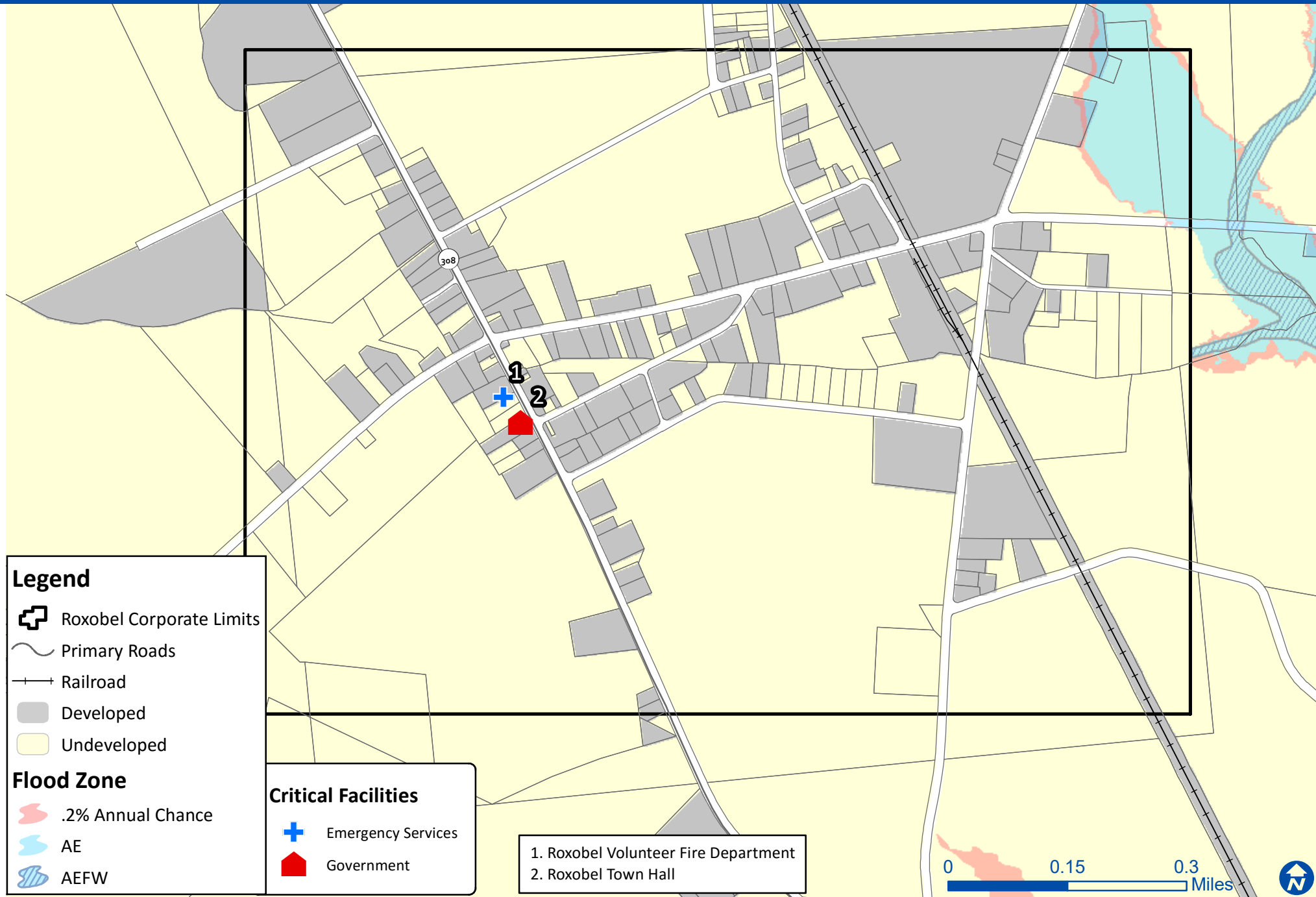


Map 8 - Powellsville Flood Hazard Areas & Critical Facilities

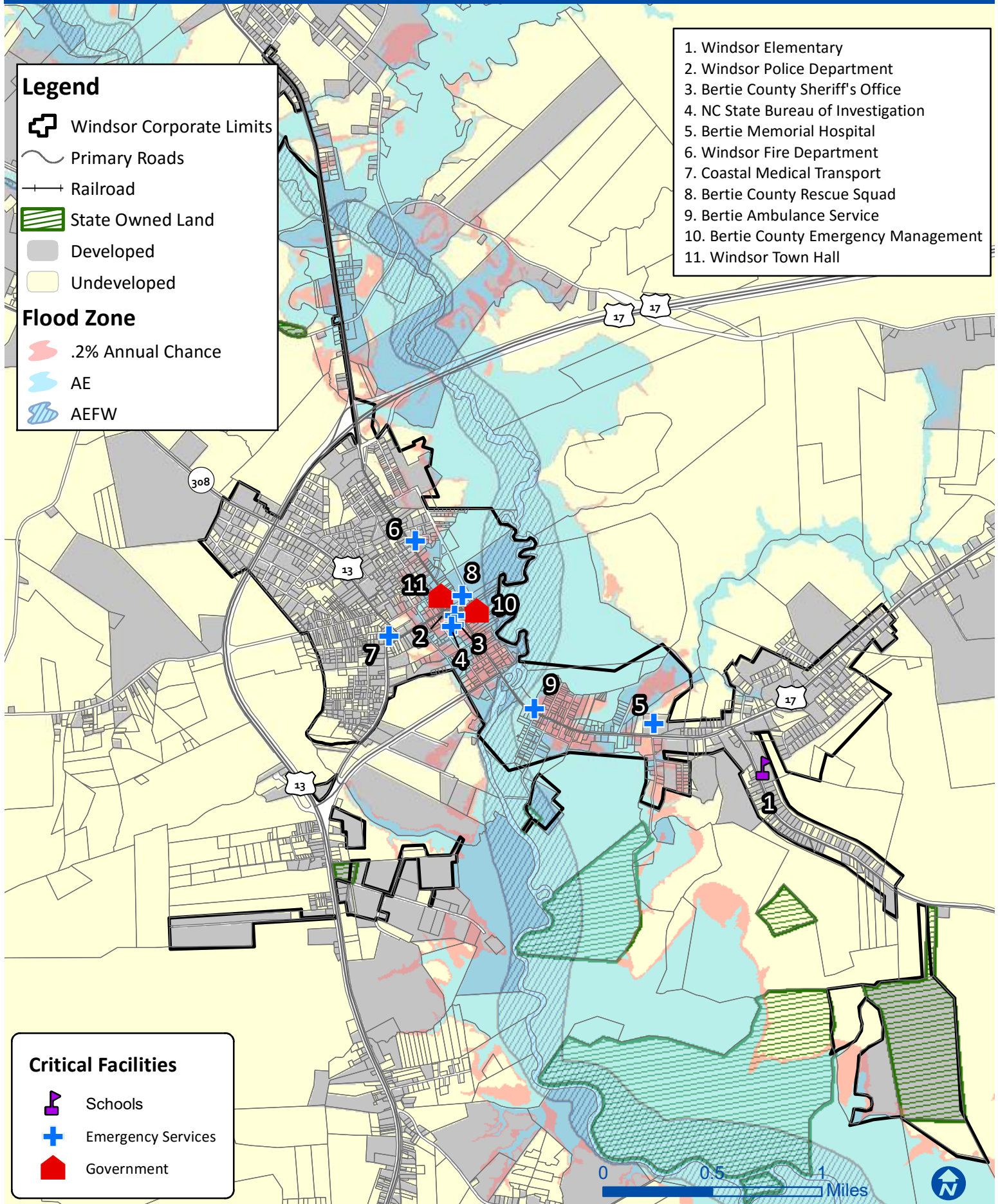


Map 9 - Roxobel

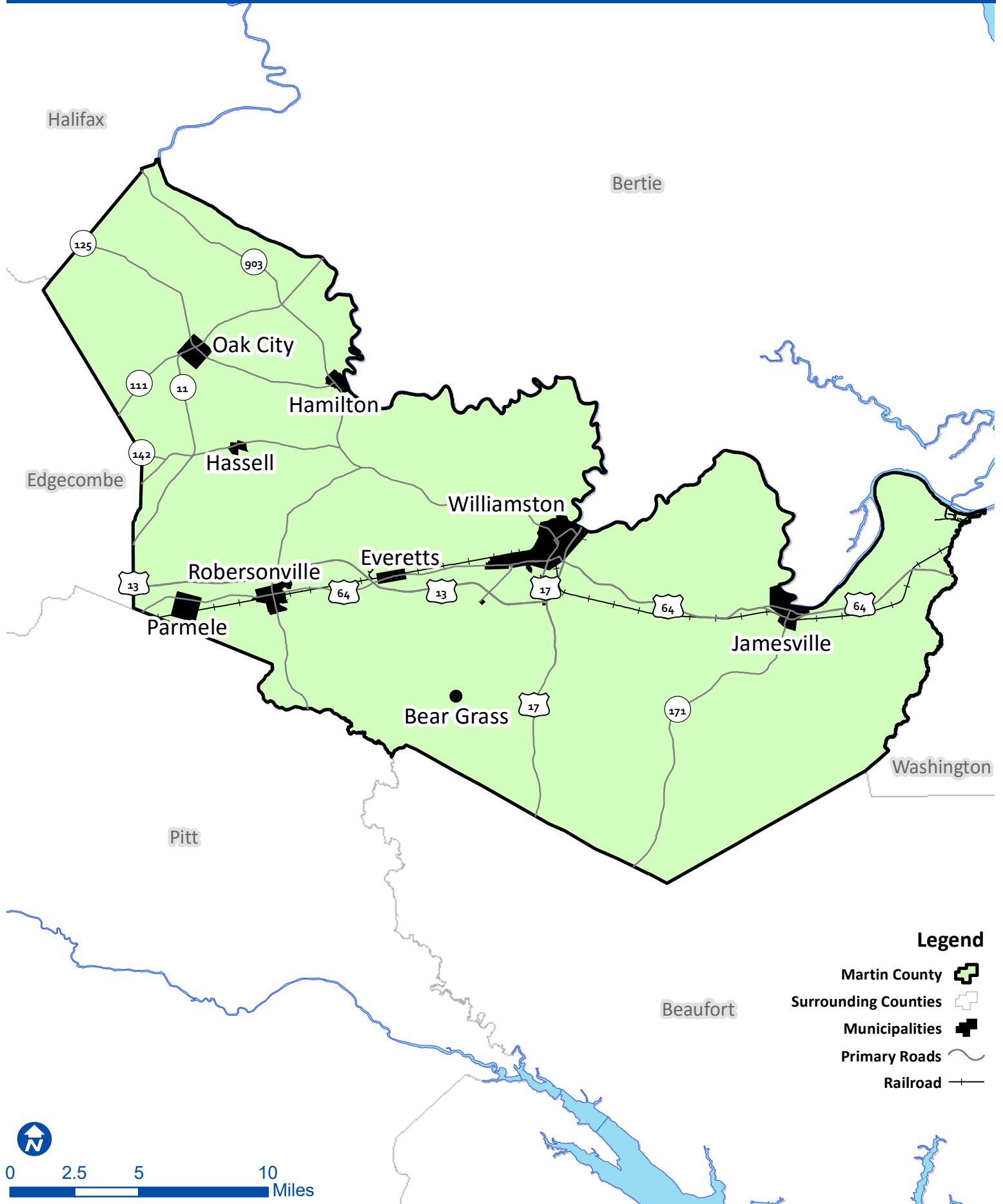
Flood Hazard Areas & Critical Facilities



Map 10 - Windsor Flood Hazard Areas & Critical Facilities



Map 11 - Martin County Non-Specific Hazards



Map 12 - Martin County Specific Hazards

Legend

- Martin County
- Surrounding Counties
- Municipalities
- Primary Roads
- Railroad
- State Owned Land
- Hydrology

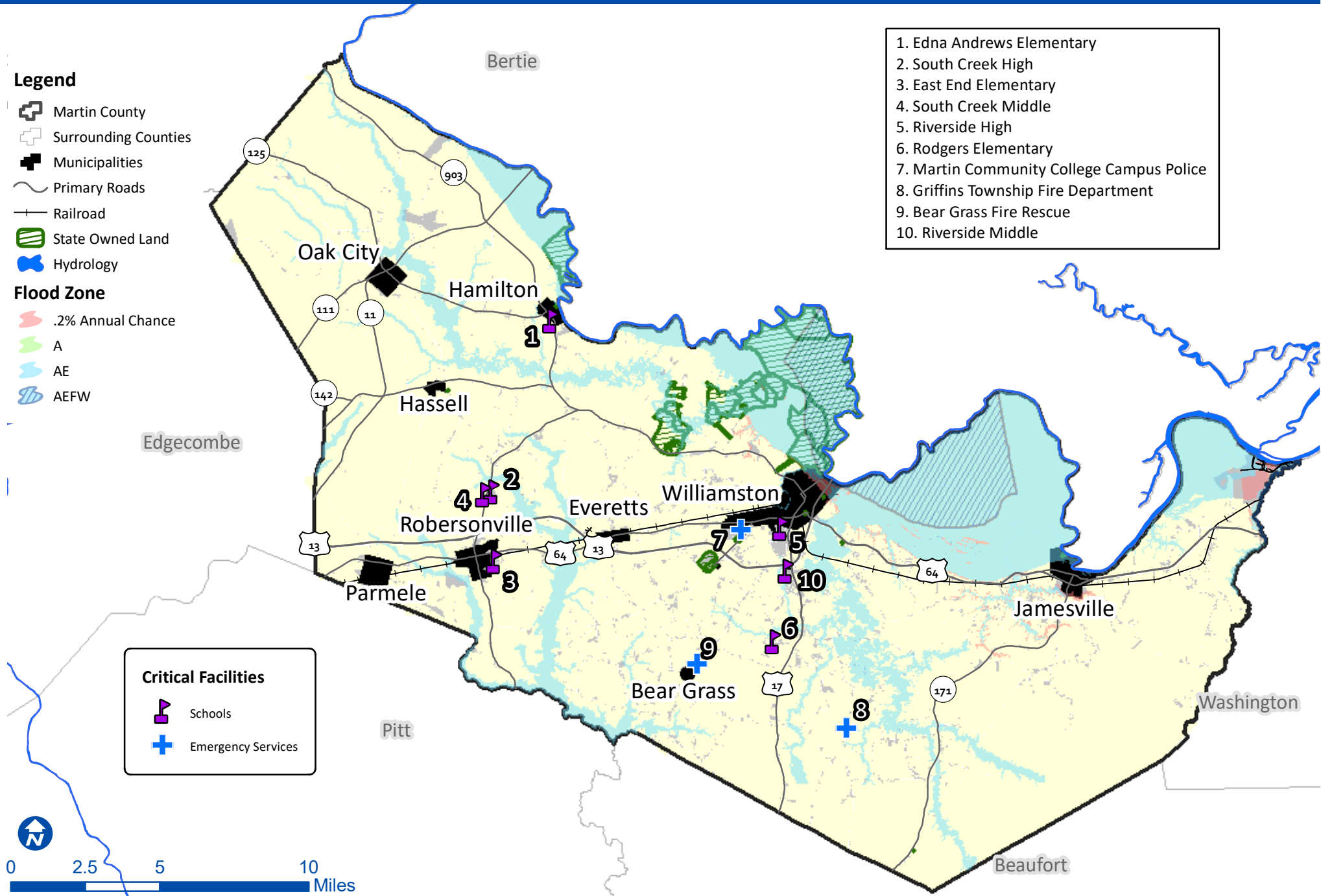
Flood Zone

- .2% Annual Chance
- A
- AE
- AEFW

Critical Facilities




- Schools
- Emergency Services

1. Edna Andrews Elementary
2. South Creek High
3. East End Elementary
4. South Creek Middle
5. Riverside High
6. Rodgers Elementary
7. Martin Community College Campus Police
8. Griffins Township Fire Department
9. Bear Grass Fire Rescue
10. Riverside Middle





Map 13 - Bear Grass Flood Hazard Areas & Critical Facilities

Legend

-  Bear Grass Corporate Limits
-  Developed
-  Undeveloped

Critical Facilities

-  Schools
-  Government

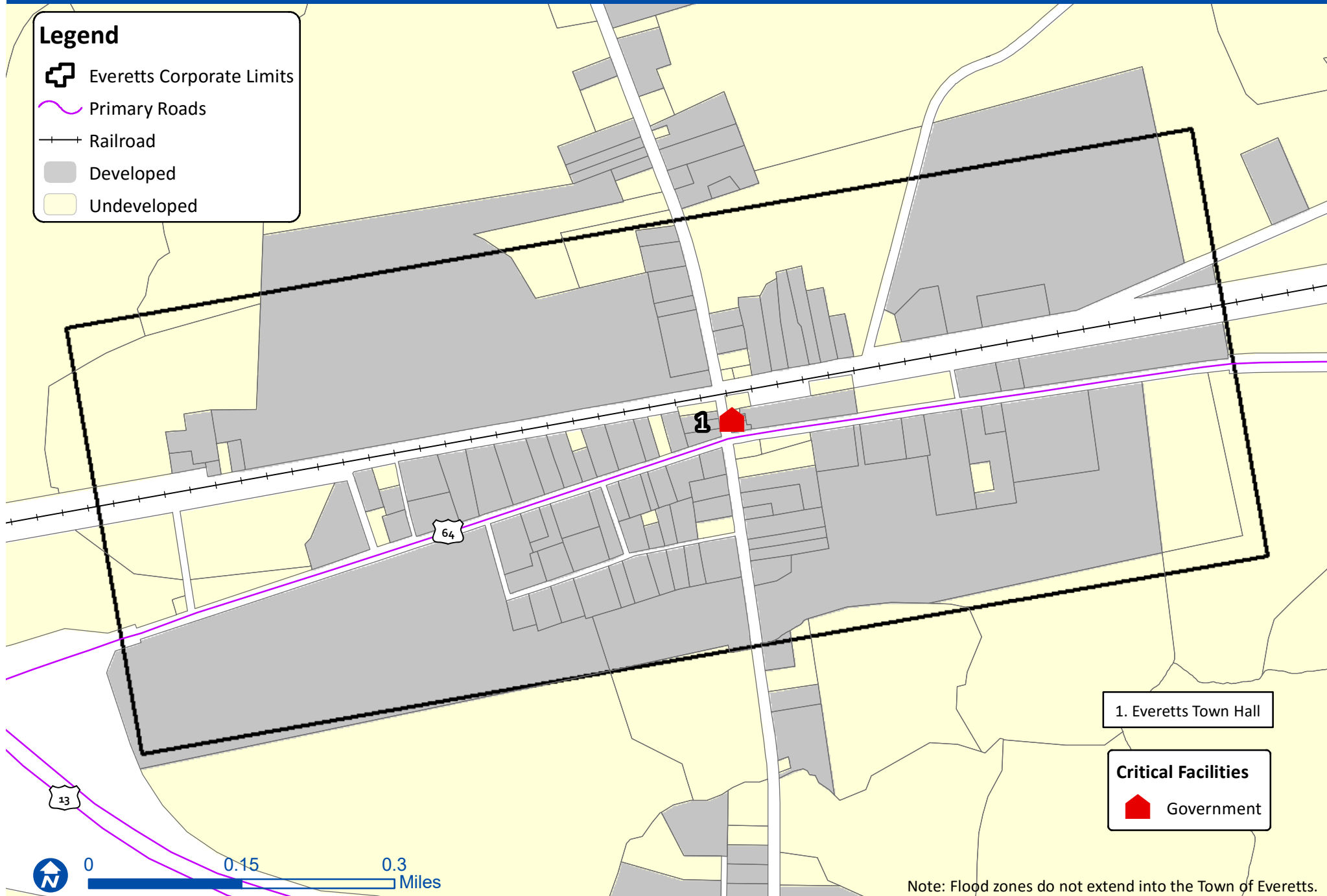
1. Bear Grass Charter School
2. Bear Grass Town Hall



0 0.1 0.2 Miles

Note: Flood zones do not extend into the Town of Bear Grass.

Map 14 - Everett's Flood Hazard Areas & Critical Facilities



Map 15 - Hamilton Flood Hazard Areas & Critical Facilities


Legend

 Hamilton Corporate Limits

 Primary Roads

 State Owned Land


 Developed


 Undeveloped

Flood Zone

 AE

Critical Facilities

 Emergency Services

 Government

1. Hamilton District Volunteer Fire Department and EMS
2. Midway Medical Transport Inc.
3. Hamilton Town Hall



0

0.175

0.35

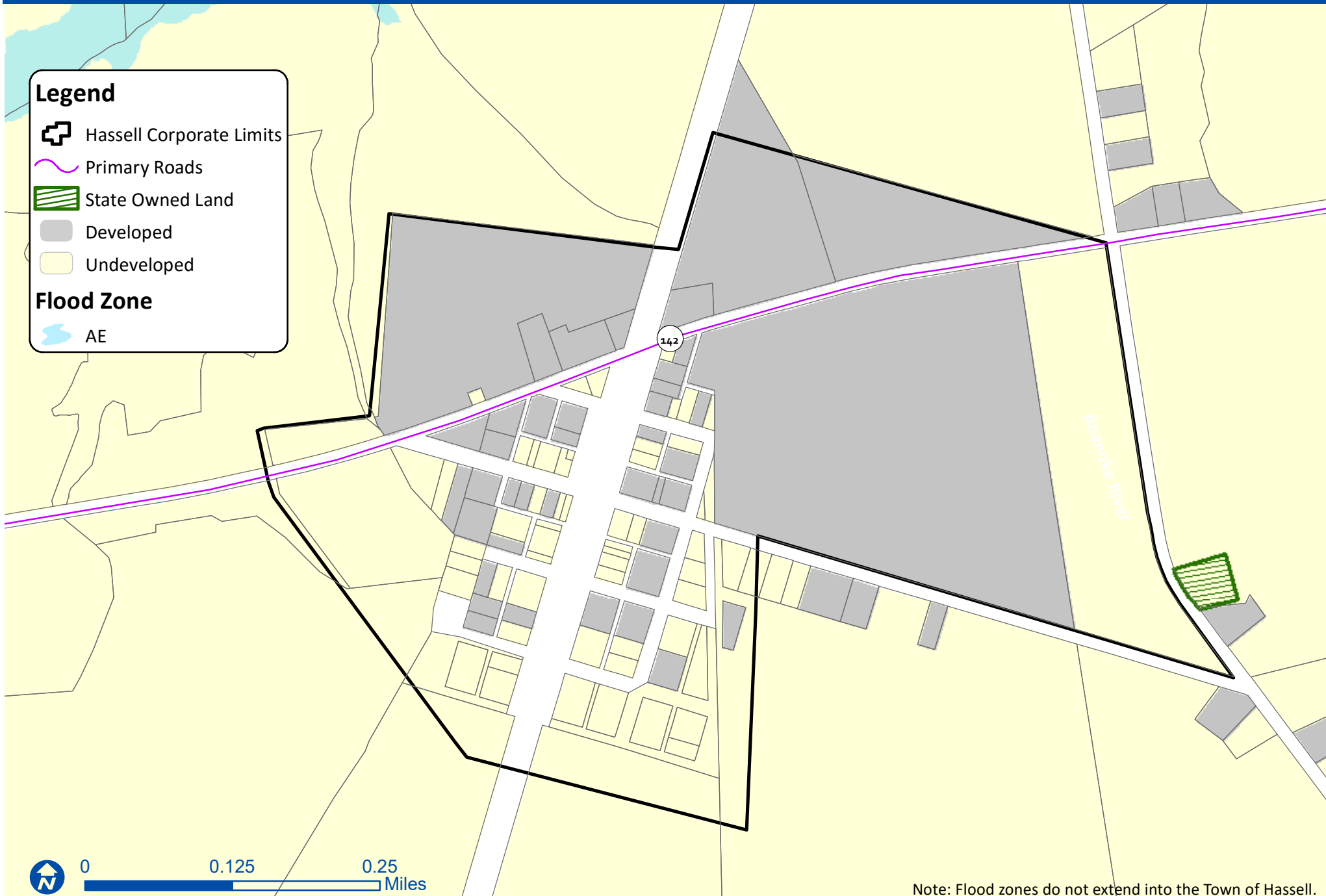
Miles

Bertie
County

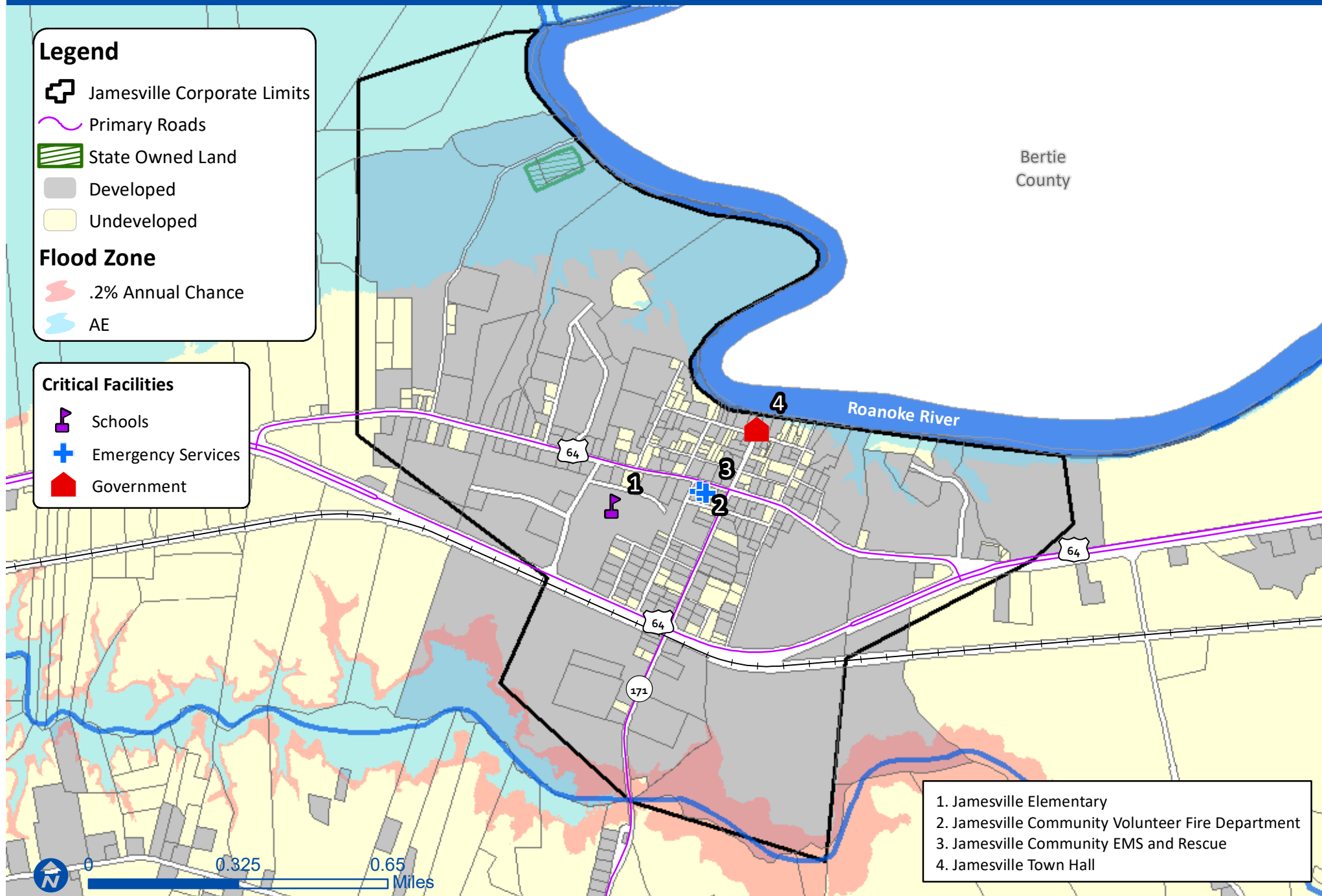
Roanoke River

Map 16 - Hassell

Flood Hazard Areas & Critical Facilities

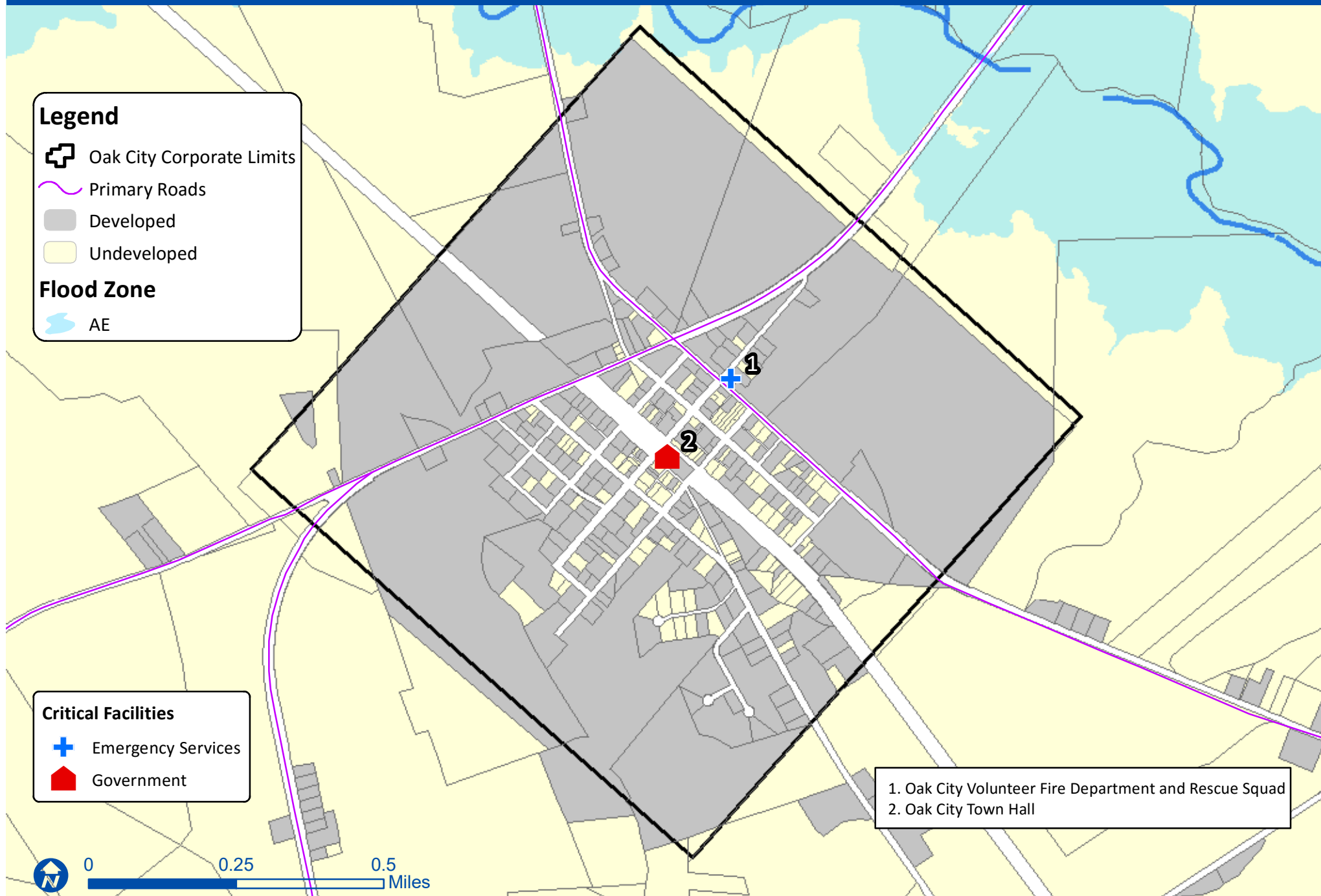


Map 17 - Jamesville Flood Hazard Areas & Critical Facilities

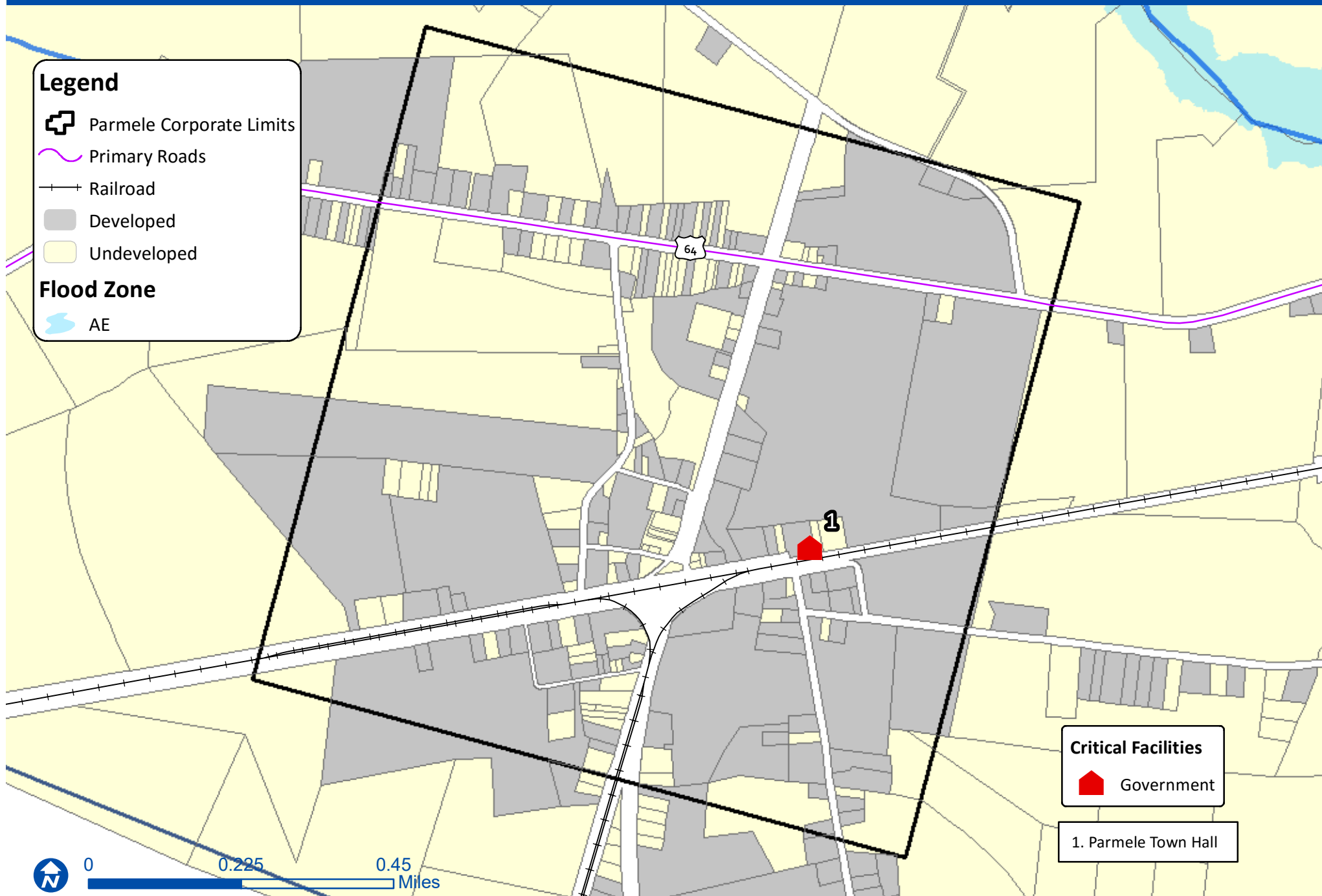


Map 18 - Oak City

Flood Hazard Areas & Critical Facilities





Map 19 - Parmele Flood Hazard Areas & Critical Facilities



Map 20 - Robersonville Flood Hazard Areas & Critical Facilities

Legend


 Robersonville Corporate Limits

 Primary Roads

 Railroad

 Hydrology

 Developed

 Undeveloped

Flood Zone

 AE

Critical Facilities

 Emergency Services

 Government

1. Robersonville Police Department
2. Robersonville Fire Department
3. Robersonville Rescue Squad and EMS
4. Robersonville Town Hall



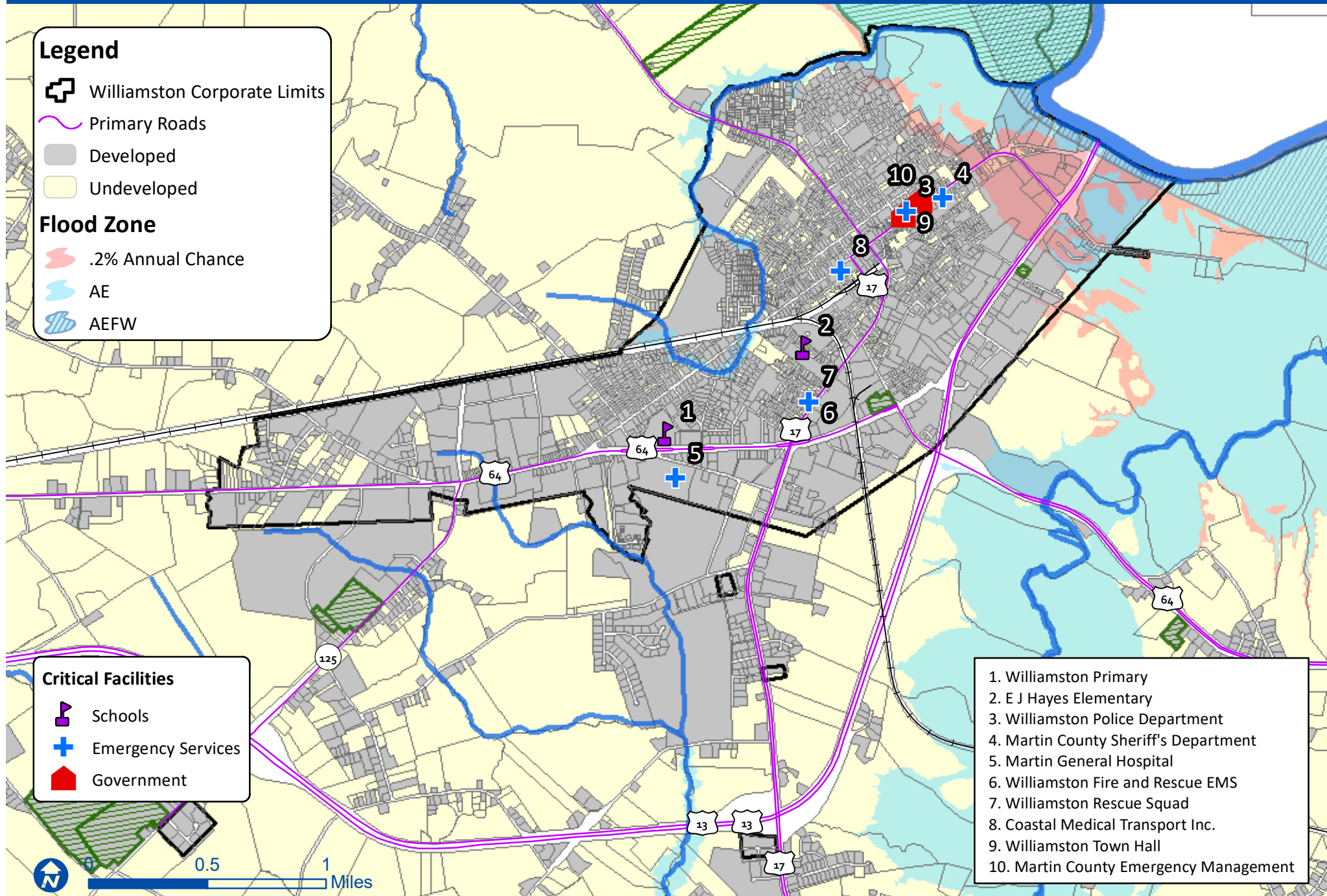
0

0.275

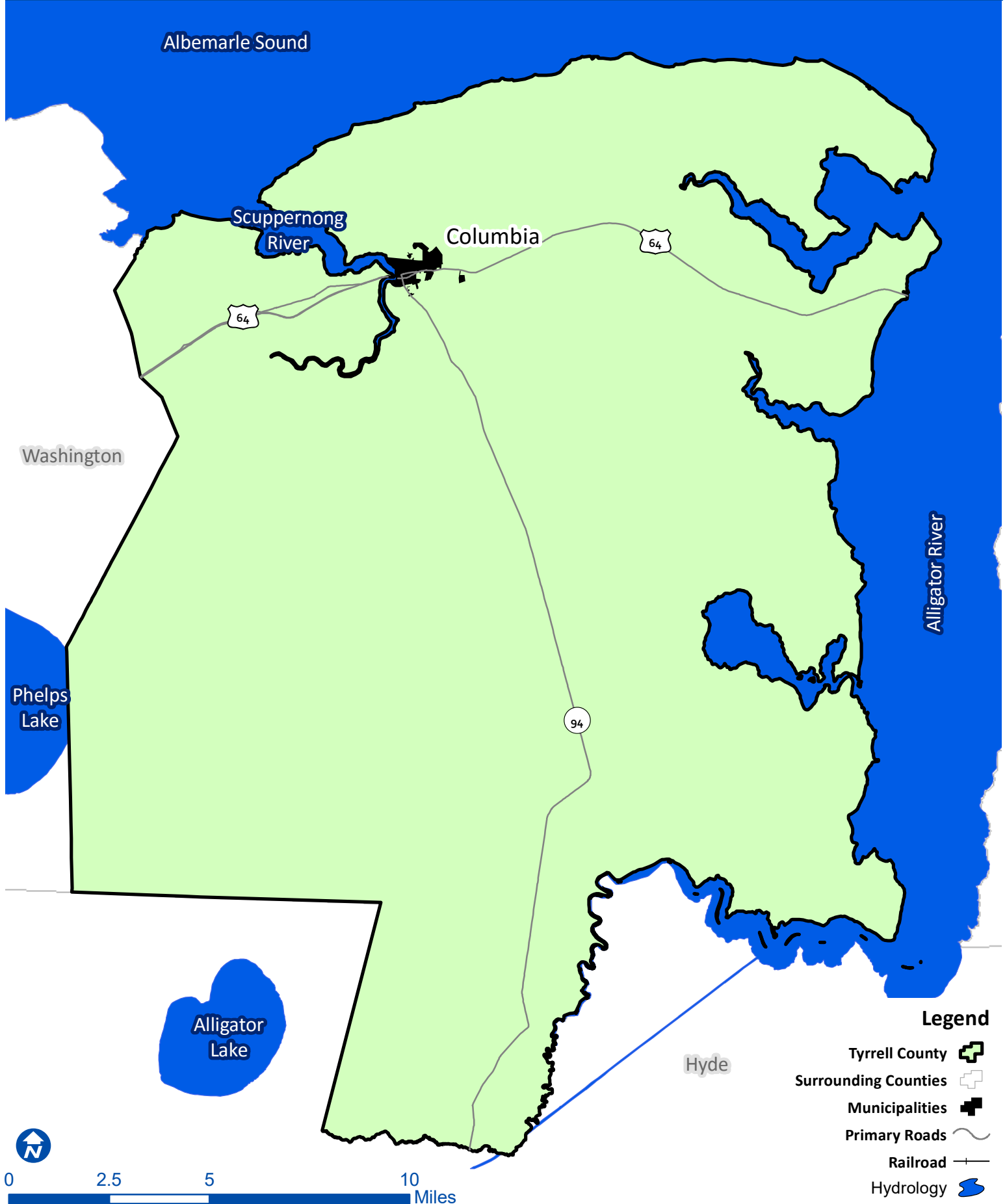
0.55

Miles

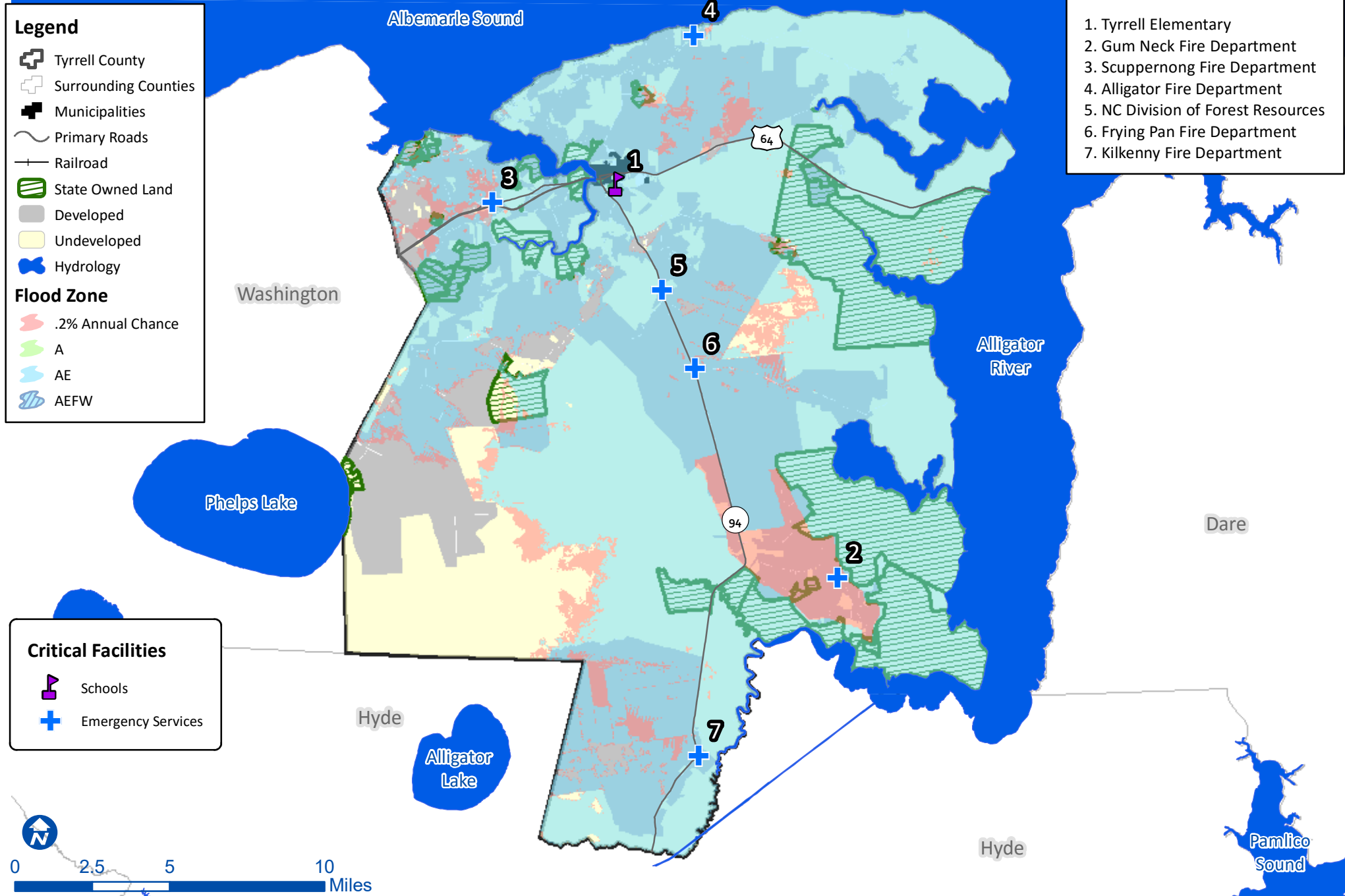
Map 21 - Williamston Flood Hazard Areas & Critical Facilities



Map 22 - Tyrrell County Non-Specific Hazards




Map 23 - Tyrrell County Specific Hazards




Map 24 - Columbia

Flood Hazard Areas & Critical Facilities

Legend

 Columbia Corporate Limits

Flood Zone

 .2% Annual Chance




 AE

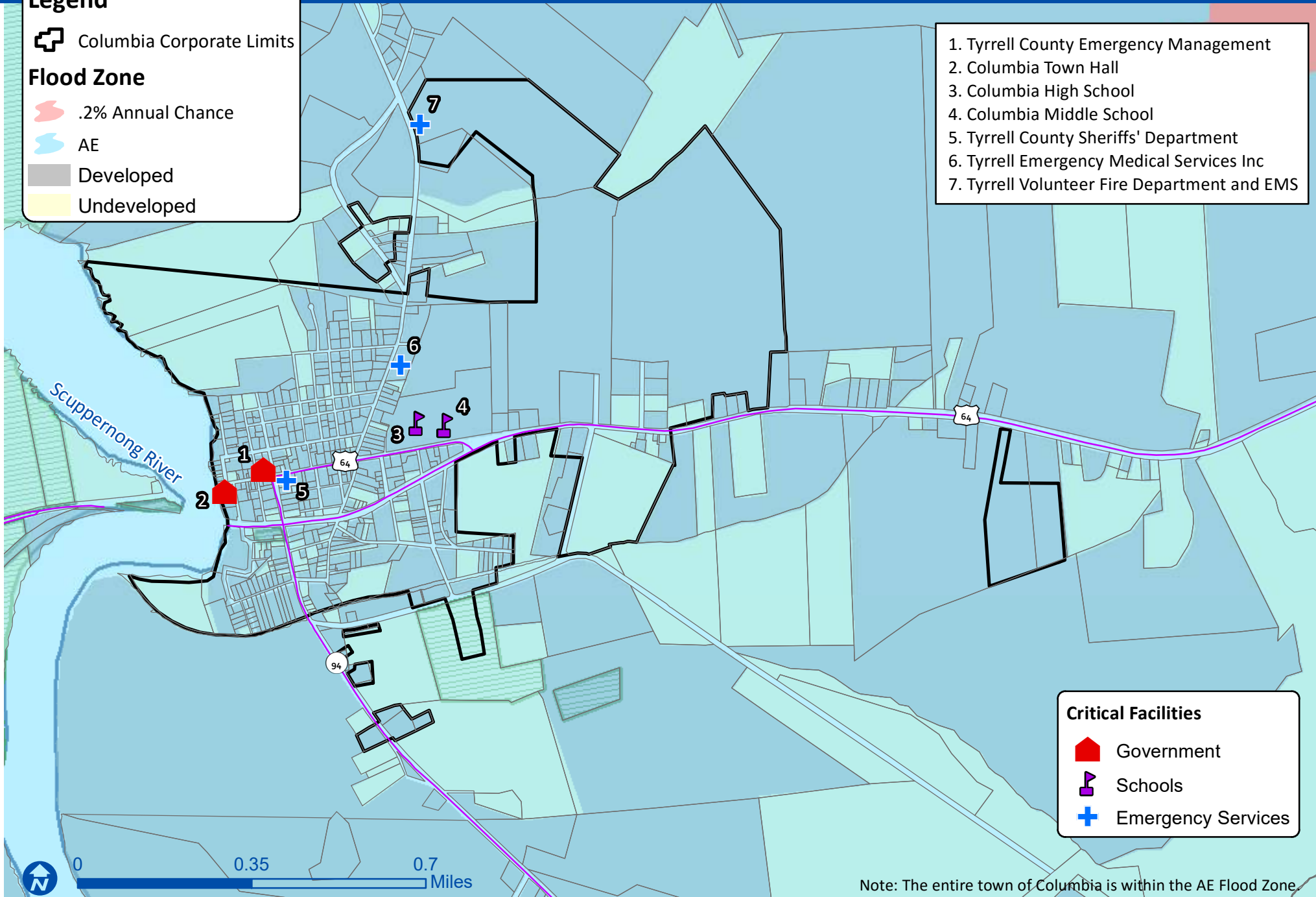
 Developed

 Undeveloped

1. Tyrrell County Emergency Management
2. Columbia Town Hall
3. Columbia High School
4. Columbia Middle School
5. Tyrrell County Sheriffs' Department
6. Tyrrell Emergency Medical Services Inc
7. Tyrrell Volunteer Fire Department and EMS

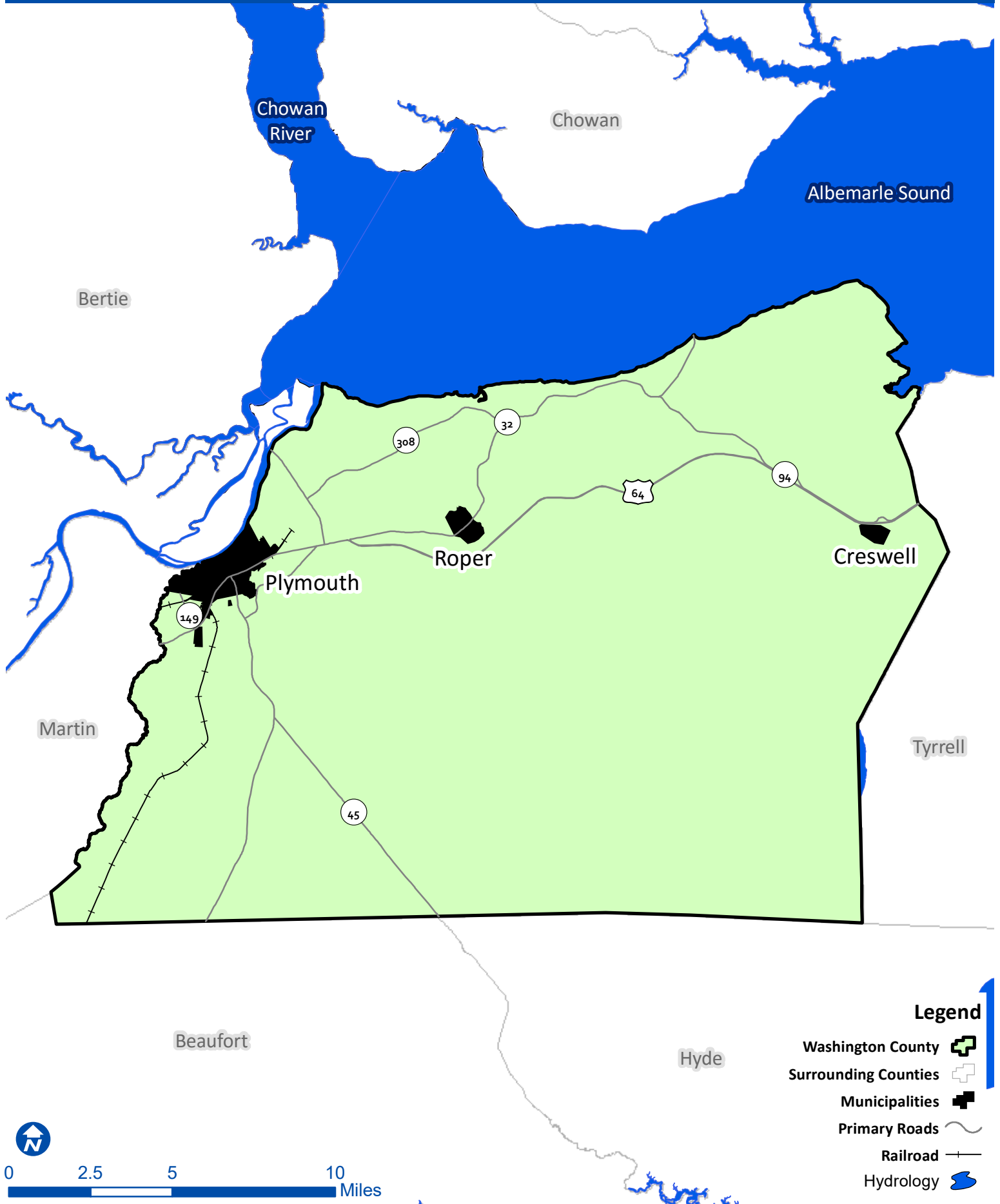
Critical Facilities

-  Government
-  Schools
-  Emergency Services

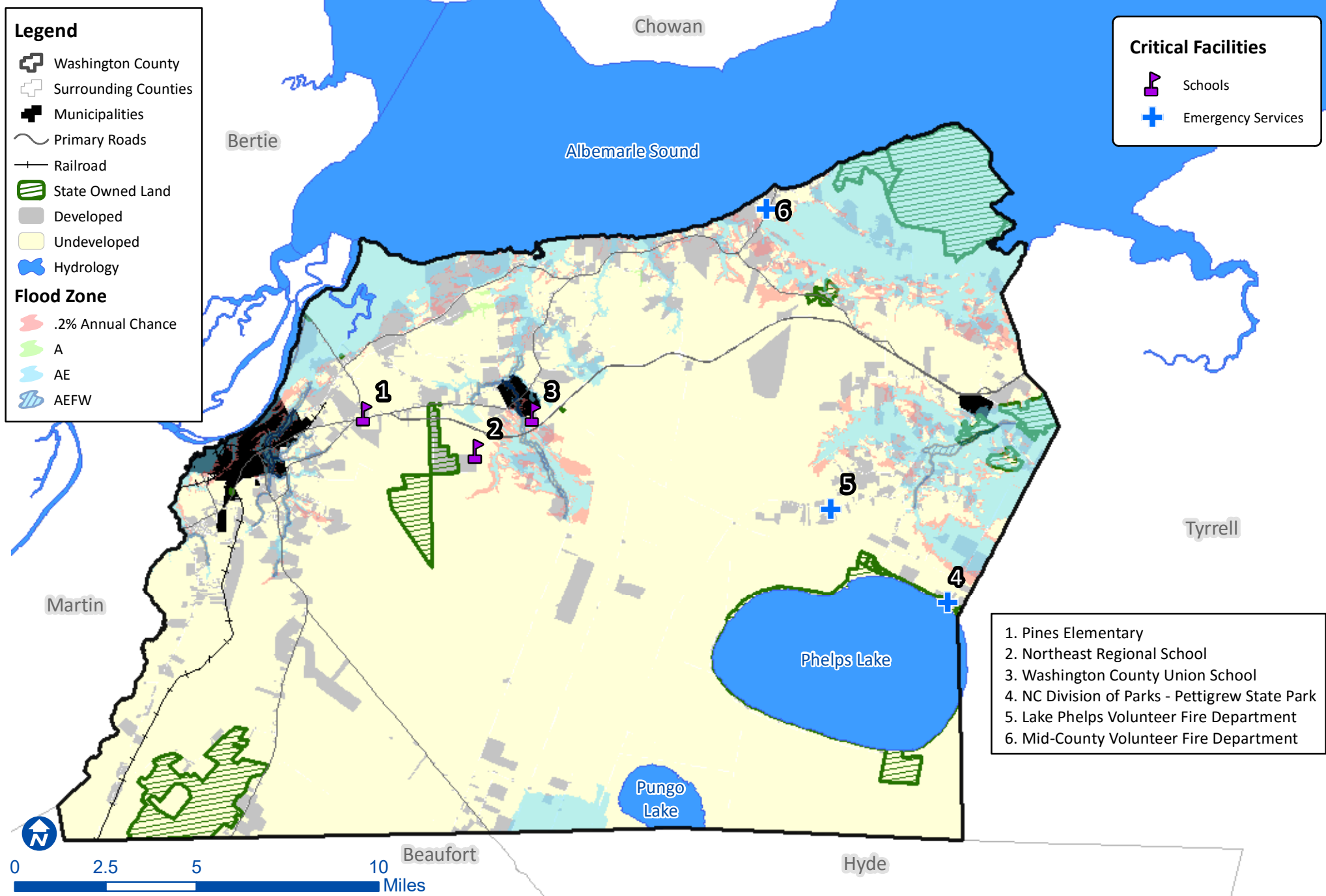


Note: The entire town of Columbia is within the AE Flood Zone.

Map 25 - Washington County Non-Specific Hazards

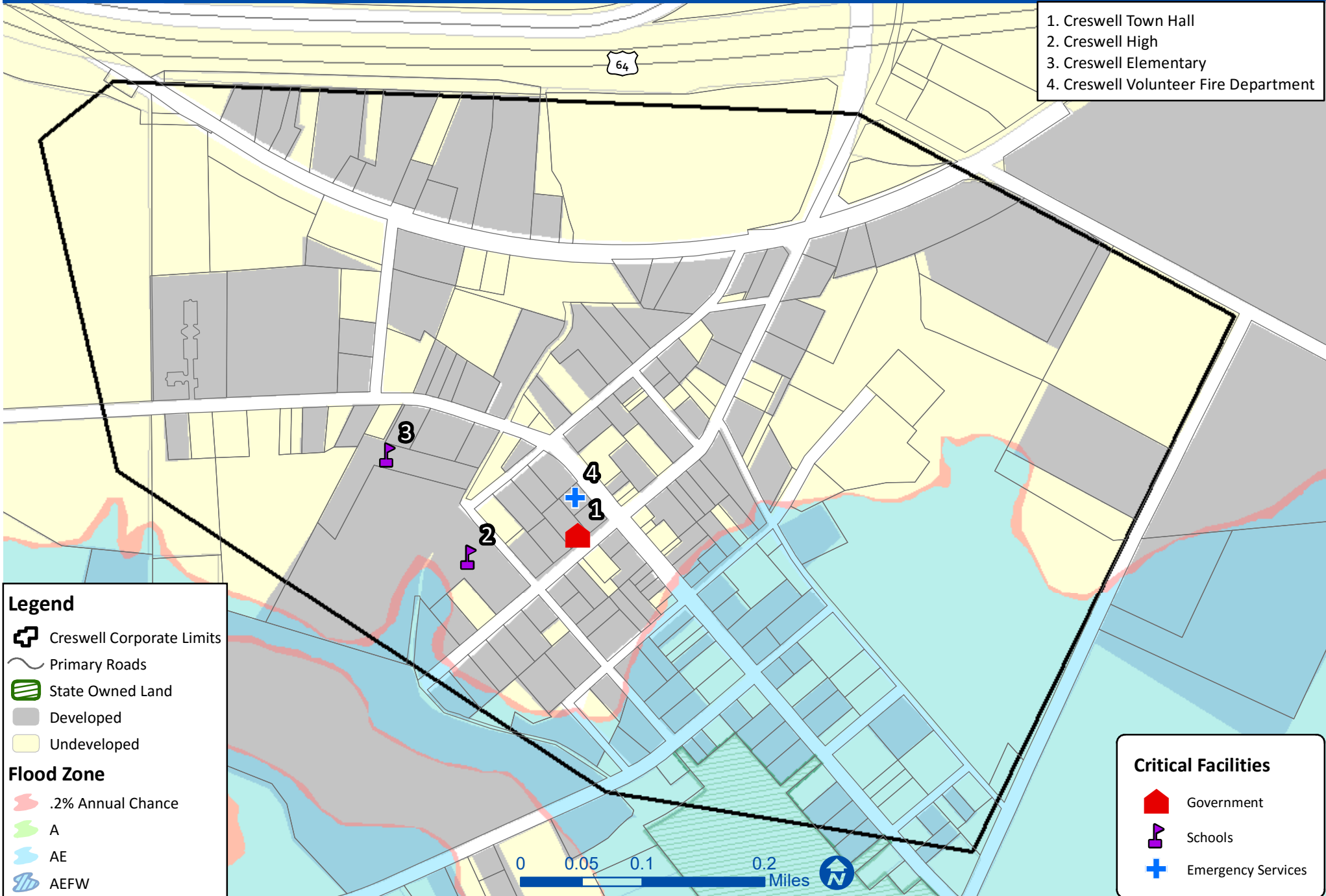


Map 26 - Washington County Specific Hazards

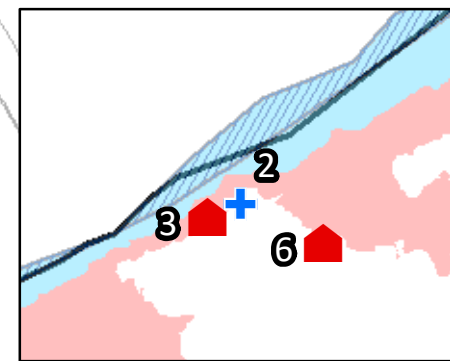


Map 27 - Creswell Specific Hazards

1. Creswell Town Hall
2. Creswell High
3. Creswell Elementary
4. Creswell Volunteer Fire Department



Map 28 - Plymouth Flood Hazard Areas & Critical Facilities



Legend

- Plymouth Corporate Limits
- Primary Roads
- State Owned Land
- Developed
- Undeveloped

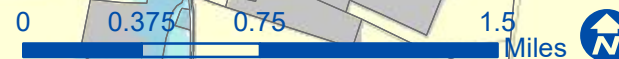
Flood Zone

- .2% Annual Chance
- A
- AE
- AEFW

1. Plymouth High
2. Plymouth Police Department
3. Plymouth Town Hall
4. Plymouth Fire Department
5. Washington County Hospital
6. Washington County Emergency Management and Medical Services

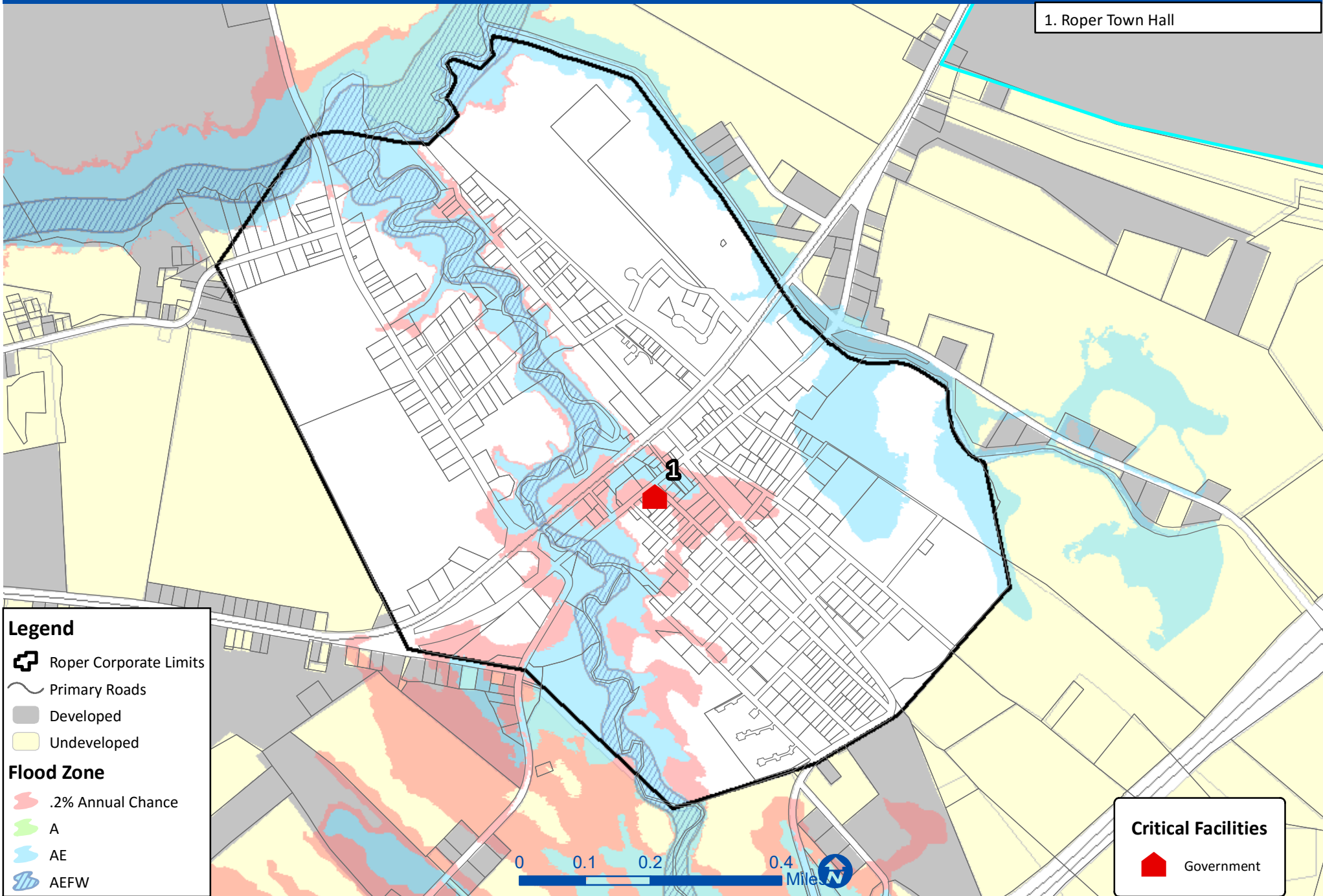
Critical Facilities

- Schools
- Emergency Services
- Government



Map 29 - Roper Flood Hazard Areas & Critical Facilities

1. Roper Town Hall



Appendix B

Local Government Participation Documentation

(Additional Documentation To Be Added)

12/9/2015

Fuzgax 11/11/2015
Meeting

Regional Meeting

Name

Agency

Ann Keyes

Wash. County EM

THOMAS WAICUL

COLERAIR, MAYOR

CARLYLE HOGGARD

POWELLVILLE - COMMISSIONER

James Peele

Plymouth - "

Michelle OLIVER

WILLIAMSTON, NC - Planning

Brent Karpis

Jamie Heath

Mutt Smith

ROBERSONVILLE

Steven Draper

Town of Aulander

Chris B. Cordon

Tring Lawton-Woodville/Commissioner

Gary L. Cordon Sr

" " "

Andrew Coccann

Washington Co. EMS

Wesley Beglin

Tyrrell Co EM

Mitchell Cooper

Bertie EM

6/28/16 Regional meeting

Wm. J. W.
Andry

Tyrrell Co EM
Washington Co. EM

Joseph Smith Martin EM

BMTW Regional Hazard Mitigation
Plymouth NC 8/5/16
Regional Meeting

Chris Calver Noble Asst Mgr
Planner
Rosemary Johnson - Hyde. Admin Planning
Asst.

Josh Hadd - HCP

Ann C. Kuyt - Wash. Co. EM.

Wendy [unclear] Tyrrell Co. Em.

Bertie County MAC meeting
June 14, 2016

Traci White Planning+Inspections Director
252/794-5336 traci.white@bertie.nc.gov



Representing Windsor
HCP

(910) 392-0060

lholland@happlanning.com

BMTW Regional Hazard
Mitigation Plan

Hyde County 8/4/16 3:00 PM

Kris Calhoun Noble Hyde Assit Mngs.
Planner

Rosemary O Johnson Hyde - Planning Asst ^{Adm Asst}

Larri Hall - HCP

Justin 252 (Noble)
542-0806/0802 - Add Tsunami Ready Status

SIGN IN SHEET

2/1/5

[illegible]

DATE 5/11/16

PUBLIC OFFICIALS MEETING

[illegible]

1|2|3|4|5|6|7|8|9|10|11|12|13|14|15|16|17|18|19|20|21|22|23|24|25|26|27|28|29|30|31

JANUARY • FEBRUARY • MARCH • APRIL • MAY • JUNE • JULY • AUGUST • SEPTEMBER • OCTOBER • NOVEMBER • DECEMBER

MONDAY • TUESDAY • WEDNESDAY • THURSDAY • FRIDAY • SATURDAY • SUNDAY

Tyrrell County
MAC
6/3/2016

hand in Holland - HCP - Hollandgheppleming, GA

Rhett B. White - Young Columbia
rhett@youngcolumbia.com

Wesley L. Hopkins - Wesley Hopkins
weshopkins@tyrrellcounty.net

Washington County
Planning Board/Community Meeting
Vernon James Center Roper NC
January 21, 2016
5:00pm

*Approved
2-18-16
CAB*

Members Present: David Clifton, Charles Sharpe, Katie Walker, Steve Barnes, Rosalind Shields, Frank Winslow, Carol Stubbs, Chair; Ann Keyes, Director of Planning; Connie Barnes, Clerk

Guests present for Community Meeting: J. D. Melton, Creswell Town Council; Joey Thompson, Plymouth Town Council; Danny Reynolds, Roper Town Council; Brian Roth, Plymouth Mayor; Bill Sexton, Washington County Commissioner; LeVance Mitchell, Washington County Sheriff; Arlo Norman, Washington County Sheriff; Delisa Johnson, 9-1-1 Communications; Arthur Howell, the Roanoke Beacon; Andrew Coccaro, EMS; Curtis Potter, Washington County Assistant Manager/Attorney; Landon Holland, Holland & Associates

Call to Order: After a meal was served to members of the Board and Mr. Holland, Carol Stubbs, Chair, called the meeting to order at 5:30pm.

Invocation: David Clifton offered the invocation.

Agenda: Based on a motion by David Clifton, and seconded by Charles Sharpe, the agenda was approved.

Approval of Minutes: December 17, 2015: Prior to the meeting, a draft of minutes from the December 17, 2015 meeting was distributed to the Board. After review, a motion to approve as written was presented by Charles Sharpe; Frank Winslow seconded. With no further discussion, these minutes were approved as written.

New Business:

Special Use Application: On January 13, 2016, Stewart M. Davenport, on behalf of owners Mark and Cindy Modlin at 100 Hidden Lake Drive North in Creswell NC, applied for a variance on setback distance for a remodel of their home. Article 3 Section F.b. of the Washington County zoning ordinance is referenced on the application. The application requests setback distance from one side of the property line be decreased to 6 feet, rather than the 15 feet required by the current ordinance. It was noted that restrictive covenants in the deed reference 10 feet as minimum setback; this Board does not enforce covenants. A GIS copy of the neighborhood was provided for the Board, as well as a drawing of the proposed footprint of the home and lot after remodel. The lot adjacent to the Modlin property is a deeded public access to Lake Phelps for community members. Discussion followed.

David Clifton offered a motion to hold a public hearing to address the variance to setback rules for Mr. and Mrs. Modlin in order to enlarge their home. The motion was seconded by Rosalind Shields, and carried unanimously. The hearing will be advertised for two weeks in the Roanoke Beacon, and will be held on Thursday February 18, 2016 at 2:00pm in the Planning and Safety office at 205 E. Main Street in Plymouth. A letter will be mailed to Mr. and Mrs. Modlin and to Mr. Stewart Davenport to notify them of time and place for the hearing.

Unfinished Business: Hazard Mitigation Plan – Mr. Holland will hold his presentation until the community meeting period so all municipality and county representatives can receive the information regarding the regional plan. Most of this information was shared with the Planning Board at the December meeting.

Administrative Report: Mrs. Keyes shared the December Permit/Fee Receipts Report. For December, \$3,305.80 was collected in permit fees. The year to date (July 1–December 31, 2015) receipt total is \$21,861.55.

Informal Discussion: No further business was brought before the board.

Community Meeting: Chair, Carol Stubbs opened the community meeting portion at 6:00pm.

Hazard Mitigation: Mr. Landon Holland from Holland and Associates updated the community on the regional hazard mitigation plan with regard to flooding. The region includes Washington, Tyrrell, Bertie, Hyde, and Martin counties. This is the second Washington County meeting to educate citizens regarding the plan. He provided a document listing strategies to town and county administration to review. He explained hazard mitigation is a funded mandate, and FEMA and the state have to agree on the plan before it is implemented. It is possible to list specific strategies for different areas in the plan (for example, areas where Creswell floods repeatedly). At this point in the process, it is important to develop the correct strategy to receive the greatest benefit. If strategies other than those shown on the document provided need to be included, please contact Mrs. Keyes. Mr. Holland reported that Washington County, under Mrs. Keyes leadership, is the only county in this region participating in the Community Rating System, where there is a discount on flood insurance. He applauded Mrs. Keyes for maintaining records for all the municipalities as well. There will be another meeting on February 18, 2016 at 11:00am at the Hitchin' Post in Williamston to discuss specific details from the plan.

EMD-9-1-1: Delisa Johnson, Supervisor of Washington County Emergency Communications reported her department has been trained for Emergency Medical Dispatch; that is, they will be able to talk a caller through treatment for certain medical emergency procedures until the Paramedic unit arrives on scene. February 9, 2016 is tentative for start-up, but it depends on computer training availability. She, with help from Andrew Cocco, EMS Director, simulated a

call from a husband whose wife was not breathing or responding, and the dispatcher was able to explain the procedures for CPR. Mrs. Johnson asked that everyone spread the word that when EMD is active, callers should stay on the line with the dispatcher to receive instructions, and explain that dispatchers will be asking a lot more questions about the medical emergency.

Cardiac Arrest Management: Andrew Coccaro, EMS Director, discussed a plan for cardiac arrest management which will require citizens, fire departments, CERT, and other volunteers to respond and help with CPR at the scene. The process involves the PIT CREW(6 positions) CPR concept which includes pre-arrival CPR; working the code where it is found, working the code until the patient gets better or until all options are exhausted, and taking care of the family on scene. EMD activation will be an advantage implementing this concept because the trained dispatcher can help the citizen caller save a life while waiting for the Paramedic truck. The Paramedic team has the same equipment, medication and ALS training as hospital emergency rooms, and it has been proven that any interruption in compressions during a cardiac event causes harm. Mr. Coccaro stressed it is important to schedule training through his office and asked everyone present to share this information with citizens.

Permits and Zoning Process: Mrs. Keyes, Director of Planning, discussed the building permit process, including what work requires a permit, which jobs require licenses, the information needed, cost of permits, and how to obtain the permit. She discussed zoning within the county, and informed citizens that zoning differs within each of the municipalities and their one mile extra-territorial jurisdiction. She discussed the process for changing zoning and requests for permitted special use variances. Mrs. Keyes shared information about development within a flood plain, and the requirement for elevation certificates to determine the lowest finished floor height of structures within the plain. She discussed the importance of recordkeeping for floodplain management and how it affects insurance rates. She provided information about building inspections, and noted that these rules are applied by the State of NC under the Building Code and Department of Insurance. Mrs. Keyes also reported the planning and zoning requirements are not meant to prohibit or discourage development of any kind, but to ensure the county citizens are best served by a standard set of rules that everyone must adhere to.

Public Comment: Building Inspector and Fire Marshal, Joey Thompson, echoed Mrs. Keyes statement regarding inspections, and further stated the inspection rules are written for public safety, and the inspectors do not ask anything other than what is required by the code they are charged to enforce.

Adjournment: No further comments, or business was brought before the Board. Based on a motion by Frank Winslow, and seconded by David Clifton; the Chair, Carol Stubbs, adjourned the meeting at 7:10pm.

EVEN:

Community Meeting - Planning Board

Vernon es Center
Roper NCJanur 1, 2016
6:00pm

DATE:	TIME IN:	NAME	DEPARTMENT/AFFILIATION	TIME OUT:
1-21-16	5:30	Steve Barnes		
		Rosalind Shields	Planning	
		Carol Statels	Planning	
		Frank Winslow	Planning	
		Katie J. Walker	Planning	
		Charles Sharpe	" "	
		Dana Clark	" "	
		J. R. Metten	Town of Creswell	
	5:00 pm	Lynne Barnes	EM Planning/Safety	
		stompson@waco.nc.gov	Plan of Plymouth	
		6/7 Thym		
1-21-16	6:00	Danny Reynolds	Town of Roper	
	6:00	Brian A. Rosh	Town of Plymouth	
	6:00	Blue Sexton	Wash Co Comm.	
	6:00	Lee Vance Mitchell	Work re. Shenn-fs	
	6:00	Arlo Norman	Washington Co Sheriff	
	6:00	Delecia Johnson	911	

EVENT.
Community Meeting - Planning Board

Janua 1, 2016 6:00pm

<u>DATE:</u>	<u>TIME IN:</u>	<u>NAME</u>	<u>DEPARTMENT/AFFILIATION</u>	<u>TIME OUT:</u>
6/21/06 Jan. 21, 2016	6:00pm	Arthur Howell	Roanoke Beacon	
1/21/16	6:00 pm	Andrew Collier	EM 3	
1/21/16	6:20 pm	Curtis S. Potter	ACM / A#7	

Town of Kelford

Post Office Box 97

Kelford, N. C. 27847

Holland Consulting Planners, Inc.
Landin W. Holland, MPA, AICP, CZO
Senior Planner
3329 Wrightsville Avenue, Suite F
Wilmington, NC 28403

RE: Northeastern NC Regional Hazard Mitigation Plan

Dear Mr. Landin Holland:

I, Bailey Parker, Mayor for Kelford and the Town of Kelford's Board members have been informed of the project website and have been involved in the planning process. The Town of Kelford has reviewed this plan on the project website and they all approve of this draft plan.

The Town of Kelford held a public hearing that was advertised in the newspaper for the citizens of Kelford to attend along with the Board are satisfied with the accuracy and completeness of this draft plan.

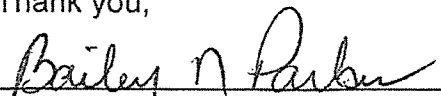
The Town of Kelford will hold a Formal Public Hearing that will be advertised in the newspaper to let our citizens of Kelford know our plans of adopting this plan pending our notice of an approval pending adoption letter from FEMA.

The Town of Kelford is a very small town with limited funds and coordinates with Bertie County offices for their public works, police, Fire/EMS and planning. The Town of Kelford comply with the standards set forth by the county and will continue to do so in the future.

The Town of Kelford in coordination with the County Planning/Emergency Management Director with meets on an as needed basis because again Kelford is a very small town and works in conjunction with the county to comply with Local/State/Government standards.

Thank you for the opportunity of being a part of this plan's planning process and we look forward to working with you in the future.

Thank you,


Bailey N. Parker, Mayor of Kelford

JANE E. WILLIAMS
mayor.janewilliams@gmail.com

Mayor, Town of Hassell

PO BOX 123
HASSELL, NC 27841
252/341-1713

March 7, 2017

Ann Keyes
Project Coordinator and Washington County Planning & Public Safety Director
PO Box 1007
Plymouth, NC 27962

RE: Northeastern NC Regional Hazard Mitigation Plan RESPONSE

Dear Ms. Keyes:

As requested, I am providing to you Hassell's confirmation of and commitment to the Northeastern NC Regional Hazard Mitigation Plan.

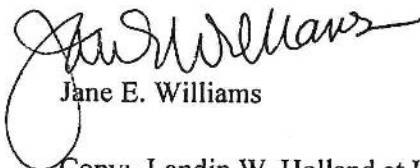
I regret our lack of participation in the previously held meetings. We intend to participate fully in any planning and business associated with our community. In the future, kindly address letters and other notifications to:
Town of Hassell, PO Box 123, Hassell, NC 27841.

I reviewed the elements of the plan via the project website. I specifically read through sections 2, 4 and 5 to insure the data listed for Hassell was accurate. I found no errors in the data nor conclusions.

Our council is scheduled to meet again on March 14, 2017. At that time, I will review the plan with the council members and any residents who attend and recommend we approve the draft of the plan. Then, upon certification from FEMA, I will recommend to the council members approval and implementation of the plan.

The health and safety of our community is one of the most important responsibilities of all levels of government. The Town of Hassell supports FEMA's efforts to plan for and respond to natural disasters.

Sincerely,



Jane E. Williams

Copy: Landin W. Holland at Holland Consulting Planners, Inc.

Appendix C

Public Involvement Documentation

(Additional Documentation To Be Added)

BMTW REGIONAL HAZARD MITIGATION PLAN
NOTICE OF
REGIONAL MITIGATION ADVISORY COMMITTEE MEETING

Notice is hereby given that the Regional Hazard Mitigation Advisory Committee will be conducting an introductory informational work session on December 9, 2015, at 10:00 a.m., in the Washington County Commissioners Meeting, 116 Adams Street, Plymouth, NC.

The purpose of the meeting will be to discuss the BMTW Regional Hazard Mitigation Plan. The Region is comprised of the counties of Bertie, Martin, Tyrrell, and Washington as well as each county's municipal jurisdictions. All interested citizens, business owners, officials from neighboring jurisdictions, and other governmental entities are encouraged to attend.

For additional information, please contact Dale Holland at 910/392-0060.

PUBLISHER'S AFFIDAVIT

North Carolina
Bertie County

Jessica Mobley affirms that he is Advertising Manager of the *Bertie Ledger-Advance*, a newspaper published weekly at Windsor, Bertie County, North Carolina, and that the advertisement, a true copy of which is hereto attached, entitled:

Bertie County
Public Notice – BMTW Regional Hazard Mitigation Plan

Was published in said the *Bertie Ledger-Advance* on the following date(s):

March 23, 2016

And that the said newspaper in which such notice, paper, document or legal advertisement was published, was at the time of each and every publication, a newspaper meeting all of the requirements and qualifications of Chapter 1, Section 597 of the General Statutes of North Carolina and was a qualified newspaper within the meaning of Chapter 1, Section 597 of the General Statutes of North Carolina.

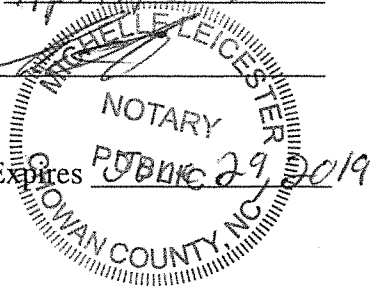
Jessica R Mobley

Affirmed and subscribed before me this

6 Day of April, 2016

[Signature]
Notary Public

My Commission Expires June 29, 2019



PUBLIC NOTICE
BMTW REGIONAL HAZARD MITIGATION PLAN
MITIGATION ADVISORY COMMITTEE MEETING

A Bertie-Martin-Tyrell-Washington Regional Mitigation Advisory Committee (MAC) meeting will be held on **Wednesday, March 30, 2016**, beginning at 11:30 am. This meeting is a required activity under the BMTW Regional Hazard Mitigation planning project. This planning effort includes all units of government with in Bertie, Martin, Tyrrell, and Washington Counties. The meeting will focus on the planning process and mitigation strategy development. The meeting will be held at **The Hitching Post, 1981 US Highway 17, Williamston, NC.**

Citizens and interested parties may comment via the project website at www.rapregionalhmp.org or through our project consultant, Landin Holland, with the firm Holland Consulting Planners, Inc., at (910) 392-0060.

PUBLISHER'S AFFIDAVIT

Martin County

NORTH CAROLINA
MARTIN COUNTY:

April Wheeler being duly sworn, says that she is Office Clerk of Martin County Enterprise and Weekly Herald, a newspaper published twice a week at Williamston, Martin County, North Carolina, and that the advertisement, a true copy of which is hereto attached, entitled:

Public Notice

was published in said **The Enterprise** on the following dates:

March 22, 2016

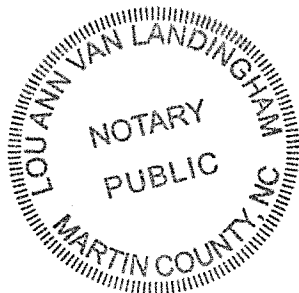
And that the said newspaper in which such notice, paper, document or legal advertisement was published, was, at the time of each and every publication, a newspaper meeting all of the requirements and qualifications of Chapter 1, Section 597 of the General Statutes of North Carolina and was a qualified newspaper within the meaning of Chapter 1, Section 597 of the General Statutes of North Carolina.

x *April Wheeler*
(Office Clerk)

Sworn to and subscribed before me this *1st*
day of *April*, *2016*

Lou Ann Van Landingham
(Notary Public)

My Commission expires February 11, 2020



PUBLIC NOTICE

BMTW REGIONAL HAZARD MITIGATION PLAN MITIGATION ADVISORY COMMITTEE MEETING

A Bertie-Martin-Tyrrell-Washington Regional Mitigation Advisory Committee (MAC) meeting will be held on Wednesday, March 30, 2016, beginning at 11:30 am. This meeting is a required activity under the BMTW Regional Hazard Mitigation planning project. This planning effort includes all units of government within Bertie, Martin, Tyrrell, and Washington Counties. The meeting will focus on the planning process and mitigation strategy development. The meeting will be held at The Hitching Post, 1981 US Highway 17, Williamston, NC.

Citizens and interested parties may comment via the project website at www.rapregionalhmp.org or through our project consultant, Landin Holland, with the firm Holland Consulting Planners, Inc., at (910) 392-0060.

TYRRELL COUNTY
NORTH CAROLINA

Tyrrell County

AFFIDAVIT OF PUBLICATION

Before the undersigned, a Notary Public of said County and State, duly commissioned, qualified and authorized by law to administer oaths, personally appeared Ann Taylor, who being first duly sworn, deposes and says that she is employed in the Display Advertising Department of the Scuppernong Reminder, a newspaper, published, issued and entered as second class mail in the town of Columbia, NC in said county and state; that he is authorized to make this affidavit and sworn statement; that the notice or other legal advertisement, a true copy of which is attached hereto, was published in the Scuppernong Reminder on the following dates:

March 23, 2016

and that the said newspaper in which such notice, paper, document, or legal advertisement was published was, at the time of each and every publication, a newspaper meeting all of the requirements and qualifications of Section I-597 of the General Statutes of North Carolina and was a qualified newspaper within the meaning of Section I-597 of the General Statutes of North Carolina.

This 4 day of April, 2016.

Ann Taylor

(Signature of person making affidavit)

Sworn to and subscribed before me, a Notary Public,

this 4 day of April, 2016.

Amy M Whitaker

(Notary Public)

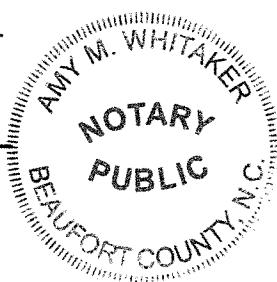
My commission expires August 25, 2018.

PUBLIC NOTICE

BMTW Regional Hazard Mitigation Plan
Mitigation Advisory Committee Meeting

A Bertie-Martin-Tyrrell-Washington Regional Mitigation Advisory Committee (MAC) meeting will be held on Wednesday, March 30, 2016, beginning at 11:30 am. This meeting is a required activity under the BMTW Regional Hazard Mitigation planning project. This planning effort includes all units of government within Bertie, Martin, Tyrrell, and Washington Counties. The meeting will focus on the planning process and mitigation strategy development. The meeting will be held at The Hitching Post, 1981 US Highway 17, Williamston, NC.

Citizens and interested parties may comment via the project website at www.rapregionalhmp.org or through our project consultant, Landin Holland, with the firm Holland Consulting Planners, Inc., at (910) 392-0060.



NORTH CAROLINA
WASHINGTON COUNTY.

Washington County

AFFIDAVIT OF PUBLICATION

Before the undersigned, a Notary Public of said County and State, duly commissioned, qualified, and authorized by law to administer oaths, personally appeared

Mary R. Wayt

who being first duly sworn, deposes and says: that she is publisher of The Roanoke Beacon engaged in the publication of a newspaper known as The Roanoke Beacon, published, issued, and entered as periodical mail in the Town of Plymouth, in said County and State; that he is authorized to make this affidavit and sworn statement; that the notice or other legal advertisement, a true copy of which is attached hereto, was published in The Roanoke Beacon on the following dates:

March 23 2016

and that said newspaper in which such notice, paper, document, or legal advertisement was published was, at the time of each and every such publication, a newspaper meeting all of the requirements and qualifications of Section 1-597 of the General Statutes of North Carolina and was a qualified newspaper within the meaning of Section 1-597 of the General Statutes of North Carolina.

This 23 day of March 2016

Mary R. Wayt

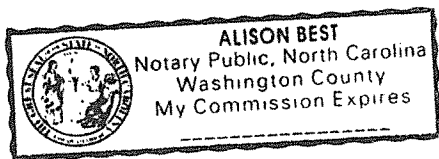
Sworn to and subscribed before me, this 23

day of March 2016

Alison Best

Notary Public

My Commission expires June 8 2019



PUBLIC NOTICE

BMTW Regional Hazard Mitigation Plan Mitigation Advisory Committee Meeting

A Bertie-Martin-Tyrrell-Washington Regional Mitigation Advisory Committee (MAC) meeting will be held on Wednesday, March 30, 2016, beginning at 11:30 am. This meeting is a required activity under the BMTW Regional Hazard Mitigation planning project. This planning effort includes all units of government within Bertie, Martin, Tyrrell, and Washington Counties. The meeting will focus on the planning process and mitigation strategy development. The meeting will be held at The Hitching Post, 1981 US Highway 17, Williamston, NC.

Citizens and interested parties may comment via the project website at www.rapregionalhmp.org or through our project consultant, Landin Holland, with the firm Holland Consulting Planners, Inc., at (910) 392-0060.

PUBLISHER'S AFFIDAVIT

Martin County

NORTH CAROLINA
MARTIN COUNTY:

April Wheeler being duly sworn, says that she is Office Clerk of Martin County Enterprise and Weekly Herald, a newspaper published twice a week at Williamston, Martin County, North Carolina, and that the advertisement, a true copy of which is hereto attached, entitled:

Public Notice

was published in said **The Enterprise** on the following dates:

Tuesday, May 3, 2016

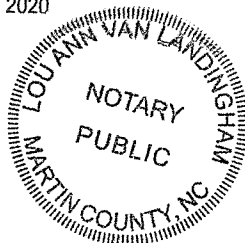
And that the said newspaper in which such notice, paper, document or legal advertisement was published, was, at the time of each and every publication, a newspaper meeting all of the requirements and qualifications of Chapter 1, Section 597 of the General Statutes of North Carolina and was a qualified newspaper within the meaning of Chapter 1, Section 597 of the General Statutes of North Carolina.

April Wheeler
(Office Clerk)

Sworn to and subscribed before me this *3rd*
day of *May*, *2016*

Lore Ann Van Landingham
(Notary Public)

My Commission expires February 11, 2020



PUBLIC NOTICE

Bertie-Martin-Tyrrell-Washington Regional Hazard Mitigation Plan Mitigation Advisory Committee Meeting

Martin County will be hosting a Hazard Mitigation Advisory Committee (MAC) meeting on Wednesday, May 11, 2016, beginning at 11:00 am. This meeting is a required activity under the Bertie-Martin-Tyrrell-Washington Regional Hazard Mitigation planning project. This planning effort also includes all units of government within Bertie, Tyrrell, and Washington Counties. The meeting will focus on the development of strategies addressing Hazard Mitigation throughout Martin County, including its municipalities. Citizens should be aware that the Community Rating System (CRS) program and its impact on the community will be a focus of this effort. The meeting will be held at Martin County Emergency Management, 205 East Main Street, Williamston, NC.

Citizens and interested parties may comment through our project consultant, Landin Holland, with the firm Holland Consulting Planners, Inc., at (910) 392-0060.

PUBLIC NOTICE

Bertie-Martin-Tyrrell-Washington Regional Hazard Mitigation Plan Mitigation Advisory Committee Meeting

Washington County will be hosting a Hazard Mitigation Advisory Committee (MAC) **meeting on Thursday, January 21, 2016, beginning at 6:00 pm.** This meeting is a required activity under the Bertie-Martin-Tyrrell-Washington Regional Hazard Mitigation planning project. This planning effort also includes all units of government within Bertie, Martin, and Tyrrell Counties. The meeting will focus on the development of strategies addressing Hazard Mitigation throughout Washington County, including its municipalities. Citizens should be aware that the Community Rating System (CRS) program and its impact on the community will be a focus of this effort. The meeting will be held in **the Vernon G. James Research & Extension Center, 207 Research Station Rd, Plymouth, NC.**

Citizens and interested parties may comment through our project consultant, Landin Holland, with the firm Holland Consulting Planners, Inc., at (910) 392-0060.

Landin W. Holland

To: bertie.ncfs@ncagr.gov; hyde.ncfs@ncagr.gov; martin.ncfs@ncagr.gov; tyrrell.ncfs@ncagr.gov; washington.ncfs@ncagr.gov; megan.stilley@ncdenr.gov; marlene.salyer@ncdenr.gov; semory@ncdot.gov; dslee@ncdot.gov; Billy_Barrow@ncsu.edu; regina.godette@dhhs.nc.gov; Rochelle.brown2@redcross.org; natalie_wayne@ncsu.edu; al_cochran@ncsu.edu; natalie_wayne@ncsu.edu; rebecca_liverman@ncsu.edu; eevans@co.edgewood.nc.us; bbeach@co.edgewood.nc.us; loria.williams@hertfordcountync.gov; chris.smith@hertfordcountync.gov; scott.elliott@pittcountync.gov; allen.everette@pittcountync.gov; brian.alligood@co.beaufort.nc.us; john.pack@co.beaufort.nc.us; tim.buck@pamlico.org; emc@pamlico.org; brownt@halifaxnc.com; ricksp@halifaxnc.com; Kimberly.Turner@nhcnc.net; Ronnie.Storey@nhcnc.net; nrountree@gatescountync.gov; bwinn@gatescountync.gov; bunchr@co.pasquotank.nc.us; saundersc@co.pasquotank.nc.us; frankheath@perquimanscountync.gov; kevin.howard@chowan.nc.gov; outten@darenc.com; drew.pearson@darenc.com

Cc: Landin Holland; akeyes@washcon.org

Subject: Northeastern NC Regional Hazard Mitigation Plan

The Northeastern NC Region, which includes the counties of Bertie, Hyde, Martin, Tyrrell, and Washington, and all municipalities within these counties, have prepared the Northeastern NC Regional Hazard Mitigation Plan (HMP). A draft has been submitted to the NC Department of Public Safety, Emergency Management section for review and comment.

We solicit your review and comment on the draft 2017 Regional HMP. The plan may be reviewed at <http://www.rapregionalhmp.org/>. Please submit any questions or comments to Ms. Ann Keyes, Project Coordinator and Washington County Planning and Safety Director at akeyes@washcon.org on or before November 16, 2016.

Your assistance is appreciated. Please contact Ms. Keyes at (252) 793-4114 if you have any questions.

Thank you,
Landin Holland



Landin W. Holland, MPA, AICP, CZO

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Appendix D

NCEM/FEMA Review Comments

(to be added)

Appendix E

Hazard Inventory/Disaster Declarations

Appendix E. Hazard History

CZ_NAME_STR	BEGIN_LOCATION	BEGIN_DATE	BEGIN_TIME	EVENT_TYPE	MAGNITUDE	TOR_F_SC	DEATHS	INJURIES	DAMAGE_PRC	DAMAGE_CRC
HYDE (ZONE)		5/7/2007	2200	Coastal Flood			0	0	0	0
HYDE (ZONE)		8/22/2009	1700	Coastal Flood			0	0	0	0
HYDE (ZONE)		11/27/2009	615	Coastal Flood			0	0	0	0
HYDE (ZONE)		2/10/2010	2100	Coastal Flood			0	0	0	0
TYRRELL (ZONE)		10/4/2015	1300	Coastal Flood			0	0	0	0
BERTIE (ZONE)		2/5/1996	300	Cold/Wind Chill			0	0	0	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	3/11/1998	2300	Cold/Wind Chill			0	0	0	350000
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	6/1/2011	0	Drought			0	0	0	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	7/1/2011	0	Drought			0	0	0	0
REGIONAL EVENT	HYDE, TYRRELL, WASHIN	8/1/2011	0	Drought			0	0	0	0
BERTIE (ZONE)		7/21/2011	1600	Excessive Heat			0	0	0	0
MARTIN CO.	MARTIN COUNTY	7/22/1996	1845	Flash Flood			0	0	0	0
BERTIE CO.	COUNTYWIDE	9/7/1999	100	Flash Flood			0	0	0	0
MARTIN CO.	WILLIAMSTON	9/14/1999	1430	Flash Flood			0	0	0	0
BERTIE CO, MARTIN	COUNTYWIDE	9/15/1999	2015	Flash Flood			1	0	0	0
MARTIN CO, WASHII	COUNTYWIDE	9/16/1999	351	Flash Flood			0	0	0	0
MARTIN CO.	COUNTYWIDE	9/28/1999	108	Flash Flood			0	0	0	0
MARTIN CO.	COUNTYWIDE	9/28/1999	605	Flash Flood			0	0	0	0
BERTIE CO, MARTIN	COUNTYWIDE	10/17/1999	1730	Flash Flood			0	0	0	0
BERTIE CO.	ASKEWVILLE, AULANDER	6/15/2001	1830	Flash Flood			0	0	0	0
MARTIN CO.	COUNTYWIDE	6/15/2001	1530	Flash Flood			0	0	200000	0
MARTIN CO.	COUNTYWIDE	10/11/2002	1600	Flash Flood			0	0	0	0
MARTIN CO.	WILLIAMSTON	6/4/2004	1525	Flash Flood			0	0	0	0
MARTIN CO.	COUNTYWIDE	8/14/2004	1500	Flash Flood			0	0	0	0
BERTIE CO.	WINDSOR	10/8/2005	1026	Flash Flood			0	0	0	0
MARTIN CO.	WILLIAMSTON	10/8/2005	915	Flash Flood			0	0	0	0
WASHINGTON CO.	PLYMOUTH, ROPER	10/8/2005	800	Flash Flood			0	0	0	0
BERTIE CO.	KELFORD	6/14/2006	1520	Flash Flood			0	0	0	0
BERTIE CO.	COLERAIN	7/25/2006	1130	Flash Flood			0	0	0	0
BERTIE CO.	WINDSOR	9/1/2006	840	Flash Flood			0	0	0	0
BERTIE CO.	BERTIE	7/6/2008	1900	Flash Flood			0	0	5000	0
BERTIE CO.	MERRY HILL	7/24/2008	300	Flash Flood			0	0	0	0
BERTIE CO.	WINDSOR	9/29/2010	2315	Flash Flood			0	0	0	0
BERTIE CO.	WINDSOR	9/30/2010	517	Flash Flood			0	0	0	0
MARTIN CO.	WILLIAMSTON	9/30/2010	1930	Flash Flood			0	0	10000	0
HYDE CO.	SWANQUARTER	8/27/2011	1430	Flash Flood			0	0	0	0
MARTIN CO.	JAMESVILLE	8/27/2011	1430	Flash Flood			0	0	0	0
TYRRELL CO.	KILKENNY	8/27/2011	1430	Flash Flood			0	0	0	0
WASHINGTON CO.	WENONA	8/27/2011	1430	Flash Flood			0	0	0	0
BERTIE CO.	WINDSOR	10/8/2016	1945	Flash Flood			0	0	0	0
TYRRELL CO.	COLUMBIA	10/8/2016	2200	Flash Flood			0	0	0	0
MARTIN CO.	WILLIAMSTON ARPT	10/8/2016	2200	Flash Flood			0	0	0	0
MARTIN (ZONE)		10/8/2005	1000	Flood			0	0	0	0
WASHINGTON CO.	CRESWELL	11/12/2009	500	Flood			0	0	0	0
WASHINGTON CO.	SCUPPERNONG	9/29/2010	2100	Flood			5	0	10000	1000000
MARTIN CO.	ROBERSONVILLE	7/31/2011	1435	Flood			0	0	0	0
BERTIE CO.	WINDSOR	8/27/2011	500	Flood			0	0	0	0
BERTIE CO.	BURDEN	7/15/2014	1500	Flood			0	0	0	0
BERTIE CO.	LEWISTON	9/21/2016	800	Flood			0	0	0	0
BERTIE CO.	DREW	9/21/2016	2100	Flood			0	0	4000000	1000000
BERTIE CO.	QUITSNA	10/8/2016	1600	Flood			0	0	1000000	0
BERTIE CO.	WINDSOR	10/8/2016	2200	Flood			0	0	5000000	0
BERTIE (ZONE)		11/30/2003	300	Frost/Freeze			0	0	0	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	3/23/2004	100	Frost/Freeze			0	0	0	0
BERTIE (ZONE)		4/6/2004	400	Frost/Freeze			0	0	0	0
BERTIE (ZONE)		4/5/2016	2200	Frost/Freeze			0	0	0	0
BERTIE (ZONE)		4/10/2016	400	Frost/Freeze			0	0	0	0
MARTIN CO.	ROBERSONVILLE	6/1/1997	1715	Funnel Cloud			0	0	0	0
MARTIN CO.	HAMILTON	6/1/1997	1850	Funnel Cloud			0	0	0	0
HYDE CO.	NEW HOLLAND	5/8/1998	1649	Funnel Cloud			0	0	0	0
MARTIN CO.	WILLIAMSTON ARPT	4/20/2008	1752	Funnel Cloud			0	0	0	0
HYDE CO.	SCRANTON	4/28/2008	1624	Funnel Cloud			0	0	0	0
BERTIE CO.		5/2/1962	1600	Hail	1.75		0	0	0	0
MARTIN CO.		3/15/1967	1500	Hail	0.75		0	0	0	0
BERTIE CO.		8/9/1983	1620	Hail	1.75		0	0	0	0
MARTIN CO.		4/15/1984	1610	Hail	0.75		0	0	0	0
BERTIE CO.		6/4/1985	1715	Hail	1.75		0	0	0	0
MARTIN CO.		6/10/1985	1618	Hail	1.25		0	0	0	0
MARTIN CO.		7/10/1985	1800	Hail	0.75		0	0	0	0
BERTIE CO.		7/12/1985	1304	Hail	1.75		0	0	0	0
TYRRELL CO.		7/22/1985	1345	Hail	0.75		0	0	0	0

Appendix E. Hazard History

CZ_NAME_STR	BEGIN_LOCATION	BEGIN_DATE	BEGIN_TIME	EVENT_TYPE	MAGNITUDE	TOR_F_SC	DEATHS	INJURIES	DAMAGE_PRC	DAMAGE_CRC
MARTIN CO.		6/28/1986	1500	Hail	0.75		0	0	0	0
TYRRELL CO.		7/29/1986	1905	Hail	0.75		0	0	0	0
BERTIE CO, MARTIN		4/4/1988	2336	Hail	1.75		0	0	0	0
MARTIN CO.		4/5/1988	40	Hail	1.25		0	0	0	0
BERTIE CO.		5/20/1988	1609	Hail	1.75		0	0	0	0
MARTIN CO.		5/20/1988	1534	Hail	1.5		0	0	0	0
BERTIE CO.		6/17/1988	1453	Hail	1.75		0	0	0	0
WASHINGTON CO.		3/29/1991	1030	Hail	1		0	0	0	0
MARTIN CO.		5/1/1991	1440	Hail	2		0	0	0	0
BERTIE CO.	Windsor	5/19/1993	1320	Hail	0.75		0	0	0	0
TYRRELL CO.	Tyrrell	10/12/1993	458	Hail	0.75		0	0	0	0
TYRRELL CO.	Columbia	8/5/1994	1655	Hail	0.8		0	0	0	0
MARTIN CO.	Beargrass	9/26/1994	1505	Hail	0.8		0	0	0	0
TYRRELL CO.	Creswell	5/11/1995	1850	Hail	0.75		0	0	0	0
TYRRELL CO.	Columbia	5/11/1995	1859	Hail	1.75		0	0	0	0
HYDE CO.	SWANQUARTER	5/9/1996	1730	Hail	0.75		0	0	0	0
HYDE CO.	SWANQUARTER	5/24/1996	2025	Hail	0.75		0	0	0	0
MARTIN CO.	WILLIAMSTON	7/3/1996	1558	Hail	0.75		0	0	0	0
MARTIN CO.	JAMESVILLE	4/21/1997	2122	Hail	0.75		0	0	0	0
MARTIN CO.	WILLIAMSTON	5/1/1997	1732	Hail	0.75		0	0	0	0
TYRRELL CO.	FRYING PAN	5/15/1997	1315	Hail	1		0	0	0	0
BERTIE CO.	WOODVILLE	7/5/1997	2015	Hail	0.75		0	0	0	0
MARTIN CO.	ROBERSONVILLE	7/5/1997	1935	Hail	1		0	0	0	0
BERTIE CO.	WINDSOR	7/28/1997	1600	Hail	0.75		0	0	0	0
WASHINGTON CO.	ROPER	8/18/1997	1430	Hail	0.75		0	0	0	0
TYRRELL CO.	COLUMBIA	3/21/1998	40	Hail	1		0	0	0	0
HYDE CO.	NEW HOLLAND, SCRANTON	5/8/1998	1649	Hail	1		0	0	0	0
HYDE CO.	SCRANTON	5/27/1998	1440	Hail	0.75		0	0	0	0
BERTIE CO.	KELFORD	6/3/1998	1953	Hail	1.75		0	0	0	0
HYDE CO.	OCRACOKE	6/3/1998	2110	Hail	1.75		0	0	50000	0
MARTIN CO.	OAK CITY, WILLIAMSTON	6/3/1998	2035	Hail	2.75		0	0	1000000	2000000
MARTIN CO.	WILLIAMSTON	6/3/1998	2045	Hail	1.75		0	0	0	0
MARTIN CO.	JAMESVILLE	6/3/1998	2055	Hail	1.25		0	0	0	0
HYDE CO.	FAIRFIELD	6/12/1998	1800	Hail	1.75		0	0	0	0
TYRRELL CO.	KILKENNY	6/12/1998	1640	Hail	1.75		0	0	0	0
BERTIE CO.	WINDSOR	6/13/1998	1630	Hail	1.75		0	0	2000	3000
MARTIN CO.	DARDEN	6/13/1998	1750	Hail	0.75		0	0	0	0
TYRRELL CO.	COLUMBIA, GUM NECK	6/13/1998	1731	Hail	0.75		0	0	0	0
WASHINGTON CO.	CRESWELL	6/13/1998	1715	Hail	2.75		0	0	0	0
WASHINGTON CO.	ROPER	6/13/1998	1755	Hail	1.75		0	0	0	0
BERTIE CO.	KELFORD	6/15/1998	1612	Hail	2		0	0	0	0
BERTIE CO.	WINDSOR	6/15/1998	1656	Hail	1.25		0	0	0	0
TYRRELL CO.	GUM NECK	6/15/1998	1515	Hail	2		0	0	0	0
MARTIN CO.	JAMESVILLE	7/22/1998	1705	Hail	0.75		0	0	0	0
BERTIE CO.	TRAP	8/11/1999	1715	Hail	1.75		0	0	0	0
HYDE CO.	ENGELHARD	8/11/1999	1731	Hail	1.75		0	0	0	0
BERTIE CO.	MERRY HILL	4/21/2000	1845	Hail	0.88		0	0	0	0
MARTIN CO.	JAMESVILLE	4/21/2000	1846	Hail	1		0	0	0	0
HYDE CO.	SCRANTON	4/25/2000	1255	Hail	1		0	0	0	0
MARTIN CO.	ROBERSONVILLE	5/20/2000	2200	Hail	1.75		0	0	0	0
MARTIN CO.	WILLIAMSTON	5/22/2000	1640	Hail	1		0	0	0	0
WASHINGTON CO.	PLYMOUTH	5/22/2000	1740	Hail	0.75		0	0	0	0
TYRRELL CO.	COLUMBIA	5/27/2000	2310	Hail	1.25		0	0	0	0
BERTIE CO.	POWELLSVILLE	6/15/2000	1730	Hail	1		0	0	0	1000
MARTIN CO.	WILLIAMSTON	6/22/2000	1555	Hail	1		0	0	0	0
WASHINGTON CO.	CRESWELL	6/22/2000	1645	Hail	0.75		0	0	0	0
BERTIE CO, WASHIN	COLERAIN, PLYMOUTH	8/16/2000	2040	Hail	1.25		0	0	0	0
HYDE CO.	PONZER	8/16/2000	2055	Hail	0.75		0	0	0	0
WASHINGTON CO.	CRESWELL	8/16/2000	2015	Hail	1		0	0	0	0
WASHINGTON CO.	PLYMOUTH	8/16/2000	2144	Hail	1.5		0	0	0	0
HYDE CO.	NEW HOLLAND	8/24/2000	1805	Hail	1.5		0	0	0	0
WASHINGTON CO.	PLYMOUTH	5/12/2001	1756	Hail	0.88		0	0	0	0
MARTIN CO.	EVERETTS	5/22/2001	1950	Hail	1.75		0	0	0	0
BERTIE CO.	WINDSOR	4/3/2002	1921	Hail	0.88		0	0	0	0
MARTIN CO.	WILLIAMSTON	4/3/2002	1935	Hail	1		0	0	0	0
MARTIN CO.	ROBERSONVILLE	5/13/2002	2018	Hail	1.75		0	0	0	0
WASHINGTON CO.	PLEASANT GROVE	6/14/2002	1545	Hail	0.75		0	0	0	0
HYDE CO.	OCRACOKE	3/11/2003	1340	Hail	0.75		0	0	0	0
BERTIE CO.	COLERAIN	5/9/2003	1645	Hail	4.25		0	0	20000	0
BERTIE CO.	COLERAIN	5/9/2003	1710	Hail	1.75		0	0	0	0
HYDE CO.	FAIRFIELD, SWAN QUART	5/9/2003	1815	Hail	1.75		0	0	0	0

Appendix E. Hazard History

CZ_NAME_STR	BEGIN_LOCATION	BEGIN_DATE	BEGIN_TIME	EVENT_TYPE	MAGNITUDE	TOR_F_SC	DEATHS	INJURIES	DAMAGE_PRC	DAMAGE_CRC
HYDE CO.	OCRACOKE	5/9/2003	1911	Hail	1		0	0	0	0
WASHINGTON CO.		5/9/2003	1741	Hail	0.88		0	0	0	0
MARTIN CO.	ROBERSONVILLE	5/22/2004	1750	Hail	0.88		0	0	0	0
WASHINGTON CO.	PLYMOUTH	6/4/2004	1515	Hail	0.75		0	0	0	0
MARTIN CO.	WILLIAMSTON	7/7/2004	1845	Hail	1		0	0	0	0
WASHINGTON CO.	PLYMOUTH	3/8/2005	1140	Hail	1.5		0	0	0	0
BERTIE CO.	WINDSOR	3/23/2005	2100	Hail	0.75		0	0	0	0
HYDE CO.	ENGELHARD	3/28/2005	855	Hail	1		0	0	0	0
MARTIN CO.	BEAR GRASS	8/3/2005	1530	Hail	0.75		0	0	0	0
HYDE CO.	OCRACOKE	4/3/2006	1405	Hail	1		0	0	0	0
BERTIE CO.	WINDSOR	5/14/2006	1535	Hail	1.25		0	0	0	0
MARTIN CO.	JAMESVILLE	5/14/2006	2005	Hail	0.75		0	0	0	0
TYRRELL CO.	COLUMBIA	5/14/2006	1548	Hail	0.88		0	0	0	0
TYRRELL CO.	COLUMBIA	5/15/2006	1715	Hail	1		0	0	0	0
WASHINGTON CO.	CRESWELL	5/15/2006	1510	Hail	0.88		0	0	0	0
TYRRELL CO, WASHII	COLUMBIA, SCUPPERNON	5/18/2006	2120	Hail	0.75		0	0	0	0
BERTIE CO.	MERRY HILL	5/26/2006	1455	Hail	1.75		0	0	0	0
BERTIE CO.	KELFORD	6/11/2006	2215	Hail	0.75		0	0	0	0
MARTIN CO.	GOLD PT	6/21/2006	1335	Hail	1		0	0	0	0
HYDE CO.	SCRANTON	6/30/2006	1830	Hail	0.75		0	0	0	0
MARTIN CO.	ROBERSONVILLE	7/27/2006	1702	Hail	0.75		0	0	0	0
HYDE CO.	FAIRFIELD	3/28/2007	1729	Hail	0.75		0	0	0	0
MARTIN CO.	ROBERSONVILLE	8/10/2007	1541	Hail	0.75		0	0	0	0
MARTIN CO.	ROBERSONVILLE, WILLIA	4/20/2008	1715	Hail	0.75		0	0	0	0
BERTIE CO.	ROXOBEL	5/11/2008	1722	Hail	0.88		0	0	0	0
BERTIE CO.	KELFORD	5/11/2008	1726	Hail	1.75		0	0	0	0
BERTIE CO.	AULANDER	5/20/2008	1521	Hail	0.88		0	0	0	0
MARTIN CO.	WILLIAMSTON	5/20/2008	1644	Hail	1		0	0	0	0
TYRRELL CO.	KILKENNY	6/16/2008	1510	Hail	0.75		0	0	0	0
WASHINGTON CO.	PLYMOUTH MUNI ARPT	10/1/2008	1402	Hail	1		0	0	0	0
WASHINGTON CO.	CRESWELL	10/1/2008	1421	Hail	0.75		0	0	0	0
MARTIN CO.	BEAR GRASS	4/20/2009	1633	Hail	1		0	0	0	0
MARTIN CO, WASHII	BEAR GRASS, PLYMOUTH	4/20/2009	1635	Hail	0.75		0	0	0	0
MARTIN CO.	JAMESVILLE	4/20/2009	1655	Hail	0.88		0	0	0	0
TYRRELL CO.	COLUMBIA	5/4/2009	1427	Hail	0.88		0	0	0	0
HYDE CO.	PONZER	7/24/2009	1356	Hail	2.75		0	0	0	0
MARTIN CO.	OAK CITY	9/28/2009	1936	Hail	0.75		0	0	0	0
MARTIN CO.	HAMILTON	4/16/2011	1810	Hail	1		0	0	0	0
MARTIN CO.	WILLIAMSTON	6/23/2011	1710	Hail	1		0	0	0	0
HYDE CO.	OCRACOKE IS ARPT	7/2/2011	742	Hail	0.75		0	0	0	0
MARTIN CO.	GOLD PT	3/25/2012	1718	Hail	0.75		0	0	0	0
MARTIN CO.	ROBERSONVILLE	3/25/2012	1722	Hail	1.5		0	0	0	0
MARTIN CO.	WILLIAMSTON HRRS ARP	5/16/2012	1450	Hail	0.75		0	0	0	0
HYDE CO.	SLADESVILLE	5/22/2012	1615	Hail	0.75		0	0	0	0
BERTIE CO.	QUITSNA	5/23/2012	1805	Hail	2		0	0	0	0
MARTIN CO.	WILLIAMSTON	5/23/2012	1744	Hail	0.75		0	0	0	0
MARTIN CO.	WILLIAMSTON	5/23/2012	1749	Hail	1		0	0	0	0
WASHINGTON CO.	MT TABOR	7/1/2012	810	Hail	0.75		0	0	0	0
MARTIN CO.	WILLIAMSTON HRRS ARP	4/25/2014	1557	Hail	0.88		0	0	0	0
MARTIN CO.	WILLIAMSTON, HAMILTC	4/25/2014	1652	Hail	1		0	0	0	0
WASHINGTON CO.	ALBEMARLE BEACH	5/28/2014	1533	Hail	0.75		0	0	0	0
WASHINGTON CO.	CHERRY	5/28/2014	1553	Hail	0.88		0	0	0	0
MARTIN CO.	ROBERSONVILLE	6/19/2014	1944	Hail	0.88		0	0	0	0
MARTIN CO.	ROBERSONVILLE	6/19/2014	1950	Hail	1		0	0	0	0
TYRRELL CO.	COLUMBIA	6/19/2014	2012	Hail	0.75		0	0	0	0
MARTIN CO.	BEAR GRASS, JAMESVILLI	6/20/2015	1505	Hail	1		0	0	0	0
HYDE CO.	PONZER	4/28/2016	1830	Hail	2		0	0	0	0
MARTIN CO.	ROBERSONVILLE	5/11/2016	2052	Hail	0.75		0	0	0	0
BERTIE (ZONE)		5/18/1996	1200	Heat			0	0	0	0
BERTIE (ZONE)		7/5/2012	1100	Heat			0	0	0	0
BERTIE CO.	WINDSOR	1/27/1998	1400	Heavy Rain			0	0	0	0
BERTIE CO.	WINDSOR	2/4/1998	0	Heavy Rain			0	0	0	0
BERTIE CO.	WINDSOR	10/24/2007	1200	Heavy Rain			0	0	0	0
BERTIE CO.	WINDSOR	9/6/2008	400	Heavy Rain			0	0	0	0
BERTIE CO.	WINDSOR	12/10/2008	2200	Heavy Rain			0	0	0	0
BERTIE CO.	LEWISTON	11/11/2009	1200	Heavy Rain			0	0	0	0
BERTIE CO.	LEWISTON	3/29/2010	100	Heavy Rain			0	0	0	0
MARTIN CO.	WILLIAMSTON	9/27/2010	0	Heavy Rain			0	0	0	0
BERTIE CO.	PERRYTOWN	9/29/2010	800	Heavy Rain			0	0	0	0
HYDE CO.	SLADESVILLE	5/30/2012	1251	Heavy Rain			0	0	0	0
BERTIE CO.	WINDSOR	9/8/2014	500	Heavy Rain			0	0	0	0

Appendix E. Hazard History

CZ_NAME_STR	BEGIN_LOCATION	BEGIN_DATE	BEGIN_TIME	EVENT_TYPE	MAGNITUDE	TOR_F_SC#	DEATHS	INJURIES	DAMAGE_PRC	DAMAGE_CRC
BERTIE CO.	ASKEWVILLE	11/9/2015	700	Heavy Rain			0	0	0	0
BERTIE CO.	WINDSOR	9/19/2016	600	Heavy Rain			0	0	0	0
BERTIE CO.	WINDSOR	10/8/2016	1000	Heavy Rain			0	0	0	0
MARTIN (ZONE), WA		12/3/2000	600	Heavy Snow			0	0	0	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	1/20/2009	700	Heavy Snow			0	0	0	0
REGIONAL EVENT	MARTIN, TYRRELL, WASH	1/30/2010	0	Heavy Snow			0	0	0	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	2/12/2010	2200	Heavy Snow			0	0	0	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	12/26/2010	300	Heavy Snow			0	0	0	0
HYDE (ZONE)		1/22/2011	1000	Heavy Snow			0	0	0	0
HYDE (ZONE), TYRRE		2/10/2011	200	Heavy Snow			0	0	0	0
HYDE (ZONE)		11/12/2009	2100	High Surf			0	0	0	0
BERTIE (ZONE)		7/24/1997	1030	High Wind			0	0	5000	0
HYDE (ZONE)		12/16/1998	200	High Wind	70		0	0	0	0
HYDE (ZONE)		12/16/2000	800	High Wind	62		0	0	0	0
TYRRELL (ZONE)		12/16/2000	800	High Wind	52		0	0	0	0
WASHINGTON (ZON		12/16/2000	800	High Wind	50		0	0	0	0
HYDE (ZONE)		3/20/2001	2200	High Wind	45		0	0	0	0
HYDE (ZONE)		2/4/2002	2000	High Wind	53		0	0	0	0
HYDE (ZONE)		10/15/2002	2000	High Wind	43		0	0	0	0
HYDE (ZONE)		12/24/2002	1739	High Wind	50		0	0	0	0
HYDE (ZONE)		4/10/2003	1000	High Wind	50		0	0	0	0
HYDE (ZONE)		2/27/2004	0	High Wind	50		0	0	0	0
HYDE (ZONE)		3/7/2004	2250	High Wind	52		0	0	0	0
TYRRELL (ZONE)		11/22/2006	700	High Wind	70		0	0	0	0
HYDE (ZONE), TYRRE		5/6/2007	1500	High Wind	36		0	0	0	0
HYDE (ZONE)		5/7/2007	1100	High Wind	55		0	0	0	0
HYDE (ZONE)		11/2/2007	1445	High Wind	55		0	0	0	0
HYDE (ZONE)		3/8/2008	1500	High Wind	52		0	0	0	0
HYDE (ZONE)		9/24/2008	1820	High Wind	50		0	0	0	0
BERTIE (ZONE)		1/7/2009	2015	High Wind	50		0	0	5000	0
HYDE (ZONE)		12/19/2009	230	High Wind	51		0	0	0	0
HYDE (ZONE)		2/10/2010	2238	High Wind	56		0	0	0	0
HYDE (ZONE)		11/4/2011	2150	High Wind	50		0	0	0	0
BERTIE (ZONE)		10/8/2016	1800	High Wind	50		0	0	50000	0
TYRRELL (ZONE)		8/26/2011	0	Hurricane			0	0	10000000	15000000
REGIONAL EVENT	BERTIE, HYDE, MARTIN, 1	7/12/1996	1700	Hurricane (Typhoon)			0	0	550000	4500000
REGIONAL EVENT	BERTIE, HYDE, MARTIN, 1	9/4/1996	1800	Hurricane (Typhoon)			0	0	650000	0
REGIONAL EVENT	BERTIE, HYDE, MARTIN, 1	8/26/1998	2000	Hurricane (Typhoon)			0	0	3400000	0
REGIONAL EVENT	BERTIE, HYDE, MARTIN, 1	9/1/1999	0	Hurricane (Typhoon)			0	0	5000	0
REGIONAL EVENT	BERTIE, HYDE, MARTIN, 1	9/15/1999	1200	Hurricane (Typhoon)			0	0	8824000	55200000
BERTIE (ZONE), HYD		10/17/1999	1600	Hurricane (Typhoon)			0	0	3000	0
REGIONAL EVENT	BERTIE, HYDE, MARTIN, 1	9/17/2003	1800	Hurricane (Typhoon)			0	0	14500000	0
HYDE (ZONE), TYRRE		8/3/2004	0	Hurricane (Typhoon)			0	0	0	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	8/14/2004	0	Hurricane (Typhoon)			0	0	125000	450000
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	9/13/2005	1200	Hurricane (Typhoon)			0	0	0	0
BERTIE (ZONE)		12/23/1998	1400	Ice Storm			0	0	0	0
MARTIN (ZONE), WA		2/16/2015	1800	Ice Storm			0	0	0	0
EASTERN HYDE (ZON		7/21/2016	1430	Rip Current			1	0	0	0
EASTERN HYDE (ZON		8/11/2016	1200	Rip Current			1	0	0	0
HYDE (ZONE)		5/6/2005	1500	Storm Surge/Tide			0	0	0	0
HYDE (ZONE)		7/20/2008	700	Storm Surge/Tide			0	0	0	0
HYDE (ZONE), TYRRE		8/26/2011	0	Storm Surge/Tide			0	0	61000000	0
HYDE (ZONE)		10/28/2012	600	Storm Surge/Tide			0	0	100000	0
BERTIE (ZONE)		12/31/2008	1723	Strong Wind	40		0	0	1000	0
MARTIN (ZONE)		2/10/2010	815	Strong Wind	45		0	0	500	0
MARTIN (ZONE)		3/6/2013	1300	Strong Wind	43		0	0	500	0
BERTIE CO.		6/22/1959	1500	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.		5/2/1962	1600	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.		1/24/1965	1900	Thunderstorm Wind	0		0	0	0	0
MARTIN CO.		10/2/1969	1330	Thunderstorm Wind	0		0	0	0	0
WASHINGTON CO.		4/2/1970	1245	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.		6/21/1970	1215	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.		3/19/1971	1720	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.		7/16/1971	1400	Thunderstorm Wind	0		0	0	0	0
MARTIN CO.		3/14/1975	1230	Thunderstorm Wind	0		0	0	0	0
BERTIE CO., TYRRELL		3/24/1975	1450	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.		5/23/1975	1645	Thunderstorm Wind	0		0	0	0	0
WASHINGTON CO.		6/28/1977	1515	Thunderstorm Wind	0		0	0	0	0
TYRRELL CO.		7/1/1977	1700	Thunderstorm Wind	0		0	0	0	0
WASHINGTON CO.		8/23/1977	1527	Thunderstorm Wind	0		0	0	0	0
TYRRELL CO.		3/21/1983	610	Thunderstorm Wind	60		0	0	0	0

Appendix E. Hazard History

CZ_NAME_STR	BEGIN_LOCATION	BEGIN_DATE	BEGIN_TIME	EVENT_TYPE	MAGNITUDE	TOR_F_SC	DEATHS	INJURIES	DAMAGE_PRC	DAMAGE_CRC
MARTIN CO.		6/29/1983	1315	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.		8/9/1983	1625	Thunderstorm Wind	0		0	0	0	0
MARTIN CO., WASHI		3/28/1984	2100	Thunderstorm Wind	0		0	0	0	0
WASHINGTON CO.		4/15/1984	1645	Thunderstorm Wind	0		0	0	0	0
MARTIN CO.		4/28/1984	2100	Thunderstorm Wind	0		0	0	0	0
WASHINGTON CO.		5/8/1984	1630	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.		5/29/1984	1615	Thunderstorm Wind	0		0	0	0	0
MARTIN CO.		2/12/1985	230	Thunderstorm Wind	0		0	0	0	0
WASHINGTON CO.		6/4/1985	1905	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.		7/12/1985	1331	Thunderstorm Wind	0		0	0	0	0
MARTIN CO.		7/16/1985	1400	Thunderstorm Wind	0		0	0	0	0
TYRRELL CO.		7/22/1985	1345	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.		11/4/1985	846	Thunderstorm Wind	0		0	0	0	0
MARTIN CO.		6/14/1986	1613	Thunderstorm Wind	50		0	0	0	0
BERTIE CO.		6/28/1986	1422	Thunderstorm Wind	0		0	0	0	0
MARTIN CO.		7/2/1986	1525	Thunderstorm Wind	0		0	0	0	0
MARTIN CO.		7/12/1986	1445	Thunderstorm Wind	0		0	0	0	0
TYRRELL CO.		7/19/1986	1320	Thunderstorm Wind	52		0	0	0	0
BERTIE CO., MARTIN		6/3/1987	1850	Thunderstorm Wind	0		0	0	0	0
MARTIN CO.		8/4/1987	1550	Thunderstorm Wind	0		0	0	0	0
MARTIN CO.		5/17/1988	1537	Thunderstorm Wind	0		0	0	0	0
TYRRELL CO.		5/24/1988	1855	Thunderstorm Wind	77		0	0	0	0
WASHINGTON CO.		7/9/1988	1600	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.		11/5/1988	1045	Thunderstorm Wind	0		0	0	0	0
BERTIE CO., MARTIN		2/21/1989	1230	Thunderstorm Wind	0		0	0	0	0
MARTIN CO., TYRREI		4/27/1989	1830	Thunderstorm Wind	0		0	0	0	0
TYRRELL CO.		7/12/1989	1122	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.		7/16/1989	1605	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.		8/7/1989	1602	Thunderstorm Wind	0		0	0	0	0
BERTIE CO., WASHIN		5/13/1990	1535	Thunderstorm Wind	0		0	0	0	0
WASHINGTON CO.		6/29/1990	1455	Thunderstorm Wind	0		0	0	0	0
TYRRELL CO.		7/1/1990	1500	Thunderstorm Wind	0		4	0	0	0
BERTIE CO.		7/6/1990	2120	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.		8/29/1990	1625	Thunderstorm Wind	0		0	0	0	0
BERTIE CO., MARTIN		9/7/1990	2255	Thunderstorm Wind	0		0	0	0	0
MARTIN CO.		3/2/1991	400	Thunderstorm Wind	0		0	0	0	0
TYRRELL CO.		6/5/1992	1420	Thunderstorm Wind	52		0	0	0	0
BERTIE CO.		6/24/1992	1700	Thunderstorm Wind	0		0	0	0	0
WASHINGTON CO.		6/26/1992	1338	Thunderstorm Wind	0		0	0	0	0
WASHINGTON CO.		7/27/1992	2030	Thunderstorm Wind	0		0	0	0	0
WASHINGTON CO.		8/12/1992	1230	Thunderstorm Wind	0		0	0	0	0
BERTIE CO.	Powellsville	7/17/1994	1855	Thunderstorm Wind	0		0	0	0	0
MARTIN CO., TYRREI	Beargrass, Gum Neck, W	8/5/1994	1645	Thunderstorm Wind	0		0	0	0	0
MARTIN CO.	Beargrass	9/26/1994	1505	Thunderstorm Wind	0		0	0	50000	0
BERTIE CO.	Askewville	5/11/1995	1755	Thunderstorm Wind	0		0	0	0	0
BERTIE CO., MARTIN	Midway, Williamston, Jar	6/12/1995	1115	Thunderstorm Wind	0		0	0	50000	0
BERTIE CO.	Windsor	10/28/1995	150	Thunderstorm Wind	0		0	0	0	0
BERTIE CO., MARTIN	Kelford, Williamston, Oal	11/11/1995	2050	Thunderstorm Wind	0		0	2	230000	0
BERTIE CO.	WINDSOR, MERRY HILL	5/11/1996	1745	Thunderstorm Wind			0	0	5000	0
MARTIN CO., TYRREI	WILLIAMSTON, COLUMB	7/3/1996	1558	Thunderstorm Wind			0	0	27000	0
MARTIN CO.	ROBERSONVILLE	9/17/1996	300	Thunderstorm Wind			0	0	0	0
BERTIE CO.	KELFORD	3/5/1997	2110	Thunderstorm Wind			0	0	2000	0
MARTIN CO.	JAMESVILLE	5/1/1997	1758	Thunderstorm Wind	56		0	0	0	0
WASHINGTON CO.	HOKE	5/1/1997	1807	Thunderstorm Wind	50		0	0	0	0
BERTIE CO., MARTIN	AULANDER, COLERAIN, V	5/3/1997	952	Thunderstorm Wind			0	0	4000	0
HYDE CO.	SLADESVILLE	5/9/1997	1805	Thunderstorm Wind	50		0	0	0	0
HYDE CO.	SWAN QUARTER	5/9/1997	1827	Thunderstorm Wind	52		0	0	0	0
WASHINGTON CO.	SCUPPERNONG	5/15/1997	1315	Thunderstorm Wind	52		0	0	0	0
BERTIE CO.	LEWISTON	7/5/1997	0	Thunderstorm Wind			0	0	1000	0
BERTIE CO., MARTIN	WINDSOR, WILLIAMSTON	1/8/1998	1015	Thunderstorm Wind	51		0	0	2000	0
HYDE CO.	ENGELHARD	6/3/1998	2147	Thunderstorm Wind	50		0	0	0	0
HYDE CO.	SWAN QUARTER	6/12/1998	1845	Thunderstorm Wind	70		0	0	0	0
BERTIE CO., WASHIN	WINDSOR, MERRY HILL, I	6/13/1998	1630	Thunderstorm Wind	50		0	0	5000	0
HYDE CO.	SWAN QUARTER	6/13/1998	1840	Thunderstorm Wind	61		0	0	0	0
TYRRELL CO., WASHI	COLUMBIA, PLEASANT G	6/15/1998	1740	Thunderstorm Wind	50		0	0	45000	0
HYDE CO.	OCRACOCKE	6/19/1998	1430	Thunderstorm Wind	62		0	0	0	0
HYDE CO.	OCRACOCKE	6/30/1998	2240	Thunderstorm Wind	63		0	0	0	0
MARTIN CO.	JAMESVILLE	7/22/1998	1705	Thunderstorm Wind	50		0	0	0	0
MARTIN CO., HYDE C	GOLD PT, OCRACOCKE	3/3/1999	1710	Thunderstorm Wind	50		0	0	0	0
TYRRELL CO.	GUM NECK	4/9/1999	1015	Thunderstorm Wind	50		0	0	0	0
HYDE CO.	OCRACOCKE	4/15/1999	2044	Thunderstorm Wind	57		0	0	0	0

Appendix E. Hazard History

CZ_NAME_STR	BEGIN_LOCATION	BEGIN_DATE	BEGIN_TIME	EVENT_TYPE	MAGNITUDE	TOR_F_SC	DEATHS	INJURIES	DAMAGE_PRC	DAMAGE_CRC
WASHINGTON CO.	PLYMOUTH	7/24/1999	1720	Thunderstorm Wind	50		0	0	0	0
MARTIN CO.	WILLIAMSTON	5/20/2000	2215	Thunderstorm Wind	62		0	0	10000	0
MARTIN CO., WASHI	BEAR GRASS, ROPER	5/27/2000	2245	Thunderstorm Wind			0	0	40000	0
BERTIE CO., TYRRELL	COLERAIN, COLUMBIA, T	8/16/2000	2040	Thunderstorm Wind	52		0	0	5000	0
BERTIE CO.	MERRY HILL	8/18/2000	1750	Thunderstorm Wind	50		0	0	3000	0
HYDE CO.	FAIRFIELD	8/18/2000	1910	Thunderstorm Wind	52		0	0	0	0
MARTIN CO.	WILLIAMSTON	8/18/2000	1730	Thunderstorm Wind	60		0	0	0	0
HYDE CO.	SWAN QUARTER	12/17/2000	605	Thunderstorm Wind	54		0	0	0	0
MARTIN CO.	ROBERSONVILLE	5/20/2001	1730	Thunderstorm Wind	53		0	0	0	0
MARTIN CO.	WILLIAMSTON	5/22/2001	2015	Thunderstorm Wind	53		0	0	10000	0
HYDE CO.	OCRACOKE	5/28/2001	1147	Thunderstorm Wind	52		0	0	0	0
TYRRELL CO.	COLUMBIA	4/19/2002	1850	Thunderstorm Wind	52		0	0	0	0
TYRRELL CO.	COLUMBIA	4/25/2002	2000	Thunderstorm Wind			0	0	5000	0
BERTIE CO., WASHIN	WINDSOR, PLYMOUTH	5/13/2002	2035	Thunderstorm Wind	52		0	0	2000	0
WASHINGTON CO.	PLYMOUTH	6/14/2002	1540	Thunderstorm Wind	52		0	0	0	0
BERTIE CO.	LEWISTON	7/10/2002	1850	Thunderstorm Wind			0	0	2000	0
HYDE CO.	ENGELHARD	7/10/2002	1410	Thunderstorm Wind	62		0	0	0	0
WASHINGTON CO.	ROPER	7/19/2002	2205	Thunderstorm Wind	52		0	0	0	0
WASHINGTON CO.	ROPER	7/20/2002	1730	Thunderstorm Wind	52		0	0	0	0
BERTIE CO., MARTIN	WINDSOR, WILLIAMSTON	11/11/2002	1230	Thunderstorm Wind	50		0	0	2000	0
BERTIE CO.	COLERAIN	5/9/2003	1710	Thunderstorm Wind	50		0	0	15000	0
BERTIE CO.	AULANDER	6/7/2003	1736	Thunderstorm Wind	50		0	0	2000	0
HYDE CO.	OCRACOKE	11/28/2003	2055	Thunderstorm Wind	53		0	0	0	0
HYDE CO.	OCRACOKE	12/11/2003	27	Thunderstorm Wind	55		0	0	10000	0
BERTIE CO.	WINDSOR	5/2/2004	1440	Thunderstorm Wind	50		0	0	2000	0
TYRRELL CO., WASHI	GUM NECK, CRESWELL	5/22/2004	1425	Thunderstorm Wind	56		0	0	0	0
HYDE CO., MARTIN	(ENGELHARD, OCRACOKE	6/11/2004	2200	Thunderstorm Wind	50		0	0	0	0
TYRRELL CO.	COLUMBIA	6/23/2004	1841	Thunderstorm Wind	50		0	0	0	0
MARTIN CO.	WILLIAMSTON	3/8/2005	1115	Thunderstorm Wind	50		0	0	25000	0
HYDE CO., TYRRELL	(COUNTYWIDE	3/8/2005	1212	Thunderstorm Wind	65		0	1	75000	0
HYDE CO.	OCRACOKE	3/8/2005	1220	Thunderstorm Wind	69		0	0	0	0
WASHINGTON CO.	COUNTYWIDE	3/8/2005	1140	Thunderstorm Wind	55		0	0	25000	0
BERTIE CO.	WINDSOR	9/17/2005	2235	Thunderstorm Wind	50		0	0	2000	0
HYDE CO.	OCRACOKE	10/22/2005	500	Thunderstorm Wind	69		0	0	0	0
BERTIE CO., HYDE C	AULANDER, ENGELHARD	1/14/2006	225	Thunderstorm Wind	50		0	0	4000	0
HYDE CO.	OCRACOKE	4/3/2006	2015	Thunderstorm Wind	55		0	0	0	0
MARTIN CO.	JAMESVILLE	4/3/2006	1125	Thunderstorm Wind	60		0	0	10000	0
WASHINGTON CO.	CRESWELL, PLYMOUTH	4/3/2006	1200	Thunderstorm Wind	50		0	0	0	0
WASHINGTON CO.	SCUPPERNONG	5/14/2006	1615	Thunderstorm Wind	52		0	0	0	0
HYDE CO.	SWAN QUARTER	6/12/2006	1700	Thunderstorm Wind	52		0	0	0	0
BERTIE CO., MARTIN	BUENA VISTA, WINDSOR	7/28/2006	1900	Thunderstorm Wind	50		0	0	4000	0
HYDE CO.	OYSTER CREEK LNDG	6/20/2007	1333	Thunderstorm Wind	57		0	0	0	0
HYDE CO.	OCRACOKE IS ARPT	7/13/2007	1615	Thunderstorm Wind	56		0	0	0	0
MARTIN CO.	JAMESVILLE	8/10/2007	1554	Thunderstorm Wind	50		0	0	0	0
MARTIN CO., TYRREI	WILLIAMSTON HRRS ARP	8/21/2007	1933	Thunderstorm Wind	52		0	0	0	0
WASHINGTON CO.	ROPER	2/18/2008	510	Thunderstorm Wind	51		0	0	0	0
BERTIE CO.	KELFORD	3/5/2008	100	Thunderstorm Wind	78		0	0	25000	0
BERTIE CO.	CREMO, TRAP, COLERAIN	5/11/2008	1752	Thunderstorm Wind	50		0	0	6000	0
BERTIE CO.	COLERAIN, CREMO	6/1/2008	1610	Thunderstorm Wind	50		0	0	2000	0
HYDE CO.	FAIRFIELD	6/10/2008	1400	Thunderstorm Wind	50		0	0	0	0
MARTIN CO.	HASSELL	7/8/2008	1513	Thunderstorm Wind	50		0	0	0	0
WASHINGTON CO.	PLYMOUTH MUNI ARPT	7/22/2008	1235	Thunderstorm Wind	50		0	0	0	0
MARTIN CO., WASHI	WILLIAMSTON, ROBERS	1/7/2009	1021	Thunderstorm Wind	50-60		0	0	70000	0
BERTIE CO.	WOODVILLE	4/6/2009	1130	Thunderstorm Wind	52		0	0	25000	0
MARTIN CO.	BEAR GRASS	4/20/2009	1635	Thunderstorm Wind	50		0	0	0	0
HYDE CO.	FAIRFIELD	5/29/2009	1505	Thunderstorm Wind	50		0	0	0	0
MARTIN CO., TYRREI	BEAR GRASS, NEWFOUN	7/17/2009	1516	Thunderstorm Wind	50		0	0	0	0
BERTIE CO.	WINDSOR	9/28/2009	2000	Thunderstorm Wind	50		0	0	2000	0
BERTIE CO.	WOODVILLE, COLERAIN	6/16/2010	1614	Thunderstorm Wind	50		0	0	4000	0
WASHINGTON CO.	MT TABOR, WENONA	6/29/2010	1408	Thunderstorm Wind	50		0	0	0	0
WASHINGTON CO.	PLYMOUTH	7/17/2010	1456	Thunderstorm Wind	50		0	0	0	0
BERTIE CO.	MERRY HILL	8/12/2010	1608	Thunderstorm Wind	50		0	0	2000	0
MARTIN CO., WASHI	OAK CITY, JAMESVILLE, P	4/5/2011	444	Thunderstorm Wind	50		0	0	0	0
HYDE CO., MARTIN	(ROSE BAY, PONZER, OCR	4/16/2011	1800	Thunderstorm Wind	50		0	0	0	0
MARTIN CO., WASHI	WILLIAMSTON HRRS ARP	4/28/2011	1515	Thunderstorm Wind	50		0	0	0	0
BERTIE CO.	CREMO	5/23/2011	1922	Thunderstorm Wind	50		0	0	2000	0
MARTIN CO., TYRREI	WILLIAMSTON HRRS ARP	6/23/2011	1701	Thunderstorm Wind	50		0	0	0	0
BERTIE CO., MARTIN	WINDSOR, CAHABA, OAK	6/27/2011	1515	Thunderstorm Wind	50		0	0	4000	0
BERTIE CO.	BURDEN	7/20/2011	1600	Thunderstorm Wind	50		0	0	2000	0
MARTIN CO.	BEAR GRASS	9/28/2011	1450	Thunderstorm Wind	50		0	0	0	0
TYRRELL CO.	LEGION BEACH, TRAVIS	5/1/2012	1915	Thunderstorm Wind	50		0	0	0	0

Appendix E. Hazard History

CZ_NAME_STR	BEGIN_LOCATION	BEGIN_DATE	BEGIN_TIME	EVENT_TYPE	MAGNITUDE	TOR_F_SC	DEATHS	INJURIES	DAMAGE_PRC	DAMAGE_CRC
REGIONAL EVENT	AULANDER, WILLIAMSTON	7/1/2012	1533	Thunderstorm Wind	50		0	0	1000	0
BERTIE CO., MARTIN	WOODARD, GOLD PT, JAMESVILLE	7/24/2012	1635	Thunderstorm Wind	50		0	0	2000	0
BERTIE CO.	WINDSOR	1/31/2013	230	Thunderstorm Wind	52		0	0	2000	0
MARTIN CO.	ROBERSONVILLE, WILLIAMSTON	1/31/2013	147	Thunderstorm Wind	60		0	0	25000	0
TYRRELL CO., WASHINGTON CO.	WOODLEY, COLUMBIA, CRESWELL	1/31/2013	253	Thunderstorm Wind	50		0	0	0	0
HYDE CO.	PONZER	5/11/2013	1255	Thunderstorm Wind	50		0	0	0	0
BERTIE CO., MARTIN	COLERAIN, ELLIS STORE, JAMESVILLE	6/13/2013	1730	Thunderstorm Wind	50		0	0	2300	0
MARTIN CO.	JAMESVILLE	6/18/2013	2037	Thunderstorm Wind	50		0	0	0	0
MARTIN CO., WASHINGTON CO.	ROBERSONVILLE, BEAR GARDEN	1/11/2014	1525	Thunderstorm Wind	50		0	0	0	0
BERTIE CO.	WINDSOR	4/25/2014	1730	Thunderstorm Wind	50		0	0	3000	0
WASHINGTON CO.	CRESWELL	6/5/2014	1250	Thunderstorm Wind	56		0	0	4000	0
BERTIE CO.	TRAP	6/19/2014	1925	Thunderstorm Wind	50		0	0	2000	0
BERTIE CO.	COLERAIN	7/15/2014	1410	Thunderstorm Wind	50		0	0	5000	0
MARTIN CO.	ROBERSONVILLE	3/11/2015	1630	Thunderstorm Wind	50		0	0	0	0
WASHINGTON CO.	CRESWELL	6/25/2015	1945	Thunderstorm Wind	50		0	0	0	0
HYDE CO.	ENGELHARD	2/16/2016	915	Thunderstorm Wind	50		0	0	0	0
HYDE CO.	JUDGES QUARTER	2/16/2016	940	Thunderstorm Wind	52		0	0	0	0
HYDE CO.	LAKE COMFORT	2/16/2016	943	Thunderstorm Wind	60		0	0	3000	0
HYDE CO.	FAIRFIELD	2/16/2016	946	Thunderstorm Wind	60		0	0	5000	0
MARTIN CO.	WILLIAMSTON	2/24/2016	1418	Thunderstorm Wind	50		0	0	0	0
WASHINGTON CO.	MT TABOR	7/5/2016	1905	Thunderstorm Wind	50		0	0	0	0
MARTIN CO.	ROBERSONVILLE	7/8/2016	1925	Thunderstorm Wind	65		0	0	10000	0
HYDE CO.	PONZER	7/19/2016	746	Thunderstorm Wind	50		0	0	0	0
HYDE CO.	LAKE LNDG	7/27/2016	1754	Thunderstorm Wind	50		0	0	0	0
WASHINGTON CO.	MT TABOR	7/30/2016	1405	Thunderstorm Wind	50		0	0	0	0
WASHINGTON CO.	WENONA	7/30/2016	1426	Thunderstorm Wind	50		0	0	0	0
WASHINGTON CO.	CHERRY	7/30/2016	1500	Thunderstorm Wind	50		0	0	0	0
BERTIE CO.		5/10/1952	1100	Tornado	0 F2		0	6	0	0
BERTIE CO.		11/8/1957	1830	Tornado	0 F3		0	1	250000	0
BERTIE CO.		3/15/1964	851	Tornado	0 F1		0	0	250000	0
MARTIN CO.		8/31/1964	1530	Tornado	0 F1		0	0	30	0
MARTIN CO.		10/4/1964	1430	Tornado	0 F2		0	0	250000	0
BERTIE CO.		10/2/1969	1600	Tornado	0 F1		0	0	250000	0
MARTIN CO.		5/23/1973	1130	Tornado	0 F1		0	0	250000	0
BERTIE CO.		5/29/1973	200	Tornado	0 F0		0	0	25000	0
WASHINGTON CO.		9/14/1973	1500	Tornado	0 F2		0	0	25000	0
MARTIN CO.		11/17/1977	2015	Tornado	0 F0		0	0	2500	0
BERTIE CO.		6/3/1978	1330	Tornado	0 F2		0	0	250000	0
BERTIE CO.		4/3/1979	1430	Tornado	0 F1		0	0	25000	0
MARTIN CO.		9/26/1982	1440	Tornado	0 F1		0	0	25000	0
TYRRELL CO., WASHINGTON CO.		5/16/1983	1627	Tornado	0 F2		0	5	500000	0
BERTIE CO.		8/9/1983	1620	Tornado	0 F1		0	0	250000	0
BERTIE CO.		3/28/1984	1955	Tornado	0 F3		6	19	2500000	0
BERTIE CO.		3/28/1984	2010	Tornado	0 F2		0	2	25000000	0
WASHINGTON CO.		4/15/1984	1635	Tornado	0 F1		0	0	25000	0
BERTIE CO.		8/20/1986	1245	Tornado	0 F0		0	0	0	0
TYRRELL CO., WASHINGTON CO.		11/17/1988	800	Tornado	0 F2		0	1	500000	0
TYRRELL CO.		6/26/1989	1550	Tornado	0 F1		0	0	250000	0
BERTIE CO.		3/29/1991	1710	Tornado	0 F1		0	1	25000	0
TYRRELL CO.		11/4/1992	1400	Tornado	0 F0		0	0	0	0
BERTIE CO., MARTIN		11/23/1992	452	Tornado	0 F3		0	9	500000	0
BERTIE CO.	Windsor	9/1/1993	1800	Tornado	0 F1		0	0	50000	0
BERTIE CO.	Askewville	5/11/1995	1757	Tornado	0 F1		0	0	125000	0
MARTIN CO.	WILLIAMSTON	6/1/1997	1710	Tornado	0 F0		0	0	20000	0
TYRRELL CO.	COLUMBIA	8/26/1998	1635	Tornado	F0		0	0	40000	0
WASHINGTON CO.	WENONA	8/26/1998	1900	Tornado	F0		0	0	65000	0
HYDE CO.	OCRACOE	9/3/1998	2145	Tornado	F1		0	0	200000	0
BERTIE CO., HYDE CO.	WINDSOR, SWAN QUARTER	9/15/1999	1840	Tornado	F0		0	0	2000	0
MARTIN CO.	WILLIAMSTON	2/14/2000	607	Tornado	F0		0	0	0	0
BERTIE CO.	AULANDER	9/24/2001	1700	Tornado	F0		0	0	20000	0
MARTIN CO.	WILLIAMSTON	5/13/2002	2025	Tornado	F0		0	0	30000	0
HYDE CO.	OCRACOE	9/10/2002	1105	Tornado	F0		0	0	1000	0
BERTIE CO.	COLERAIN	5/9/2003	1650	Tornado	F0		0	0	5000	0
WASHINGTON CO.	PLYMOUTH	5/9/2003	1742	Tornado	F1		0	0	250000	1400000
MARTIN CO.	JAMESVILLE	6/4/2004	1435	Tornado	F0		0	0	0	0
TYRRELL CO.	COLUMBIA	6/4/2004	1715	Tornado	F1		0	1	75000	0
TYRRELL CO.	COLUMBIA	6/11/2004	2200	Tornado	F0		0	0	0	0
HYDE CO., TYRRELL CO.	ROSE BAY, COLUMBIA	8/14/2004	1515	Tornado	F0		0	0	15000	0
MARTIN CO.	OAK CITY	9/27/2004	1900	Tornado	F1		0	0	100000	0
MARTIN CO.	ROBERSONVILLE	5/14/2006	1946	Tornado	F0		0	0	0	0
TYRRELL CO.	COLUMBIA	5/14/2006	2025	Tornado	F1		0	0	75000	0

Appendix E. Hazard History

CZ_NAME_STR	BEGIN_LOCATION	BEGIN_DATE	BEGIN_TIME	EVENT_TYPE	MAGNITUDE	TOR_F_SC	DEATHS	INJURIES	DAMAGE_PRC	DAMAGE_CRC
WASHINGTON CO.	ROPER	5/14/2006	1606	Tornado	F0		0	0	10000	0
MARTIN CO.	WILLIAMSTON	2/18/2008	450	Tornado	EF1		0	0	100000	0
BERTIE CO.	CAHABA	4/20/2008	1805	Tornado	EF0		0	0	3000	0
HYDE CO.	PONZER	4/28/2008	1640	Tornado	EF0		0	0	0	0
BERTIE CO.	TRAP	5/9/2008	729	Tornado	EF2		0	0	50000	0
BERTIE CO.	LEWISTON	5/11/2008	1725	Tornado	EF2		0	2	1000000	0
BERTIE CO.	AULANDER	9/26/2008	953	Tornado	EF0		0	0	75000	0
MARTIN CO.	PARMELE	11/15/2008	430	Tornado	EF1		0	0	50000	0
WASHINGTON CO.	PLYMOUTH	9/29/2010	2115	Tornado	EF0		0	0	0	0
BERTIE CO.	ASKEWVILLE	4/16/2011	1755	Tornado	EF3	12	55		2250000	0
BERTIE CO.	COLERAIN	4/16/2011	1805	Tornado	EF2		0	8	250000	0
MARTIN CO.	WILLIAMSTON ARPT	4/16/2011	1809	Tornado	EF0		0	0	10000	0
TYRRELL CO.	JERRY	4/16/2011	2001	Tornado	EF1		0	0	400000	0
MARTIN CO.	WILLIAMSTON	4/26/2011	1315	Tornado	EF0		0	0	500	0
MARTIN CO.	DARDEN	4/28/2011	1530	Tornado	EF0		0	0	0	0
TYRRELL CO.	COLUMBIA	8/26/2011	2255	Tornado	EF2		0	0	150000	0
WASHINGTON CO.	SCUPPERNONG	8/26/2011	2112	Tornado	EF0		0	0	75000	0
TYRRELL CO.	JERRY	9/29/2011	310	Tornado	EF1		0	1	20000	0
WASHINGTON CO.	WENONA	3/21/2012	1000	Tornado	EF0		0	0	0	0
HYDE CO.	GURLOCK	7/10/2012	1640	Tornado	EF0		0	0	0	0
BERTIE CO.	EDENHOUSE	4/25/2014	1820	Tornado	EF2		0	0	5000	0
MARTIN CO.	HAMILTON	7/3/2014	1950	Tornado	EF1		0	0	26000	0
TYRRELL CO.	COLUMBIA	6/4/2015	100	Tornado	EF0		0	0	5000	0
MARTIN CO.	WILLIAMSTON	6/13/2015	1650	Tornado	EF1		0	0	5000	0
BERTIE CO.	COLERAIN	2/24/2016	1454	Tornado	EF0		0	0	25000	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	6/18/1996	1300	Tropical Storm			0	0	0	0
REGIONAL EVENT	BERTIE, HYDE, MARTIN, T	10/7/1996	1800	Tropical Storm			0	0	0	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	9/1/1999	0	Tropical Storm			0	0	0	19000000
TYRRELL CO., WASHI		10/16/1999	2200	Tropical Storm			0	0	0	0
HYDE (ZONE)		9/10/2002	500	Tropical Storm			0	0	55000	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	8/31/2006	1200	Tropical Storm			0	0	55000	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	9/5/2008	1200	Tropical Storm			0	0	30000	0
HYDE (ZONE)		9/2/2010	20000	Tropical Storm			0	0	4200	2000000
REGIONAL EVENT	BERTIE, HYDE, MARTIN, \	8/26/2011	0	Tropical Storm			0	0	8300000	45000000
HYDE (ZONE), TYRRE		10/28/2012	600	Tropical Storm			0	0	0	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	6/6/2013	1800	Tropical Storm			0	0	0	0
BERTIE (ZONE)		7/4/2014	0	Tropical Storm			0	0	0	0
BERTIE (ZONE), HYDI		9/2/2016	1100	Tropical Storm			0	0	0	0
MARTIN (ZONE), HYI		10/8/2016	1000	Tropical Storm			0	0	0	0
TYRRELL CO.	FT LNDG	7/6/1997	1828	Waterspout			0	0	0	0
HYDE CO.	OCRACOE VILLAGE	7/23/1997	838	Waterspout			0	0	0	0
BERTIE CO.	EDENHOUSE	7/30/1997	1200	Waterspout			0	0	0	0
HYDE CO.	OCRACOE	7/1/1998	2037	Waterspout			0	0	20000	0
HYDE CO.	SWAN QUARTER	7/26/1998	1030	Waterspout			0	0	0	0
WASHINGTON CO.	ALBEMARLE BEACH	5/24/1999	1545	Waterspout			0	0	0	0
TYRRELL CO.	COLUMBIA	5/27/2000	2240	Waterspout			0	0	15000	0
REGIONAL EVENT	BERTIE, MARTIN, TYRREL	1/6/1996	1300	Winter Storm			0	0	0	0
REGIONAL EVENT	BERTIE, MARTIN, TYRREL	2/2/1996	200	Winter Storm			1	12	55000	0
BERTIE (ZONE), HYDI		2/3/1996	1700	Winter Storm			0	0	0	0
BERTIE (ZONE)		2/16/1996	300	Winter Storm			0	0	0	0
HYDE (ZONE), TYRRE		2/10/1997	1200	Winter Storm			0	0	0	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	1/19/1998	1100	Winter Storm			0	4	0	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	1/27/1998	500	Winter Storm			0	0	0	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	2/3/1998	1200	Winter Storm			0	0	0	0
REGIONAL EVENT	HYDE, MARTIN, TYRRELL,	2/17/1998	400	Winter Storm			0	0	0	0
BERTIE (ZONE)		1/24/2000	2300	Winter Storm			0	0	0	0
BERTIE (ZONE)		12/3/2000	1000	Winter Storm			0	0	25000	0

Appendix E. Disaster Declarations for North Carolina

Number	Date	State/Tribal Government	Incident Description	Declaration Type
28	10/17/1954	North Carolina	HURRICANE	Major Disaster Declaration
37	8/13/1955	North Carolina	HURRICANES	Major Disaster Declaration
56	4/24/1956	North Carolina	Severe Storm	Major Disaster Declaration
87	10/1/1958	North Carolina	HURRICANE, SEVERE STORM	Major Disaster Declaration
107	9/16/1960	North Carolina	HURRICANE DONNA	Major Disaster Declaration
130	3/16/1962	North Carolina	Severe Storm, High Tides, Flooding	Major Disaster Declaration
179	10/13/1964	North Carolina	SEVERE STORMS & FLOODING	Major Disaster Declaration
234	2/10/1968	North Carolina	Severe Ice Storm	Major Disaster Declaration
394	6/25/1973	North Carolina	SEVERE STORMS, FLOODING	Major Disaster Declaration
428	4/12/1974	North Carolina	TORNADOES	Major Disaster Declaration
3033	3/2/1977	North Carolina	Drought and Freezing	Emergency Declaration
3049	8/11/1977	North Carolina	Drought	Emergency Declaration
542	11/9/1977	North Carolina	SEVERE STORMS, FLOODING	Major Disaster Declaration
605	9/29/1979	North Carolina	SEVERE STORMS, FLOODING	Major Disaster Declaration
699	3/30/1984	North Carolina	SEVERE STORMS, TORNADOES	Major Disaster Declaration
724	9/21/1984	North Carolina	HURRICANE DIANA	Major Disaster Declaration
2059	5/10/1986	North Carolina	Topsail Fire	Fire Management Assistance Declaration
818	12/2/1988	North Carolina	SEVERE STORMS, TORNADOES	Major Disaster Declaration
827	5/17/1989	North Carolina	TORNADOES	Major Disaster Declaration
844	9/25/1989	North Carolina	HURRICANE HUGO	Major Disaster Declaration
3110	3/17/1993	North Carolina	Severe Snowfall and Winter Storm	Emergency Declaration
1003	9/10/1993	North Carolina	Hurricane Emily	Major Disaster Declaration
1073	10/23/1995	North Carolina	Severe Storm, High Winds, Flooding	Major Disaster Declaration
1087	1/13/1996	North Carolina	Blizzard	Major Disaster Declaration
1103	2/23/1996	North Carolina	Storms/Flooding	Major Disaster Declaration
1127	7/18/1996	North Carolina	Hurricane Bertha	Major Disaster Declaration
1134	9/6/1996	North Carolina	Hurricane Fran	Major Disaster Declaration
1200	1/15/1998	North Carolina	Flooding	Major Disaster Declaration
1211	3/22/1998	North Carolina	Severe Storms, Tornadoes and Flooding	Major Disaster Declaration
1240	8/27/1998	North Carolina	Hurricane Bonnie	Major Disaster Declaration
3141	9/1/1999	North Carolina	Hurricane Dennis	Emergency Declaration
1291	9/9/1999	North Carolina	Hurricane Dennis	Major Disaster Declaration
3146	9/15/1999	North Carolina	Hurricane Floyd	Emergency Declaration
1292	9/16/1999	North Carolina	Hurricane Floyd & Irene	Major Disaster Declaration
1312	1/31/2000	North Carolina	Winter Storm	Major Disaster Declaration
1448	12/12/2002	North Carolina	Severe Ice Storm	Major Disaster Declaration
1457	3/27/2003	North Carolina	Ice Storm	Major Disaster Declaration
1490	9/18/2003	North Carolina	Hurricane Isabel	Major Disaster Declaration
1546	9/10/2004	North Carolina	Tropical Storm Frances	Major Disaster Declaration
1553	9/18/2004	North Carolina	Hurricane Ivan	Major Disaster Declaration
3222	9/5/2005	North Carolina	Hurricane Katrina Evacuation	Emergency Declaration
3254	9/14/2005	North Carolina	Hurricane Ophelia	Emergency Declaration
1608	10/7/2005	North Carolina	Hurricane Ophelia	Major Disaster Declaration
2773	6/13/2008	North Carolina	Evans Road Fire	Fire Management Assistance Declaration
1801	10/8/2008	North Carolina	Tropical Storm Hanna	Major Disaster Declaration
1871	2/2/2010	North Carolina	Severe Winter Storms and Flooding	Major Disaster Declaration
3314	9/1/2010	North Carolina	Hurricane Earl Severe Storms, Flooding, and Straight-line Winds associated with the remnants of Tropical Storm	Emergency Declaration
1942	10/14/2010	North Carolina	Nicole	Major Disaster Declaration
1969	4/19/2011	North Carolina	Severe Storms, Tornadoes, and Flooding	Major Disaster Declaration
2936	7/4/2011	North Carolina	Simmons Road Fire	Fire Management Assistance Declaration
3327	8/25/2011	North Carolina	Hurricane Irene	Emergency Declaration
4019	8/31/2011	North Carolina	Hurricane Irene	Major Disaster Declaration

Appendix E. Disaster Declarations for North Carolina

4146	9/25/2013 North Carolina	Severe Storms, Flooding, Landslides, and Mudslides	Major Disaster Declaration
4153	10/29/2013 North Carolina	Severe Storms, Flooding, Landslides, and Mudslides	Major Disaster Declaration
4167	3/31/2014 North Carolina	Severe Winter Storm	Major Disaster Declaration
3380	10/7/2016 North Carolina	Hurricane Matthew	Emergency Declaration
4285	10/10/2016 North Carolina	Hurricane Matthew	Major Disaster Declaration
5161	11/11/2016 North Carolina	Party Rock Fire	Fire Management Assistance Declaration
5164	11/19/2016 North Carolina	Chestnut Knob Fire	Fire Management Assistance Declaration

Appendix F

Funding Sources

INTRODUCTION

The purpose of the EMPG is to assist state and local governments in enhancing and sustaining all-hazards emergency management capabilities. North Carolina uses EMPG to enhance its ability and to help counties support emergency management activities while simultaneously addressing issues of national concern as identified in the National Priorities of the National Preparedness Guidelines. EMPG Program funding is dependent upon the federal availability of funds and the total funding varies from year to year. EMPG has a 50 percent federal and 50 percent state cost-share cash or in-kind match requirement. The in-kind match is also a requirement of the states EMPG sub-grants to its counties and the Eastern Band of Cherokee Indians.

North Carolina's EMPG program provides its counties and the Eastern Band of Cherokee Indians an opportunity to apply for baseline and supplemental funding. In an effort to align efforts between the State and local emergency management, specific programmatic deliverables are identified and agreed to by both parties. To be eligible for baseline funding, applicants must agree to complete certain universal programmatic deliverables during a specified period of performance. To be eligible for EMPG supplemental funding, applicants must have applied for baseline funding and agreed to complete at least one optional program activity during the specified period of performance.

Contact: NC Department of Public Safety, Strategic Planning Branch Manager, 919/825-2290
<https://www.nccrimecontrol.org/Index2.cfm?a=000003,000010,001756>

HAZARD MITIGATION GRANT PROGRAM (HMGP)

The Federal Disaster Assistance Act (Stafford Act) provides funds authorized by the federal government and made available by FEMA for a cost-share program to states. The HMGP provides 75% of the funds while the states provide 25% of the funds for mitigation measures through the post-disaster planning process. The Division of Emergency Management administers the program in this state. The state share may be met with cash or in-kind services. The program is available only for areas affected by a Presidentially-declared disaster.

Contact: NC Department of Public Safety, Division of Emergency Management, 919-825-2500
<https://www.nccrimecontrol.org/Index2.cfm?a=000003,000010,001623,000177,002108,002113>

FLOOD MITIGATION ASSISTANCE PROGRAM (FMAP)

The Flood Mitigation Assistance (FMA) program uses cost-effective measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insured under the National Flood Insurance Program. Eligible activities include acquisition, structure demolition, or structure relocation with the property deed restricted for open space uses in perpetuity. Elevating structures, dry flood-proofing of non-residential structures, and minor structural flood control activities are also eligible. Properties must be insured at the time of application. The FMAP is available to eligible communities every year, not just after a Presidentially-declared disaster. Funds for the FMAP are provided by FEMA and the Division of Emergency Management administers the program in North Carolina.

Contact: NC Department of Public Safety, Division of Emergency Management, 919-825-2500
<http://www.fema.gov/flood-mitigation-assistance-grant-program>

PRE-DISASTER MITIGATION (PDM)

The Pre-Disaster Mitigation (PDM) provides funds for hazard mitigation planning and implementing mitigation projects prior to a disaster. Such projects reduce overall risks for people and property and reduce reliance on disaster recovery funds. Eligible activities include: acquiring property (i.e. structures and land, where necessary) for open space conversion; relocating public or private structures; elevating existing public or private structures to avoid flooding; retrofitting structures (e.g., storm shutters, hurricane clips, bracing systems) to meet/exceed applicable building codes; constructing safe rooms (tornado and severe wind shelters) that meet FEMA requirements; conducting hydrologic and hydraulic studies/analyses, engineering studies and drainage studies related to a mitigation project; and managing vegetation management to restore dunes, wildfire, or snow avalanche.

Contact: NC Department of Public Safety, Division of Emergency Management, 919-825-2500
<http://www.fema.gov/pre-disaster-mitigation-grant-program>

HAZARDOUS MATERIALS EMERGENCY PREPAREDNESS (HMEP)

This program provides financial and technical assistance to enhance State, Territorial, Tribal, and local hazardous materials emergency planning and training. The HMEP Grant Program distributes funds to emergency responders for hazmat training and to Local Emergency Planning Committees (LEPC's) for hazmat planning.

Contact: US Department of Transportation, Pipeline and Hazardous Materials Safety Administration, 202/366-1109, hmepeg.grants@dot.gov, <http://phmsa.dot.gov/hazmat>

HOMELAND SECURITY GRANT PROGRAM (HSGP)

The Homeland Security Grant Program (HSGP) is a primary funding mechanism for building and sustaining national preparedness capabilities. The HSGP is comprised of distinct funding streams.

State Homeland Security Program (SHSP) supports building and sustaining capabilities at the state and local levels through planning, equipment, training, and exercise activities and helps states to implement the strategic goals and objectives included in state homeland security strategies. SHSP provides funding to all 56 states and territories based on a combination of formula, risk, and effectiveness.

Urban Area Security Initiative (UASI) funds address the unique multi-disciplinary planning, operations, equipment, training, and exercise needs of high-threat, high-density urban areas. This program provides funding to high-risk urban areas based on risk and effectiveness.

Contact: NC Department of Public Safety, Division of Emergency Management, 919-825-2500
<https://www.nccrimecontrol.org/Index2.cfm?a=000003,000010,000021,000362>

COMMERCIAL EQUIPMENT DIRECT ASSISTANCE PROGRAM (CEDAP)

CEDAP complements the FEMA National Preparedness Directorate's other major grant programs to enhance regional response capabilities, mutual aid, and interoperable communications by providing technology and equipment, together with training and technical assistance required to operate that equipment, to public safety agencies in smaller jurisdictions and certain metropolitan areas. Eligible applicants include law enforcement agencies, fire, and other emergency responders who demonstrate that the equipment will be used to improve their ability and capacity to respond to a major critical incident or work with other first responders. Awardees must not have received equipment/funding under the Urban Areas Security Initiative or the Assistance to Firefighters Grants program. Organizations must submit applications through the Responder Knowledge Base website.

Contact: NC Department of Public Safety, Division of Emergency Management, 919-825-2500
<https://www.nccrimecontrol.org/Index2.cfm?a=000003,000010,000021,000362>

ASSISTANCE TO FIREFIGHTERS GRANT PROGRAM

Through the Federal Emergency Management Agency, this program provides four grant categories to assist state, local, and tribal Fire Departments with funding necessary for training, equipment purchase, vehicle acquisition, public awareness, code enforcement, arson prevention, and the like.

Contact: FEMA, 866/274-0960, <http://www.usfa.fema.gov/grants>

UASI NON-PROFIT SECURITY GRANT PROGRAM (NSGP)

The Department of Homeland Security's (DHS) Urban Areas Security Initiative (UASI) Nonprofit Security Grant Program (NSGP) is an important component of the Administration's larger, coordinated effort to strengthen the Nation's overall level of preparedness. NSGP provides funding to strengthen the security of nonprofit organizations that are deemed at high risk of a potential terrorist attack and are located within one of the specific UASI-eligible urban areas.

Contact: NC Department of Public Safety, Division of Emergency Management, 919-825-2500
<https://www.nccrimecontrol.org/Index2.cfm?a=000003,000010,000021,000362>

PORT SECURITY GRANT PROGRAM (PSGP)

The PSGP provides grant funding to port areas for the protection of critical port infrastructure from terrorism. PSGP funds help ports enhance their risk management capabilities, domain awareness, training and exercises, and capabilities to prevent, detect, respond to, and recover from attacks involving improvised explosive devices and other non-conventional weapons.

Contact: NC Department of Public Safety, Division of Emergency Management, 919-825-2500
<https://www.nccrimecontrol.org/Index2.cfm?a=000003,000010,000021,000362>

TRANSIT SECURITY GRANT PROGRAM (TSGP)

The TSGP provides grants to the Nation's key high-threat Urban Areas to enhance security measures for their critical transit infrastructure including bus, rail, and ferry systems. The TSGP also provides funding to Amtrak for continued security enhancements for its intercity rail operations between key, high-risk Urban Areas throughout the United States.

Contact: NC Department of Public Safety, Division of Emergency Management, 919-825-2500
<https://www.nccrimecontrol.org/Index2.cfm?a=000003,000010,000021,000362>

COMPETITIVE TRAINING GRANT PROGRAM (CTGP)

The Department of Homeland Security (DHS), Federal Emergency Management Agency's (FEMA) Competitive Training Grant Program (CTGP) is an important component of the Administration's larger, coordinated effort to strengthen homeland security preparedness. The CTGP awards funds to competitively selected applicants to develop and deliver innovative training programs addressing high priority national homeland security training needs. The CTGP demonstrates FEMA's commitment to work closely with the Nation's homeland security stakeholders in a unified national effort to continuously expand training opportunities that address the evolving national risk environment.

Contact: NC Department of Public Safety, Division of Emergency Management, 919-825-2500
<https://www.nccrimecontrol.org/Index2.cfm?a=000003,000010,000021,000362>

COMMUNITY DEVELOPMENT BLOCK GRANT (CDBG) DISASTER RECOVERY INITIATIVE

The CDBG program provides grants to communities for post-disaster hazard mitigation and recovery following a presidential declaration of a Major Disaster of Emergency. Funds can be used for activities such as acquisition, rehabilitation, or reconstruction of damaged properties and facilities and redevelopment of disaster-affected areas. Funds may also be used for emergency response activities, such as debris clearance and demolition and extraordinary increases in the level of necessary public services. HUD provides funds for the CDBG program, and with the help of the Division of Community Assistance administers the program in North Carolina.

Contact: US HUD
<http://portal.hud.gov/hudportal/HUD?src=/hudprograms/disaster-recovery>

CLEAN WATER MANAGEMENT TRUST FUND

An agency of the North Carolina Department of Environment and Natural Resources (NCDENR), the Clean Water Management Trust Fund (CWMTF) provides grants for enhancement and restoration of degraded waters. In addition, funding is provided for development of buffers and greenways near rivers for environmental, educational, and recreational needs.

Contact: CWMTF, 252/830-3222, <http://www.cwmtf.net>

COMMUNITY FACILITIES DIRECT LOAN & GRANT PROGRAM

The US Department of Agriculture (USDA), Rural Housing Service (RHS) provide affordable funding to develop essential community facilities in rural areas. An essential community facility is defined as a facility that provides an essential service to the local community for the orderly development of the community in a primarily rural area, and does not include private, commercial or business undertakings.

Contact: USDA, Greenville Sub Area Office, 252-752-2035, stephanie.davis@nc.usda.gov (serving Pitt, Martin, Bertie, Washington, Tyrrell, Dare, Beaufort, Hyde counties)
<http://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program>

FLOOD INSURANCE

The Federal Emergency Management Agency, Federal Insurance Administration provides the opportunity to purchase flood insurance under the Emergency Program of the National Flood Insurance Program (NFIP).

Contact: NFIP, 888/CALL-FLOOD, ext. 445, <http://www.fema.gov/nfip>

NORTH CAROLINA WETLANDS RESTORATION PROGRAM

This program, through the North Carolina Department of Environmental Quality (NCDEQ), Division of Water Quality, provides in-kind services for the restoration of wetlands and for increased effectiveness of wetland mitigation efforts.

Contact: NCDEQ, 919-707-8976, <http://deq.nc.gov/about/divisions/mitigation-services>

PARKS AND RECREATION TRUST FUND (PARTF)

Through the NCDEQ Division of Parks & Recreation, this program provides dollar-for-dollar matching grants to local governments for parks and recreational projects to serve the public. PARTF is the primary source of funding to build and renovate facilities in the state parks as well as to buy land for new and existing parks.

Contact: NCDEQ Division of Parks & Recreation, 919/707-9300, parkinfo@ncmail.net
<http://www.ncparks.gov/more-about-us/parks-recreation-trust-fund>

RECREATIONAL TRAILS PROGRAM (RTP)

Through the Federal Highway Administration and the NC Division of Parks and Recreation - State Trails Program, this program provides grant funding for trails and trail-related recreational needs at the State level. RTP requires a 25 percent match and is a reimbursement grant program.

Contact: NCDEQ Division of Parks and Recreation, 919/707-9326, robert.taber@ncparks.gov
<http://www.ncparks.gov/more-about-us/grants/trail-grants>

LAND AND WATER CONSERVATION FUND (LWCF)

The Land and Water Conservation Fund (LWCF) has historically been a primary funding source of the U.S. Department of the Interior for outdoor recreation development and land acquisition by local governments and state agencies. In North Carolina, the program is administered by the Department of Environmental Quality. To be eligible for LWCF assistance, every state must prepare and regularly update a statewide comprehensive outdoor recreation plan (SCORP). The SCORP includes inventories or assessments of current recreation resources (local, state and federal) within a state, identifies needs and new opportunities for outdoor recreation improvements and sets forth a five-year action agenda to meet the goals identified by its citizens and elected leaders. Historically, North Carolina's LWCF annual allocation has been split 60/40 between local governments and state agencies.

Contact: Recreation Resources Service, 919/515-7118
<http://www.ncparks.gov/more-about-us/grants/lwcf-grants>

PHYSICAL DISASTER LOANS

The Small Business Administration (SBA) offers low-interest disaster loans to businesses of all sizes, private non-profit organizations, homeowners, and renters. SBA disaster loans can be used to repair or replace the following items damaged or destroyed in a declared disaster: real estate, personal property, machinery and equipment, and inventory and business assets.

Contact: SBA, 800/827-5722
<https://www.sba.gov/category/navigation-structure/loans-grants/small-business-loans/disaster-loans>

PROPERTY IMPROVEMENT LOAN INSURANCE

The US Department of Housing and Urban Development (HUD) insures lenders against loss on loans for alterations, repairs and improvements to existing structures and new construction of nonresidential structures.

Contact: HUD, 202/708-1112, <http://www.hud.gov/>

PUBLIC ASSISTANCE PROGRAM (PA)

The Public Assistance provides federal aid to communities to help save lives and property in the immediate aftermath of a disaster and to help rebuild damaged facilities. Grants cover eligible costs associated with the repair, replacement, and restoration of facilities owned by state and local governments and nonprofit organizations. The Public Assistance program is administered by FEMA.

Contact: FEMA, <http://www.fema.gov/public-assistance-local-state-tribal-and-non-profit>

RESOURCE CONSERVATION AND DEVELOPMENT

The US Department of Agriculture, Natural Resources Conservation Service (NRCS) provides technical and limited financial assistance to communities for resource conservation projects including land conservation, water management, and environmental enhancement.

Contact: NRCS, <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/>

SNAGGING AND CLEARING FOR FLOOD CONTROL

The Office of the Chief of Engineers, Department of the Army, Department of Defense provides this service in order to reduce flood control.

Contact: <http://www.usace.army.mil>

SOILS AND WATER CONSERVATION

The US Department of Agriculture, Natural Resources Conservation Service provides this in-kind service in order to provide for the conservation, development and productive use of the nation's soil, water, and related resources.

Contact: USDA, NRCS, <http://www.nrcs.usda.gov>

URBAN PARK AND RECREATION RECOVERY PROGRAM

This program of the Department of the Interior, National Park Service (NPS) provides grants for local governments for improvements in park system management and recreational opportunities.

Contact: NPS, 404/562-3175, <http://www.nps.gov/uprr/>

WATERSHED PROTECTION AND FLOOD PREVENTION LOANS

This US Department of Agriculture, Rural Utilities Services (RUS) program provides loans to local organizations for the local share of costs for watershed improvement. Funding includes support for drainage, flood prevention and sedimentation control.

Contact: RUS, <http://www.rurdev.usda.gov/Home.html>

WATERSHED SURVEYS AND PLANNING

The US Department of Agriculture, Natural Resources Conservation Service provides technical and financial assistance for sharing costs of watershed protection measures, including flood prevention, sedimentation control and recreation.

Contact: NRCS, <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/wsp/>

REGIONAL MITIGATION STRATEGIES PROGRESS REPORT

The following provides a summary of progress achieved with regard to the regional strategies adopted through the 2012 MTW Regional Hazard Mitigation Plan.

Strategy R1: Martin, Tyrrell, and Washington Counties will continue to participate along with Hyde and Bertie Counties in the existing Local Emergency Planning Committee. In order to further this relationship, the MTW MAC would like to work towards the inclusion of Hyde and Bertie Counties in the next Regional Hazard Mitigation Plan Update. This effort will also involve outreach efforts geared towards expanding each County's First Call database.

Progress: This strategy has been accomplished. Both Hyde and Bertie Counties are incorporated into this plan update.

Status/Corresponding 2016 Strategy: Completed

Strategy R2: Martin, Tyrrell, and Washington Counties will maintain the existing regional First Call system. This system provides residents with emergency notifications. The Regional MAC will review the system and associated cost annually to ensure the most efficient and effective system is in place.

Progress: The Region will continue to work towards a regional approach to emergency notification. The Hyper-Reach System is currently in place and will continue to be utilized.

Status/Corresponding 2016 Strategy: R1

Strategy R3: The MTW Regional MAC will work together to further the region's outreach efforts with regards to a Special Needs Registry. Establishing a comprehensive registry relies heavily on outreach and coordination among local government entities.

Progress: The Region has collaborated to increase awareness of each County's Special Needs Registry. These efforts will continue into through implementation of the plan update.

Status/Corresponding 2016 Strategy: R2

Strategy R4: The MTW Regional MAC in conjunction with the LEPC will hold an annual elected officials workshop. This workshop will focus on providing these officials with an overview of mitigation and emergency management concerns and issues.

Progress: The Region has and will continue to hold annual workshops to prepare for the effects of hurricane season. These workshops will continue to address issues relating to continuity of operations.

Status/Corresponding 2016 Strategy: R3

Strategy R5: Once annually, the Regional MAC representative for each participating County will provide a status update to their respective Board of Commissioners regarding plan implementation. This discussion may also involve any financial considerations relating to mitigation activities.

Progress: Each participating jurisdiction annually reports to their respective Board regarding Hazard Mitigation issues and what efforts have been carried out over the previous calendar year.

Status/Corresponding 2016 Strategy: R4

Strategy R6: The Regional MAC will work closely together to discuss and identify solutions to long standing drainage issues throughout the Region. This is a long standing issue and will require coordination with state agencies including NCDOT and NCDENR.

Progress: The Region works through the DOT Regional Planning Organization to address ongoing surface drainage issues associated with right-of-way infrastructure.

Status/Corresponding 2016 Strategy: R5

Strategy R7: The Regional MAC will review County sheltering plans and facilities to assess where gaps and/or provision of inadequate facilities exist. Through this effort, deficiencies will be identified and addressed. This effort will require close intergovernmental coordination, as well as the participation of the American Red Cross.

Progress: The Region continues to work closely with the American Red Cross and the each respective County's Social Services Department to ensure that adequate sheltering facilities are available in the event of a disaster situation.

Status/Corresponding 2016 Strategy: R6

Strategy R8: The Regional MAC will work to identify grant funding that may be utilized to acquire narrow band pagers for all emergency management personnel. This will result in more efficient coordination throughout the region during emergency events.

Progress: This strategy was not accomplished over the last five years. The Counties will continue to work towards implementing this strategy over the next five years.

Status/Corresponding 2016 Strategy: R7

Strategy R9: The Regional MAC will work to improve upon Community Emergency Response Team (CERT) participation throughout the region. This effort will require cooperation between all three County Emergency Management Departments.

Progress: The Regional MAC continues to recruit and attempt to expand the presence of Community Emergency Response Teams. The Counties feel that recent events will promote the interest in citizen involvement regarding natural disasters.

Status/Corresponding 2016 Strategy: R8

Strategy R10: The Regional MAC will continue to coordinate closely with State Regional Planning entities including both Eastern Regional Advisory Committee (ERAC) and the Domestic Preparedness and Readiness Regions (DPR).

Progress: The Regional MAC and LEPC continue to coordinate and deal with all regional emergency response entities including both the Eastern Regional Advisory Committee and the Domestic Preparedness and Readiness Regions.

Status/Corresponding 2016 Strategy: R9

BERTIE COUNTY MITIGATION PROGRESS REPORT

The following provides a summary of progress achieved with regard to the strategies adopted through the 2011 Bertie County Multi-Jurisdictional Hazard Mitigation Plan.

Bertie County and the Towns of Askewville, Aulander, Colerain, Kelford, Lewiston-Woodville, Powellsville, and Roxobel

Strategy P-1: Revise/update regulatory maps.

Progress: Bertie County has not been required to update the County's Flood Insurance Rate Maps over the last five years. The County will be remapped during the implementation period for this plan.

Status/Corresponding 2016 Strategy: B1

Strategy P-2: 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.

Progress: Bertie County has taken steps to upgrade the County's system including establishment of a County wide geodatabase that includes shapefiles, centerlines, waterbodies and other comprehensive data sets.

Status/Corresponding 2016 Strategy: B2

Strategy P-3: Consider participating in the Community Rating System (CRS) to reduce flood insurance premiums for citizens.

Progress: Bertie County has not applied for participation in the CRS program to date. The County will consider submitting an application through implementation of this updated plan.

Status/Corresponding 2016 Strategy: B3

Strategy P-4: At the next CAMA Land Use Plan Update: (1) Establish more specific growth guidelines and policies and specifically delineate sensitive environmental areas for protection; (2) Adopt a more limited policy on the types of uses allowed within flood hazard areas; and (3) Adopt a policy to not extend public services and utilities into flood hazard or other environmentally sensitive areas to discourage growth.

Progress: Bertie County did not update the County's CAMA Land Use Plan during this planning period. The North Carolina Division of Coastal Management has revised the local planning guidance which will require that the County update this document during implementation of this plan.

Status/Corresponding 2016 Strategy: B4

Strategy P-5: Consider adopting a zoning ordinance that: (1) Establishes zoning districts and sets standards for future development; (2) Includes standards for clustering of residential lot development to help preserve flood hazard areas from development; and (3) Includes a flood hazard overlay zone to ensure that inappropriate development is adequately controlled.

Progress: Bertie County has determined that County-wide zoning regulations are not necessary at this time. The County will continue to monitor development pressures and land use conflicts through this plan update. If, and when the County feels that zoning is necessary, the Board of Commissioners will move forward with this process.

Status/Corresponding 2016 Strategy: B5

Strategy P-6: Consider adopting subdivision regulations that include minimum standards for property divisions.

Progress: Bertie County has determined that County-wide subdivision regulations are not necessary at this time. The County will continue to monitor development pressures and land use conflicts through this plan update. If, and when the County feels that subdivision regulations are necessary, the Board of Commissioners will move forward with this process.

Status/Corresponding 2016 Strategy: B6

Strategy P-7: Review and update the flood damage prevention ordinance to: (1) Ensure maximum protection from flood hazard events, (2) 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; (3) Consider prohibiting any fill within the 100-year floodplain to discourage development; (4) Prohibit enclosures to the lower areas of elevated buildings, including breakaway walls; and (5) 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.

Progress: Bertie County has not been required to update the County's Flood Damage Prevention Ordinance over the last five years. The County will be remapped during the implementation period for this plan and that effort will necessitate ordinance revisions.

Status/Corresponding 2016 Strategy: B7

Strategy P-8: Inventory existing lots and structures within flood hazard areas to establish baseline data regarding current state of development within flood hazard areas.

Progress: This effort has been undertaken as a component of this plan update. The information is presented within this Regional Plan Update and will be maintained and updated during implementation of this plan.

Status/Corresponding 2016 Strategy: B8

Strategy PP-1: Prioritize repetitive flood loss properties for acquisition and relocation. Seek Federal and State funding (voluntary program (CRS 420/520)).

Progress: Bertie County continues to proactively seek out eligible structures for elevation/acquisition. No formal mitigation projects have been carried out over the last five years.

Status/Corresponding 2016 Strategy: B9

Strategy PP-2: Establish a coordinating committee to ensure that all parties responsible for stormwater management within the County communicate to ensure maximum cooperation in developing and maintaining stormwater drainage systems.

Progress: This committee has not been assimilated, but the County continues to struggle with localized storm drainage issues. These efforts will continue through implementation of this plan update.

Status/Corresponding 2016 Strategy: B10

Strategy PP-3: Establish and maintain a coordinated debris inspection and removal program.

Progress: Bertie County in cooperation with all participating municipal jurisdictions continues to maintain a post disaster debris management contractor. These efforts will continue through this update.

Status/Corresponding 2016 Strategy: B11

Strategy ES-1: Review rebuilding activities in wake of recent hurricanes and flooding and establish policies/procedures for minimizing repetitive flood losses.

Progress: Bertie County continues to monitor post disaster conditions in an effort to strengthen the County's mitigation, response and recovery efforts. This will continue through implementation of this plan update.

Status/Corresponding 2016 Strategy: B12

Strategy ES-2: Ensure adequate evacuation time in case of a major hazard event.

Progress: Bertie County Emergency Management has worked closely with the Region, as well as NCDPS, regarding the issue of evacuation and emergency preparedness. These efforts will continue through this update.

Status/Corresponding 2016 Strategy: B13

Strategy ES-3: Evaluate areas with limited evacuation capacity and pursue methods for improving capacity.

Progress: Bertie County Emergency Management has worked closely with the Region, as well as NCDPS, regarding the issue of evacuation and emergency preparedness. These efforts will continue through this update.

Status/Corresponding 2016 Strategy: B14

Strategy PI-1: Establish and maintain information on retrofitting techniques at the public library. Publicize through citizen news bulletins.

Progress: The Bertie County Building Inspections Department has maintained materials regarding flood protection techniques over the last five years. Departmental staff has provided guidance to local contractors and homeowners; however, materials were not available at the local library branch. The County will work to make this available through implementation of this update.

Status/Corresponding 2016 Strategy: B15

Strategy PI-2: Advise/assist property owners in retrofitting homes and businesses.

Progress: The Bertie County Building Inspections Department has maintained materials regarding flood protection techniques over the last five years. Departmental staff has provided guidance to local contractors and homeowners; however, materials were not available at the local library branch. The County will work to make this available through implementation of this update.

Status/Corresponding 2016 Strategy: B16

Town of Windsor

Strategy P-1: Continue to support Bertie County in instituting the NC State Building Code.

Progress: The Town of Windsor Continues to rely on the Bertie County Building Inspections Department for enforcement of the NC State Building Code. This practice will continue through this update.

Status/Corresponding 2016 Strategy: B14

Strategy P-2: Work with Bertie County to provide new home and property buyers with information on wind proofing, including from impacts of trees near the property.

Progress: The Town provides this service through the Bertie County Building Inspections Department and will continue to do so.

Status/Corresponding 2016 Strategy: B13

Strategy P-3: Continue to participate in coordination with the Bertie County Emergency Management Office to create and disperse information about the plan and evacuation routes.

Progress: The Town provides this service through the Bertie County Building Inspections Department and will continue to do so.

Status/Corresponding 2016 Strategy: B15

Strategy P-4: Work with Bertie County to develop a Geographical Information System (GIS). Use the 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.

Progress: The Town of Windsor works closely with the Bertie County Tax Department to ensure that all FIRM and parcel tax data are maintained in an accurate manner. These efforts will continue through this planning period.

Status/Corresponding 2016 Strategy: B1

Strategy P-5: Consider instituting a preferential tax that encourages development outside of the floodplain, but discourages development within it.

Progress: This strategy was determined to be unfeasible and will be eliminated through adoption of the updated plan.

Status/Corresponding 2016 Strategy: Eliminated

Strategy P-6: Study revising the current zoning ordinance to include flood proofing the central business district.

Progress: This strategy has been carried out and is currently reflected within the Town's existing zoning code.

Status/Corresponding 2016 Strategy: Completed

Strategy P-7: Consider participating in the Community Rating System.

Progress: The Town of Windsor has not formally applied for participation in the Community Rating System, but will consider doing so through implementation of this plan.

Status/Corresponding 2016 Strategy: B3

Strategy P-8: Consider amending the Zoning and Subdivision Ordinances to incorporate shoreline vegetation protection buffers in the Cashie River Floodplain, as well as designation of 404 Wetlands.

Progress: This strategy was determined to be unfeasible and will be eliminated through adoption of the updated plan.

Status/Corresponding 2016 Strategy: Eliminated

Strategy P-9: Support Bertie County in evaluating the possibility of a hazard warning system to alert citizens of the possibility of a natural hazard event.

Progress: The Town of Windsor will continue to work with Bertie County, as well as the region overall, to address the issue of emergency notification.

Status/Corresponding 2016 Strategy: B15

Strategy PP-1: Continue to monitor trees and branches in public area at risk of breaking or falling in windstorms, or any other natural hazardous event.

Progress: The Town of Windsor Public Works Department will continue to monitor and address the issue of vegetative encroachment on utility lines.

Status/Corresponding 2016 Strategy: B16

Strategy PI-1: Work with Bertie County to advise and educate local contractors regarding the development of safe housing through written materials or a community workshop.

Progress: The Town of Windsor continues to rely on the Bertie County Building Inspections Department for enforcement of the NC State Building Code. This practice will continue through this update.

Status/Corresponding 2016 Strategy: B13

Strategy PI-2: Consider holding a city-sponsored hazard mitigation seminar for the community residents, including information on preparedness for all hazards significant to Windsor.

Progress: The Town of Windsor continues to rely on the Bertie County Emergency Management to carry out this function. This practice will continue through this update.

Status/Corresponding 2016 Strategy: B10

Strategy NR-1: Study the impacts of developing a comprehensive drainage plan to maximize drainage history.

Progress: The Town of Windsor did not accomplish this task; however, the Town will aim to carry out extensive planning and design effort following the impacts of Hurricane Matthew throughout the Region.

Status/Corresponding 2016 Strategy: B10

Strategy NR-2: Support the US Army Corp of Engineers in analyzing the presence of hydric soils that may indicate the location of wetlands.

Progress: The Town of Windsor did not accomplish this task and will eliminate this strategy through the plan update.

Status/Corresponding 2016 Strategy: Eliminated

Strategy S-1: Consider limiting the additional construction of impervious surfaces to reduce the amount of storm water runoff.

Progress: The Town of Windsor did not accomplish this task and will eliminate this strategy through the plan update.

Status/Corresponding 2016 Strategy: Eliminated

MARTIN COUNTY MITIGATION PROGRESS REPORT

The following provides a summary of progress achieved with regard to the strategies adopted by Martin County through the 2012 MTW Regional Hazard Mitigation Plan.

Strategy M1: Martin County will 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.

Progress: Martin County has taken steps to upgrade the County's system including establishment of a County-wide geodatabase that includes shapefiles, centerlines, waterbodies and other comprehensive data sets.

Status/Corresponding 2016 Strategy: M1

Strategy M2: Martin County and relevant municipal jurisdictions will consider applying for participation in the Community Rating System Program. Strategies required for establishing inclusion in this program are outlined beginning on page 6-28.

Progress: Martin County has not applied for participation in the CRS program to date. The County will consider submitting an application through implementation of this updated plan.

Status/Corresponding 2016 Strategy: M2

Strategy M3: Martin County will 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.

Progress: Martin County has determined that County-wide zoning regulations are not necessary at this time. The County will continue to monitor development pressures and land use conflicts through this plan update. If, and when the County feels that zoning is necessary, the Board of Commissioners will move forward with this process.

Status/Corresponding 2016 Strategy: M3

Strategy M4: Martin County will assess the need for the establishment of subdivision regulations on an annual basis. If the County determines that regulations are necessary to address increased development pressure, then this effort will be initiated.

Progress: Martin County has determined that County-wide subdivision regulations are not necessary at this time. The County will continue to monitor development pressures and land use conflicts through this plan update. If, and when the County feels that subdivision regulations are necessary, the Board of Commissioners will move forward with this process.

Status/Corresponding 2016 Strategy: M4

Strategy M5: Martin County as well as participating NFIP communities will continue to monitor the County's Flood Damage Prevention Ordinance 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.

Progress: Martin County maintains a Floodplain Management Program as a participant in the NFIP program. The County has not increased the freeboard requirement or been required to update the Flood Damage Prevention Ordinance over the last five years.

Status/Corresponding 2016 Strategy: M5

Strategy M6: Martin County will work in conjunction with the Regional MAC in 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.

Progress: Martin County has monitored the source and status of County drainage issues over the last five years. These areas have not been mapped to date; however, this effort will be undertaken through implementation of this update.

Status/Corresponding 2016 Strategy: M6

Strategy M7: Martin County and all participating jurisdictions will continue to maintain a post-disaster debris management contract with a qualified service provider. The County will review this contract on annual basis.

Progress: Martin County in cooperation with all participating municipal jurisdictions continues to maintain a post disaster debris management contractor. These efforts will continue through this update.

Status/Corresponding 2016 Strategy: M7

Strategy M8: Martin County will maintain a proactive stance to structural mitigation projects. The County will continue to monitor repetitive loss properties following storm events. If and when structures become eligible for mitigation funding, the County will assist property owners with this effort.

Progress: Martin County continues to proactively seek out eligible structures for elevation/acquisition. No formal mitigation projects have been carried out over the last five years.

Status/Corresponding 2016 Strategy: M8

Strategy M9: Martin County Emergency Management will work closely with the Regional MAC 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.

Progress: Martin County Emergency Management has worked closely with the Region, as well as NCDPS, regarding the issue of evacuation and emergency preparedness. These efforts will continue through this update.

Status/Corresponding 2016 Strategy: M9

Strategy M10: The Martin County Building Inspections Department will maintain information on flood damage protection techniques for dissemination to citizens and property owners. Additionally, the County will provide guidance to individuals looking for options relating to the elevation or retrofitting of homes. Additionally, the County will make these materials available at the local library.

Progress: The Martin County Building Inspections Department has maintained materials regarding flood protection techniques over the last five years. Departmental staff has provided guidance to local contractors and homeowners; however, materials were not available at the local library branch. The County will work to make this available through implementation of this update.

Status/Corresponding 2016 Strategy: M10

Strategy M11: Martin County will work closely with all participating municipal jurisdictions within the County in addressing mitigation needs, including the identification of structural mitigation projects and the establishment of new mitigation policies and initiatives.

Progress: Martin County continues to proactively seek out opportunities to strengthen the Counties Mitigation Program. No formal mitigation projects structural or non-structural have been carried out over the last five years.

Status/Corresponding 2016 Strategy: M11

Strategy M12: Martin County will apply for hazard mitigation grant funding following a disaster to assist with clean up and post-disaster recovery needs. Potential funding will be utilized to mitigate against potential future losses.

Progress: No disaster resulting in damage substantial requiring post disaster mitigation funding has impacted the Martin County over the last five years. This strategy will be maintained through this plan update.

Status/Corresponding 2016 Strategy: M12

TYRRELL COUNTY MITIGATION PROGRESS REPORT

The following provides a summary of progress achieved with regard to the strategies adopted by Tyrrell County through the 2012 MTW Regional Hazard Mitigation Plan.

Strategy T1: Tyrrell County will apply for hazard mitigation grant funding following a disaster to assist with clean up and post-disaster recovery needs. Potential funding will be utilized to mitigate against potential future losses.

Progress: No disaster resulting in damage substantial enough to require post-disaster mitigation funding has impacted the Tyrrell County over the last five years. This strategy will be maintained through this plan update.

Status/Corresponding 2016 Strategy: T1

Strategy T2: Tyrrell County will work closely with the Regional MAC and LEPC to closely plan for man-made and natural disaster events. This effort will involve the planning of exercises and annual corrective action planning. The Regional MAC will involve utility service provider in these discussions.

Progress: Tyrrell County has worked closely with other Regional Partners through the Disaster Action Working Group over the last five years. These efforts have involved the conducting of several exercises and an assessment of regional resources and capabilities. These efforts will continue through this update.

Status/Corresponding 2016 Strategy: T2

Strategy T3: Tyrrell County will 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.

Progress: The Tyrrell County Building Inspections Department has maintained materials regarding flood protection techniques over the last five years. Departmental staff has provided guidance to local contractors and homeowners; however, materials were not available at the local library branch or through real estate agencies. The County will work to make this available through implementation of this update.

Status/Corresponding 2016 Strategy: T3

Strategy T4: The Town of Columbia will maintain a policy of keeping branches and limbs from encroaching upon the right-of-way and power lines. The County will assist in this effort through ensuring that this issue is properly addressed by utility properties throughout unincorporated portions of the County.

Progress: The Town of Columbia, in cooperation with Tyrell County, has carried out this effort over the last five years. Maintenance of vegetation that may impact critical facilities will continue through this update.

Status/Corresponding 2016 Strategy: T4

Strategy T5: Tyrrell County will 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 Funds to acquire any identified needs.

Progress: No disaster resulting in damage substantial enough to require post-disaster mitigation funding has impacted the Tyrrell County over the last five years. This strategy will be maintained through this plan update.

Status/Corresponding 2016 Strategy: T5

Strategy T6: Tyrrell County will 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.

Progress: This strategy was not carried out over the last five years, and will be eliminated through this plan update due to budgetary constraints relating to cost associated with direct mailing notices to property owners.

Status/Corresponding 2016 Strategy: Eliminated

Strategy T7: Tyrrell County will advertise the availability of federal flood insurance offered through the National Flood Insurance Program once annually in the local newspaper. Additionally, the County will assist property owners in acquiring this insurance.

Progress: The County has not advertised the availability of flood insurance in the local newspaper; however, the County has provided assistance to property owners regarding enrollment in the National Flood Insurance Program. This service will be maintained through this update.

Status/Corresponding 2016 Strategy: T6

Strategy T8: Tyrrell County will develop a County website and include information pertinent to emergency preparedness, response, and mitigation.

Progress: Tyrrell County has developed and maintains an emergency management website that provides information and emergency management directives regarding natural disaster response and recovery. Through this update, the County will continue to improve upon the content available through this website.

Status/Corresponding 2016 Strategy: T7

Strategy T9: Tyrrell County will educate property owners about the importance of keeping private drives and curtilage free of debris to ensure access for emergency service vehicles. The County will advertise this policy through County newsletters, informational handouts, and website.

Progress: The County has carried out this strategy through all the listed avenues over the last five years. These efforts will continue through this update.

Status/Corresponding 2016 Strategy: T8

Strategy T10: Tyrrell County and the Town of Columbia will consider applying for participation in the Community Rating System Program. Strategies required for establishing inclusion in this program are outlined beginning on page 6-28.

Progress: Tyrrell County has not applied for participation in the CRS program to date. The County will consider submitting an application through implementation of this updated plan.

Status/Corresponding 2016 Strategy: T9

Strategy T11: Tyrrell County will establish a long-range plan in conjunction with the US Army Corps of Engineers to clean out the arterial canals located throughout the County.

Progress: Tyrrell County continues to proactively seek out a solution to this longstanding issue impacting a large portion of the County. These efforts will continue through this update.

Status/Corresponding 2016 Strategy: T10

Strategy T12: Tyrrell County will work towards a long-term solution to the flooding and drainage issues impacting the Alligator and Goat Neck communities within the County.

Progress: Tyrrell County continues to proactively seek out a solution to this longstanding issue impacting a large portion of the County. These efforts will continue through this update.

Status/Corresponding 2016 Strategy: T11

WASHINGTON COUNTY MITIGATION PROGRESS REPORT

The following provides a summary of progress achieved with regard to the strategies adopted by Washington County through the 2012 MTW Regional Hazard Mitigation Plan.

Strategy W1: Washington County will 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.

Progress: Washington County has not been able to secure funding for this effort to date. The County will continue to seek out funding for a new EOC facility through this update.

Status/Corresponding 2016 Strategy: W1

Strategy W2: The Town of Plymouth will 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 quite a bit more to be accomplished. This effort will require assistance from the County Emergency Management Department.

Progress: Plymouth has not been able to secure funding for the relocation of all vulnerable critical facilities over the last five years. The County will continue to seek funding to achieve this strategy through this update.

Status/Corresponding 2016 Strategy: W2

Strategy W3: Washington County will 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.

Progress: Washington County has maintained all land development regulations over the last five years. The County will continue to maintain these ordinances in a manner that will aim to further ongoing mitigation efforts.

Status/Corresponding 2016 Strategy: W3

Strategy W4: Through implementation of this plan, Washington County will consider increasing the required freeboard within the County's FDPO from 1 to 2 feet.

Progress: Washington County has not opted to increase the County's freeboard requirement; however, local officials will consider this option through implementation of this update.

Status/Corresponding 2016 Strategy: W4

Strategy W5: Washington County will 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.

Progress: Washington County has not been able to establish this system to date. The County will continue to research alternatives regarding this service in an effort to establish improved offerings through this plan update.

Status/Corresponding 2016 Strategy: W5

Strategy W6: The Washington County Planning and Building Inspections office will aim to acquire a new permitting program that will be helpful in tracking floodplain development activity.

Progress: Washington County has not been able to establish this system to date. The County will continue to research alternatives regarding this service in an effort to establish improved offerings through this plan update.

Status/Corresponding 2016 Strategy: W6

Strategy W7: Washington County will once annually mail a notice to all property owners whose land is located within a special flood hazard area. The notice should clearly state that the recipients' 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.

Progress: Washington County has carried out this strategy as a component of the County's Community Rating System Program. The County will continue these efforts through implementation of this Plan Update.

Status/Corresponding 2016 Strategy: W7

Strategy W8: Washington County will require a finished floor elevation certificate for all development within the special flood hazard area (SFHA). All elevation certificates should be submitted on an official FEMA elevation certificate. No certificate of occupancy shall be issued for any development within a defined special flood hazard area without the submittal of the required elevation certificate.

Progress: Washington County has carried out this strategy as a component of the County's Community Rating System Program. The County will continue these efforts through implementation of this Plan Update.

Status/Corresponding 2016 Strategy: W8

Strategy W9: Maintain a map information service involving the following: (1) 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; (2) Provide information regarding the flood insurance purchase requirement; (3) Maintain historical and current FIRMs; (4) Locally advertise once annually in the local newspaper; and (5) Provide information to inquirers about local floodplain management requirements.

Progress: Washington County has carried out this strategy as a component of the County's Community Rating System Program. The County will continue these efforts through implementation of this Plan Update.

Status/Corresponding 2016 Strategy: W9

Strategy W10: Washington County will work with local real estate agencies to ensure that agents are informing clients when property for sale is located within an SFHA. The County will provide these agencies with brochures documenting the concerns relating to development located within flood prone areas and ways that homeowners may make their homes more disaster resistant to strong winds, lightning, and heavy rains.

Progress: Washington County has carried out this strategy as a component of the County's Community Rating System Program. The County will continue these efforts through implementation of this Plan Update.

Status/Corresponding 2016 Strategy: W10

Strategy W11: Washington County will make information regarding hazards and development regulations within floodplains available through the following: (1) The Building Inspector will ensure that the local library maintains information relating to flooding and flood protection; (2) The County will provide a link on their website to FEMA resources addressing flooding and flood protection; and (3) The County will maintain information pertinent to local development conditions and make this information readily available to the public, as well as at the local library.

Progress: Washington County has carried out this strategy as a component of the County's Community Rating System Program. The County will continue these efforts through implementation of this Plan Update.

Status/Corresponding 2016 Strategy: W11

Strategy W12: Washington County will 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: (1) Provide site specific flood and flood related information on an as needed basis; (2) Maintain a list of contractors with experience in floodproofing and retrofit techniques; (3) Provide information on methods of wind proofing construction methods for new and renovated structures; (4) Maintain materials providing an overview of how to select a qualified contractor; (5) 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); (6) Provide advice and assistance regarding CRS activity 530 (Flood Protection); (7) Advertise the availability of this service once annually within the local newspaper; and (8) Maintain a log of all individuals assisted through this service including all site visits.

Progress: Washington County has carried out this strategy as a component of the County's Community Rating System Program. The County will continue these efforts through implementation of this Plan Update.

Status/Corresponding 2016 Strategy: W12

Strategy W13: Washington County will 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.

Progress: Washington County has carried out this strategy as a component of the County's Community Rating System Program. The County will continue these efforts through implementation of this Plan Update.

Status/Corresponding 2016 Strategy: W13

Appendix H

CRS Step Seven (Review of Possible Alternatives)

INTRODUCTION

Throughout the Northeastern NC Region, there are 21 communities out of 26 involved in the Regional Mitigation planning process that participate in the National Flood Insurance Program. Of these, only five are participants in the Community Rating System (CRS) – Hyde County, Washington County, Creswell, Plymouth, and Roper. Through the implementation of this plan, all current NFIP participants will consider potential participation in the CRS program. All existing CRS participants will continue to address all practicable CRS activities in an effort to mitigate the impacts of flooding on the respective community.

The following provides a summary of activities discussed throughout the context of the Northeastern NC Regional Hazard Mitigation Plan (RHMP) planning process. Community Rating System (CRS) guidance requires that all activities incorporated or eliminated through the planning process must be summarized in an effort to show that a thorough discussion of potential solutions, policy considerations and capital projects was carried out through the course of plan development. CRS guidance requires that the following six focus areas must be specifically addressed:

- Prevention/Regulatory Standards
- Property Protection Activities
- Protection of Natural/Environmental Functions
- Emergency Services Activities
- Structural Projects
- Public Information Activities

The following summary identifies the activities that have been incorporated or eliminated (refer to Appendix G) from this plan update under each of the above-referenced focus areas. This summary identifies where in the plan these issues are discussed and what current strategies have been defined under the six specified categories.

PREVENTION/REGULATORY STANDARDS

The Northeastern NC RHMP comprehensively addresses the issue of land use/floodplain regulatory standards. This element is accounted for within the context of this plan as follows:

- Section 4: Existing Policies, Programs and Ordinances (page 4-14)
- Section 6: Tables 6-2, 6-3, 6-4, 6-5, and 6-6
- Appendix G: Mitigation Progress Report

These sections of the Northeastern NC RHMP outline the utilization and status of policy/regulatory standards for all participating communities. The discussion of documents include the following local ordinances: Flood Damage Prevention Ordinance, North Carolina State Building Code, Subdivision Regulations, and Zoning Regulations. In addition to a summary of how these regulatory tools relate to effective mitigation, a summary of each community's ability to implement, enforce, and carry out the intent

of these regulations is provided. Not all communities have adopted and implemented all of these tools (refer to Tables 4-10 through 4-14) and the potential need for additional regulations at the local level was a key topic of debate during development of the Northeastern NC RHMP.

A review of past mitigation efforts and their relevance to each community's current planning efforts and Floodplain Management Program has been provided in Appendix G: Mitigation Status Report of this plan. A range of alternatives regarding prevention/regulatory tools available to further local mitigation efforts were discussed during the planning process including the following (not all of these options have been incorporated into the plan update):

- Establishment of floodplain data (statistical and mapping)
- Preservation of open space
- Establishment of floodplain regulations
- Increased setbacks (in relation to defined floodplains)
- Establishment of land development regulations
- Establishment of stormwater management regulations
- Enforcement of building codes
- Investment of capital improvements (drainage and stormwater)

Based on a comprehensive review of possible options under Prevention and Regulatory measures, the following are recommended strategies to be implemented. These strategies and their relevance to the Community Rating System program are outlined in the Table 6-2 (Bertie County, pages 6-8 to 6-11), Table 6-3 (Hyde County, pages 6-12 to 6-15), Table 6-4 (Martin County, pages 6-16 to 6-18), Table 6-5 (Tyrrell County, pages 6-19 to 6-20), and Table 6-6 (Washington County, pages 6-21 to 6-24).

- Bertie County - B1, B4, B5, B7
- Hyde County - H1, H5, H10, H12
- Martin County - M3, M4, M5, M10
- Tyrrell County - T3
- Washington County - W3, W4, W5, W6, W8, W12, W13

PROPERTY PROTECTION ACTIVITIES

The Northeastern NC RHMP comprehensively addresses the issue of Property Protection. This element is accounted for within the context of this plan as follows:

- Section 4: Agency Organizational Review, Community Capability Assessment, Legal Capability Review, Fiscal Capability Review, Political Acceptability Review
- Section 5: Critical Facilities, Repetitive Loss Structures, Key Issues Regarding Tornadoes, Change in Land Use Form
- Section 6: Tables 6-2, 6-3, 6-4, 6-5, 6-6, and 6-7 (Summary of CRS Rating of Strategies)
- Appendix G: Mitigation Progress Report

These sections of the Northeastern NC RHMP provide an overview of each participating jurisdictions efforts to provide services and outreach aimed at reducing the vulnerability of the community to natural disasters, in particular severe flooding events. Each participating NFIP community has a responsibility to educate the public and regulate development throughout defined flood hazard areas. Although not all communities are participants, each County maintains a comprehensive Inspections Department charged with addressing these issues.

Those communities that are currently CRS participants continue to maintain a more stringent Mitigation/Flood Management Planning Program. These efforts are detailed throughout the sections outlined above and serve to provide pre- and post-disaster services relating to development and redevelopment within portions of each County recognized as Flood Hazard Areas by FEMA.

A review of past mitigation efforts and their relevance to each community's current planning efforts and Floodplain Management Program has been provided in Appendix G: Mitigation Progress Report. A range of alternatives regarding Property Protection efforts available to further local mitigation programs were discussed during the planning process including the following (not all of these options have been incorporated into the plan update):

- Relocation
- Acquisition
- Structural Elevation
- Retrofitting
- Infrastructure Protection/Elevation/Relocation
- Insurance Rate Reduction

Based on a comprehensive review of possible options under Property Protection activities, the following are recommended strategies to be implemented. These strategies and their relevance to the Community Rating System program are outlined in the Table 6-2 (Bertie County, pages 6-8 to 6-11), Table 6-3 (Hyde County, pages 6-12 to 6-15), Table 6-4 (Martin County, pages 6-16 to 6-18), Table 6-5 (Tyrrell County, pages 6-19 to 6-20), and Table 6-6 (Washington County, pages 6-21 to 6-24).

- Bertie County - B2, B3, B6, B8, B9, B13
- Hyde County - H2, H7, H16
- Martin County - M1, M2, M12
- Tyrrell County - T4, T5, T10
- Washington County - W2, W13

PROTECTION OF NATURAL/ENVIRONMENTAL FUNCTIONS

The Northeastern NC RHMP comprehensively addresses the issue of Protecting Natural/Environmental Functions. This element is accounted for within the context of this plan as follows:

- Section 3: Hazard Identification and Analysis
- Section 4: Community Capability Assessment
- Section 5: Vulnerability Assessment
- Section 6: Tables 6-2, 6-3, 6-4, 6-5, 6-6, and 6-7 (Summary of CRS Rating of Strategies)
- Appendix G: Mitigation Progress Report

The discussion of protecting natural/environmental functions throughout this plan is folded into the review of other activities and functions, in particular the overview of policy and regulatory controls. A majority of environmental protection efforts are handled through either ongoing stewardship efforts or regulatory controls (i.e., stormwater regulations).

A review of past mitigation efforts and their relevance to each community's current and past environmental protection efforts has been provided in Appendix G, Mitigation Progress Report of this plan. A range of alternatives regarding environmental protection were discussed during the planning process including the following (not all of these options have been incorporated into the plan update):

- Wetlands protection
- Water quality improvement
- Erosion and sediment control
- Coastal barrier protection
- Natural area preservation
- Environmental corridors
- Natural area restoration
- Natural functions protection

Based on a comprehensive review of possible options under Protection of Natural/Environmental functions, the following are recommended strategies to be implemented. These strategies and their relevance to the Community Rating System program are outlined in the Table 6-2 (Bertie County, pages 6-8 to 6-11), Table 6-3 (Hyde County, pages 6-12 to 6-15), Table 6-4 (Martin County, pages 6-16 to 6-18), Table 6-5 (Tyrrell County, pages 6-19 to 6-20), and Table 6-6 (Washington County, pages 6-21 to 6-24).

- Bertie County - B10, B12
- Hyde County - H3, H4, H8
- Martin County - M2
- Tyrrell County - T2
- Washington County - W9

EMERGENCY SERVICES ACTIVITIES

The Northeastern NC RHMP comprehensively addresses the issue of emergency services activities. This element is accounted for within the context of this plan as follows:

- Section 4: Agency/Organizational Review, Community Capability Assessment
- Section 5: Critical Facilities, Key Issues Regarding Tornadoes
- Section 6: Tables 6-2, 6-3, 6-4, 6-5, and 6-6
- Appendix G: Mitigation Progress Report

The Northeastern RHMP involves an overview of emergency management activities and services that relate to pre- and post-disaster recovery efforts. Although emergency management does not tie directly into long range mitigation planning, response capabilities do serve a vital role in minimizing the threat to life and property during and immediately following severe flooding events. The mitigation planning process provides a linkage between regional/local Emergency Management, Land Use, and Mitigation Planning efforts.

A review of past mitigation efforts and their relevance to each community's current and past emergency service activities has been provided within Appendix G, Mitigation Progress Report of this plan. A range of alternatives regarding environmental protection were discussed during the planning process including the following (not all of these options have been incorporated into the plan update):

- Hazard threat recognition
- Critical facilities protection
- Hazard warning
- Health and safety maintenance
- Hazard response operations
- Post-disaster mitigation actions

Based on a comprehensive review of possible options under Emergency Services activities, the following are recommended strategies to be implemented. These strategies and their relevance to the Community Rating System program are outlined in the Table 6-2 (Bertie County, pages 6-8 to 6-11), Table 6-3 (Hyde County, pages 6-12 to 6-15), Table 6-4 (Martin County, pages 6-16 to 6-18), Table 6-5 (Tyrrell County, pages 6-19 to 6-20), and Table 6-6 (Washington County, pages 6-21 to 6-24).

- Bertie County - B11, B16
- Hyde County - H9, H14
- Martin County - M7, M9
- Tyrrell County - T1, T2
- Washington County - W1

STRUCTURAL PROJECTS

The Northeastern NC RHMP comprehensively addresses the issue of structural mitigation projects. This element is accounted for within the context of this plan as follows:

- Section 4: Community Capability Assessment
- Section 5: Critical Facilities, Key Issues Regarding Tornadoes
- Section 6: Tables 6-2, 6-3, 6-4, 6-5, and 6-6
- Appendix G: Mitigation Progress Report

The discussion of structural mitigation projects is very similar to the overview of property protection measures discussed above. In terms of the overall review of activities, the planning team considered these issues in conjunction with one another, therefore, the specific portions of the plan relevant to this issue are summarized in similar fashion. It should be noted that the only significant structural project, aside from building elevation, relates to storm drainage system improvements. In many cases stormwater drainage problems are caused by roadway/highway drainage problems that do not fall under the jurisdiction of the local unit of government.

A review of past mitigation efforts and their relevance to each community's current planning efforts and Floodplain Management Program has been provided within Appendix G, Mitigation Progress Report of this plan. A range of alternatives regarding structural mitigation projects was discussed during the planning process including the following (not all of these options have been incorporated into the plan update):

- Reservoirs
- Channel modifications
- Levees/floodwalls
- Storm drain improvement

Based on a comprehensive review of possible options under Structural Mitigation projects, the following are recommended strategies to be implemented. These strategies and their relevance to the Community Rating System program are outlined in the Table 6-2 (Bertie County, pages 6-8 to 6-11), Table 6-3 (Hyde County, pages 6-12 to 6-15), Table 6-4 (Martin County, pages 6-16 to 6-18), Table 6-5 (Tyrrell County, pages 6-19 to 6-20), and Table 6-6 (Washington County, pages 6-21 to 6-24).

- Bertie County - B14
- Hyde County - H11
- Martin County - M6, M8
- Tyrrell County - T10, T11, T12
- Washington County - W1, W12

PUBLIC INFORMATION ACTIVITIES

The Northeastern NC RHMP comprehensively addresses the issue of public information activities. This element is accounted for within the context of this plan as follows:

- Section 4: Community Capability Assessment
- Section 6: Tables 6-2, 6-3, 6-4, 6-5, and 6-6
- Section 7: Plan Maintenance & Implementation Procedures
- Appendix G: Mitigation Progress Report

The issue of public education and outreach is critical to both an effective mitigation program and participation in the CRS program. Each community participating in this plan, especially those participating in the NFIP program carry out a range of activities aimed at furthering the public's understanding of floodplain management and protection. These efforts range from engaging the public through outreach activities to mailing out literature to increase awareness about public safety regarding floodplains.

A review of past mitigation efforts and their relevance to each community's current planning efforts and Floodplain Management Program has been provided in Appendix G, Mitigation Progress Report of this plan. A range of alternatives regarding public education and awareness was discussed during the planning process including the following (not all of these options have been incorporated into the plan update):

- Map information
- Library
- Outreach projects
- Technical assistance
- Real estate disclosure
- Environmental education

Based on a comprehensive review of possible options under Public Information activities, the following are recommended strategies to be implemented. These strategies and their relevance to the Community Rating System program are outlined in the Table 6-2 (Bertie County, pages 6-8 to 6-11), Table 6-3 (Hyde County, pages 6-12 to 6-15), Table 6-4 (Martin County, pages 6-16 to 6-18), Table 6-5 (Tyrrell County, pages 6-19 to 6-20), and Table 6-6 (Washington County, pages 6-21 to 6-24).

- Bertie County - B15
- Hyde County - H6, H13, H15
- Martin County - M11
- Tyrrell County - T6, T7, T8, T9
- Washington County - W7, W10, W11, W12, W13

Appendix I

Adoption Resolutions

(To Be Completed)

_____ COUNTY

**RESOLUTION ADOPTING THE
NORTHEASTERN NC REGIONAL HAZARD MITIGATION PLAN**

WHEREAS, the citizens and property within _____ County are subject to the effects of natural hazards and man-made hazard events 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 flooding, high winds, droughts/heat waves, and severe winter weather; and

WHEREAS, _____ 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 Part 6, Article 21 of Chapter 143; Parts 3 and 4 of Article 18 of Chapter 153A; and Article 6 of Chapter 153A 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 in Part 6 of Article 1A of Chapter 166A of the North Carolina General Statutes, stated in Item 19.41(b)(2): “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, _____ 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 _____ 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 _____ County hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan; and

2. Vests the Emergency Services Director 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 Emergency Services Director 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 _____ 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 2017 Northeastern NC Regional Hazard Mitigation Plan.

Adopted this _____ day of _____, 2017.

Chairman, _____ County Board of Commissioners

ATTEST:

Clerk to the Board (SEAL)

(Insert Municipality)

**RESOLUTION ADOPTING THE
NORTHEASTERN NC REGIONAL HAZARD MITIGATION PLAN**

WHEREAS, the citizens and property within **(Insert County)** are subject to the effects of natural hazards and man-made hazard events 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 flooding, high winds, droughts/heat waves, and severe winter weather; and

WHEREAS, the County and participating municipal jurisdictions desire to seek ways to mitigate the impact of identified hazard risks; and

WHEREAS, the Legislature of the State of North Carolina has in Part 6, Article 21 of Chapter 143; Parts 3, 5, and 8 of Article 19 of Chapter 160A; and Article 8 of Chapter 160A 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 in Part 6 of Article 1A of Chapter 166A of the North Carolina General Statutes, stated in Item 19.41(b)(2): “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 County and its participating municipal jurisdictions have performed a comprehensive review and evaluation of each section of the previously approved Hazard Mitigation Plan and have 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 County 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; and

WHEREAS, the **(Insert Municipality)** actively participated in the planning process of the Northeastern NC Regional Hazard Mitigation Plan and has fulfilled all their part of the multi-jurisdictional planning elements required by FEMA;

NOW, THEREFORE, be it resolved that the Town Council of the (Insert Municipality) hereby:

1. Adopts the Northeastern NC Regional Hazard Mitigation Plan; and
2. Separately adopts the sections of the plan that are specific to the (Insert Municipality); and
3. Vests the (Insert Responsible Person) 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 or flood-related erosion areas, and cooperate with neighboring communities with respect to management of adjoining floodplain and/or flood-related erosion areas in order to prevent aggravation of existing hazards.
4. Appoints the (Insert Responsible Person) to assure that, in cooperation with (Insert County), 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 (Insert Municipality) Town Council for consideration.
5. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the 2017 Northeastern NC Regional Hazard Mitigation Plan.

Adopted this _____ day of _____, 2017.

Mayor, (Insert Municipality Name)

ATTEST:

Town Clerk (SEAL)