U.S. Department of Homeland Security
FEMA Region IV
3003 Chamblee Tucker Road
Atlanta, GA 30341

FEMA

June 15, 2011

Mr. Chris Crew
State Hazard Mitigation Officer
North Carolina Division of Emergency Management
4713 Mail Service Center
Raleigh, North Carolina

Reference: Multi-Jurisdictional Hazard Mitigation Plan: Moore County

Dear Mr. Crew:

We are pleased to inform you that the revisions to the Moore County Multi-Jurisdictional Plan are in compliance with the Federal hazard mitigation planning standards resulting from the Disaster Mitigation Act of 2000, as contained in 44 CFR 201.6. The plan is approved for a period of five (5) years, to June 15, 2016.

This plan approval extends to the following participating jurisdictions that provided copies of their resolutions adopting the plan:

- Moore County, Unincorporated
- Town of Aberdeen
- Town of Cameron
- Town of Carthage
- Foxfire Village
- Town of Pinebluff
- Village of Pinehurst
- Town of Robbins
- Town of Southern Pines
- Town of Taylortown
- Town of Vass
- Village of Whispering Pines

The approved participating jurisdictions are hereby eligible applicants through the State for the following mitigation grant programs administered by the Federal Emergency Management Agency (FEMA):

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
- Severe Repetitive Loss (SRL)
- Flood Mitigation Assistance (FMA)

A fifth program, Repetitive Flood Claims (RFC), does not have a requirement for a local Hazard Mitigation Plan. National Flood Insurance Program (NFIP) participation is required for some programs.

We commend Moore County for development of a solid, workable plan that will guide hazard mitigation activities over the coming years. Please note, all requests for funding will be evaluated individually according to the specific eligibility and other requirements of the particular program under which the application is submitted. For example, a specific mitigation activity or project identified in the plan may not meet the eligibility requirements for FEMA funding, and even eligible mitigation activities are not automatically approved for FEMA funding under any of the aforementioned programs.

We strongly encourage each community to perform an annual review and assessment of the effectiveness of their hazard mitigation plan; however, a formal plan update is required at least every five (5) years. We also encourage each community to conduct a plan update process within one (1) year of being included within a Presidential Disaster Declaration or of the adoption of major modifications to their local Comprehensive Land Use Plan or other plans that affect hazard mitigation or land use and development. When the plan is amended or revised, it must be resubmitted through the State as a "plan update" and is subject to a formal review and approval process by our office. If the plan is not updated prior to the required five (5) year update, please ensure that the Draft update is submitted at least six (6) months prior to expiration of this plan approval.

The State and Moore County should be commended for their close coordination and communications with our office in the review and subsequent approval of the plan. If you or Moore County have any questions or need any additional information, please do not hesitate to contact Victor Geer, of the Hazard Mitigation Assistance (HMA) Branch, at (770) 220-5659, or Linda L. Byers, of my staff, at (770) 220-5498.

Sincerely,

Robert E. Lowe, Chief
Risk Analysis Branch
Mitigation Division

# MOORE COUNTY

# Multi-Jurisdictional Hazard Mitigation Plan

*Participating Jurisdictions: Aberdeen, Cameron, Carthage, Foxfire Village, Pinebluff, Pinehurst, Robbins, Southern Pines, Taylortown, Vass, Whispering Pines*

Adopted by the Moore County Board of Commissioners: May 17, 2011
Approved by the Federal Emergency Management Agency: June 15, 2011

Prepared By:

HCP Holland Consulting Planners, Inc.

WILMINGTON, NORTH CAROLINA

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# SECTION 1. INTRODUCTION AND PLANNING PROCESS

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 with regard to development design and location in an effort to reduce the harmful impacts of natural, and in some cases man-made, hazards.

North Carolina Emergency Management 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."

## A. 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 business 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 and adopt a hazard mitigation plan (this plan).

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 Division of Emergency Management (NCEM).

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.

On July 1, 2008, 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.

## *B. WHAT IS HAZARD MITIGATION AND WHY IS IT IMPORTANT TO MOORE COUNTY?*

### *1. 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 the Federal Emergency Management Agency (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 recovery, repair, and reconstruction following a disaster.

### 2. *Why is Hazard Mitigation Important to Moore County?*

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 within Moore County.

The goals outlined within this plan will serve as the basis for the development of this framework. The following goals are based on the plan update process. The Mitigation Advisory Committee (MAC) reviewed the County's existing goals and determined that they do not adequately reflect the community's mitigation needs. These goals will replace those outlined in the 2005 plan, and serve as the foundation for the development of all implementation strategies included in this update.

The Moore County Multi-Jurisdictional Hazard Mitigation Plan (HMP) is being completed to attain the following goals:

- Promote the public health, safety, and general welfare of residents and minimize public and private losses due to natural hazards.
- Reduce the risk and impact of future natural disasters by regulating development in known high hazard areas.
- 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.
- Effectively expedite post-disaster reconstruction.
- Provide education to citizens that empower them to protect themselves and their families from natural hazards.
- Protect fragile, natural, and scenic areas within the planning jurisdiction.

## *C. PLANNING PROCESS*

Moore County appropriated funding within their FY2009/2010 annual budget to complete the HMP Update process. The County then requested that all municipal jurisdictions acknowledge their interest in participating in the County-wide effort. All incorporated jurisdictions in Moore County have opted to be included in this effort, and have contributed to the overall cost of the plan update.

Primary responsibility for development of the Moore County Multi-Jurisdictional HMP Update was placed in the hands of the Moore County Planning and Community Development Department under the direction of Joey Raczkowski. Mr. Raczkowski worked closely with all County departments and participating municipalities throughout the planning process to develop this document.

Subsequent to establishing a work authorization with a planning consultant, Moore County held an initial scoping meeting. This meeting involved a general discussion of how the project should be carried out, including issues related to establishing a Mitigation Advisory Committee (MAC) to oversee the update. It was determined that the MAC would be comprised of County Staff members, as well as a representative from each participating municipal jurisdiction.

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 offices.

The County convened the MAC in order to efficiently address this "multi-disciplinary" aspect of hazard mitigation. MAC members were charged with the responsibility of working through the planning process, and assisting the consultant with compiling the information, input, and background required to develop the plan. The following are the MAC members:

| MAC Member | Jurisdiction/Agency |
|---|---|
| Joey Raczkowski | Moore County Planning & Community Development |
| Debra Ensminger | Moore County Planning & Community Development |
| Andrew Gardner | Moore County Planning & Community Development |
| Jeremy Rust | Moore County Planning & Community Development |
| Robert Farrell | Moore County Planning & Community Development |
| Scot Brooks | Moore County Public Safety |
| Kathy Liles | Town of Aberdeen |
| Carol Lucas | Town of Cameron |
| Melissa Adams | Town of Carthage |
| Tom Collins | Village of Foxfire Village |
| Betty McDuffie | Town of Pinebluff |
| Jay Gibson | Village of Pinehurst* |
| George Hayfield | Town of Robbins |
| Kathy Blake | Town of Southern Pines |
| Ulysses S. Barrett, Jr. | Town of Taylortown |
| Jody Smith | Town of Vass |
| Sharyl Carter | Village of Whispering Pines |

*The Village of Pinehurst is a new participant under the Moore County HMP Update, all other municipalities participated in the 2005 Moore County Multi-Jurisdictional Hazard Mitigation Plan.

A series of meetings were held to develop the Hazard Mitigation Plan Update, each focusing on a specific aspect of the planning process. A total of six MAC meetings were held, and several additional meetings took place between staff and various interests involving plan development. The following provides a brief summary of all meetings held and what was addressed at each:

- August 2009: MAC representatives involving County staff convened for a scoping and overview meeting with the consultant. This meeting focused on the planning process, and what the County should aim to achieve in working through the development of a Hazard Mitigation Plan Update.

- October 2009: The initial MAC meeting was held in the Town of Carthage. The primary focus of this meeting was providing an overview of the plan process, as well as gauging the needs of each community participating in the process. MAC members also provided an overview of the County's existing plan and issues they would like to address through this update.

- November 2009: The second MAC meeting was held at the Town of Aberdeen Recreation Center. The agenda of this meeting focused on a discussion of critical/community facilities and the overall layout for the current update. This meeting involved an overview of the existing plan in order to make a determination regarding information and data that required attention.

- January 2010: The third MAC meeting was held at the Moore County Emergency Operations Center. This meeting focused on the review of existing goals, objectives, and mitigation strategies. MAC members were provided with copies of these sections of the existing plan, and a discussion of each mitigation action ensued. The intent of this discussion was to determine what has been accomplished over the last five years with respect to the mitigation policy in the 2005 plan. This discussion also involved making a determination as to whether the 2005 policies and mitigation actions were still applicable, which served as the basis for the development of updated goals, policies, and mitigation actions.

- February 2010: The fourth MAC meeting was held in the Town of Vass, and involved a discussion of new strategies to be included in the plan update. The County, through this update, has revised all strategies from the County's 2005 plan. The MAC felt that the existing plan's strategy statements did not appropriately address the County's needs. In order to establish a more effective plan of action, the MAC has established new goals, objectives, and policies. The February meeting served as one of two work sessions regarding the updated strategies.

- March 2010: The fifth MAC meeting was held at the Town of Aberdeen Recreation Center and served as the second work session geared towards the development of revised Moore County mitigation strategies.

- April 2010: On April 22nd, a public input session was held at the Town of Aberdeen Recreation Center to provide the public with an opportunity to comment on the HMP update progress. The intent of this session was to provide an overview of the project, and to provide the public an opportunity to comment and ask questions regarding the overall process and plan update. This meeting was advertised in the local newspaper. The meeting was handled as an informational question and answer session. There were thirteen (13) members of the public present at the meeting. The main topic addressed by the attendees involved emergency service provision within the County. The County maintains 11 active Community Emergency Response Teams. The individuals attending the meeting wanted to ensure that these CERT teams were addressed in the plan update.

- May 2010: On May 17, 2010, the final MAC meeting was held at the Moore County Office of Planning and Community Development to disseminate and discuss the draft plan. Subsequent to this date, a review period was established in conjunction with the initial NCEM review, to allow adequate time for County, regional agencies, and NCEM review and comment.

- January-May 2011: Following receipt of a certified pending adoption letter, Moore County scheduled a public hearing to allow for public comment on the final draft HMP. This public hearing was advertised in the local newspaper. No comments were received at the public hearing.

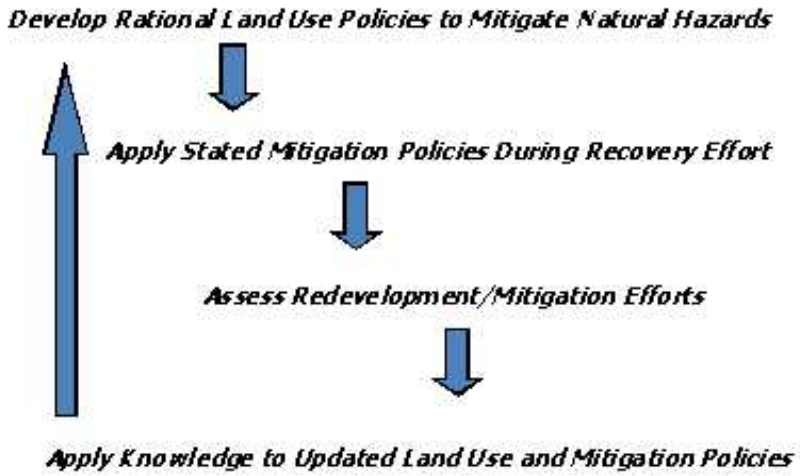
Advertisements for the publicly advertised meetings have been provided in Appendix B. As noted, a draft version of the plan was completed on May 17, 2010, and distributed to MAC members. Additionally, representatives of the following stakeholder offices/organizations were contacted for comments and input: the North Carolina Department of Transportation and the American Red Cross (Moore County Chapter). All adjoining counties were made aware that the plan was available for review on the Moore County website.

Review comments were received from NCEM on August 13, 2010, and revisions were made to the final draft HMP based on these NCEM comments (see Appendix C). The final draft HMP was resubmitted to NCEM on August 26, 2010.

Following receipt of a preliminary letter of approval from FEMA, the HMP was forwarded to all participating jurisdictions for adoption. Prior to adoption, however, a final public hearing was held for the County, as well as all participating jurisdictions, in order to allow the public and the above-identified stakeholder groups the opportunity to make comments on and provide input to the final plan. Affidavits of publication and adoption resolutions from these meetings have been provided as Appendix D. The Hazard Mitigation Plan was adopted by the Moore County Board of Commissioners on May 17, 2011.

### *D. PLAN FORMAT*

The planning process for the update of the Moore County Multi-Jurisdictional Hazard Mitigation Plan involved a comprehensive review of all components of the existing document. In conducting this review, the MAC subscribed to the following strategic planning model:




Through the employment of this model, the MAC reviewed all efforts carried out since the adoption of the 2005 plan and decided whether these efforts proved effective based on a current risk assessment, prior occurrences of inclement weather activity, and the current political and budgetary climate. Through these discussions, revised strategies were developed based on the following factors:

- The strategy will improve upon Moore County'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 employed in the development of this update is a significant deviation from the County's existing plan. It was determined through initial reviews of the 2005 plan that a complete rewrite was necessary to establish an effective mitigation plan. The revised plan format is summarized as follows:

**Section 1. Introduction**
This section of the HMP update provides the purpose of the plan, acknowledges the participants, describes the planning process, and reviews the citizen participation and adoption procedures for the HMP.

**Section 2. Moore County Profile**
This section of the HMP update outlines the existing demographic conditions for unincorporated portions of Moore County. This overview addresses the following existing conditions: demographics, topography, climate, and other general information regarding the community. Section 2 generally focuses on the County overall; however, a detailed breakdown and summary of conditions within each participating jurisdiction is provided in Section 3 of the plan.

**Section 3. Municipal Profiles**
This section of the plan provides a detailed overview of each municipal jurisdiction participating in the Moore County Multi-Jurisdictional HMP. An overview of history, location, demographics, capability, and vulnerability is provided for each participating jurisdiction.

**Section 4. Hazard Identification**
This section of the HMP update provides relevant data and narrative descriptions of natural hazards that Moore County's citizens are subject to, based on interviews with local officials and on public data sources such as the National Climatic Data Center and FEMA, for example. The MAC, through the update process, reviewed the hazards outlined within the 2005 plan to ensure that they still pose a threat to the County. Additionally, this section was updated to reflect occurrences of each natural hazard type since adoption of the County's existing plan.

**Section 5. Community Capability Assessment**
This section of the HMP update provides an assessment of Moore County's current hazard mitigation practices, as well as its potential to engage in mitigation activities. The capability assessment has been reviewed by the MAC as part of the comprehensive update process. This effort involved the updating of information for Moore County as well as all participating jurisdictions relating to: administrative capabilities, infrastructure resources, land development controls, and existing local and state policy programs.

Section 5 of the plan focuses primarily on programs, policies, and documents either enforced or under the jurisdiction of Moore County. A detailed capability review for all participating municipalities is provided in Section 3 of the plan.

**Section 6. Vulnerability Assessment**

This section of the HMP update identifies specific locations throughout the County that are vulnerable to natural hazards through narrative, data, and maps. As a component of the mitigation plan update, the vulnerability analysis was updated to reflect the 2010 development characteristics within Moore County. This effort also involved the review and update of the critical facilities inventory initially established through the 2005 planning process. Section 6 provides the results of a comprehensive vulnerability analysis for unincorporated portions of Moore County. Detailed information regarding development vulnerability for all participating municipalities is provided in Section 3.

**Section 7. Mitigation Goals, Objectives, and Strategies**

This section of the HMP identifies goals, objectives, and detailed strategies aimed at formulating an implementation framework for Moore County. The MAC undertook a comprehensive review of the mitigation strategies outlined within the 2005 plan. This review led to the modification of all existing mitigation strategy statements as reflected in Section 7 of the plan update. Through this effort, the County is attempting to strengthen its existing multi-jurisdictional mitigation program. The MAC feels that the revised statements are more effective and appropriately define how mitigation initiatives outlined within the plan should be carried out. Please note that the overhaul of the 2005 policies makes it difficult to cross reference the updated strategies with those outlined in the 2005 plan. This section incorporates the goals, objectives, and strategies for Moore County as well as all participating municipal jurisdictions.

**Section 8. 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, NCEM, 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. Maps referenced throughout the HMP are included in Appendix A.

## *E. INCORPORATION OF EXISTING PLANS, STUDIES, AND REPORTS*

The MAC utilized several existing policy and regulatory documents to assist in the preparation of the Hazard Mitigation Plan Update. Information from the County's Land Use Plan, Zoning

Ordinance, and Flood Damage Prevention Ordinance were instrumental in compiling information presented in this update. Corresponding municipal documents for all participating jurisdictions were also utilized in this process. During MAC meetings, planning and policy documents for the County as well as all participating municipalities were reviewed and discussed in an effort to coordinate between those documents and the HMP update. Additionally, the Land Use Plans, in conjunction with Flood Damage Prevention Ordinances and Zoning Ordinances, provided the MAC with the tools necessary to conduct a thorough vulnerability assessment. Through implementation of this plan, the County, as well as all participating jurisdictions, will continue to reference these documents in an effort to carry out an effective mitigation program throughout Moore County.

## *F. AUTHORITY FOR HMP ADOPTION AND RELEVANT LEGISLATION*

This HMP Update was adopted by the Moore County Board of Commissioners and the governing bodies of each of the eleven (11) participating municipalities under the authorities and police powers granted to county and municipal governments by the North Carolina General Statutes (see N.C.G.S., Chapter 153A).

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.

- Public Law 106-390, The Robert T. Stafford Disaster Mitigation Act of 2000, as amended (adopted October 30, 2000).

- 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 July 1, 2008, version of the Local Multi-Hazard Mitigation Planning Guidance (also known as the "Blue Book"). This guidance represents FEMA's latest official interpretation of the federal regulations that implement the Disaster Mitigation Act of 2000.

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

# SECTION 2. MOORE COUNTY PROFILE

## A. INTRODUCTION

This portion of the Hazard Mitigation Plan Update is focused on outlining the current demographic and economic conditions of the County. Within this section, a majority of the information presented is related specifically to the County overall, while detailed information relating to individual municipal jurisdictions is provided in Section 3. This approach was taken to place the data and information relevant to participating municipal jurisdictions in one location within the plan. The following provides a comprehensive overview and update of the current and historical Moore County demographics provided in the 2005 plan.

## B. LOCATION AND GENERAL TOPOGRAPHY

Moore County is located in the southern central portion of North Carolina and is bordered by Randolph, Chatham, Lee, Harnett, Cumberland, Hoke, Scotland, Richmond, and Montgomery counties. See Figure 1 for regional location.

The county is located partially in the Piedmont and partially in the Inner Coastal Plain regions of North Carolina, with topography ranging from hilly in the north to gently rolling and flat in the southern portions of the county. The county's water courses include the Deep and Little Rivers, and Drowning Creek.

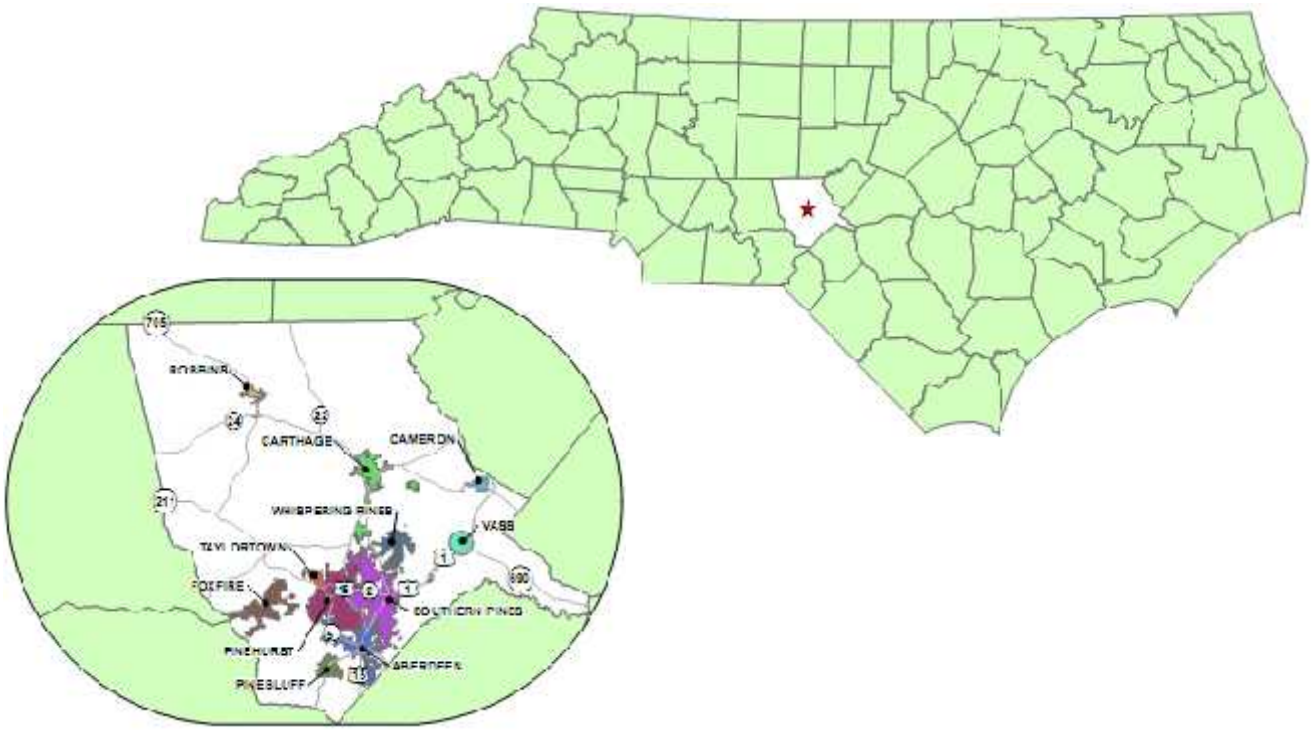



**Figure 1. Regional Location** *Source: HCP, Inc.*

## C. HISTORY

As early as the beginning of the sixth century, the Sioux Indians inhabited the area that is now Moore County. A well-used Indian trail, which crosses the county, is thought to have first been formed by buffaloes on their annual migrations from the piedmont to the coast. This trail is now known as Yadkin Road and played an important part in the settlement of Moore County.

European settlers came to the region around 1739. Later, English, Ulster Scots, and Germans moved into the area, settling along the fertile lands of the Deep River banks in northern Moore County. The Highland Scots also arrived prior to 1800 and settled in the sandhills of the southeastern portion of the area.

Moore County was a part of Cumberland County until 1783, when it officially became a county. It was named for Alfred Moore of Brunswick, a militia colonel in the American Revolution. Schools were built and industries flourished in the northern portion of the county, including a gun factory in Robbins and a carriage factory in Carthage. With the Raleigh and Augusta Railroad opening up through the sandhills in the 1870's, little towns sprang up along the railroad, serving as shipping points for products of the pine forests.

During the 1880's, people wishing to improve their health or seek “refuge from the northern blizzard” began to flock to the resort towns, with Southern Pines (formerly Shaw’s Ridge) becoming the most popular. In 1895, Pinehurst provided a complete resort village, with an elegant inn, electricity, and a telephone system. Today, with its many golf courses and resorts, Moore County provides excellent recreational opportunities for residents and visitors alike.

## D. CLIMATE

Generally, Moore County experiences nine months of moderate weather per year. The following summarizes annual temperatures for Moore County:

| Month | Average High | Average Low | Month | Average High | Average Low |
|---|---|---|---|---|---|
| January | 53.9°F. | 32.7° F. | July | 90.4° F. | 63.8° F. |
| February | 56.7° F. | 33.6° F. | August | 89.2° F. | 67.3° F. |
| March | 64.9° F. | 40.0° F. | September | 84.2° F. | 66.3° F. |
| April | 74.8° F. | 48° F. | October | 74.7° F. | 60.8° F. |
| May | 82.4° F. | 47.9° F. | November | 63.8° F. | 49.3° F. |
| June | 88.5° F. | 56.1° F. | December | 54.3° F. | 39.7° F. |

*Source: Southeast Regional Climate Center.*

The maximum average precipitation occurs in July, with 6.22 inches. The county receives approximately 48.16 inches of precipitation annually, with only 5.8 inches of average total snowfall annually, occurring in the months of December through March, and possibly a trace amount in April.

## *E. DEMOGRAPHIC SUMMARY*

### *1. Permanent Population*

All municipalities in Moore County experienced an increase in population from 1990 to 2000. The Villages of Foxfire Village, Pinehurst, and Whispering Pines each experienced sizable increases of over 50% from 1990 to 2000. Conversely, Foxfire Village and the Town of Robbins each experience slight decreases in population between 2000 and 2007. A more detailed discussion of the population data for each municipality is included in the demographic summary sections for individual municipalities located in Section 3.

Table 1 details population data for Moore County and its municipalities. The NC Office of State Planning estimated the 2007 population of Moore County to be 84,538, a 13.1% increase over the 2000 Census figure of 74,769. This steady overall increasing trend is expected to continue; the Office of State Planning projects the 2012 population for the County to be 91,054, a 7.7% increase over the 2007 estimate.

**Table 1: Moore County/Municipalities Population, 1990 to 2008**

| | Total Population | | | % Change | | |
|---|---|---|---|---|---|---|
| Municipality/County | 1990 | 2000 | 2008 Estimate | '90-'00 | '00-'08 | Overall '90-'08 |
| Aberdeen | 3,186 | 3,400 | 5,132 | 6.7% | 50.9% | 61.1% |
| Cameron | 120 | 151 | 280 | 25.8% | 85.4% | 133.3% |
| Carthage | 1,506 | 1,871 | 2,268 | 24.2% | 21.2% | 50.6% |
| Foxfire Village | 315 | 474 | 556 | 50.5% | 17.3% | 76.5% |
| Pinebluff | 838 | 1,109 | 1,380 | 32.3% | 24.4% | 64.7% |
| Pinehurst | 6,249 | 9,706 | 11,795 | 55.3% | 21.5% | 88.8% |
| Robbins | 1,021 | 1,195 | 1,308 | 17.0% | 9.5% | 28.1% |
| Southern Pines | 9,999 | 10,918 | 12,450 | 9.2% | 14.0% | 24.5% |
| Taylortown | 633 | 845 | 976 | 33.5% | 15.5% | 54.2% |
| Vass | 592 | 750 | 812 | 26.7% | 8.3% | 37.2% |
| Whispering Pines | 1,312 | 2,090 | 2,494 | 59.3% | 19.3% | 90.1% |
| Unincorporated Areas | 33,234 | 42,260 | 46,185 | 27.2% | 9.3% | 39.0% |
| **Moore County** | **59,005** | **74,769** | **85,280** | **26.7%** | **14.1%** | **44.5%** |

*Source: US Census Bureau & NC Office of State Planning.*

### 2. *Population Profile - Age*

The county's population profile appears to be "aging" somewhat, with the exception of Pinehurst, Robbins, and Whispering Pines, whose median ages decreased slightly from 1990 to 2000. The median age for Moore County, which includes the municipalities as well as unincorporated areas, experienced an increase from 38.7 years in 1990 to 41.8 years in 2000. The large retirement age populations in Foxfire Village, Pinehurst, and Whispering Pines are borne out in their high median age figures – all have median ages over 60 years. Table 2, below, provides a detailed breakdown of age composition for Moore County.

**Table 2: Moore County Age Composition, 1990 and 2000**

| | 1990 | | 2000 | |
|---|---|---|---|---|
| Age | Total | % of Total | Total | % of Total |
| 0 to 14 years | 11,069 | 18.8% | 13,679 | 18.3% |
| 15 to 34 years | 15,489 | 26.2% | 16,454 | 22.0% |
| 35 to 54 years | 13,399 | 22.7% | 19,958 | 26.7% |
| 55 to 64 years | 6,794 | 11.5% | 8,407 | 11.2% |
| 65 to 74 years | 7,838 | 13.3% | 8,564 | 11.5% |
| 75 and over | 4,416 | 7.5% | 7,707 | 10.3% |
| Total population | 59,005 | 100.0% | 74,769 | 100.0% |
| | | | | |
| Median age | 38.7 | | 41.8 | |
| School Age Pop. (5-18) | 10,476 | 17.8% | 12,779 | 17.1% |
| Working Age Pop. (16-64) | 34,867 | 59.1% | 43,719 | 58.5% |
| Retired Pop. (65+) | 12,254 | 20.8% | 16,271 | 21.8% |

*Source: US Census Bureau and NC Office of State Planning.*

### 3. *Housing*

The number of occupied housing units for the County, as reported in the 2000 Census, was 30,713, or 87.4% of the total number of housing units. Vacant housing units (4,438) comprised 12.6% of the total number of units. While 1,271 of the vacant housing units (28.6%) were reported as being utilized for seasonal, recreational, or occasional purposes, over two-thirds (71.4%) were considered vacant for "other reasons." A significant majority of *occupied* housing units are owner-occupied (78.7%), with rental households accounting for 21.3% of the occupied housing units. Table 3 summarizes housing tenure of residential units within Moore County. Summaries of housing unit data for each municipality are found in the individual municipalities sections located in Section 3.

**Table 3: Moore County Housing Units, 2000**

| | Number | % of Total Units | |
|---|---|---|---|
| **Occupied Housing Units** | **30,713** | **87.4%** | |
| Owner Occupied | 24,157 | 68.7% | *(78.7% of occupied)* |
| Renter Occupied | 6,556 | 18.7% | *(21.3% of occupied)* |
| **Vacant Housing Units** | **4,438** | **12.6%** | |
| Vacant for Seasonal, Recreational, or Occasional Use | 1,271 | 3.6% | *(28.6% of vacant)* |
| Vacant for Other Reasons | 3,167 | 9.0% | *(71.4% of vacant)* |
| **Total Housing Units** | **35,151** | **100.0%** | |

*Source: US Census Bureau.*

### *4. Economy*

Table 4 lists the major types of industries employing Moore County workers as of the 2000 Census. The education/health/social services industry is the largest employer (22.1%) of Moore County workers, with the manufacturing industry employing 16.7% of workers. Manufacturing firms in Moore County include Gulistan Carpet and Kolcraft Enterprises, Inc., both in Aberdeen. Further discussion of economic data for Moore County municipalities is located in the individual municipalities sections included in Section 3.

**Table 4: Moore County Workers by Industry, 2000**

| Industry | # of Workers | % of Workers |
|---|---|---|
| Agriculture, forestry, fishing and hunting, and mining | 1,014 | 3.2% |
| Construction | 2,856 | 8.9% |
| Manufacturing | 5,345 | 16.7% |
| Wholesale trade | 680 | 2.1% |
| Retail trade | 3,839 | 12.0% |
| Transportation and warehousing, and utilities | 988 | 3.1% |
| Information | 439 | 1.4% |
| Finance, insurance, real estate, and rental and leasing | 1,407 | 4.4% |
| Professional, scientific, management, administrative, and waste management svcs. | 2,222 | 6.9% |
| Educational, health and social services | 7,071 | 22.1% |
| Arts, entertainment, recreation, accommodation and food services | 3,455 | 10.8% |
| Other services (except public administration) | 1,383 | 4.3% |
| Public administration | 1,352 | 4.2% |

*Source: US Census Bureau.*

The median income for Moore County as reported in the 2000 Census was $41,240, slightly more than the $36,287 figure reported for the nearby City of Fayetteville.

# SECTION 3. MUNICIPAL PROFILES

## A. TOWN OF ABERDEEN

### 1. Location

The Town of Aberdeen is located in the southeastern portion of Moore County, approximately one (1) mile west of the Hoke County border. US Routes 1 and 15-501, and State Highways 5 and 211 all intersect within or around the town's environs. Additionally, the Aberdeen & Rockfish Railroad, as well as the Aberdeen Carolina and Western Railway Company, operate within Aberdeen's jurisdiction.

### 2. Demographic Summary

#### a. Population

The population of Aberdeen as reported in the 1990 US Census was 3,186, with a 6.7% increase occurring between 1990 and 2000, for a total 2000 population of 3,400. The North Carolina Office of State Planning certified the 2008 population of Aberdeen to be 5,132, demonstrating a substantial increase of 50.9% between the years 2000 and 2008. The age make-up of the town has changed only slightly, with the median age as reported in the 1990 US Census being 36.6 years, and the median age as reported in the 2000 US Census being 37.8 years. See Table 1 in Section 2 for detailed population data. The NC Office of State Planning projects a continuing increasing trend for Aberdeen's 2012 population, which it estimates at 5,010 persons.

#### b. Housing

The occupancy rate of Aberdeen's housing units is high – 92.2% (1,526) of the town's housing units are occupied, with only 7.8% (129 units) being vacant, as reported in the 2000 Census. Only ten of the vacant units are used for seasonal, recreational, or occasional use. Of the occupied units, 926 units, or 60.7%, are owner-occupied, and 600, or 39.3% of the units, are renter-occupied. The number of housing units (1,655) has increased slightly from the 1990 Census reported figure of 1,443.

#### c. Economy

The 2000 Census reported that the majority of Aberdeen's workers were employed in the retail trade (21.4%) and the education/health/social services (16.7%) industries. Median income for Aberdeen's residents was $31,911, and 9.8% of Aberdeen's families were considered below poverty level.

### 3. *Capability Assessment*

#### a. Type of Government/Administrative Staff

The Town of Aberdeen was incorporated in 1893 and is governed by a Mayor and five (5) Commissioners. Town staff includes a Manager, Clerk, Deputy Clerk, Finance Director, Public Works Director, Chief of Police, Fire Chief, Planning Director, and Building Inspector. Following is the town's contact information:

Town of Aberdeen
PO Box 785
Aberdeen, NC 28315-0785
(910) 944-1115
(910) 944-7459, fax

#### b. Infrastructure Resources

The Town provides water and sewer service as well as garbage collection and municipal recycling. Additionally, the town is responsible for the maintenance of municipal streets and all sidewalk infrastructure.

#### c. Police, Fire and Rescue

Police protection for the town's residents is provided by the Aberdeen Police Department, which consists of 30 officers and administrative personnel. Fire protection and rescue services are provided by a 16-member fire department, staffed by both paid and volunteer (approximately 38) personnel.

#### d. Capability Overview

The following table provides an overview of the policy documents available to the Town of Aberdeen regarding mitigation.

**Table 5: Town of Aberdeen Community Capability Assessment**

| Policies/ Programs | Policy/Program Status | Effectiveness/ Rationale for Mitigation | Recommendations for Future Action |
|---|---|---|---|
| Flood Damage Prevention Ordinance | Existing | High, requires all new construction and substantial improvements of residential structures to be built at or above base flood elevation. The town has opted to establish a 3' freeboard requirement for all development within the flood hazard area. | None |
| Inspections/ Permitting | Existing | High, centralized and efficient system for enforcement of State building code. | None |
| Land Use Plan | Existing | Medium, policies guide growth and development but are not regulatory. | Establish strategies for resource protection. |
| Subdivision Ordinance | Existing | High, minimum standards for flood prevention, stormwater drainage, street patterns, and access. | None |
| Zoning Ordinance | Existing | High, adopts development density requirements for all construction within corporate limits. | None |
| Stormwater Control Ordinance | None | The town requires that stormwater control facilities design be addressed as a part of zoning and subdivision controls. | The town may consider the establishment of a stormwater management program. |

*Source: Town of Aberdeen; HCP, Inc.*

### *4. Vulnerability Assessment*

#### a. Existing Vulnerability

As detailed in the section discussing hazard identification, property in Moore County is deemed to be vulnerable to severe winter storms, severe thunderstorms/windstorms, hurricanes, tornadoes, localized flooding, and drought/heat waves. Based upon the unpredictable nature of these events, it was determined that the entire corporate limits area of the Town of Aberdeen is also susceptible to the impact of these events.

The following table provides an overview of existing land use for developed portions of the Town of Aberdeen. Acreage and property counts are provided, as well as the value of structures and land that fall within the Town's corporate limits.

**Table 6: Town of Aberdeen Existing Land Use - Developed**

| Land Use | # of Properties | Acres | % of Total Town Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 424 | 881.91 | 8.7% | $143,945,360 |
| Residential | 2,338 | 3,727.03 | 36.9% | $325,522,350 |
| Total | 2,762 | 4,608.94 | 45.6% | $469,467,710 |

*Source: Town of Aberdeen, Moore County, and HCP, Inc.*

### b. Future Vulnerability

Table 7 summarizes all vacant land currently within the non-residential and residential collective zoning districts. This analysis was performed in an effort to determine the hazard potential if development under current regulations is fully realized. In order to estimate the future value of structures within portions of the Town that are currently vacant, an estimate of total potential investment was calculated. This figure was derived by utilizing an average per structure value for each use based upon existing conditions. Current tax values in relation to total existing development stock by land use yielded the following average figures:

- **Non-Residential** - $339,500
- **Residential** - $139,250

Refer also to Table 6. These figures serve as approximate value per property based upon existing structural tax values provided through the Moore County Tax Department. They are not intended to reflect current market conditions or specific value in relation to property within the Town of Aberdeen. Applying a value of 1 unit per 2.1 acres for non-residential property and 1 unit per 1.6 acres for residential property, it is estimated that 314 additional non-residential units and 3,018 additional residential units would be reached at maximum build-out. Thus, an additional $526,859,500 is estimated as property value if all properties were developed. It is important to note that these figures do not take into account land value.

**Table 7: Town of Aberdeen Vacant Land by Land Use**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 660.00 | 6.5% | 314 | $106,603,000 |
| Residential | 4,828.98 | 47.8% | 3,018 | $420,256,500 |
| Total | 5,488.98 | 54.4% | 3,332 | $526,859,500 |

*Source: Town of Aberdeen, Moore County, and HCP, Inc.*

### c. Estimated Impact on Residential Development

The hazard mitigation planning guidelines also require jurisdictions to estimate the number of residential structures that may be impacted in the future based upon current development guidelines and patterns. In order to meet this requirement, additional residential units have been calculated based on the Town's existing housing stock. According to the 2000 US Census, there were 1,655 housing units in Aberdeen.

Based on the total acreage for residential use derived through the existing land use survey (3,727 acres), this results in an average of approximately 1 unit per 1.6 acres. This figure was then multiplied times the total vacant acreage falling within a residential land use classification (4,829 acres). The results of this analysis estimate that within Aberdeen, 3,018 additional housing units could be anticipated through build-out. This estimate assumes that current development regulations will remain consistent, and that the corporate limits of the Town will not be extended. Based on an average household size of 2.23, as reported in the 2000 US Census, this development will result in an estimated population increase of 6,730 persons. An estimate of how long this process might take has not been factored into the analysis.

An estimate of commercial/non-residential use was not conducted within the context of this plan. It is difficult to formulate a justifiable projection due to the many factors that impact growth and expansion of these uses.

**d. Flooding**

(1) Flood Insurance Rate Maps (FIRMS)

Table 8 provides information on the number of acres in the FEMA-defined 100-year and 500-year floodplains within Aberdeen.

**Table 8: Town of Aberdeen Flood Zones**

| Flood Zone | Acres | % of Total Town Acreage |
|---|---|---|
| A/AE | 84.25 | 0.83% |
| X-500 | 3.8 | 0.04% |
| Total | 88.05 | 0.87% |

*Source: FEMA, HCP, Inc.*

(2) Existing Vulnerability, Flood Zone

The following provides an estimate of existing vulnerability relating to the "A" and "AE" floodplain zones, utilizing the same methodology outlined in the land use vulnerability discussion. Estimates for development within the floodplain are based on actual existing conditions within the "A" and "AE" flood zones. These zones were selected 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 9: Town of Aberdeen Floodprone Structures - Developed**

| Land Use | # of Properties | Acres | % of Total Town Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 32 | 21.84 | 0.22% | $3,732,450 |
| Residential | 14 | 61.44 | 0.61% | $2,260,310 |
| Total | 46 | 83.28 | 0.83% | $5,992,760 |

*Source: Town of Aberdeen, FEMA, HCP, Inc.*

### (3) Future Vulnerability, Flood Zone

The following table provides a breakdown of development potential for portions of Aberdeen falling within the "A" and "AE" flood zones. This analysis has been based on the same methodology outlined in the land use vulnerability section.

**Table 10: Town of Aberdeen Vacant Land Use in Floodplain**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 0.53 | 0.0052% | 1* | $339,500 |
| Residential | 0.44 | 0.0044% | 1 | $139,250 |
| Total | 0.97 | 0.0096% | 2 | $478,750 |

*The average residential lot size is 1.6 acres; therefore, one unit has been estimated within the floodplain.
*Source: Town of Aberdeen, FEMA, HCP, Inc.*

### (4) Estimated Impact on Residential Development, Flood Zone

As outlined above, there is only 0.44 acre of vacant land zoned for residential development within the Town of Aberdeen's "A" or "AE" flood zone. Based on an average of 1 unit per 1.6 acres (see Section 3.A.4.b), this analysis will result in only one additional residential unit within the 100-year floodplain at build-out. If this development were to occur, an additional two individuals would be located within a FEMA-defined special flood hazard area (SFHA).

### e. Repetitive Loss Properties

There are no repetitive loss properties located within Aberdeen's planning jurisdiction; however, the town's rescue squad building consistently floods and has accrued damages totaling $88,260. No insurance claims have been filed in relation to these losses. The town will seek funding to either relocate the facility or retrofit the existing facility to mitigate the flooding issue.

### f. Manmade Hazards/Railway Corridor

There are 831 acres (8.2% of total town acreage) of developed property within the Town of Aberdeen's 100-ft. railway corridor buffer. The associated building value of those properties is currently $43,246,500. Of the remaining property along the railway corridor, 1,814 acres, or 18% of total acreage in the town, is undeveloped and could result in development encroaching on the existing right-of-way.

## *B. TOWN OF CAMERON*

### *1. Location*

The Town of Cameron is located in the central and extreme eastern portion of Moore County, approximately one (1) mile west of the Lee County border. The CSX railway runs through town, and State Highway 24/27 and US Route 1 serve the town.

### *2. Demographic Summary*

#### a. Population

The population of Cameron as reported in the 1990 US Census was 120 with a 25.8% increase occurring between 1990 and 2000, for a total 2000 population of 151. The North Carolina Office of State Planning estimated the 2007 population of Cameron to be 171, demonstrating an increase of 13.2% between the years 2000 and 2007. The population appears to be aging slightly, since the median age as reported in the 1990 US Census was 35.6 years, and the median age reported in the 2000 US Census was 41.6 years. See Table 1 in Section 2 for detailed population data. The NC Office of State Planning projects a continuing increasing trend for Cameron's 2012 population, which it estimates at 186 persons.

#### b. Housing

The occupancy rate of Cameron's housing units is relatively high – 84.6% (66) of the town's housing units are occupied, with 15.4% (12 units) being vacant, as reported in the 2000 Census. None of the vacant units are used for seasonal, recreational, or occasional use. Of the occupied units, 55 units, or 83.3%, are owner-occupied, and 11, or 16.7% of the units, are renter-occupied. The number of housing units (78) has increased significantly from the 1990 Census reported figure of 51.

#### c. Economy

The 2000 Census reported that the majority of Cameron's workers were employed in the retail trade (18.1%) and the arts/entertainment/recreation/accommodation/food services (16.7%) industries. Median income for Cameron's residents was $32,500, and 17.9% of Cameron's families were considered below poverty level.

### 3. *Capability Assessment*

#### a. Type of Government/Administrative Staff

The Town of Cameron was incorporated in 1876 and is governed by a Mayor and five (5) Commissioners. Town staff includes a Clerk and a Chief of Police. Following is the town's contact information:

Town of Cameron
PO Box 248
Cameron, NC 28326-0248
(910) 245-3212
(910) 245-3212, fax

#### b. Infrastructure Resources

The Town provides water service and garbage collection for its residents. Wastewater disposal is handled by private septic tank systems.

#### c. Police, Fire and Rescue

Police protection for the town's residents is provided by the Cameron Police Department, staffed by one officer. Fire protection is provided by a 20-member volunteer fire department. Rescue services for the town's residents are handled through the Moore County 911 service.

#### d. Capability Overview

The following table provides an overview of the policy documents available to the Town of Cameron regarding mitigation.

**Table 11: Town of Cameron Community Capability Assessment**

| Policies/ Programs | Policy/Program Status | Effectiveness/ Rationale for Mitigation | Recommendations for Future Action |
|---|---|---|---|
| Flood Damage Prevention Ordinance | Existing | High, requires all new construction and substantial improvements of residential structures to be built at or above base flood elevation. | None |
| Inspections/ Permitting | Conducted through Moore County Inspections Department | High, centralized and efficient system for enforcement of State building code. | None |
| Land Use Plan | Existing | Medium, policies guide growth and development but are not regulatory. | None |
| Subdivision Ordinance | Existing | High, minimum standards for flood prevention, stormwater drainage, street patterns, and access. | None |
| Zoning Ordinance | Existing | High, adopts development density requirements for all construction within corporate limits. | None |
| Stormwater Control Ordinance | None | N/A | None |

*Source: Town of Cameron; HCP, Inc.*

### *4. Vulnerability Assessment*

#### a. Existing Vulnerability

As detailed in the section discussing hazard identification, property in Moore County is deemed to be vulnerable to severe winter storms, severe thunderstorms/windstorms, hurricanes, tornadoes, localized flooding, and drought/heat waves. Based upon the unpredictable nature of these events, it was determined that the entire corporate limits area of the Town of Cameron is also susceptible to the impact of these events.

The following table provides an overview of developed portions of the Town of Cameron. Acreage and property counts are provided, as well as the value of structures and land that fall within the Town's corporate limits.

Digitized land use data for the Town of Cameron was not available at the time of preparation of this document; thus, the developed property indicated below is not classified as either non-residential or residential.

**Table 12: Town of Cameron Existing Land Use - Developed**

| Land Use | # of Properties | Acres | % of Total Town Acreage | Building Value |
|---|---|---|---|---|
| Developed | 296 | 1458.62 | 39.6% | $29,361,350 |

*Source: Town of Cameron, Moore County, and HCP, Inc.*

### b. Future Vulnerability

Table 13 summarizes all vacant land currently within the Town's corporate limits. This analysis was performed in an effort to determine the hazard potential if development is fully realized. In order to estimate the future value of structures within portions of the Town that are currently vacant, an estimate of total potential investment was calculated. This figure was derived by utilizing an average per structure value for the current developed properties. Current tax values yielded the following average figure:

- **Average Per Structure Value** - $99,200

Refer also to Table 12. These figures serve as approximate value per property based upon existing structural tax values provided through the Moore County Tax Department. They are not intended to reflect current market conditions or specific value in relation to property within the Town of Cameron. Applying a value of 1 unit per 4.9 acres for a property, it is estimated that 455 additional units would be reached at maximum build-out. Thus, an additional $45,136,000 is estimated as property value if all properties were developed. It is important to note that these figures do not take into account land value nor whether a property is classified as non-residential or residential.

**Table 13: Town of Cameron Vacant Land by Land Use**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Undeveloped | 2,227.60 | 60.4% | 455 | $45,136,000 |

*Source: Town of Cameron, Moore County, and HCP, Inc.*

### c. Estimated Impact on Residential Development

The hazard mitigation planning guidelines also require jurisdictions to estimate the number of residential structures that may be impacted in the future based upon current development guidelines and patterns.

It is difficult to determine the impact on residential development as this analysis does not have data classified as non-residential or residential development for the town. The town will work towards the development of more reliable data over the next five years.

An estimate of commercial/non-residential use was not conducted within the context of this plan. It is difficult to formulate a justifiable projection due to the many factors that impact growth and expansion of these uses.

**d. Flooding**

(1) Flood Insurance Rate Maps (FIRMS)

Table 14 provides information on the number of acres in the FEMA-defined 100-year floodplain within Cameron. Note that there are no properties located in the 500-year floodplain within the town.

**Table 14: Town of Cameron Flood Zones**

| Flood Zone | Acres | % of Total Town Acreage |
|---|---|---|
| A/AE | 49.87 | 1.40% |

*Source: FEMA, HCP, Inc.*

(2) Existing Vulnerability, Flood Zone

There are no developed properties lying in the "A" or "AE" floodplain zones within the Town of Cameron.

(3) Future Vulnerability, Flood Zone

The following table provides a breakdown of development potential for portions of Cameron falling within the "A" and "AE" flood zones. This analysis has been based on the same methodology outlined in Section 3.B.4.b.

**Table 15: Town of Cameron Vacant Land Use in Floodplain**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Undeveloped | 49.87 | 1.4% | 10 | $992,000 |

*Source: Town of Cameron, FEMA, HCP, Inc.*

(4) Estimated Impact on Residential Development, Flood Zone

As outlined above, there are 49.87 acres of vacant land within the Town of Cameron's "A" or "AE" flood zone. Based on an average of 1 unit per 4.9 acres, this analysis could result in 10 additional residential units within the 100-year floodplain at build-out (assuming all units were residential). If this development were to occur, an additional 23 individuals (based on an average household size of 2.29 as reported in the 2000 US Census) would be located within a FEMA-defined special flood hazard area (SFHA).

**e. Repetitive Loss Properties**

There are no repetitive loss properties located within the Town of Cameron planning jurisdiction.

**f. Manmade Hazards/Railway Corridor**

There are eight (8) units (0.2% of total town acreage) of developed property within the Town of Cameron's 100-ft. railway corridor buffer. The associated building value of those properties is currently $427,580. Of the remaining property along the railway corridor, 518 acres, or 14% of total acreage in the town, is undeveloped and could result in development encroaching on the existing right-of-way.

## *C. TOWN OF CARTHAGE*

### *1. Location*

The Town of Carthage, the county seat, is located slightly east of the center of Moore County, approximately ten (10) miles west of the county's border with Lee County. The Town is served by State Highway 24/27 and US Route 15-501, which runs just east of town.

### *2. Demographic Summary*

#### **a. Population**

The population of Carthage as reported in the 1990 US Census was 1,506 with a 24.2% increase occurring between 1990 and 2000, for a total 2000 population of 1,871. The North Carolina Office of State Planning estimated the 2007 population of Carthage to be 2,017, demonstrating an increase of 7.8% between the years 2000 and 2007. The population of the town appears to be aging slightly, with the median age as reported in the 1990 US Census being 35.6 years, and the median age as reported in the 2000 US Census being 40.3 years. See Table 1 in Section 2 for detailed population data. The NC Office of State Planning projects a continuing increasing trend for Carthage's 2012 population, which it estimates at 2,124 persons.

#### **b. Housing**

The occupancy rate of Carthage's housing units is relatively high – 85% (653) of the town's housing units are occupied, with 15% (115 units) being vacant, as reported in the 2000 Census. Only six of the vacant units are used for seasonal, recreational, or occasional use. Of the occupied units, 477 units, or 73%, are owner-occupied, and 176, or 27% of the units, are renter-occupied. The number of housing units (768) has increased slightly from the 1990 Census reported figure of 671.

#### **c. Economy**

The 2000 Census reported that the majority of Carthage's workers were employed in the education/health/social services (25.2%) and manufacturing (17.7%) industries. Median income for Carthage's residents was $35,050, and 8.1% of Carthage's families were considered below poverty level.

### 3. *Capability Assessment*

#### a. Type of Government/Administrative Staff

The Town of Carthage was incorporated in 1796 and is governed by a Mayor and five (5) Commissioners. Town staff includes a Manager, Assistant Manager, Clerk, Deputy Clerk, Public Works Director, Chief of Police, Fire Chief, and Street Superintendent. Following is the town's contact information:

Town of Carthage
4396 Highway 15-501
Carthage, NC 28327
(910) 947-2331
(910) 947-3079, fax

#### b. Infrastructure Resources

The Town provides water and sewer service as well as garbage collection and municipal recycling for its residents.

#### c. Police, Fire and Rescue

Police protection for the town's residents is provided by the Carthage Police Department, which consists of ten (10) officers and an administrative position. Fire protection is provided by the town's volunteer fire department, which includes a paid fire chief, six (6) paid, part-time rotating personnel, and 25 volunteer firefighters. "Light" rescue calls are handled by the fire department, and the Carthage Rescue Squad, consisting of approximately twelve (12) personnel, handles other rescue services for the town's residents.

#### d. Capability Overview

The following table provides an overview of the policy documents available to the Town of Carthage regarding mitigation.

**Table 16: Town of Carthage Community Capability Assessment**

| Policies/ Programs | Policy/Program Status | Effectiveness/ Rationale for Mitigation | Recommendations for Future Action |
|---|---|---|---|
| Flood Damage Prevention Ordinance | Existing | High, requires all new construction and substantial improvements of residential structures to be built at or above base flood elevation. | None |
| Inspections/ Permitting | Conducted through Moore County Inspections Department | High, centralized and efficient system for enforcement of State building code. | None |
| Land Use Plan | Existing | Medium, policies guide growth and development but are not regulatory. | None |
| Subdivision Ordinance | Existing | High, minimum standards for flood prevention, stormwater drainage, street patterns, and access. | None |
| Zoning Ordinance | Existing | High, adopts development density requirements for all construction within corporate limits. | None |
| Stormwater Control Ordinance | None | N/A | None |

*Source: Town of Carthage; HCP, Inc.*

### *4. Vulnerability Assessment*

#### a. Existing Vulnerability

As detailed in the section discussing hazard identification, property in Moore County is deemed to be vulnerable to severe winter storms, severe thunderstorms/windstorms, hurricanes, tornadoes, localized flooding, and drought/heat waves. Based upon the unpredictable nature of these events, it was determined that the entire corporate limits area of the Town of Carthage is also susceptible to the impact of these events.

The following table provides an overview of existing land use for developed portions of the Town of Carthage. Acreage and property counts are provided, as well as the value of structures and land that fall within the Town's corporate limits.

**Table 17: Town of Carthage Existing Land Use - Developed**

| Land Use | # of Properties | Acres | % of Total Town Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 178 | 503.67 | 4.7% | $53,496,560 |
| Residential | 1,178 | 3,879.17 | 36.2% | $127,605,120 |
| Total | 1,356 | 4,382.84 | 40.9% | $181,101,680 |

*Source: Town of Carthage, Moore County, and HCP, Inc.*

### b. Future Vulnerability

Table 18 summarizes all vacant land currently within the non-residential and residential collective zoning districts. This analysis was performed in an effort to determine the hazard potential if development under current regulations is fully realized. In order to estimate the future value of structures within portions of the Town that are currently vacant, an estimate of total potential investment was calculated. This figure was derived by utilizing an average per structure value for each use based upon existing conditions. Current tax values in relation to total existing development stock by land use yielded the following average figures:

- **Non-Residential** - $300,550
- **Residential** - $108,300

Refer also to Table 17. These figures serve as approximate value per property based upon existing structural tax values provided through the Moore County Tax Department. They are not intended to reflect current market conditions or specific value in relation to property within the Town of Carthage. Applying a value of 1 unit per 2.8 acres for non-residential property and 1 unit per 3.3 acres for residential property, it is estimated that 97 additional non-residential units and 1,840 additional residential units would be reached at maximum build-out. Thus, an additional $228,425,350 is estimated as property value if all properties were developed. It is important to note that these figures do not take into account land value.

**Table 18: Town of Carthage Vacant Land by Land Use**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 270.55 | 2.5% | 97 | $29,153,350 |
| Residential | 6,072.60 | 56.6% | 1,840 | $199,272,000 |
| Total | 6,343.15 | 59.1% | 1,937 | $228,425,350 |

*Source: Town of Carthage, Moore County, and HCP, Inc.*

### c. Estimated Impact on Residential Development

The hazard mitigation planning guidelines also require jurisdictions to estimate the number of residential structures that may be impacted in the future based upon current development guidelines and patterns. In order to meet this requirement, additional residential units have been calculated based on the Town's existing housing stock. According to the 2000 US Census, there were 768 housing units in Carthage.

Based on the total acreage for residential use derived through the existing land use survey (3,879 acres), this results in an average of approximately 1 unit per 3.3 acres. This figure was then multiplied times the total vacant acreage falling within a residential land use classification (6,072 acres). The results of this analysis estimate that within Carthage, 1,840 additional housing units could be anticipated through build-out. This estimate assumes that current development regulations will remain consistent, and that the corporate limits of the Town will not be extended. Based on an average household size of 2.42, as reported in the 2000 US Census, this development will result in an estimated population increase of 4,453 persons. These figures assume build-out of the Town's existing corporate limits. An estimate of how long this process might take has not been factored into the analysis.

An estimate of commercial/non-residential use was not conducted within the context of this plan. It is difficult to formulate a justifiable projection due to the many factors that impact growth and expansion of these uses.

**d. Flooding**

(1) Flood Insurance Rate Maps (FIRMS)

Table 19 provides information on the number of acres in the FEMA-defined 100-year and 500-year floodplains within Carthage.

**Table 19: Town of Carthage Flood Zones**

| Flood Zone | Acres | % of Total Town Acreage |
|---|---|---|
| A/AE | 452.34 | 0.04% |
| X-500 | 93.14 | 0.87% |
| Total | 545.48 | 0.91% |

*Source: FEMA, HCP, Inc.*

(2) Existing Vulnerability, Flood Zone

There are no developed properties in the floodplain zones in the Town of Carthage.

(3) Future Vulnerability, Flood Zone

The following table provides a breakdown of development potential for portions of Carthage falling within the "A" and "AE" flood zones. Note that the only undeveloped property lying in the "A" or "AE" flood zones is residential property – there is no undeveloped non-residential property lying in these zones.

**Table 20: Town of Carthage Vacant Land Use in Floodplain**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 0 | 0.0% | 0 | $0 |
| Residential | 452.34 | 4.2% | 137 | $14,837,100 |
| Total | 452.34 | 4.2% | 137 | $14,837,100 |

*Source: Town of Carthage, FEMA, HCP, Inc.*

(4) Estimated Impact on Residential Development, Flood Zone

As outlined above, there are 452.34 acres of vacant land zoned for residential development within the Town of Carthage's "A" or "AE" flood zone. Based on an average of 1 unit per 3.3 acres, this analysis will result in 137 additional residential units within the 100-year floodplain at build-out. If this development were to occur, an additional 332 individuals would be located within a FEMA-defined special flood hazard area (SFHA).

### e. Repetitive Loss Properties

There are no repetitive loss properties located within the Town of Carthage planning jurisdiction.

### f. Manmade Hazards/Railway Corridor

There are no properties lying within a railway corridor buffer in the Town of Carthage.

## *D. VILLAGE OF FOXFIRE VILLAGE*

### *1. Location*

Foxfire Village is located in the southwestern portion of Moore County, approximately four (4) miles east of the Montgomery County border. Hoffman Road and Jackson Springs Road intersect just north of the village limits.

### *2. Demographic Summary*

#### a. Population

The population of Foxfire Village as reported in the 1990 US Census was 315 with a substantial 50.5% increase occurring between 1990 and 2000, for a total 2000 population of 474. The North Carolina Office of State Planning estimated the 2007 population of Foxfire Village to be 456, demonstrating a slight decrease of 3.8% between the years 2000 and 2007. The age make-up of the village indicates a large retirement population, as the median age reported in the 1990 US Census was 62.3 years, and the median age as reported in the 2000 US Census was 64.1 years. See Table 1 in Section 2 for detailed population data. The NC Office of State Planning projects a continuing slight decreasing trend for Foxfire Village's 2012 population, which it estimates at 448 persons.

#### b. Housing

The occupancy rate of Foxfire Village's housing units is low – only 68.5% (222) of the village's housing units are occupied, with 31.5% (102 units) being vacant, as reported in the 2000 Census. Sixty-seven (65.7%) of the vacant units are used for seasonal, recreational, or occasional use. Of the occupied units, 194 units, or 87.4%, are owner-occupied, and 28, or 12.6% of the units, are renter-occupied. The number of housing units (324) has increased by one-third from the 1990 Census reported figure of 243.

#### c. Economy

The 2000 Census reported that the majority of Foxfire Village's workers were employed in the retail trade (13.5%), entertainment/recreation/ accommodation/food services (14.2%), and education/health/social services (19.4%) industries. Median income for Foxfire Village's residents was $54,750, and only 1.7% of the village's families were considered below poverty level.

### 3. *Capability Assessment*

#### a. Type of Government/Administrative Staff

Foxfire Village was incorporated in 1977 and is governed by a Mayor and four (4) Council members. Village staff includes a Clerk, Finance Director, Chief of Police, Water Plant Superintendent, and a Zoning Administrator. Following is the village's contact information:

Village of Foxfire Village
1 Town Hall Drive
Foxfire Village, NC 27281-9753
(910) 295-5107
(910) 295-4841, fax

#### b. Infrastructure Resources

The Village provides water service for its residents. Wastewater disposal is handled through private septic tank systems. Garbage collection and municipal recycling are handled privately by individual property owners.

#### c. Police, Fire and Rescue

Police protection for the Village's residents is provided by the Foxfire Village Police Department, consisting of two (2) full-time officers. Fire protection is provided by the West End Fire Department. Rescue services are provided by first responders of the West End Fire Department, located in a satellite building across from village hall, or through the Moore County 911 service.

#### d. Capability Overview

The following table provides an overview of the policy documents available to the Village of Foxfire Village regarding mitigation.

**Table 21: Foxfire Village Community Capability Assessment**

| Policies/ Programs | Policy/Program Status | Effectiveness/ Rationale for Mitigation | Recommendations for Future Action |
|---|---|---|---|
| Flood Damage Prevention Ordinance | Existing | High, requires all new construction and substantial improvements of residential structures to be built at or above base flood elevation. | None |
| Inspections/ Permitting | Conducted through Moore County Inspections Department | High, centralized and efficient system for enforcement of State building code. | None |
| Land Use Plan | Existing | Medium, policies guide growth and development but are not regulatory. | None |
| Subdivision Ordinance | Existing | High, minimum standards for flood prevention, stormwater drainage, street patterns, and access. | None |
| Zoning Ordinance | Existing | High, adopts development density requirements for all construction within corporate limits. | None |
| Stormwater Control Ordinance | None | N/A | None |

*Source: Village of Foxfire Village; HCP, Inc.*

### *4. Vulnerability Assessment*

#### a. Existing Vulnerability

As detailed in the section discussing hazard identification, property in Moore County is deemed to be vulnerable to severe winter storms, severe thunderstorms/windstorms, hurricanes, tornadoes, localized flooding, and drought/heat waves. Based upon the unpredictable nature of these events, it was determined that the entire corporate limits area of Foxfire Village is also susceptible to the impact of these events.

The following table provides an overview of existing land use for developed portions of Foxfire Village. Acreage and property counts are provided, as well as the value of structures and land that fall within the Village's corporate limits.

**Table 22: Foxfire Village Existing Land Use - Developed**

| Land Use | # of Properties | Acres | % of Total Village Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 17 | 188.54 | 1.9% | $6,142,190 |
| Residential | 594 | 2,851.22 | 29.2% | $109,350,300 |
| Total | 611 | 3,039.76 | 31.1% | $115,492,490 |

*Source: Foxfire Village, Moore County, and HCP, Inc.*

### b. Future Vulnerability

Table 23 summarizes all vacant land currently within the non-residential and residential collective zoning districts. This analysis was performed in an effort to determine the hazard potential if development under current regulations is fully realized. In order to estimate the future value of structures within portions of the Village that are currently vacant, an estimate of total potential investment was calculated. This figure was derived by utilizing an average per structure value for each use based upon existing conditions. Current tax values in relation to total existing development stock by land use yielded the following average figures:

- **Non-Residential** - $361,300
- **Residential** - $184,100

Refer also to Table 22. These figures serve as approximate value per property based upon existing structural tax values provided through the Moore County Tax Department. They are not intended to reflect current market conditions or specific value in relation to property within Foxfire Village. Applying a value of 1 unit per 11.1 acres for non-residential property and 1 unit per 4.8 acres for residential property, it is estimated that 52 additional non-residential units and 1,279 additional residential units would be reached at maximum build-out. Thus, an additional $254,251,500 is estimated as property value if all properties were developed. It is important to note that these figures do not take into account land value.

**Table 23: Foxfire Village Vacant Land by Land Use**

| Land Use | Acres | % of Total Village Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 572.63 | 5.9% | 52 | $18,787,600 |
| Residential | 6,141.32 | 63.0% | 1,279 | $235,463,900 |
| Total | 6,713.95 | 68.9% | 1,331 | $254,251,500 |

*Source: Foxfire Village, Moore County, and HCP, Inc.*

### c. Estimated Impact on Residential Development

The hazard mitigation planning guidelines also require jurisdictions to estimate the number of residential structures that may be impacted in the future based upon current development guidelines and patterns. In order to meet this requirement, additional residential units have been calculated based on the Village's existing housing stock. According to the 2000 US Census, there were 324 housing units in Foxfire Village.

Based on the total acreage for residential use derived through the existing land use survey (2,851 acres), this results in an average of approximately 1 unit per 4.8 acres. This figure was then multiplied times the total vacant acreage falling within a residential land use classification (6,141 acres). The results of this analysis estimate that within Foxfire Village, 1,279 additional housing units could be anticipated through build-out. This estimate assumes that current development regulations will remain consistent, and that the corporate limits of the Village will not be extended. Based on an average household size of 2.14, as reported in the 2000 US Census, this development will result in an estimated population increase of 2,737 persons. An estimate of how long this process might take has not been factored into the analysis.

An estimate of commercial/non-residential use was not conducted within the context of this plan. It is difficult to formulate a justifiable projection due to the many factors that impact growth and expansion of these uses.

**d. Flooding**

(1) Flood Insurance Rate Maps (FIRMS)

Table 24 provides information on the number of acres in the FEMA-defined 100-year floodplain within Foxfire Village. There are no properties located in the 500-year floodplain within Foxfire Village.

**Table 24: Foxfire Village Flood Zones**

| Flood Zone | Acres | % of Total Village Acreage |
|---|---|---|
| A/AE | 194.49 | 2.00% |

*Source: FEMA, HCP, Inc.*

(2) Existing Vulnerability, Flood Zone

There are no developed properties in the floodplain in Foxfire Village.

(3) Future Vulnerability, Flood Zone

The following table provides a breakdown of development potential for portions of Foxfire Village falling within the “A” and “AE” flood zones. This analysis has been based on the same methodology outlined in the land use vulnerability section.

**Table 25: Foxfire Village Vacant Land Use in Floodplain**

| Land Use | Acres | % of Total Village Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 14.53 | 0.1000% | 1 | $361,300 |
| Residential | 179.96 | 1.8000% | 38 | $6,995,800 |
| Total | 194.49 | 1.9000% | 39 | $7,357,100 |

*Source: Foxfire Village, FEMA, HCP, Inc.*

(4) Estimated Impact on Residential Development, Flood Zone

As outlined above, there are 179.96 acres of vacant land zoned for residential development within Foxfire Village's "A" or "AE" flood zone. Based on an average of 1 unit per 4.8 acres, this analysis will result in 38 additional residential units within the 100-year floodplain at build-out. If this development were to occur, an additional 81 individuals would be located within a FEMA-defined special flood hazard area (SFHA).

**e. Repetitive Loss Properties**

There are no repetitive loss properties located within the Village of Foxfire Village planning jurisdiction.

**f. Manmade Hazards/Railway Corridor**

There are no properties lying within a railway corridor buffer in Foxfire Village.

## *E. TOWN OF PINEBLUFF*

### *1. Location*

The Town of Pinebluff is located in the southern portion of Moore County, approximately three (3) miles west of the Hoke County border. The town is served by US Route 1.

### *2. Demographic Summary*

#### a. Population

The population of Pinebluff as reported in the 1990 US Census was 838 with a substantial 32.3% increase occurring between 1990 and 2000, for a total 2000 population of 1,109. The North Carolina Office of State Planning estimated the 2007 population of Pinebluff to be 1,288, demonstrating an increase of 16.1% between the years 2000 and 2007. The age make-up of the town has changed only slightly, with the median age as reported in the 1990 US Census being 32.4 years, and the median age as reported in the 2000 US Census being 35.4 years. See Table 1 in Section 2 for detailed population data. The NC Office of State Planning projects a continuing increasing trend for Pinebluff's 2012 population, which it estimates at 1,409 persons.

#### b. Housing

The occupancy rate of Pinebluff's housing units is high – 93.3% (449) of the town's housing units are occupied, with only 6.7% (32 units) being vacant, as reported in the 2000 Census. Only two of the vacant units are used for seasonal, recreational, or occasional use. Of the occupied units, 337 units, or 75.1%, are owner-occupied, and 112, or 24.9% of the units, are renter-occupied. The number of housing units (449) has increased slightly from the 1990 Census reported figure of 356.

#### c. Economy

The 2000 Census reported that the majority of Pinebluff's workers were employed in the education/health/social services (22.1%) and arts/entertainment/recreation/ accommodation/food service (13.1%) industries. Median income for Pinebluff's residents was $40,536, and 8.7% of Pinebluff's families were considered below poverty level.

### 3. *Capability Assessment*

#### a. Type of Government/Administrative Staff

The Town of Pinebluff was incorporated in 1899 and is governed by a Mayor and five (5) Commissioners. Town staff includes a Clerk, Finance Director, Public Works Director, Chief of Police, Fire Chief, and Street Superintendent. Following is the town's contact information:

Town of Pinebluff
325 E. Baltimore Avenue
Pinebluff, NC 28373
(910) 281-3124
(910) 281-4366, fax

#### b. Infrastructure Resources

The Town provides water service for its residents. Wastewater disposal is handled through private septic systems. The Town contracts with an outside firm for garbage collection and recycling services.

#### c. Police, Fire and Rescue

Police protection for the town's residents is provided by the PInebluff Police Department, consisting of a chief and three (3) additional paid officers. Fire protection is provided by the Pinebluff Volunteer Fire Department, which consists of a chief, three (3) part-time paid personnel, and 24 volunteer firefighters. Rescue services are handled through the Moore County 911 service.

#### d. Capability Overview

The following table provides an overview of the policy documents available to the Town of Pinebluff regarding mitigation.

**Table 26: Town of Pinebluff Community Capability Assessment**

| Policies/ Programs | Policy/Program Status | Effectiveness/ Rationale for Mitigation | Recommendations for Future Action |
|---|---|---|---|
| Flood Damage Prevention Ordinance | Existing | High, requires all new construction and substantial improvements of residential structures to be built at or above base flood elevation. | None |
| Inspections/ Permitting | Existing | High, centralized and efficient system for enforcement of State building code. | None |
| Land Use Plan | Existing | Medium, policies guide growth and development but are not regulatory. | None |
| Subdivision Ordinance | Existing | High, minimum standards for flood prevention, stormwater drainage, street patterns, and access. | None |
| Zoning Ordinance | Existing | High, adopts development density requirements for all construction within corporate limits. | None |
| Stormwater Control Ordinance | None | N/A | None |

*Source: Town of Pinebluff; HCP, Inc.*

### *4. Vulnerability Assessment*

#### a. Existing Vulnerability

As detailed in the section discussing hazard identification, property in Moore County is deemed to be vulnerable to severe winter storms, severe thunderstorms/windstorms, hurricanes, tornadoes, localized flooding, and drought/heat waves. Based upon the unpredictable nature of these events, it was determined that the entire corporate limits area of the Town of Pinebluff is also susceptible to the impact of these events.

The following table provides an overview of existing land use for developed portions of the Town of Pinebluff. Acreage and property counts are provided, as well as the value of structures and land that fall within the Town's corporate limits.

**Table 27: Town of Pinebluff Existing Land Use - Developed**

| Land Use | # of Properties | Acres | % of Total Town Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 42 | 173.45 | 2.8% | $6,338,850 |
| Residential | 968 | 1,940.7 | 31.2% | $90,343,380 |
| Total | 1,010 | 2,114.15 | 34.0% | $96,682,230 |

*Source: Town of Pinebluff, Moore County, and HCP, Inc.*

### b. Future Vulnerability

Table 28 summarizes all vacant land currently within the non-residential and residential collective zoning districts. This analysis was performed in an effort to determine the hazard potential if development under current regulations is fully realized. In order to estimate the future value of structures within portions of the Town that are currently vacant, an estimate of total potential investment was calculated. This figure was derived by utilizing an average per structure value for each use based upon existing conditions. Current tax values in relation to total existing development stock by land use yielded the following average figures:

- **Non-Residential** - $150,950
- **Residential** - $93,350

Refer also to Table 27. These figures serve as approximate value per property based upon existing structural tax values provided through the Moore County Tax Department. They are not intended to reflect current market conditions or specific value in relation to property within the Town of Pinebluff. Applying a value of 1 unit per 4.1 acres for non-residential property and 1 unit per 2.0 acres for residential property, it is estimated that 27 additional non-residential units and 1,540 additional residential units would be reached at maximum build-out. Thus, an additional $147,834,650 is estimated as property value if all properties were developed. It is important to note that these figures do not take into account land value.

**Table 28: Town of Pinebluff Vacant Land by Land Use**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 108.79 | 1.7% | 27 | $4,075,650 |
| Residential | 4,003.45 | 64.3% | 1,540 | $143,759,000 |
| Total | 4,112.24 | 66.0% | 1,567 | $147,834,650 |

*Source: Town of Pinebluff, Moore County, and HCP, Inc.*

### c. Estimated Impact on Residential Development

The hazard mitigation planning guidelines also require jurisdictions to estimate the number of residential structures that may be impacted in the future based upon current development guidelines and patterns. In order to meet this requirement, additional residential units have been calculated based on the Town's existing housing stock. According to the 2000 US Census, there were 481 housing units in Pinebluff.

Based on the total acreage for residential use derived through the existing land use survey (1,941 acres), this results in an average of approximately 1 unit per 2.0 acres. This figure was then multiplied times the total vacant acreage falling within a residential land use classification (5,003 acres). The results of this analysis estimate that within Pinebluff, 2,502 additional housing units could be anticipated through build-out. This estimate assumes that current development regulations will remain consistent, and that the corporate limits of the Town will not be extended. Based on an average household size of 2.47, as reported in the 2000 US Census, this development will result in an estimated population increase of 6,179 persons. An estimate of how long this process might take has not been factored into the analysis.

An estimate of commercial/non-residential use was not conducted within the context of this plan. It is difficult to formulate a justifiable projection due to the many factors that impact growth and expansion of these uses.

**d. Flooding**

(1) Flood Insurance Rate Maps (FIRMS)

Table 29 provides information on the number of acres in the FEMA-defined 100-year and 500-year floodplains within Pinebluff.

**Table 29: Town of Pinebluff Flood Zones**

| Flood Zone | Acres | % of Total Town Acreage |
|---|---|---|
| A/AE | 387.36 | 6.2% |
| X-500 | 23.36 | 0.4% |
| Total | 410.72 | 6.6% |

*Source: FEMA, HCP, Inc.*

(2) Existing Vulnerability, Flood Zone

The following provides an estimate of existing vulnerability relating to the "A" and "AE" floodplain zones, utilizing the same methodology outlined in the land use vulnerability discussion. Estimates for development within the floodplain are based on actual existing conditions within the "A" and "AE" flood zones. These zones were selected for this analysis because the owners of the properties must carry flood insurance, and the properties are typically the focus of specific mitigation measures. Note that there are no developed non-residential properties in the flood zone.

**Table 30: Town of Pinebluff Floodprone Structures - Developed**

| Land Use | # of Properties | Acres | % of Total Town Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 0 | 0 | 0.0% | $0 |
| Residential | 3 | 41.76 | 0.7% | $316,650 |
| Total | 3 | 41.76 | 0.7% | $316,650 |

*Source: Town of Pinebluff, FEMA, HCP, Inc.*

### (3) Future Vulnerability, Flood Zone

The following table provides a breakdown of development potential for portions of Pinebluff falling within the "A" and "AE" flood zones. This analysis has been based on the same methodology outlined in the land use vulnerability section.

**Table 31: Town of Pinebluff Vacant Land Use in Floodplain**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 0 | 0.0% | 0 | $0 |
| Residential | 345.6 | 5.6% | 173 | $16,149,550 |
| Total | 345.6 | 5.6% | 173 | $16,149,550 |

*Source: Town of Pinebluff, FEMA, HCP, Inc.*

### (4) Estimated Impact on Residential Development, Flood Zone

As outlined above, there are 345.6 acres of vacant land zoned for residential development within the Town of Pinebluff's "A" or "AE" flood zone. Based on an average of 1 unit per 2.0 acres, this analysis will result in 173 additional residential units within the 100-year floodplain at build-out. If this development were to occur, an additional 427 individuals would be located within a FEMA-defined special flood hazard area (SFHA).

### e. Repetitive Loss Properties

There are no repetitive loss properties located within the Town of Pinebluff planning jurisdiction.

### f. Manmade Hazards/Railway Corridor

There are 118 acres (1.9% of total town acreage) of developed property within the Town of Pinebluff's 100-ft. railway corridor buffer. The associated building value of those properties is currently $481,390. Of the remaining property along the railway corridor, 461 acres, or 7.4% of total acreage in the town, is undeveloped and could result in development encroaching on the existing right-of-way.

## *F. VILLAGE OF PINEHURST*

### *1. Location*

The Village of Pinehurst is located in the southern portion of Moore County, immediately adjacent to the towns of Southern Pines and Aberdeen. The Aberdeen Carolina Western Railway (ACWR) runs through the village, as well as State Highways 15/501 and 2. The village is also served by the Moore County Airport, Pinehurst/Southern Pines.

### *2. Demographic Summary*

#### a. Population

The population of Pinehurst as reported in the 1990 US Census was 6,249 with a substantial 55.3% increase occurring between 1990 and 2000, for a total 2000 population of 9,706. The North Carolina Office of State Planning estimated the 2007 population of Pinehurst to be 10,511, demonstrating an increase of 8.3% between the years 2000 and 2007. The age make-up of the village has changed only slightly and reflects a large retirement population, with the median age as reported in the 1990 US Census being 62.3 years, and the median age as reported in the 2000 US Census being 60.4 years. See Table 1 in Section 2 for detailed population data. As of 2009, the NC Office of State Planning reported the Village of Pinehurst population as 13,601.

#### b. Housing

The occupancy rate of Pinehurst's housing units is relatively low – only 79.6% (4,510) of the village's housing units are occupied, with 20.4% (1,158 units) being vacant, as reported in the 2000 Census. Six hundred five (52.2%) of the vacant units are used for seasonal, recreational, or occasional use. Of the occupied units, 3,972 units, or 88.1%, are owner-occupied, and 538, or 11.9% of the units, are renter-occupied. The number of housing units (5,668) has increased substantially from the 1990 Census reported figure of 3,759.

#### c. Economy

The 2000 Census reported that the majority of Pinehurst's workers were employed in the education/health/social services (26.3%) and the arts/entertainment/recreation/ accommodation/food services (16.5%) industries. Median income for PInehurst's residents was $58,950, and only 1.3% of Pinehurst's families were considered below poverty level.

### 3. *Capability Assessment*

#### a. Type of Government/Administrative Staff

The Village of Pinehurst was incorporated in 1980 and is governed by a Mayor and four (4) Council members. Village staff includes a Manager, Assistant Managers, Clerk, Public Works Director, Chief of Police, Fire Chief, Human Resources Director, Personnel Director, Risk Management Director, Planning and Inspections Director, Building Inspector, Garage Superintendent, and Engineer. Following is the village's contact information:

Village of Pinehurst
395 Magnolia Road
Pinehurst, NC 28374-9130
(910) 295-1900
(910) 295-1853, fax

#### b. Infrastructure Resources

Water and sewer service for the Village is provided by the county. The Village provides its own garbage collection and municipal recycling services for its residents.

#### c. Police, Fire and Rescue

Police protection for the Village is provided by the Pinehurst Police Department, consisting of 24 sworn officers, one administrative assistant, and four civilian dispatchers. Fire protection is provided by the Pinehurst Fire Department, staffed with 29 firefighters and one civilian position. Rescue services are handled by a small volunteer rescue squad and the Moore County 911 system.

#### d. Capability Overview

The following table provides an overview of the policy documents available to the Village of Pinehurst regarding mitigation.

**Table 32: Village of Pinehurst Community Capability Assessment**

| Policies/ Programs | Policy/Program Status | Effectiveness/ Rationale for Mitigation | Recommendations for Future Action |
|---|---|---|---|
| Flood Damage Prevention Ordinance | Existing | High, requires all new construction and substantial improvements of residential structures to be built at 2' above base flood elevation. Additionally, the Village's FDPO does not allow the establishment of new residential lots in the floodplain. | None |
| Inspections/ Permitting | Existing | High, centralized and efficient system for enforcement of State building code. | None |
| Land Use Plan | Existing | Medium, policies guide growth and development but are not regulatory. | None |
| Subdivision Ordinance | Existing | High, minimum standards for flood prevention, stormwater drainage, street patterns, and access. | None |
| Zoning Ordinance | Existing | High, adopts development density requirements for all construction within corporate limits. | None |
| Stormwater Control Ordinance | Existing | High, establishes stormwater retention requirements aimed at reducing stormwater sheet flow and adverse downstream drainage issues. | Review annually. |

*Source: Village of Pinehurst; HCP, Inc.*

### *4. Vulnerability Assessment*

#### a. Existing Vulnerability

As detailed in the section discussing hazard identification, property in Moore County is deemed to be vulnerable to severe winter storms, severe thunderstorms/windstorms, hurricanes, tornadoes, localized flooding, and drought/heat waves. Based upon the unpredictable nature of these events, it was determined that the entire corporate limits area of the Village of Pinehurst is also susceptible to the impact of these events.

The following table provides an overview of existing land use for developed portions of the Village of Pinehurst. Acreage and property counts are provided, as well as the value of structures and land that fall within the Village's corporate limits.

**Table 33: Village of Pinehurst Existing Land Use - Developed**

| Land Use | # of Properties | Acres | % of Total Village Acreage | Building Value* |
|---|---|---|---|---|
| Non-Residential | 258 | 1,067.25 | 4.9% | $152,432,180 |
| Residential | 8,429 | 13,830.63 | 64.0% | $2,162,593,330 |
| Total | 8,687 | 14,897.88 | 68.9% | $2,315,025,510 |

*The estimates for building value do not include tax exempt facilities. Thus, the figures may appear low.
*Source: Village of Pinehurst, Moore County, and HCP, Inc.*

### b. Future Vulnerability

Table 34 summarizes all vacant land currently within the non-residential and residential collective zoning districts. This analysis was performed in an effort to determine the hazard potential if development under current regulations is fully realized. In order to estimate the future value of structures within portions of the Village that are currently vacant, an estimate of total potential investment was calculated. This figure was derived by utilizing an average per structure value for each use based upon existing conditions. Current tax values in relation to total existing development stock by land use yielded the following average figures:

- **Non-Residential** - $590,800
- **Residential** - $256,550

Refer also to Table 33. These figures serve as approximate value per property based upon existing structural tax values provided through the Moore County Tax Department. They are not intended to reflect current market conditions or specific value in relation to property within the Village of Pinehurst. Applying a value of 1 unit per 4.1 acres for non-residential property and 1 unit per 1.6 acres for residential property, it is estimated that 142 additional non-residential units and 3,837 additional residential units would be reached at maximum build-out. Thus, an additional $1,068,275,950 is estimated as property value if all properties were developed. It is important to note that these figures do not take into account land value.

**Table 34: Village of Pinehurst Vacant Land by Land Use**

| Land Use | Acres | % of Total Village Acreage | Additional Units | Total Potential Developed Value* |
|---|---|---|---|---|
| Non-Residential | 580.35 | 2.7% | 142 | $83,893,600 |
| Residential | 6,139.50 | 28.4% | 3,837 | $984,382,350 |
| Total | 6,719.85 | 31.1% | 3,979 | $1,068,275,950 |

*The estimates for building value do not include tax exempt facilities. Thus, the figures may appear low.
*Source: Village of Pinehurst, Moore County, and HCP, Inc.*

### c. Estimated Impact on Residential Development

The hazard mitigation planning guidelines also require jurisdictions to estimate the number of residential structures that may be impacted in the future based upon current development guidelines and patterns. In order to meet this requirement, additional residential units have been calculated based on the Village's existing housing stock. According to the 2000 US Census, there were 5,668 housing units in Pinehurst.

Based on the total acreage for residential use derived through the existing land use survey (8,429 acres), this results in an average of approximately 1 unit per 1.6 acres. This figure was then multiplied times the total vacant acreage falling within a residential land use classification (6,140 acres). The results of this analysis estimate that within Pinehurst, 3,837 additional housing units could be anticipated through build-out. This estimate assumes that current development regulations will remain consistent, and that the corporate limits of the Village will not be extended. Based on an average household size of 2.05, as reported in the 2000 US Census, this development will result in an estimated population increase of 7,866 persons. An estimate of how long this process might take has not been factored into the analysis.

An estimate of commercial/non-residential use was not conducted within the context of this plan. It is difficult to formulate a justifiable projection due to the many factors that impact growth and expansion of these uses.

**d. Flooding**

(1) Flood Insurance Rate Maps (FIRMS)

Table 35 provides information on the number of acres in the FEMA-defined 100-year and 500-year floodplains within Pinehurst.

**Table 35: Village of Pinehurst Flood Zones**

| Flood Zone | Acres | % of Total Village Acreage |
|---|---|---|
| A/AE | 203.143 | 0.94% |
| X-500 | 7.49 | 0.03% |
| Total | 210.62 | 0.97% |

*Source: FEMA, HCP, Inc.*

(2) Existing Vulnerability, Flood Zone

The following provides an estimate of existing vulnerability relating to the "A" and "AE" floodplain zones, utilizing the same methodology outlined in the land use vulnerability discussion. Estimates for development within the floodplain are based on actual existing conditions within the "A" and "AE" flood zones. These zones were selected for this analysis because the owners of the properties must carry flood insurance, and the properties are typically the focus of specific mitigation measures. Note that there are no non-residential developed properties in the flood zone.

**Table 36: Village of Pinehurst Floodprone Structures - Developed**

| Land Use | # of Properties | Acres | % of Total Village Acreage | Building Value* |
|---|---|---|---|---|
| Non-Residential | 0 | 0 | 0.0% | $0 |
| Residential | 41 | 100.98 | 0.5% | $13,558,410 |
| Total | 41 | 100.98 | 0.5% | $13,558,410 |

*The estimates for building value do not include tax exempt facilities. Thus, the figures may appear low.
*Source: Village of Pinehurst, FEMA, HCP, Inc.*

### (3) Future Vulnerability, Flood Zone

The following table provides a breakdown of development potential for portions of Pinehurst falling within the "A" and "AE" flood zones. This analysis has been based on the same methodology outlined in the land use vulnerability section.

**Table 37: Village of Pinehurst Vacant Land Use in Floodplain**

| Land Use | Acres | % of Total Village Acreage | Additional Units | Total Potential Developed Value* |
|---|---|---|---|---|
| Non-Residential | 0 | 0.0% | 0 | $0 |
| Residential | 102.15 | 0.5% | 62 | $15,906,100 |
| Total | 102.15 | 0.5% | 62 | $15,906,100 |

*The estimates for building value do not include tax exempt facilities. Thus, the figures may appear low.
*Source: Village of Pinehurst, FEMA, HCP, Inc.*

### (4) Estimated Impact on Residential Development, Flood Zone

As outlined above, there are 102.15 acres of vacant land zoned for residential development within the Village of Pinehurst's "A" or "AE" flood zone. Based on an average of 1 unit per 1.6 acres, this analysis will result in 64 additional residential units within the 100-year floodplain at build-out. If this development were to occur, an additional 131 individuals would be located within a FEMA-defined special flood hazard area (SFHA).

### e. Repetitive Loss Properties

There are no repetitive loss properties located within the Village of Pinehurst planning jurisdiction.

### f. Manmade Hazards/Railway Corridor

There are 2,058 acres (9.5% of total acreage in the village) of developed property within the Village of Pinehurst's 100-ft. railway corridor buffer. The associated building value of those properties is currently $76,540,660. Of the remaining property along the railway corridor, 320 acres, or 1.5% of total acreage in the village, is undeveloped and could result in development encroaching on the existing right-of-way.

## *G. TOWN OF ROBBINS*

### *1. Location*

The Town of Robbins is located in the northern portion of Moore County, approximately six miles south of the Randolph County border. The Aberdeen Carolina Western Railway (ACWR) runs through town, as well as State Highway 705.

### *2. Demographic Summary*

#### a. Population

The population of Robbins as reported in the 1990 US Census was 1,021, with a 17% increase occurring between 1990 and 2000, for a total 2000 population of 1,195. The North Carolina Office of State Planning estimated the 2007 population of Robbins to be 1,177, demonstrating a slight decrease of 1.5% between the years 2000 and 2007. The town's population appears to be getting "younger," with the median age as reported in the 1990 US Census being 35.5 years, and the median age as reported in the 2000 US Census being 30.9 years. See Table 1 in Section 2 for detailed population data. The NC Office of State Planning projects only a slight decrease for Robbins' 2012 population, which it estimates at 1,175 persons.

#### b. Housing

The occupancy rate of Robbins' housing units is relatively high – 89.8% (423) of the town's housing units are occupied, with 10.2% (48 units) being vacant, as reported in the 2000 Census. Only one of the vacant units is used for seasonal, recreational, or occasional use. Of the occupied units, 261 units, or 61.7%, are owner-occupied, and 162, or 38.3% of the units, are renter-occupied. The number of housing units (471) has increased only slightly from the 1990 Census reported figure of 448.

#### c. Economy

The 2000 Census reported that the majority of Robbins' workers were employed in the manufacturing (42.7%) and the education/health/social services (13.8%) industries. Median income for Robbins' residents was $28,828, and a substantial 18.4% of Robbins' families were considered below poverty level.

### 3. *Capability Assessment*

#### a. Type of Government/Administrative Staff

The Town of Robbins was incorporated in 1935 and is governed by a Mayor and five (5) Commissioners. Town staff includes a Manager, Clerk, Deputy Clerk, Finance Director, Public Works Director, Chief of Police, and Fire Chief. Following is the town's contact information:

Town of Robbins
PO Box 296
Robbins, NC 27325-0296
(910) 948-2431
(910) 948-3981, fax

#### b. Infrastructure Resources

The Town provides water and sewer service for its residents and contracts with an outside firm to provide garbage collection services.

#### c. Police, Fire and Rescue

Police protection for the town's residents is provided by the Robbins Police Department, which consists of a paid chief and four (4) officers. Fire protection is provided by the town's volunteer fire department, which includes some paid part-time employees. Rescue services are provided by a small volunteer rescue squad and through the Moore County 911 service.

#### d. Capability Overview

The following table provides an overview of the policy documents available to the Town of Robbins regarding mitigation.

**Table 38: Town of Robbins Community Capability Assessment**

| Policies/ Programs | Policy/Program Status | Effectiveness/ Rationale for Mitigation | Recommendations for Future Action |
|---|---|---|---|
| Flood Damage Prevention Ordinance | Existing | High, requires all new construction and substantial improvements of residential structures to be built at or above base flood elevation. | None |
| Inspections/ Permitting | Conducted through Moore County Inspections Department | High, centralized and efficient system for enforcement of State building code. | None |
| Land Use Plan | Existing | Medium, policies guide growth and development but are not regulatory. | None |
| Subdivision Ordinance | Existing | High, minimum standards for flood prevention, stormwater drainage, street patterns, and access. | None |
| Zoning Ordinance | Existing | High, adopts development density requirements for all construction within corporate limits. | None |
| Stormwater Control Ordinance | None | N/A | None |

*Source: Town of Robbins; HCP, Inc.*

### *4. Vulnerability Assessment*

#### a. Existing Vulnerability

As detailed in the section discussing hazard identification, property in Moore County is deemed to be vulnerable to severe winter storms, severe thunderstorms/windstorms, hurricanes, tornadoes, localized flooding, and drought/heat waves. Based upon the unpredictable nature of these events, it was determined that the entire corporate limits area of the Town of Robbins is also susceptible to the impact of these events.

The following table provides an overview of existing land use for developed portions of the Town of Robbins. Acreage and property counts are provided, as well as the value of structures and land that fall within the Town's corporate limits.

**Table 39: Town of Robbins Existing Land Use - Developed**

| Land Use | # of Properties | Acres | % of Total Town Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 108 | 174.93 | 4.2% | $14,309,200 |
| Residential | 748 | 1446.29 | 34.5% | $56,372,000 |
| Total | 856 | 1621.22 | 38.7% | $70,681,200 |

*Source: Town of Robbins, Moore County, and HCP, Inc.*

### b. Future Vulnerability

Table 40 summarizes all vacant land currently within the non-residential and residential collective zoning districts. This analysis was performed in an effort to determine the hazard potential if development under current regulations is fully realized. In order to estimate the future value of structures within portions of the Town that are currently vacant, an estimate of total potential investment was calculated. This figure was derived by utilizing an average per structure value for each use based upon existing conditions. Current tax values in relation to total existing development stock by land use yielded the following average figures:

- **Non-Residential** - $132,500
- **Residential** - $75,350

Refer also to Table 39. These figures serve as approximate value per property based upon existing structural tax values provided through the Moore County Tax Department. They are not intended to reflect current market conditions or specific value in relation to property within the Town of Robbins. Applying a value of 1 unit per 1.6 acres for non-residential property and 1 unit per 1.9 acres for residential property, it is estimated that 36 additional non-residential units and 1,321 additional residential units would be reached at maximum build-out. Thus, an additional $104,307,350 is estimated as property value if all properties were developed. It is important to note that these figures do not take into account land value.

**Table 40: Town of Robbins Vacant Land by Land Use**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 57.66 | 1.4% | 36 | $4,770,000 |
| Residential | 2,510.03 | 59.9% | 1,321 | $99,537,350 |
| Total | 2,567.69 | 61.3% | 1,357 | $104,307,350 |

*Source: Town of Robbins, Moore County, and HCP, Inc.*

### c. Estimated Impact on Residential Development

The hazard mitigation planning guidelines also require jurisdictions to estimate the number of residential structures that may be impacted in the future based upon current development guidelines and patterns. In order to meet this requirement, additional residential units have been calculated based on the Town's existing housing stock. According to the 2000 US Census, there were 471 housing units in Robbins.

Based on the total acreage for residential use derived through the existing land use survey (1,446 acres), this results in an average of approximately 1 unit per 1.9 acres. This figure was then multiplied times the total vacant acreage falling within a residential land use classification (2,510 acres). The results of this analysis estimate that within Robbins, 1,321 additional housing units could be anticipated through build-out. This estimate assumes that current development regulations will remain consistent, and that the corporate limits of the Town will not be extended. Based on an average household size of 2.81, as reported in the 2000 US Census, this development will result in an estimated population increase of 3,712 persons. An estimate of how long this process might take has not been factored into the analysis.

An estimate of commercial/non-residential use was not conducted within the context of this plan. It is difficult to formulate a justifiable projection due to the many factors that impact growth and expansion of these uses.

**d. Flooding**

(1) Flood Insurance Rate Maps (FIRMS)

Table 41 provides information on the number of acres in the FEMA-defined 100-year and 500-year floodplains within Robbins.

**Table 41: Town of Robbins Flood Zones**

| Flood Zone | Acres | % of Total Town Acreage |
|---|---|---|
| A/AE | 421.52 | 10.1% |
| X-500 | 93.77 | 2.2% |
| Total | 515.29 | 12.3% |

*Source: FEMA, HCP, Inc.*

(2) Existing Vulnerability, Flood Zone

The following provides an estimate of existing vulnerability relating to the "A" and "AE" floodplain zones, utilizing the same methodology outlined in the land use vulnerability discussion. Estimates for development within the floodplain are based on actual existing conditions within the "A" and "AE" flood zones. These zones were selected 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 42: Town of Robbins Floodprone Structures - Developed**

| Land Use | # of Properties | Acres | % of Total Town Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 2 | 6.46 | 0.20% | $160,490 |
| Residential | 4 | 63.14 | 1.50% | $314,500 |
| Total | 6 | 69.6 | 1.70% | $474,990 |

*Source: Town of Robbins, FEMA, HCP, Inc.*

### (3) Future Vulnerability, Flood Zone

The following table provides a breakdown of development potential for portions of Robbins falling within the "A" and "AE" flood zones. This analysis has been based on the same methodology outlined in the land use vulnerability section. Note that there are no non-residential vacant properties in the floodplain.

**Table 43: Town of Robbins Vacant Land Use in Floodplain**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 0 | 0.0% | 0 | $0 |
| Residential | 351.92 | 8.4% | 185 | $13,939,750 |
| Total | 351.92 | 8.4% | 185 | $13,939,750 |

*Source: Town of Robbins, FEMA, HCP, Inc.*

### (4) Estimated Impact on Residential Development, Flood Zone

As outlined above, there are 351.92 acres of vacant land zoned for residential development within the Town of Robbins' "A" or "AE" flood zone. Based on an average of 1 unit per 1.9 acres, this analysis will result in 185 additional residential units within the 100-year floodplain at build-out. If this development were to occur, an additional 520 individuals would be located within a FEMA-defined special flood hazard area (SFHA).

### e. Repetitive Loss Properties

There are no repetitive loss properties located within the Town of Robbins planning jurisdiction.

### f. Manmade Hazards/Railway Corridor

There are 180 acres (4.3% of total town acreage) of developed property within the Town of Robbins' 100-ft. railway corridor buffer. The associated building value of those properties is currently $7,637,380. Of the remaining property along the railway corridor, 255 acres, or 6.1% of total acreage in the town, is undeveloped and could result in development encroaching on the existing right-of-way.

## *H. TOWN OF SOUTHERN PINES*

### *1. Location*

The Town of Southern Pines is located in the southern portion of Moore County, just east of the Village of Pinehurst. The CSX Railway runs through town, as well as State Highways 2 and 22, and US Route 1 and 15-501. The Moore County Airport, Pinehurst/Southern Pines, also serves the area.

### *2. Demographic Summary*

#### **a. Population**

The population of Southern Pines as reported in the 1990 US Census was 9,999, with a 9.2% increase occurring between 1990 and 2000, for a total 2000 population of 10,918. The North Carolina Office of State Planning estimated the 2007 population of Southern Pines to be 11,668, demonstrating an increase of 6.9% between the years 2000 and 2007. The age make-up of the town has changed only slightly, with the median age as reported in the 1990 US Census being 39.2 years, and the median age as reported in the 2000 US Census being 43.8 years. See Table 1 in Section 2 for detailed population data. The NC Office of State Planning projects a continuing increasing trend for Southern Pines' 2012 population, which it estimates at 12,230 persons.

#### **b. Housing**

The occupancy rate of Southern Pines' housing units is relatively high – 86.6% (4,754) of the town's housing units are occupied, with 13.4% (734 units) being vacant, as reported in the 2000 Census. One hundred ninety-two (3.5%) of the vacant units are used for seasonal, recreational, or occasional use. Of the occupied units, 2,993 units, or 63%, are owner-occupied, and 1,761, or 37% of the units, are renter-occupied. The number of housing units (5,488) has increased slightly from the 1990 Census reported figure of 4,936.

#### **c. Economy**

The 2000 Census reported that the majority of Southern Pines' workers were employed in the education/health/social services (26.1%) and the arts/entertainment/ recreation/ accommodation/food services (16.1%) industries. Median income for Southern Pines' residents was $38,822, and 11.2% of Southern Pines' families were considered below poverty level.

### 3. *Capability Assessment*

#### a. Type of Government/Administrative Staff

The Town of Southern Pines was incorporated in 1887 and is governed by a Mayor and four (4) Council members. Town staff includes a Manager, Assistant Manager, Clerk, Deputy Clerk, Finance Director, Chief of Police, Fire Chief, Planning Director, Building Inspector, Zoning Administrator, Street Superintendent, and Recreation Director. Following is the town's contact information:

Town of Southern Pines
125 SE Broad Street
Southern Pines, NC 28387
(910) 692-7021
(910) 692-9444, fax

#### b. Infrastructure Resources

The Town provides water and sewer service as well as garbage collection for its residents. Municipal recycling is handled through a contract with an outside waste management firm.

#### c. Police, Fire and Rescue

Police protection for the town's residents is provided by the Southern Pines Police Department, which consists of 41 full-time and 4 part-time personnel. Fire protection and rescue services are provided by the Southern Pines Fire/Rescue Department, which consists of 27 full-time and 6 part-time paid employees, and 12 volunteers.

#### d. Capability Overview

The following table provides an overview of the policy documents available to the Town of Southern Pines regarding mitigation.

**Table 44: Town of Southern Pines Community Capability Assessment**

| Policies/ Programs | Policy/Program Status | Effectiveness/ Rationale for Mitigation | Recommendations for Future Action |
|---|---|---|---|
| Flood Damage Prevention Ordinance | Existing | High, requires all new construction and substantial improvements of residential structures to be built at or above base flood elevation. | None |
| Inspections/ Permitting | Existing | High, centralized and efficient system for enforcement of State building code. | None |
| Land Use Plan | Existing | Medium, policies guide growth and development but are not regulatory. | None |
| Subdivision Ordinance | Existing | High, minimum standards for flood prevention, stormwater drainage, street patterns, and access. | None |
| Zoning Ordinance | Existing | High, adopts development density requirements for all construction within corporate limits. | None |
| Stormwater Control Ordinance | Existing | High, establishes stormwater retention requirements aimed at reducing stormwater sheet flow and adverse downstream drainage issues. | Review annually. |

*Source: Town of Southern Pines; HCP, Inc.*

### *4. Vulnerability Assessment*

#### a. Existing Vulnerability

As detailed in the section discussing hazard identification, property in Moore County is deemed to be vulnerable to severe winter storms, severe thunderstorms/windstorms, hurricanes, tornadoes, localized flooding, and drought/heat waves. Based upon the unpredictable nature of these events, it was determined that the entire corporate limits area of the Town of Southern Pines is also susceptible to the impact of these events.

The following table provides an overview of existing land use for developed portions of the Town of Southern Pines. Acreage and property counts are provided, as well as the value of structures and land that fall within the Town's corporate limits.

**Table 45: Town of Southern Pines Existing Land Use - Developed**

| Land Use | # of Properties | Acres | % of Total Town Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 561 | 2,334.11 | 10.0% | $256,138,610 |
| Residential | 6,142 | 12,671.1 | 54.4% | $1,287,760,210 |
| Total | 6,703 | 15,005.21 | 64.4% | $1,543,898,820 |

*Source: Town of Southern Pines, Moore County, and HCP, Inc.*

### b. Future Vulnerability

Table 46 summarizes all vacant land currently within the non-residential and residential collective zoning districts. This analysis was performed in an effort to determine the hazard potential if development under current regulations is fully realized. In order to estimate the future value of structures within portions of the Town that are currently vacant, an estimate of total potential investment was calculated. This figure was derived by utilizing an average per structure value for each use based upon existing conditions. Current tax values in relation to total existing development stock by land use yielded the following average figures:

- **Non-Residential** - $456,550
- **Residential** - $209,650

Refer also to Table 45. These figures serve as approximate value per property based upon existing structural tax values provided through the Moore County Tax Department. They are not intended to reflect current market conditions or specific value in relation to property within the Town of Southern Pines. Applying a value of 1 unit per 4.2 acres for non-residential property and 1 unit per 2.1 acres for residential property, it is estimated that 404 additional non-residential units and 3,140 additional residential units would be reached at maximum build-out. Thus, an additional $842,747,200 is estimated as property value if all properties were developed. It is important to note that these figures do not take into account land value.

**Table 46: Town of Southern Pines Vacant Land by Land Use**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 1,695.80 | 7.3% | 404 | $184,446,200 |
| Residential | 6,594.95 | 28.3% | 3,140 | $658,301,000 |
| Total | 8,290.75 | 35.6% | 3,544 | $842,747,200 |

*Source: Town of Southern Pines, Moore County, and HCP, Inc.*

### c. Estimated Impact on Residential Development

The hazard mitigation planning guidelines also require jurisdictions to estimate the number of residential structures that may be impacted in the future based upon current development guidelines and patterns. In order to meet this requirement, additional residential units have been calculated based on the Town's existing housing stock. According to the 2000 US Census, there were 5,488 housing units in Southern Pines.

Based on the total acreage for residential use derived through the existing land use survey (12,671 acres), this results in an average of approximately 1 unit per 2.1 acres. This figure was then multiplied times the total vacant acreage falling within a residential land use classification (6,595 acres). The results of this analysis estimate that within Southern Pines, 3,140 additional housing units could be anticipated through build-out. This estimate assumes that current development regulations will remain consistent, and that the corporate limits of the Town will not be extended. Based on an average household size of 2.19, as reported in the 2000 US Census, this development will result in an estimated population increase of 6,877 persons. An estimate of how long this process might take has not been factored into the analysis.

An estimate of commercial/non-residential use was not conducted within the context of this plan. It is difficult to formulate a justifiable projection due to the many factors that impact growth and expansion of these uses.

**d. Flooding**

(1) Flood Insurance Rate Maps (FIRMS)

Table 47 provides information on the number of acres in the FEMA-defined 100-year and 500-year floodplains within Southern Pines.

**Table 47: Town of Southern Pines Flood Zones**

| Flood Zone | Acres | % of Total Town Acreage |
|---|---|---|
| A/AE | 962.36 | 4.13% |
| X-500 | 7.7 | 0.03% |
| Total | 970.06 | 4.16% |

*Source: FEMA, HCP, Inc.*

(2) Existing Vulnerability, Flood Zone

The following provides an estimate of existing vulnerability relating to the "A" and "AE" floodplain zones, utilizing the same methodology outlined in the land use vulnerability discussion. Estimates for development within the floodplain are based on actual existing conditions within the "A" and "AE" flood zones. These zones were selected 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 48: Town of Southern Pines Floodprone Structures - Developed**

| Land Use | # of Properties | Acres | % of Total Town Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 1 | 22.51 | 0.09% | $34,630 |
| Residential | 14 | 675.12 | 2.90% | $6,400,290 |
| Total | 15 | 697.73 | 2.99% | $6,434,920 |

*Source: Town of Southern Pines, FEMA, HCP, Inc.*

### (3) Future Vulnerability, Flood Zone

The following table provides a breakdown of development potential for portions of Southern Pines falling within the "A" and "AE" flood zones. This analysis has been based on the same methodology outlined in the land use vulnerability section.

**Table 49: Town of Southern Pines Vacant Land Use in Floodplain**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 6.39 | 0.03% | 1 | $456,550 |
| Residential | 287.24 | 1.23% | 137 | $28,722,050 |
| Total | 293.63 | 1.26% | 138 | $29,178,600 |

*Source: Town of Southern Pines, FEMA, HCP, Inc.*

### (4) Estimated Impact on Residential Development, Flood Zone

As outlined above, there are 287.24 acres of vacant land zoned for residential development within the Town of Southern Pines' "A" or "AE" flood zone. Based on an average of 1 unit per 2.1 acres, this analysis will result in 137 additional residential units within the 100-year floodplain at build-out. If this development were to occur, an additional 300 individuals would be located within a FEMA-defined special flood hazard area (SFHA).

### e. Repetitive Loss Properties

There are no repetitive loss properties located within the Town of Southern Pines planning jurisdiction.

### f. Manmade Hazards/Railway Corridor

There are 1,749 acres (7.5% of total town acreage) of developed property within the Town of Southern Pines' 100-ft. railway corridor buffer. The associated building value of those properties is currently $27,672,020. Of the remaining property along the railway corridor, 501 acres, or 2.2% of total acreage in the town, is undeveloped and could result in development encroaching on the existing right-of-way.

# *I. TOWN OF TAYLORTOWN*

## *1. Location*

The Town of Taylortown is located in the southern central portion of Moore County, approximately two miles west of Pinehurst. The Aberdeen Carolina Western Railway (ACWR) runs through town, as well as State Highway 211.

## *2. Demographic Summary*

### a. Population

The population of Taylortown as reported in the 1990 US Census was 633 with a 23.1% increase occurring between 1990 and 2000, for a total 2000 population of 845. The North Carolina Office of State Planning estimated the 2007 population of Taylortown to be 960, demonstrating an increase of 13.6% between the years 2000 and 2007. The age make-up of the town has barely changed, with the median age as reported in the 1990 US Census being 35.1 years, and the median age as reported in the 2000 US Census being 35.3 years. See Table 1 in Section 2 for detailed population data. The NC Office of State Planning projects a continuing increasing trend for Taylortown's 2012 population, which it estimates at 1,041 persons.

### b. Housing

The occupancy rate of Taylortown's housing units is high – 91.4% (308) of the town's housing units are occupied, with only 8.6% (29 units) being vacant, as reported in the 2000 Census. Only four of the vacant units are used for seasonal, recreational, or occasional use. Of the occupied units, 252 units, or 81.8%, are owner-occupied, and 56, or 18.2% of the units, are renter-occupied. The number of housing units (337) has increased by almost one-fourth (23.9%) from the 1990 Census reported figure of 272.

### c. Economy

The 2000 Census reported that the majority of Taylortown's workers were employed in the arts/entertainment/recreation/accommodation/food services (24.2%), education/health/social services (22%), and manufacturing (18.7%) industries. Median income for Taylortown's residents was $30,781, and 12% of Taylortown's families were considered below poverty level.

### 3. *Capability Assessment*

#### a. Type of Government/Administrative Staff

The Town of Taylortown was incorporated in 1987 and is governed by a Mayor and four (4) Council members. Town staff includes a Clerk and a Chief of Police. Following is the town's contact information:

Town of Taylortown
PO Box 1274
Pinehurst, NC 28370
(910) 295-4010
(910) 295-1696, fax

#### b. Infrastructure Resources

The Town provides water and sewer service for its residents, and provides a canister for garbage collection for its residents.

#### c. Police, Fire and Rescue

Police protection for the town's residents is provided by the Taylortown Police Department, which consists of a chief, one full-time, and four (4) reserve officers. Fire protection is contracted through the Pinehurst Fire Department. Rescue services are provided through the Moore County 911 service.

#### d. Capability Overview

The following table provides an overview of the policy documents available to the Town of Taylortown regarding mitigation.

**Table 50: Town of Taylortown Community Capability Assessment**

| Policies/ Programs | Policy/Program Status | Effectiveness/ Rationale for Mitigation | Recommendations for Future Action |
|---|---|---|---|
| Flood Damage Prevention Ordinance | None | N/A | None |
| Inspections/ Permitting | Conducted through Moore County Inspections Department | High, centralized and efficient system for enforcement of State building code. | None |
| Land Use Plan | Existing | Medium, policies guide growth and development but are not regulatory. | None |
| Subdivision Ordinance | Existing | High, minimum standards for flood prevention, stormwater drainage, street patterns, and access. | None |
| Zoning Ordinance | Existing | High, adopts development density requirements for all construction within corporate limits. | None |
| Stormwater Control Ordinance | None | N/A | None |

*Source: Town of Taylortown; HCP, Inc.*

### *4. Vulnerability Assessment*

#### a. Existing Vulnerability

As detailed in the section discussing hazard identification, property in Moore County is deemed to be vulnerable to severe winter storms, severe thunderstorms/windstorms, hurricanes, tornadoes, localized flooding, and drought/heat waves. Based upon the unpredictable nature of these events, it was determined that the entire corporate limits area of the Town of Taylortown is also susceptible to the impact of these events.

The following table provides an overview of existing land use for developed portions of the Town of Taylortown. Acreage and property counts are provided, as well as the value of structures and land that fall within the Town's corporate limits.

**Table 51: Town of Taylortown Existing Land Use - Developed**

| Land Use | # of Properties | Acres | % of Total Town Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 65 | 57.42 | 7.3% | $30,923,810 |
| Residential | 328 | 269.86 | 34.1% | $26,283,920 |
| Total | 393 | 327.28 | 41.4% | $57,207,730 |

*Source: Town of Taylortown, Moore County, and HCP, Inc.*

### b. Future Vulnerability

Table 52 summarizes all vacant land currently within the non-residential and residential collective zoning districts. This analysis was performed in an effort to determine the hazard potential if development under current regulations is fully realized. In order to estimate the future value of structures within portions of the Town that are currently vacant, an estimate of total potential investment was calculated. This figure was derived by utilizing an average per structure value for each use based upon existing conditions. Current tax values in relation to total existing development stock by land use yielded the following average figures:

- **Non-Residential** - $475,750
- **Residential** - $80,150

Refer also to Table 51. These figures serve as approximate value per property based upon existing structural tax values provided through the Moore County Tax Department. They are not intended to reflect current market conditions or specific value in relation to property within the Town of Taylortown. Applying a value of 1 unit per 0.9 acre for non-residential property and 1 unit per 0.8 acre for residential property, it is estimated that 85 additional non-residential units and 485 additional residential units would be reached at maximum build-out. Thus, an additional $79,311,500 is estimated as property value if all properties were developed. It is important to note that these figures do not take into account land value.

**Table 52: Town of Taylortown Vacant Land by Land Use**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 76.63 | 9.7% | 85 | $40,438,750 |
| Residential | 387.66 | 48.9% | 485 | $38,872,750 |
| Total | 464.29 | 58.6% | 570 | $79,311,500 |

*Source: Town of Taylortown, Moore County, and HCP, Inc.*

### c. Estimated Impact on Residential Development

The hazard mitigation planning guidelines also require jurisdictions to estimate the number of residential structures that may be impacted in the future based upon current development guidelines and patterns. In order to meet this requirement, additional residential units have been calculated based on the Town's existing housing stock. According to the 2000 US Census, there were 337 housing units in Taylortown.

Based on the total acreage for residential use derived through the existing land use survey (270 acres), this results in an average of approximately 1 unit per 0.8 acre. This figure was then multiplied times the total vacant acreage falling within a residential land use classification (388 acres). The results of this analysis estimate that within Taylortown, 485 additional housing units could be anticipated through build-out. This estimate assumes that current development regulations will remain consistent, and that the corporate limits of the Town will not be extended. Based on an average household size of 2.74, as reported in the 2000 US Census, this development will result in an estimated population increase of 1,329 persons. An estimate of how long this process might take has not been factored into the analysis.

An estimate of commercial/non-residential use was not conducted within the context of this plan. It is difficult to formulate a justifiable projection due to the many factors that impact growth and expansion of these uses.

**d. Flooding**

(1) Flood Insurance Rate Maps (FIRMS)

Table 53 provides information on the number of acres in the FEMA-defined 100-year floodplain within Taylortown. There are no properties lying in the 500-year floodplain in Taylortown.

**Table 53: Town of Taylortown Flood Zone**

| Flood Zone | Acres | % of Total Town Acreage |
|---|---|---|
| A/AE | 25.71 | 3.20% |

*Source: FEMA, HCP, Inc.*

(2) Existing Vulnerability, Flood Zone

The following provides an estimate of existing vulnerability relating to the "A" and "AE" floodplain zones, utilizing the same methodology outlined in the land use vulnerability discussion. Estimates for development within the floodplain are based on actual existing conditions within the "A" and "AE" flood zones. These zones were selected for this analysis because the owners of the properties must carry flood insurance, and the properties are typically the focus of specific mitigation measures. Note that there are no residential properties in the floodplain.

**Table 54: Town of Taylortown Floodprone Structures - Developed**

| Land Use | # of Properties | Acres | % of Total Town Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 1 | 2.18 | 0.3% | $65,620 |
| Residential | 0 | 0 | 0.0% | $0 |
| Total | 1 | 2.18 | 0.3% | $65,620 |

*Source: Town of Taylortown, FEMA, HCP, Inc.*

(3) Future Vulnerability, Flood Zone

The following table provides a breakdown of development potential for portions of Taylortown falling within the "A" and "AE" flood zones. This analysis has been based on the same methodology outlined in the land use vulnerability section. Note that there are no residential properties located in the floodplain.

**Table 55: Town of Taylortown Vacant Land Use in Floodplain**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 23.53 | 2.9% | 32 | $15,224,000 |
| Residential | 0 | 0.0% | 0 | $0 |
| Total | 23.53 | 2.9% | 32 | $15,224,000 |

*Source: Town of Taylortown, FEMA, HCP, Inc.*

(4) Estimated Impact on Residential Development, Flood Zone

There are no residential properties located in the Taylortown's floodplain; therefore, no impact on residential development in the flood zone is anticipated.

### e. Repetitive Loss Properties

There are no repetitive loss properties located within the Town of Taylortown planning jurisdiction.

### f. Manmade Hazards/Railway Corridor

There are no properties lying within a railway corridor buffer in the Town of Taylortown.

## *J. TOWN OF VASS*

### *1. Location*

The Town of Vass is located in the eastern central portion of Moore County, approximately three miles northwest of the Hoke County border. The CSX Railway runs through town, as well as US Route 1 and State Highway 690.

### *2. Demographic Summary*

#### a. Population

The population of Vass as reported in the 1990 US Census was 592 with a 26.7% increase occurring between 1990 and 2000, for a total 2000 population of 750. The North Carolina Office of State Planning estimated the 2007 population of Vass to be 850, demonstrating an increase of 13.3% between the years 2000 and 2007. The age make-up of the town has changed only slightly, with the median age as reported in the 1990 US Census being 32.6 years, and the median age as reported in the 2000 US Census being 37.5 years. See Table 1 in Section 2 for detailed population data. The NC Office of State Planning projects a continuing increasing trend for Vass's 2012 population, which it estimates at 919 persons.

#### b. Housing

The occupancy rate of Vass's housing units is relatively high – 86.6% (304) of the town's housing units are occupied, with 13.4% (47 units) being vacant, as reported in the 2000 Census. Only four of the vacant units are used for seasonal, recreational, or occasional use. Of the occupied units, 207 units, or 68.1%, are owner-occupied, and 97, or 31.9% of the units, are renter-occupied. The number of housing units (351) has increased by 39.3% from the 1990 Census reported figure of 252.

#### c. Economy

The 2000 Census reported that the majority of Vass's workers were employed in the education/health/social services (23.7%), retail trade (14.7%), and manufacturing (11.9%) industries. Median income for Vass's residents was $27,188, and a substantial 14.4% of Vass's families were considered below poverty level.

### 3. *Capability Assessment*

#### a. Type of Government/Administrative Staff

The Town of Vass was incorporated in 1907 and is governed by a Mayor and five (5) Commissioners. Town staff includes an Administrator/Clerk and Chief of Police. Following provides the town's contact information:

Town of Vass
PO Box 487
Vass, NC 28394-0487
(910) 245-4676
(910) 245-2739, fax

#### b. Infrastructure Resources

The water and wastewater systems within the Town of Vass are owned and operated by Moore County Public Utilities. The Town contracts with an outside firm for garbage collection and provides a bin for recycling services.

#### c. Police, Fire and Rescue

Police protection for the town's residents is provided by the Vass Police Department, which consists of three full-time and one part-time employees. Fire protection and rescue service is provided by the ninety (90) member Cypress Point Fire and Rescue Department. This department maintains a staff of 33 paid part-time members.

#### d. Capability Overview

The following table provides an overview of the policy documents available to the Town of Vass regarding mitigation.

**Table 56: Town of Vass Community Capability Assessment**

| Policies/ Programs | Policy/Program Status | Effectiveness/ Rationale for Mitigation | Recommendations for Future Action |
|---|---|---|---|
| Flood Damage Prevention Ordinance | Existing | High, requires all new construction and substantial improvements of residential structures to be built at or above base flood elevation. | None |
| Inspections/ Permitting | Conducted through Moore County Inspections Department | High, centralized and efficient system for enforcement of State building code. | None |
| Land Use Plan | Existing | Medium, policies guide growth and development but are not regulatory. | None |
| Subdivision Ordinance | Existing | High, minimum standards for flood prevention, stormwater drainage, street patterns, and access. | None |
| Zoning Ordinance | Existing | High, adopts development density requirements for all construction within corporate limits. | None |
| Stormwater Control Ordinance | None | N/A | None |

*Source: Town of Vass; HCP, Inc.*

### *4. Vulnerability Assessment*

#### a. Existing Vulnerability

As detailed in the section discussing hazard identification, property in Moore County is deemed to be vulnerable to severe winter storms, severe thunderstorms/windstorms, hurricanes, tornadoes, localized flooding, and drought/heat waves. Based upon the unpredictable nature of these events, it was determined that the entire corporate limits area of the Town of Vass is also susceptible to the impact of these events.

The following table provides an overview of existing land use for developed portions of the Town of Vass. Acreage and property counts are provided, as well as the value of structures and land that fall within the Town's corporate limits.

**Table 57: Town of Vass Existing Land Use - Developed**

| Land Use | # of Properties | Acres | % of Total Town Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 42 | 55.57 | 0.6% | $7,697,480 |
| Residential | 511 | 3,516.75 | 40.9% | $52,999,320 |
| Total | 553 | 3,572.32 | 41.5% | $60,696,800 |

*Source: Town of Vass, Moore County, and HCP, Inc.*

### b. Future Vulnerability

Table 58 summarizes all vacant land currently within the non-residential and residential collective zoning districts. This analysis was performed in an effort to determine the hazard potential if development under current regulations is fully realized. In order to estimate the future value of structures within portions of the Town that are currently vacant, an estimate of total potential investment was calculated. This figure was derived by utilizing an average per structure value for each use based upon existing conditions. Current tax values in relation to total existing development stock by land use yielded the following average figures:

- **Non-Residential** - $183,250
- **Residential** - $103,700

Refer also to Table 57. These figures serve as approximate value per property based upon existing structural tax values provided through the Moore County Tax Department. They are not intended to reflect current market conditions or specific value in relation to property within the Town of Vass. Applying a value of 1 unit per 1.3 acres for non-residential property and 1 unit per 6.9 acres for residential property, it is estimated that 80 additional non-residential units and 713 additional residential units would be reached at maximum build-out. Thus, an additional $88,598,100 is estimated as property value if all properties were developed. It is important to note that these figures do not take into account land value.

**Table 58: Town of Vass Vacant Land by Land Use**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 103.51 | 1.2% | 80 | $14,660,000 |
| Residential | 4,921.46 | 57.2% | 713 | $73,938,100 |
| Total | 5,024.97 | 58.4% | 793 | $88,598,100 |

*Source: Town of Vass, Moore County, and HCP, Inc.*

### c. Estimated Impact on Residential Development

The hazard mitigation planning guidelines also require jurisdictions to estimate the number of residential structures that may be impacted in the future based upon current development guidelines and patterns. In order to meet this requirement, additional residential units have been calculated based on the Town's existing housing stock. According to the 2000 US Census, there were 351 housing units in Vass.

Based on the total acreage for residential use derived through the existing land use survey (3,516 acres), this results in an average of approximately 1 unit per 6.9 acres. This figure was then multiplied times the total vacant acreage falling within a residential land use classification (4,921 acres). The results of this analysis estimate that within Vass, 713 additional housing units could be anticipated through build-out. This estimate assumes that current development regulations will remain consistent, and that the corporate limits of the Town will not be extended. Based on an average household size of 2.47, as reported in the 2000 US Census, this development will result in an estimated population increase of 1,761 persons. An estimate of how long this process might take has not been factored into the analysis.

An estimate of commercial/non-residential use was not conducted within the context of this plan. It is difficult to formulate a justifiable projection due to the many factors that impact growth and expansion of these uses.

**d. Flooding**

(1) Flood Insurance Rate Maps (FIRMS)

Table 59 provides information on the number of acres in the FEMA-defined 100-year floodplain within Vass. There are no properties located in the 500-year floodplain.

**Table 59: Town of Vass Flood Zones**

| Flood Zone | Acres | % of Total Town Acreage |
|---|---|---|
| A/AE | 705.34 | 8.20% |

*Source: FEMA, HCP, Inc.*

(2) Existing Vulnerability, Flood Zone

The following provides an estimate of existing vulnerability relating to the "A" and "AE" floodplain zones, utilizing the same methodology outlined in the land use vulnerability discussion. Estimates for development within the floodplain are based on actual existing conditions within the "A" and "AE" flood zones. These zones were selected for this analysis because the owners of the properties must carry flood insurance, and the properties are typically the focus of specific mitigation measures. Note that there are no developed non-residential properties in the floodplain.

**Table 60: Town of Vass Floodprone Structures - Developed**

| Land Use | # of Properties | Acres | % of Total Town Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 0 | 0 | 0.0% | $0 |
| Residential | 2 | 74.92 | 0.9% | $120,940 |
| Total | 2 | 74.92 | 0.9% | $120,940 |

*Source: Town of Vass, FEMA, HCP, Inc.*

### (3) Future Vulnerability, Flood Zone

The following table provides a breakdown of development potential for portions of Vass falling within the "A" and "AE" flood zones. This analysis has been based on the same methodology outlined in the land use vulnerability section.

**Table 61: Town of Vass Vacant Land Use in Floodplain**

| Land Use | Acres | % of Total Town Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 37.61 | 0.4% | 29 | $5,314,250 |
| Residential | 592.81 | 6.9% | 86 | $8,918,200 |
| Total | 630.42 | 7.3% | 115 | $14,232,450 |

*Source: Town of Vass, FEMA, HCP, Inc.*

### (4) Estimated Impact on Residential Development, Flood Zone

As outlined above, there are 592.81 acres of vacant land zoned for residential development within the Town of Vass's "A" or "AE" flood zone. Based on an average of 1 unit per 6.9 acres, this analysis will result in 86 additional residential units within the 100-year floodplain at build-out. If this development were to occur, an additional 212 individuals would be located within a FEMA-defined special flood hazard area (SFHA).

### e. Repetitive Loss Properties

There are no repetitive loss properties located within Vass's planning jurisdiction.

### f. Manmade Hazards/Railway Corridor

There are 949 acres (11% of total town acreage) of developed property within the Town of Vass's 100-ft. railway corridor buffer. The associated building value of those properties is currently $5,383,860. Of the remaining property along the railway corridor, 2,052 acres, or 24% of total acreage in the town, is undeveloped and could result in development encroaching on the existing right-of-way.

## *K. VILLAGE OF WHISPERING PINES*

### *1. Location*

The Village of Whispering Pines is located in the eastern section of Moore County, just northeast of the Town of Southern Pines. The Village lies approximately two miles east of State Highway 22.

### *2. Demographic Summary*

#### a. Population

The population of Whispering Pines as reported in the 1990 US Census was 1,312 with a substantial 59.3% increase occurring between 1990 and 2000, for a total 2000 population of 2,090. The North Carolina Office of State Planning estimated the 2007 population of Whispering Pines to be 2,181, demonstrating a slight increase of 4.4% between the years 2000 and 2007. The age make-up of the village has changed only slightly and reflects a large retirement age population, with the median age as reported in the 1990 US Census being 65.1 years, and the median age as reported in the 2000 US Census being 63.2 years. See Table 1 in Section 2 for detailed population data. The NC Office of State Planning projects a continuing increasing trend for Whispering Pines' 2012 population, which it estimates at 2,254 persons.

#### b. Housing

The occupancy rate of Whispering Pines' housing units is high – 92% (970) of the village's housing units are occupied, with only 8% (84 units) being vacant, as reported in the 2000 Census. Twenty-eight of the vacant units are used for seasonal, recreational, or occasional use. Of the occupied units, 930 units, or 95.9%, are owner-occupied, and 40, or 4.1% of the units, are renter-occupied. The number of housing units (1,054) has increased by over one-half (51.7%) slightly from the 1990 Census reported figure of 695.

#### c. Economy

The 2000 Census reported that the majority of Whispering Pines' workers were employed in the education/health/social services (31.1%), retail trade (9.9%), and finance/insurance/real estate/rental/leasing (9.8%) industries. Median income for Whispering Pines' residents was $60,035, and only 0.5% of Whispering Pines' families were considered below poverty level.

### 3. *Capability Assessment*

#### a. Type of Government/Administrative Staff

The Village of Whispering Pines was incorporated in 1969 and is governed by a Mayor and four (4) Council members. Village staff includes a Manager, Clerk, Deputy Clerk, Assistant Manager/Finance Director, Planning and Zoning Director, Public Works Manager, Code Enforcement Officer, Chief of Police, and Fire Chief. Following provides the village's contact information:

Village of Whispering Pines
10 Pine Ridge Drive
Whispering Pines, NC 28327-9476
(910) 949-3141
(910) 949-3907, fax

#### b. Infrastructure Resources

The Village provides garbage, recycling, and yard debris collection for its residents. Water and sewer service is provided by Utilities, Inc.

#### c. Police, Fire and Rescue

Police protection for the village's residents is provided by the Whispering Pines Police Department, which consists of 8 full-time officers, one auxiliary officer, and one civilian administrative employee. Fire protection is provided by the village's volunteer fire department, which includes 37 volunteer and two paid firefighters. Rescue services are handled through the Moore County 911 system.

#### d. Capability Overview

The following table provides an overview of the policy documents available to the Village of Whispering Pines regarding mitigation.

**Table 62: Village of Whispering Pines Community Capability Assessment**

| Policies/ Programs | Policy/Program Status | Effectiveness/ Rationale for Mitigation | Recommendations for Future Action |
|---|---|---|---|
| Flood Damage Prevention Ordinance | Existing | High, requires all new construction and substantial improvements of residential structures to be built at or above base flood elevation. | None |
| Inspections/ Permitting | Existing | High, centralized and efficient system for enforcement of State building code. | None |
| Land Use Plan | Existing | Medium, policies guide growth and development but are not regulatory. | None |
| Subdivision Ordinance | Existing | High, minimum standards for flood prevention, stormwater drainage, street patterns, and access. | None |
| Zoning Ordinance | Existing | High, adopts development density requirements for all construction within corporate limits. | None |
| Stormwater Control Ordinance | Existing | High, establishes stormwater retention requirements aimed at reducing stormwater sheet flow and adverse downstream drainage issues. | Review annually. |

*Source: Village of Whispering Pines; HCP, Inc.*

### *4. Vulnerability Assessment*

#### a. Existing Vulnerability

As detailed in the section discussing hazard identification, property in Moore County is deemed to be vulnerable to severe winter storms, severe thunderstorms/windstorms, hurricanes, tornadoes, localized flooding, and drought/heat waves. Based upon the unpredictable nature of these events, it was determined that the entire corporate limits area of the Village of Whispering Pines is also susceptible to the impact of these events.

The following table provides an overview of existing land use for developed portions of Whispering Pines. Acreage and property counts are provided, as well as the value of structures and land that fall within the Village's corporate limits.

**Table 63: Village of Whispering Pines Existing Land Use - Developed**

| Land Use | # of Properties | Acres | % of Total Village Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 11 | 273.44 | 4.1% | $7,440,290 |
| Residential | 1,710 | 3,366.74 | 50.3% | $325,240,700 |
| Total | 1,721 | 3,640.18 | 54.4% | $332,680,990 |

*Source: Village of Whispering Pines, Moore County, and HCP, Inc.*

### b. Future Vulnerability

Table 64 summarizes all vacant land currently within the non-residential and residential collective zoning districts. This analysis was performed in an effort to determine the hazard potential if development under current regulations is fully realized. In order to estimate the future value of structures within portions of the Village that are currently vacant, an estimate of total potential investment was calculated. This figure was derived by utilizing an average per structure value for each use based upon existing conditions. Current tax values in relation to total existing development stock by land use yielded the following average figures:

- **Non-Residential** - $676,390
- **Residential** - $190,199

Refer also to Table 63. These figures serve as approximate value per property based upon existing structural tax values provided through the Moore County Tax Department. They are not intended to reflect current market conditions or specific value in relation to property within the Village of Whispering Pines. Applying a value of 1 unit per 2.5 acres for non-residential property and 1 unit per 2.0 acres for residential property, it is estimated that 243 additional non-residential units and 1,220 additional residential units would be reached at maximum build-out. Thus, an additional $248,276,140 is estimated as property value if all properties were developed. It is important to note that these figures do not take into account land value.

**Table 64: Village of Whispering Pines Vacant Land by Land Use**

| Land Use | Acres | % of Total Village Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 607.46 | 9.1% | 243* | $164,362,770 |
| Residential | 2,440.71 | 36.5% | 1,220 | $232,042,780 |
| Total | 3,048.17 | 45.6% | 1,244 | $396,405,550 |

*It should be noted that Whispering Pines is primarily residential and the development of this number of non-residential units is very unlikely.
*Source: Village of Whispering Pines, Moore County, and HCP, Inc.*

### c. Estimated Impact on Residential Development

The hazard mitigation planning guidelines also require jurisdictions to estimate the number of residential structures that may be impacted in the future based upon current development guidelines and patterns. In order to meet this requirement, additional residential units have been calculated based on the Village's existing housing stock. According to the 2000 US Census, there were 1,054 housing units in Whispering Pines.

Based on the total acreage for residential use derived through the existing land use survey (3,366 acres), this results in an average of approximately 1 unit per 2.0 acres. This figure was then multiplied times the total vacant acreage falling within a residential land use classification (2,440 acres). The results of this analysis estimate that within Whispering Pines, 1,220 additional housing units could be anticipated through build-out. This estimate assumes that current development regulations will remain consistent, and that the corporate limits of the Village will not be extended. Based on an average household size of 2.15, as reported in the 2000 US Census, this development will result in an estimated population increase of 2,623 persons. An estimate of how long this process might take has not been factored into the analysis.

An estimate of commercial/non-residential use was not conducted within the context of this plan. It is difficult to formulate a justifiable projection due to the many factors that impact growth and expansion of these uses.

**d. Flooding**

(1) Flood Insurance Rate Maps (FIRMS)

Table 65 provides information on the number of acres in the FEMA-defined 100-year and 500-year floodplains within Whispering Pines.

**Table 65: Village of Whispering Pines Flood Zones**

| Flood Zone | Acres | % of Total Village Acreage |
|---|---|---|
| A/AE | 589.47 | 8.8% |
| X-500 | 37.66 | 0.6% |
| Total | 627.13 | 9.4% |

*Source: FEMA, HCP, Inc.*

(2) Existing Vulnerability, Flood Zone

The following provides an estimate of existing vulnerability relating to the "A" and "AE" floodplain zones, utilizing the same methodology outlined in the land use vulnerability discussion. Estimates for development within the floodplain are based on actual existing conditions within the "A" and "AE" flood zones. These zones were selected 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 66: Village of Whispering Pines Floodprone Structures - Developed**

| Land Use | # of Properties | Acres | % of Total Village Acreage | Building Value |
|---|---|---|---|---|
| Non-Residential | 1 | 0.5 | 0.007% | $85,760 |
| Residential | 27 | 117.02 | 1.750% | $5,137,680 |
| Total | 28 | 117.52 | 1.757% | $5,223,440 |

*Source: Village of Whispering Pines, FEMA, HCP, Inc.*

(3) Future Vulnerability, Flood Zone

The following table provides a breakdown of development potential for portions of Whispering Pines falling within the "A" and "AE" flood zones. This analysis has been based on the same methodology outlined in the land use vulnerability section.

**Table 67: Village of Whispering Pines Vacant Land Use in Floodplain**

| Land Use | Acres | % of Total Village Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Non-Residential | 207.32 | 3.1% | 83* | $56,140,370 |
| Residential | 264.63 | 4.0% | 132 | $25,106,268 |
| Total | 471.95 | 7.1% | 215 | $81,246,638 |

*It should be noted that Whispering Pines is primarily residential and the development of this number of non-residential units is very unlikely.
*Source: Village of Whispering Pines, FEMA, HCP, Inc.*

(4) Estimated Impact on Residential Development, Flood Zone

As outlined above, there are 264.63 acres of vacant land zoned for residential development within Whispering Pines' "A" or "AE" flood zone. Based on an average of 1 unit per 2.0 acres, this analysis will result in 132 additional residential units within the 100-year floodplain at build-out. If this development were to occur, an additional 283 individuals would be located within a FEMA-defined special flood hazard area (SFHA).

### e. Repetitive Loss Properties

There are no repetitive loss properties located within the Village of Whispering Pines planning jurisdiction.

### f. Manmade Hazards/Railway Corridor

There are no properties lying within a railway corridor buffer in the Village of Whispering Pines.

# SECTION 4. HAZARD IDENTIFICATION AND ANALYSIS

## A. INTRODUCTION

As part of Moore County's hazard mitigation efforts and the preparation of this plan update, the county will need to decide on which specific hazards it should focus its attention and resources. This section of the Hazard Mitigation Plan Update identifies and analyzes the hazards facing the County, by addressing the following questions:

- What are the *types* of natural hazards that threaten the County?
- What are the *characteristics* of each hazard?
- What is the *likelihood* of occurrence (or probability) of each hazard?
- What is the likely *magnitude* of the potential hazards?
- What are the possible *impacts* of the hazards on the County?

The following section identifies each natural hazard that poses an elevated threat to Moore County. A rating system that rates the potential for occurrence for each identified threat is provided (see Table 73). The following natural hazards were determined to be of concern for Moore County and its municipalities:

1. Flooding
2. Hurricanes
3. Severe Winter Storms
4. Thunderstorms and Tornadoes
5. Wildfire
6. Dam/Levee Failure
7. Droughts/Heat Waves
8. Sinkholes
9. Earthquakes

A detailed explanation of these hazards and how they have impacted Moore County 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).

Data utilized from NOAA was provided through the National Climatic Data Center (NCDC). The NCDC 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 information presented within this section as well as Appendix E are the results of this research.

## *B. FLOODING*

### *1. Description*

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. 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. See Maps 1A through 1L (Appendix A) for locations of flood zones.

Flash floods occur within a few minutes or hours of heavy amounts of rainfall, a dam or levee failure, debris piles blocking a water course, or complications with stormwater facilities. Flash floods can destroy buildings and bridges, uproot trees, and scour out new drainage channels. Most flash flooding is caused by slow-moving thunderstorms, repeated thunderstorms in a local area, or by heavy rains from hurricanes and tropical storms. While 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 that affect Moore County are riverine 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 with increasing recurrence interval.

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. 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 storm sewer systems.

*2. Historical Impact*

There are several rivers in the County, including Little River, Deep River and Drowning Creek. There are also several lakes in the County. River levels are controlled by dams and flood gates. Therefore, high water flooding in these areas is unlikely. Still, they are considered as having a potential threat from flooding.

From 1993 to 2003, Moore County experienced twenty (20) flood events that were reported to the National Climatic Data Center (see Appendix E). A history of flooding events associated with hurricanes in Moore County is provided in the hurricane discussion of this plan.

*3. Likelihood of Occurrence*

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 Moore County are riverine and/or flash flooding. Since adoption of the County's 2005 Hazard Mitigation Plan, there have been seven (7) flash flood events. Only one of these events resulting in any reported property damage. Heavy rains associated with Tropical Storm Hanna produced flooding around Southern Pines in September of 2008, resulting in several road closures and causing approximately $200,000 in property damage. Based on Table 74, the likelihood of occurrence for flooding in Moore County is "possible."

## C. HURRICANES

### 1. Description

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. 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. 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. However, the potential for significant damage resulting from a nor'easter is much less than that of 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, makes 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. Damage primarily to shrubbery, trees, foliage, and unanchored mobile homes. No appreciable wind damage to other structures. Some damage to poorly constructed signs. Storm surge possibly 3 to 5 feet above normal. Low-lying roads inundated, minor pier damage, some small craft in exposed anchorage torn from moorings.

- Category 2: Winds of 96 to 110 miles per hour. Considerable damage to shrubbery and tree foliage; some trees blown down. Major damage to exposed mobile homes. Extensive damage to poorly constructed signs. Some damage to roof materials of buildings; some window and door damage. No major wind damage to buildings. Storm surge possibly 6 to 8 feet above normal. Coastal roads and low-lying escape routes inland cut by rising water 2 to 4 hours before arrival of hurricane center. Considerable damage to piers. Marinas flooded. Small craft in unprotected anchorages torn from moorings. Evacuation of some shoreline residences and low-lying island areas required.

- Category 3: Winds of 111 to 130 miles per hour. Foliage torn from trees; large trees blown down. Practically all poorly constructed signs blown down. Some damage to roofing materials of buildings; some window and door damage. Some structural damage to small buildings. Mobile homes destroyed. Storm surge possibly 9 to 12 feet above normal. Serious flooding at coast and many smaller structures near coast destroyed; larger structures near coast damaged by battering waves and floating debris. Low-lying escape routes inland cut by rising water 3 to 5 hours before hurricane center arrives.

- Category 4: Winds of 131 to 155 miles per hour. Shrubs and trees blown down; all signs down. Extensive damage to roofing materials, windows, and doors. Complete failure of roofs on many small residences. Complete destruction of mobile homes. Storm surge possibly 13 to 18 feet above normal. Major damage to lower floors of structures near shore due to flooding and battering by waves and floating debris. Low-lying escape routes inland cut by rising water 3 to 5 hours before hurricane center arrives. Major erosion of beaches.

- Category 5: Winds greater than 155 miles per hour. Shrubs and trees blown down; considerable damage to roofs of buildings; all signs down. Very severe and extensive damage to windows and doors. Complete failure of roofs on many residences and industrial buildings. Extensive shattering of glass in windows and doors. Some complete building failures. Small buildings overturned or blown away. Complete destruction of mobile homes. Storm surge possibly greater than 18 feet above normal. Major damage to lower floors of all structures less than 15 feet above sea level. Low-lying escape routes inland cut by rising water 3 to 5 hours before hurricane center arrives.

*2. Historical Impact*

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. In 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. Recent history has included several hurricanes as well, with Emily (1993), Opal (1995), Bertha (1996), Fran (1996), Bonnie (1998), Dennis (1999), Floyd (1999), Irene (1999), and Isabel (2003) all leaving their mark on North Carolina. However, these storms had varying impacts on Moore County. Following are brief descriptions of several storms which had a significant impact on Moore County.

**a. 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. Hurricane Bertha moved along the edge of the National Weather Service Forecast Office (NWSFO) Raleigh county warning area. Three counties sustained substantial crop damage: Wayne $12 million, Wilson $7 million, and Johnston $2 million. Structural damage was light and was primarily caused by trees on homes and cars. The hardest hit county within the warning area was Wayne where property damage was estimated at $500 thousand. Power outages were widespread in the eastern counties as trees took down power lines. Two F0 tornadoes occurred: one in Wake and one in Wilson counties. No injuries or deaths were reported. The highest wind recorded was 60 mph at Seymour Johnson AFB near Goldsboro. Greatest rainfall was four inches, also at the AFB.

Source: Southeast Regional Climate Center.

**b. 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

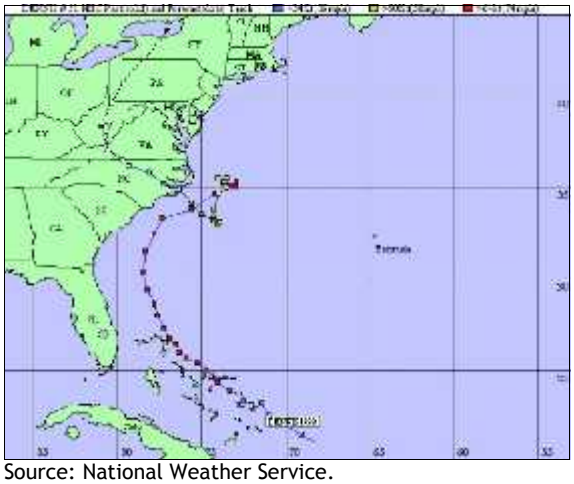
landfall over Cape Fear on the evening of September 5, then continued northward over the eastern United States causing widespread damage. Fran was responsible for 34 deaths overall (24 in North Carolina alone), mostly caused by flash flooding in the Carolinas, Virginia, West Virginia, and Pennsylvania.

The storm surge on the North Carolina coast destroyed or seriously damaged thousands of beachfront structures. Immediately following the storm, nearly 1.8 million people were without electrical power. Most electrical service was restored within 8-10 days. More than 890 businesses and 30,000 homes were damaged by a storm that also damaged or destroyed 8.25 million acres of forest. The damage in North Carolina alone is estimated at $5.2 billion. Schools were closed for a week in the hardest hit counties. Automobile travel was hazardous for days after the storm due to fallen and falling trees. A full twelve days after the event, 150 secondary roads were still closed.

Source: National Weather Service.

### c. 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. Although the damage directly attributed to Hurricane Dennis was not substantial in Moore County, Dennis set the stage for Hurricane Floyd.


Source: National Weather Service.

### d. September 7 to 18, 1999 (Hurricane Floyd)

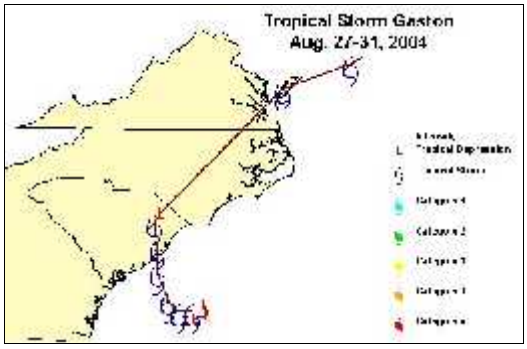
Hurricane Floyd brought flooding rains, high winds, and rough seas to a good portion of the United States coastline from September 14th through the 18th. Although Hurricane Floyd reached Category 4 intensity in the Bahamas, it weakened to a Category 2 hurricane by the time it made landfall in North Carolina. 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.

Source: http://www.unctv.org.

The 15-20 inches of rain that fell across the eastern half of the state caused every river and stream to flood. Many rivers set new flood records. Whole communities were underwater for days, even weeks in some areas. Thousands of homes were lost and crop damage was extensive. The infrastructure of the eastern counties, mainly roads, bridges, water plants, etc., was heavily damaged. By the end of 1999, $1.5 billion had already been spent, with estimates that the cost would reach $3-4 billion. The counties within the Raleigh county warning area probably sustained more than half of the state total.

### e. August 27 to 31, 2004 (Tropical Storm Gaston)

Gaston made landfall the morning of the 29th as a tropical storm in Charleston County, SC. The storm moved north, through Georgetown, Williamsburg, and Florence counties. Gaston weakened to a tropical depression that night as it moved into Marion County and the remnants moved to Dillon County the morning of the 30th. Rainfall was the main element of the storm, with the heaviest swath of precipitation from Williamsburg County, through Florence and Darlington counties. In North Carolina, rainfall ranged from around an inch near the coast, to near five inches in Robeson County with street flooding. The winds associated with Gaston were not much of a factor, with the peak wind of 58 mph recorded at the Springmaid pier in Myrtle Beach. There were numerous limbs down, with some minor power outages. The effects of Gaston were felt weeks after, with widespread river flooding over the entire area. The Lumber River at Lumberton had record flooding, with a crest nearly eight feet above flood stage. There were several evacuations of homes in the Quinby area, and some flooding of farmlands in Pee Dee.

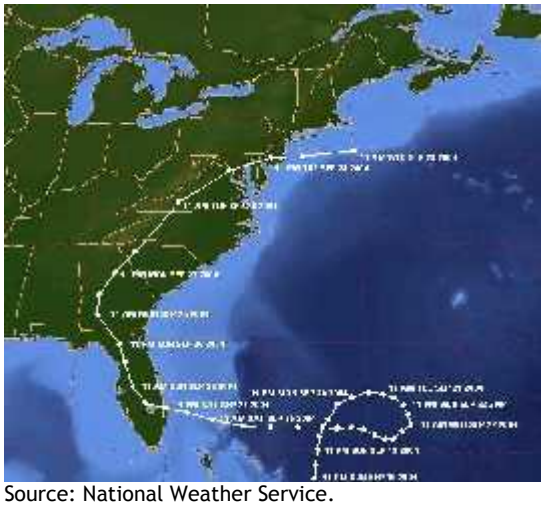


Source: Southeast Regional Climate Center.

**f. September 13 to 27, 2004 (Hurricane Jeanne)**

Jeanne became the 6th Hurricane of the 2004 Atlantic season on Thursday, September 16, 2004. The hurricane moved slowly northwest across the northern tier of the Dominican Republic and Haiti on Thursday and Friday, weakening to tropical storm strength. Tropical Storm Jeanne moved offshore late on Friday evening after dumping over a foot of rain across portions of the Dominican Republic and Haiti.

Jeanne strengthened back into a hurricane on Monday, September 20th, while slowly moving north. Upper level steering winds weakened and Jeanne was blocked from continuing its northward motion by a large ridge of high pressure over the western Atlantic. During the next four days, Jeanne would make a clockwise loop over the Atlantic ocean, northeast of the Bahamas. During this same period, Jeanne strengthened into a formidable hurricane with maximum sustained winds of 100 MPH. Jeanne made landfall at Stuart, Florida on Sunday, September 26th. Jeanne weakened to a tropical depression on September 27th. The remnants of Jeanne turned northeastward, reaching northern Georgia late on Monday. The remnants then moved northeast across upstate South Carolina late Monday night producing heavy rain, flooding, and several tornadoes. The system continued to accelerate northeast across North Carolina Monday night and Tuesday morning, September 28, 2004, producing additional heavy rain, flooding, and tornadoes. Rain bands associated with Jeanne produced several tornadoes over the Sandhills and Piedmont of North Carolina. Tornado touch downs were reported in Moore, Richmond and Wake Counties. A swath of 2 to 4 inches of rain with localized amounts in excess of six inches fell across the North Carolina Mountains, Foothills, and western Piedmont.



Source: National Weather Service.

*3. Likelihood of Occurrence*

North Carolina's geographic location to 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).

Moore County is located within both the Piedmont and Inner Coastal plains of North Carolina. Based on Table 74, the likelihood of occurrence for hurricanes impacting the County

is "possible." Since adoption of the 2005 Moore County Multi-Jurisdictional Hazard Mitigation Plan, the County has been impacted by one tropical storm event. Tropical Storm Hanna affected much of northeast North Carolina on September 6, 2008. Tropical storm winds knocked down numerous trees and power lines, as well as causing minor structural damage. Hanna left some of its most dramatic damage in Moore County, where approximately six inches of rain in a very short time period resulted in the flooding out of an earthen bridge/culvert on Autumn Drive in the 141-home River Bend community. The bridge/culvert was completely washed out and residents were unable to access their homes. In the storm's wake, the water rushing through the neighborhood was inches from some houses. The River Bend Subdivision Homeowner's Association was able to secure approval to construct a temporary repair to the Autumn Drive culvert and roadway in order to regain adequate access to the subdivision. In December 2008, Moore County submitted a $600,000 CDBG Urgent Needs Grant application to the State of North Carolina in order to fund a permanent solution to the roadway and culvert damage. The County received notice in March of 2009 that the grant had been funded and have since awarded a contract to make the culvert repairs.

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 Moore County were so destructive that their names were retired. The following is a list of those hurricanes: Fran, Floyd, and Jeanne. Despite being the deadliest storm of the 2008 hurricane season with a high death toll, the name Hanna was not retired, and is on the list for the 2014 season.

## *D. SEVERE WINTER STORMS*

### *1. Description*

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 the 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.

### 2. *Historical Impact*

Moore County was affected by severe winter weather twenty (20) times between the years 1993 to 2004. There were 11 deaths, 10 injuries and $5.5 million in property damage associated with these events statewide. Refer to Appendix E for a complete listing of historical winter storm events.

### 3. *Likelihood of Occurrence*

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. Cold air damming contributes to elevated freezing rain and ice storm events in the Piedmont. These events occur at least as often as moderate or severe snow events in this region. The mountains of North Carolina usually receive several snowfalls of four to six inches in a given winter weather season. The western area of the state is more likely to experience greater and more frequent snowfalls and blizzards than other locations in the state.

Moore County lies within a region that 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. Since the adoption of the County's 2005 Hazard Mitigation Plan, the County has experienced several severe winter storms. Table 68 provides a summary of these events.

**Table 68: Moore County Severe Winter Storms, 2005-2009**

| Date | Type | Summary |
|---|---|---|
| 2/1/2007 | Winter Storm | 2 inches of snow |
| 1/17/2008 | Winter Weather | 1 inch of snow |
| 1/19/2008 | Winter Storm | 2-3 inches of snow |
| 1/20/2009 | Winter Storm | 5-6 inches of snow |
| 2/4/2009 | Winter Weather | 2-3 inches of snow |

*Source: National Oceanic and Atmospheric Administration.*

Based on Table 74, the likelihood of occurrence for severe winter weather impacting Moore County is "possible."

## *E. THUNDERSTORMS AND TORNADOES*

### *1. Description*

Thunderstorms are the result of convection in the atmosphere. They are typically the by-product of atmospheric instability, which promotes the vigorous rising of air parcels that form cumulus and, eventually, the cumulonimbus (thunderstorm) cloud.

A typical thunderstorm may be three miles wide at its base, rise to between 40,000 to 60,000 feet in the troposphere, and contain half a million tons of condensed water. Conglomerations of thunderstorms along cold fronts (with squall lines) can extend for hundreds of miles. Thunderstorms contain tremendous amounts of energy derived from condensation of water. Wind shears sometimes associated with thunderstorms can cause extensive property damage and power outages.

According to the National Weather Service, a severe thunderstorm is a thunderstorm which produces tornadoes, hail 0.75 inches or more in diameter, or winds $\geq$58 mph. However, the tornado is by far the greatest natural hazard threat from a severe thunderstorm.

The National Weather Service defines a tornado as a violently rotating column of air in contact with the ground and extending from the base of a thunderstorm. The intensity, path length, and width of tornadoes 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 tornadoes 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 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 69.

**Table 69: 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.*

### *2. Historical Impact*

Between the years 1953-2003, 978 tornadoes were recorded in North Carolina of which nine (9) were located within Moore County. On average, Moore County experienced one tornado approximately every 5.5 years during the 50-year period. According to the National Climatic Data Center, Moore County experienced 50 hail storms from 1970 to 2003 that produced hail with diameters of .75" or greater. Appendix E provides a summary of thunderstorm, tornado, and hail activity in Moore County since 1959.

### *3. Likelihood of Occurrence*

Thunderstorms are common throughout North Carolina, and have occurred in all months. Thunderstorm-related deaths and injuries in North Carolina (1959-1992) have peaked during July and August. Between 1953 and 1990, 71% of North Carolina's tornadoes were classified as weak, 28% as strong, and about 1% as violent. Based on Southeast Regional Climate Center (SERCC)

statistics, North Carolina ranks 22nd in total number of tornadoes and 18th in tornado deaths in the United States for the period 1953-1995.

Although tornadoes have been reported in North Carolina throughout the year, most of them have occurred in the spring, with 13% in March, 11% in April, 22% in May, and 14% in June. Since the adoption of the County's 2005 Hazard Mitigation Plan, there have been 57 thunderstorms/wind events, 35 hail storms, and four (4) tornadoes (see Appendix E). Based on Table 74, the likelihood of occurrence for severe thunderstorms and tornadoes impacting Moore County is "likely." Table 70 provides a summary of the tornado activity within the County since 2004.

**Table 70: Moore County Tornadoes, 2004-2009**

| Location | Date | Type | Magnitude |
|---|---|---|---|
| Vass | 9/8/2004 | Tornado | F0 |
| Vass | 9/17/2004 | Tornado | F0 |
| Southern Pines | 9/27/2004 | Tornado | F1 |
| Parkwood | 9/27/2004 | Tornado | F0 |

*Source: National Oceanic and Atmospheric Administration.*

## *F. WILDFIRE*

### *1. Description*

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. Main sources of ignition have been agricultural fires, discarded cigarette butts, and campfires which have gotten out of control.

### 2. *Historical Impact*

According to *Forest Statistics for North Carolina, 2002*, published by the USDA - Forest Service, 342,200 acres of the County's total acreage (447,200 acres) are in forestland. This represents approximately 76.5% of the County's land area. Of the 342,200 acres in forestland, 900 is classified as "productive reserved," with the remaining 341,300 classified as timberland. Productive reserved is defined as forestland sufficiently productive to qualify as timberland but withdrawn from timber utilization through statute or administrative regulation. Table 71 provides acres of timberland by ownership class.

**Table 71: Moore County Acres of Timberland by Ownership Class**

| All Ownership | National Forest | Miscellaneous Federal | State | County and Municipal | Forest Industry | Private Ownership |
|---|---|---|---|---|---|---|
| 341,300 | — | 10,000 | 15,000 | 5,000 | 62,600 | 248,700 |

*Source: Forest Statistics for North Carolina, 2002.*

Almost annually, wildfires erupt throughout the region. On average, for the period between 2002 and 2007, Moore County experienced 148 wildfires per year. Debris fires, incendiary (i.e., intentionally lit) fires, and miscellaneous fires accounted for three quarters of annual fires during this period (111 per year). In 2007, there were a total of 156 wildfires with debris fires, incendiary fires, and miscellaneous fires, accounting for 74.4% (see Figure 2).

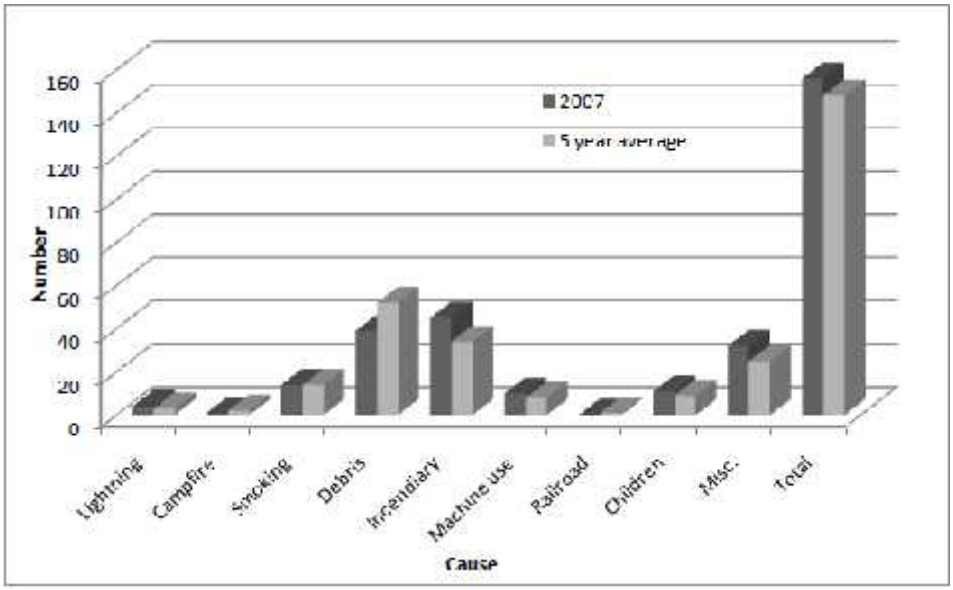



**Figure 2. Moore County Wildfires by Cause, 2007 and 5 Year Average**
*Source: NC Division of Forest Resources.*

### 3. *Likelihood of Occurrence*

As population densities spread out into areas surrounding the forest land, citizens and private property increasingly become more susceptible to the effects of wildfires. While the incorporated government jurisdictions in Moore County have significantly less forest land within their corporate limits and extraterritorial jurisdictions (ETJs) than in the unincorporated County, the municipal governments' boundaries exist at the "urban/wildland interface" – the area where human development meets undeveloped, forested areas that 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 Moore County is mitigated by the fact that forested tracts are generally of manageable size, accessible to fire fighting equipment and personnel, and circumscribed by roadways that limit the extent and severity of wildfires. Based on Table 74, the likelihood of occurrence for wildfires in Moore County is "possible."

## *G. DAM/LEVEE FAILURE*

### 1. *Description*

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.

### 2. *Historical Impact*

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. The Statewide Risk Assessment for Natural Hazards reports that there were three major dam failures and twelve minor dam failures as a result of Hurricane Fran in 1996.

Historically, some of the largest disasters in the United States have resulted from dam failures. In 1889, 2,209 lives were lost when the South Fork Dam failed above Johnstown, Pennsylvania. The 1928 St. Francis Dam failure killed 450. During the 1970's, the failures of the Buffalo Creek Dam in West Virginia, Teton Dam in Idaho, and the Toccoa Falls Dam in Georgia collectively cost 175 lives and more than $1 billion in losses. Such dam failures as Silver Lake Dam in Michigan in 2003 ($100 million in damages and economic losses of $1 million per day) and the Big Bay Lake Dam in Mississippi in March 2004 (100 homes destroyed) are current reminders of the potential consequences of unsafe dams.

*3. Likelihood of Occurrence*

Moore County is located in the Cape Fear and Lumber River Basins. 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, as of August 10, 2009, there are 1,243 dams in the Cape Fear Basin and 142 dams in the Lumber River Basin. One hundred ninety-five (195) of those dams are located in Moore County (see Map 2 for the general location of these dams). Appendix F provides information regarding the dams.

Twenty (23) 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. One hundred thirty-six (136) of the dams have a low hazard classification, eight (8) are classified as intermediate hazard, and fifty-one (51) are classified as high hazard dams. The following provides a brief description of each classification:

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

According to the NC Division of Land Resources, as of August 2009, North Carolina has 1,245 high hazard dams. Another 3,428 dams are considered low hazard and 779 are considered intermediate hazard. Based on Table 74, the likelihood of occurrence of a dam failure in Moore County is “likely.”

## *H. DROUGHTS/HEAT WAVES*

### *1. Description*

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).

There are four types of droughts:

- Meteorological Drought: This is a reduction of precipitation over time. This definition is regionally based. In the United States, this is indicated by less then 2.5 mm of rainfall in 48 hours. This is the first indication of a drought.

- Agricultural Drought: This occurs when soil moisture cannot meet the demands of a crop. This type of drought happens after a meteorological drought but before a hydrological drought.

- Hydrological Drought: This type refers to reduction in surface and subsurface water supplies. It is measured through stream flow and water levels in lakes, reservoirs, and groundwater.

- Socioeconomic Drought: This occurs when water shortages affected people, either in terms of water supply or economic impacts (i.e., loss of crops so price increases).

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. Often times, development and human involvement aggravates 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.

### *2. Historical Impact*

Since 1999, Moore County, as well as the majority of North Carolina cities, towns and counties have faced a moderate to severe drought. Drought has several meanings, as outlined above. Generally, drought reduces the amount of water available for agriculture, municipalities,

industry, commerce, tourism, fire suppression, and wildlife. Reduction of electrical power generation and water quality deterioration is likely.

Water shortages in some communities have had dramatic effects on local budgets, revenues, and citizens. Near panic situations among some members of the public, have caused elected officials to spend considerable revenue to assist the public.

As drought continued in North Carolina into the summer of 2002, it led to a declaration of disaster for agriculture drought. This led to funding becoming available for many farmers in the form of Small Business Administration low interest loans.

Drought effects are often severe. Drought can last for extended periods and drought effects all citizens, businesses, and government. Potable water service is provided by several municipalities, as well as Moore County. The municipal and county governments retain the rights to enforce water use restrictions. The county will continue to work with all municipalities to coordinate water conservation efforts.

*3. Likelihood of Occurrence*

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 DMAC, 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. Since adoption of the County's 2005

Hazard Mitigation Plan, the entire state of North Carolina has been under varying degrees of drought condition. By August of 2007, Moore County was classified as being in extreme to exceptional drought. This trend continued into the first part of 2008 with the County being downgraded to severe to moderate drought for much of the rest of 2008. 2009 brought much needed relief from the drought with the County being listed as "Abnormally Dry" for most of the year. During these periods, the County was required to institute mandatory water restrictions for extended periods of time. Based on Table 74, the likelihood of occurrence for drought is "likely."

## *I. SINKHOLES*

### *1. Description*

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 any way, 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 lowers local and regional groundwater levels to the extent that it causes a sinkhole.

### *2. Historical Impact*

There is no known documented history specific to sinkhole activity in Moore County.

### *3. Likelihood of Occurrence*

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 itself to the likelihood of a sinkhole occurrence. Moore County is part of the Piedmont and Inner Coastal plains of North Carolina. Based on the North Carolina Geologic Survey, Moore County consists of sand, clay, and limestone fossils and is not consistent with the geology associated with sinkholes. Since adoption of the County's 2005 Hazard Mitigation Plan, there has been one sinkhole occurrence in Moore County. In September 2008,

as a result of Tropical Storm Hanna, hundreds of people were trapped in a neighborhood when a huge sinkhole washed out part of Autumn Drive off of Highway 690 in Vass (see Section 4.C. - Hurricanes for further information). Based on Table 74, the likelihood of occurrence for sinkholes in Moore County is "possible."

## *J. EARTHQUAKES*

### *1. Description*

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 72 provides a summary of the Modified Mercalli Scale of Earthquake Intensity and its relation to the Richter Scale.

**Table 72: 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 | |

| Scale | Intensity | Description of Effects | Maximum Acceleration (mm/sec) | Corresponding Richter Scale |
|---|---|---|---|---|
| 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.*

### 2. *Historical Impact*

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.

### 3. *Likelihood of Occurrence*

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 not been any 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. Moore County is located in one of the areas of North Carolina that is least susceptible to the effects of earthquakes. Based on Table 74, the likelihood of occurrence for earthquakes in Moore County is "unlikely."

## *K. RANKING OF NATURAL HAZARD POTENTIAL*

The hazards outlined within the preceding sections, as well as hazards that have occurred in years prior to 2005 (when the last Hazard Mitigation Plan was 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 1959. These factors have been ranked on a scale of 1 (High) to 10 (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 73: Moore County Ranking of Hazard Potential**

| Hazard | Ranking by Frequency | Ranking by Injuries | Ranking by Deaths | Ranking by Property Damage Loss | Total All Factors |
|---|---|---|---|---|---|
| Severe Winter Storms | 3* | 1 | 1 | 2 | 7 |
| Severe Thunderstorms/ Windstorms | 2 | 2 | 3 | 4 | 11 |
| Hurricanes | 5 | 4 | 2 | 1 | 12 |
| Tornadoes | 4 | 3 | 4* | 3 | 14 |
| Flooding | 3* | 5* | 4* | 5 | 17 |
| Wildfire*** | 1 | 6 | 5 | 7 | 19 |
| Droughts/Heat Waves | 6 | 5* | 4* | 6 | 21 |
| Sinkholes** | 7 | 6 | 5 | 7 | 25 |
| Earthquakes** | 7 | 6 | 5 | 7 | 25 |
| Dam/Levee Failure** | 7 | 6 | 5 | 7 | 25 |

*Indicates a tie score.
**Due to the lack of historical data, wildfire, dam/levee failure, sinkholes, and earthquakes were given the same score for all factors.
***Data for wildfire frequency is provided courtesy of the NC Division of Forest Resources.
*Source: National Oceanic and Atmospheric Administration.*

## L. 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 |
|---|---|
| Tsunamis | There is no history of tsunamis in Moore County. |
| Landslides | There is no history of landslides in Moore County. |
| Volcanoes | There has been no record of any volcanic activities within the proximity of Moore County in recent geologic time. |

## M. 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 these tables including: input from town staff members, data documenting historical occurrences, and instances of storms impacting the region since the last Hazard Mitigation Plan Update in 2005.

**Table 74: Moore County 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) |
|---|---|---|---|
| Flooding | Possible | Moderate | Limited |
| Hurricanes | Possible | Severe | Limited |
| Severe Winter Storms | Possible | Severe | Limited |
| Severe Thunderstorms/ Windstorms | Likely | Severe | Critical |
| Tornadoes | Likely | Severe | Critical |
| Wildfire | Possible | Moderate | Critical |
| Dam/Levee Failure | Likely | Moderate | Critical/Catastrophic |
| Droughts/Heat Waves | Likely | Moderate | Limited |
| Sinkholes | Possible | Moderate | Limited |
| Earthquakes | Unlikely | Moderate | Negligible |

NOTES:

[1] Likelihood of occurrence was estimated using historic data and the following chart:

| 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 73 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 15
Moderate: Hazard potential ranking of 16 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:

| Level | Area Affected | Impact |
|---|---|---|
| Catastrophic | More than 50% | • Multiple deaths<br>• Complete shutdown of facilities for 30 days or more<br>• More than 50 percent of property is severely damaged |
| Critical | 25 to 50% | • Multiple severe injuries<br>• Shutdown of critical facilities for 1-2 weeks<br>• More than 25 percent of property is severely damaged |
| Limited | 10 to 25% | • Some injuries<br>• Shutdown of some critical facilities 24 hours to one week<br>• More than 10 percent of property is severely damaged |
| Negligible | Less than 10% | • Minor injuries<br>• Minimal quality-of-life impact<br>• Shutdown of some critical facilities and services for 24 hours or less<br>• Less than 10 percent of property is severely damaged |
| N/A | Hazard has no discernable impact on the built environment | |

# SECTION 5. CAPABILITY ASSESSMENT

## A. INTRODUCTION

This section of the plan is intended to analyze Moore County and the participating municipalities' ability to address the threats that natural hazards pose to them. The Capability Assessment will identify departments and agencies within each jurisdiction that have a direct impact on hazard mitigation efforts. Also included are current mitigation efforts, where applicable.

As noted earlier in the plan, during the update process, it was determined that each participating jurisdiction should occupy an independent section of the plan (see Section 3). The following capability assessment provides an overview of the administrative, operational, and political mechanisms available to County, and in some cases, the participating municipalities, with respect to implementation of this plan.

## B. AGENCY/ORGANIZATIONAL REVIEW

Moore County is a chartered county, which is governed by a Board of Commissioner-Manager form of government. There are twenty-seven (27) departments which include:

- Administration
- Aging
- Animal Operations
- Board of Commissioners
- Board of Elections
- Child Support
- Cooperative Extension
- County Attorney
- Day Reporting
- Environmental Health
- Finance
- GIS
- Health
- Human Resources
- Information Technology
- Parks & Recreation
- Planning & Community Development
- Public Safety
- Public Utilities
- Register of Deeds
- Sheriff's Office
- Social Services
- Soil & Water
- Tax
- Transportation Services
- Veterans Services
- Youth Services

Police, fire, and rescue departments play a critical role in the mitigation of and response to natural and man-made hazards. The adequacy of hospitals and available health care facilities also have an impact on an area's ability to cope with natural hazards. The following provides a brief description of these facilities and departments.

### 1. *Law Enforcement*

The Moore County Sheriff's Department provides law enforcement services throughout the county. The department operates through six (6) units: patrol, administration, civil, bailiff, school resource, and investigators. The department has seventy-six (76) full-time officers and eighty (80) vehicles.

### 2. *Emergency Services (Moore County Office of Public Safety)*

The Moore County Office of Public Safety is the main contact with the eastern branch office of the NC Division of Emergency Management for the procurement and management of state resource response. The department makes decisions regarding food, supplies, and other incidental needs for the Emergency Operations Center. They maintain a list of government and private resources in the County. The Director serves as the Incident Commander during emergency operations. This department also provides public outreach for hazard mitigation issues on the County's website.

### 3. *Hospital and Health Services*

FirstHealth Moore Regional Hospital is a 372-bed, acute care, not-for-profit hospital that serves as the referral center for a 15-county region in the Carolinas. The facility is located at 155 Memorial Drive in Pinehurst. The hospital has a medical staff of 228 physicians, a professional staff of more than 2,700, and an average of 750 volunteers. A full range of health care services are offered within the five-county primary service area and ten-county secondary service area. Moore Regional is a host to many unique services and specialties which include the following.

***Unique Services:***

- Center for Health & Fitness
- Center for Rehabilitation
- Community Hospital Comprehensive Cancer Center
- Hospitalist Program
- NICU
- Robotic Surgery
- Specialty Centers
- Arrhythmia Center
- Back & Neck Pain Center
- Bariatric Center
- Chest Center
- Infectious Disease

- Sleep Disorders Center
- Wound Care Center

***Specialties:***

- Anesthesiology
- Behavioral Services
- Cardiology (Invasive and Non-invasive)
- Cardiothoracic Surgery
- Dermatology
- Emergency Services
- Family Medicine
- Gastroenterology
- General Medicine
- General Surgery
- Geriatrics
- Hand and Microsurgery
- Internal Medicine
- Neonatology
- Nephrology
- Neurology
- Neurosurgery
- Obstetrics and Gynecology
- Oncology/Hematology
- Ophthalmology
- Orthopaedic Surgery
- Otolaryngology
- Pathology
- Pediatrics
- Plastic and Reconstructive Surgery
- Pulmonology
- Radiation Oncology
- Radiology
- Urology and Vascular Surgery

*4. Shelters*

Numerous shelters are available for individuals to take refuge in during hazard events, including one pet friendly shelter. Notifications regarding shelter openings and locations are given through the news media as all shelters may not be open at the same time. This notification is made through the Moore County Office of Public Safety. A list of shelters is available from the Office of Public Safety.

## C. PLAN AND ORDINANCE REVIEW

The purpose of this subsection of the HMP is to describe the policies, programs, ordinances, and practices that each participating community has in place that affect hazard control and/or hazard mitigation. Specific information regarding land development and other municipal codes for participating municipal jurisdictions are outlined in Section 3 of the plan.

If applicable, this section reflects any changes, updates, or new policy documents that have been put in place since the current Hazard Mitigation Plan was adopted.

### 1. *Floodplain Damage Prevention Ordinance*

All jurisdictions involved in this planning process, with the exception of Taylortown, participate in the National Flood Insurance Program (NFIP) and comply with related regulatory requirements. The ordinances are enforced through the building permit issuance processes. Each community that participates in the NFIP must adopt a floodplain damage prevention ordinance. In general the ordinances have the following purpose, objectives, and provisions for areas in special flood hazards identified by FEMA.

Purpose. It is the purpose of this chapter to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

(1) Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;

(2) Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

(3) Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters;

(4) Control filling, grading, dredging, and other development which may increase erosion or flood damage; and

(5) Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands.

Objectives. The objectives to this chapter are:

(1) To protect human life and health;

(2) To minimize expenditure of public money for costly flood control projects;

(3) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

(4) To minimize prolonged business interruptions;

(5) To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains;

(6) To help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize flood blight areas; and

(7) To ensure that potential home buyers are notified that property is in a flood area.

The ordinances include the following provisions for Flood Hazard Reduction:

(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 damage;

(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 the Floodplain Damage Prevention Ordinance.

(9) Nonconforming Buildings or Uses – Nonconforming buildings or uses may not be enlarged, replaced, or rebuilt unless such enlargement or reconstruction is accomplished in conformance with the provisions of the Floodplain Damage Prevention Ordinance. Provided, however, nothing in the ordinance shall prevent the repair, reconstruction, or replacement of a building or structure existing on the effective date of the ordinance and located totally or partially within the floodway or stream setback, provided that the bulk of the building or structure below base flood elevation in the floodway or stream setback is not increased and provided that such repair, reconstruction, or replacement meets all of the other requirements of the ordinance.

In addition to a purpose, objectives, and provisions for flood hazard reduction, the ordinance also includes specific standards for residential and non-residential structures in all areas of special flood hazard.

*2. North Carolina State Building Code*

Moore County and the participating municipalities have adopted and enforce the North Carolina State Building Code. Currently, Moore County provides building inspection services to all municipalities participating in this plan except the following: Aberdeen, Pinehurst, Southern Pines, and Pinebluff. The NC 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 extends beyond construction inspections to the advance review of plans. An applicant for a building permit must submit plans to the respective 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.

*3. 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 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. 160-370. Subdivision is defined as all divisions on a tract or parcel of land into two or more lots and all divisions involving a new street (NCGS 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 the power to prevent unsuitable development in hazard-prone areas.

*4. 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 NCGS 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, 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.

## *D. LEGAL CAPABILITY*

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 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 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 powers. Following are a list of these powers and how they may be useful tools for hazard mitigation.

### *1. Regulation*

#### **a. 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.

**b. 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. Additionally, Moore County and all participating jurisdictions may also take condemnation action through minimum structural codes as a tool for mitigation. Many of these standards/policies are imposed through the building code. North Carolina has a state compulsory building code which applies throughout the state (N.C.G.S. 143-138). However, municipalities and counties may adopt codes for their respective jurisdictions 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. NCGS Ch. 160A, Art. 19, Part 5; and Ch.153A, Art.18, Part 4 empower cities and counties to create an inspection department, and enumerates 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.

**c. 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 determined 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.

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 and rotary aircraft ports; and 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; 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 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.

2. *Acquisition*

The power of acquisition can be a useful tool for pursuing mitigation goals. Local governments may find 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.

*3. 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 governments 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 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 community deems necessary within boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development.

*4. 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 community indicates the timing and level of municipal services it intends to provide over a specified duration. Capital programming, by itself, can be used as growth management technique, with a view to hazard mitigation. 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. Moore County annually updates and implements elements of an ongoing CIP. This documents may prove instrumental in working through the implementation of any capital improvement projects identified as a mitigation need.

## *E. FISCAL CAPABILITY*

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 are a significant, although certainly not a sole, source of funding options.

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 "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.

A comprehensive list of funding sources available that may be instrumental in the implementation of this plan is provided in Appendix G.

## *F. POLITICAL ACCEPTABILITY REVIEW*

This subsection of the plan is intended to address the participating communities' "political willpower" to address hazard 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 eleven (11) 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.
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.
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.
4) One of the 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.

## *G. ANALYSIS OF CAPABILITY*

After the preceding capability information is gathered, the data must be analyzed and evaluated. Since the capability assessment will provide the framework for developing recommendations for specific mitigative actions in the hazard mitigation plan, it is essential that the assessment both identify shortfalls in a jurisdiction's capability, as well as draw attention to special opportunities that should be capitalized upon while they remain viable.

Table 75 provides a summary of the county's existing policies and programs related to land use control and development and their effectiveness at mitigating natural hazards. See Section 3 for similar summaries for the participating municipalities. Generally, this assessment shows that Moore County and the participating jurisdictions are committed to mitigating the effects of natural hazards. The tables provide an overview of how mitigation strategies will be incorporated into existing planning and policy documents.

**Table 75: Community Capability Assessment – Moore County**

| Policies and Programs | Policy/Program Status | Effectiveness/ Rationale for Mitigation | Recommendations for Future Action |
|---|---|---|---|
| Flood Damage Prevention Ordinance | Existing | High, requires development within floodprone areas to be developed at or above base flood elevation. | None |
| Inspections/ Permitting | Conducted through Moore County Inspections Dept. | High, centralized and efficient system for enforcement of State building code. | None |
| Land Use Plan | Existing | Medium, policies guide growth and development but are not regulatory. | Moore County is currently in the process of updating its comprehensive plan. This update will incorporate elements of hazard mitigation. |
| Subdivision Ordinance | Existing | High, requires detailed information on natural features, storm drains, utility layouts, proposed roads, flood hazard areas and density information, as prerequisites for site development. | None |
| Zoning Ordinance | Existing | High, establishes density requirements with special requirements for the conservation district and floodplain overlay district. There are also provisions for nonconforming uses. | None |
| Capital Improvements Plan (CIP) | Existing | High, this plan outlines the budgetary spending guidelines for substantial project based expenditures within the County. This plan amortizes these cost over a defined period of years until a given project is paid for. This document will serve to be instrumental in the development of any mitigation projects identified by the MAC. | Update Annually |

*Source: Moore County and HCP, Inc.*

# SECTION 6. VULNERABILITY ASSESSMENT

## A. INTRODUCTION

This section of the Hazard Mitigation Plan will assist with gauging the present and future level of vulnerability within Moore County. Vulnerability is defined as the extent to which people experience harm and property damage from a hazard. This section provides an overview of unincorporated portions of the County by discussing the physical layout, existing and potential development, and hazardous locations as well as by assessing population and amount of property that is at risk.

As a component of the HMP update, the vulnerability analysis was updated to reflect the 2009 development characteristics of Moore County. This effort also involved the review and update of the critical facilities inventory initially established through the 2005 planning process. It should be noted that this section has been significantly revised from the 2005 plan. This section of the plan outlines the methodology utilized to prepare the vulnerability analysis and information relative to unincorporated Moore County. The vulnerability assessment data for all participating jurisdictions is outlined in Section 3.

This section of the HMP identifies specific locations and facilities vulnerable to natural hazards with narrative, data and maps. This section will identify the existing and potential threats posed by each hazard outlined within Section 4 of the plan. Many of the hazards listed pose a direct threat to a defined geographic area, while others are considered to impact the County's entire unincorporated area. Where possible, maps have been provided to further clarify the impact area of a respective hazard type. This section of the plan predominantly addresses only the unincorporated portions of the County.

## B. GEOGRAPHIC PLANNING AREAS

There are eleven incorporated municipalities within the county: Aberdeen, Cameron, Carthage, Foxfire Village, Pinebluff, Pinehurst, Robbins, Southern Pines, Taylortown, Vass, and Whispering Pines. As previously noted, the Village of Pinehurst prepared its own plan in 2005, but has elected to participate in the County effort under this update. For the purposes of this plan, each jurisdiction will be treated as an independent geographic planning area. The following table provides information regarding the total jurisdictional area for the unincorporated portions of the county and each participating municipality.

**Table 76: Moore County/Participating Municipalities Land Area, 2010**

| | # of parcels | # of acres | % of Total County Acreage |
|---|---|---|---|
| Moore County Unincorp. Areas | 29,756 | 353,198 | 77.0% |
| Town of Aberdeen | 4,451 | 10,098 | 2.2% |
| Town of Cameron | 513 | 3,686 | 0.8% |
| Town of Carthage | 2,471 | 10,726 | 2.2% |
| Village of Foxfire Village | 1,264 | 9,754 | 2.1% |
| Town of Pinebluff | 1,638 | 6,226 | 1.4% |
| Village of Pinehurst | 12,204 | 21,618 | 4.7% |
| Town of Robbins | 1,549 | 4,189 | 0.9% |
| Town of Southern Pines | 10,351 | 23,296 | 5.1% |
| Town of Taylortown | 699 | 792 | 0.2% |
| Town of Vass | 994 | 8,597 | 1.9% |
| Village of Whispering Pines | 2,725 | 6,688 | 1.5% |
| Total | 68,615 | 458,868 | 100.0% |

Source: HCP, Inc., and each jurisdiction.

## *C. DEVELOPMENT VULNERABILITY*

The following vulnerability analysis has been completely revised from the 2005 plan. This methodology was based on the availability of more current and comprehensive information. The revised discussion and data should replace all discussion relating to vulnerability in the 2005 plan. A vulnerability analysis for each participating jurisdiction is provided in Section 3 under each municipality's respective municipal profile.

### *1. Existing Development*

The following table indicates the development status for parcels within the unincorporated areas of the county and each participating municipality. Development data within these areas was derived from an analysis of tax record data. Any land parcel with a building value of less than $5,000 was considered undeveloped, while any land parcel with a building value of $5,000 or more was considered developed. Generally, properties with building values less than $5,000 do not contain habitable structures. These parcels typically contain only well pumps, asphalt paving, small sheds or storage structures, or other items that would not preclude the property from being further developed. Maps 1A through 1L graphically depicting areas of development in Moore County and the participating municipalities are provided in Appendix A.

**Table 77: Moore County Unincorporated Areas and Participating Municipalities, Developed and Undeveloped Land**

| | Developed Acres | Undeveloped Acres | % Developed | % Undeveloped |
|---|---|---|---|---|
| Moore Co. Unincorp. Area | 129,812 | 223,386 | 36.8% | 63.2% |
| Aberdeen | 2,762 | 1,688 | 45.6% | 54.4% |
| Cameron | 296 | 217 | 39.6% | 60.4% |
| Carthage | 1,356 | 1,115 | 40.9% | 59.1% |
| Foxfire | 611 | 653 | 31.2% | 68.8% |
| Pinebluff | 1,010 | 628 | 34.0% | 66.0% |
| Pinehurst | 8,687 | 3,517 | 68.9% | 31.1% |
| Robbins | 856 | 693 | 38.7% | 61.3% |
| Southern Pines | 6,703 | 3,648 | 64.4% | 35.6% |
| Taylortown | 393 | 306 | 41.3% | 58.6% |
| Vass | 553 | 441 | 41.6% | 58.5% |
| Whispering Pines | 1,721 | 1,004 | 54.4% | 45.6% |

Source: HCP, Inc., and each jurisdiction.

### 2. *Vulnerability to Non-Specific Hazards*

Several of the hazards outlined in Section 4 result in impacts that are not geographically targeted at a specific area or portion of the County. The following hazards typically impact unincorporated Moore County overall, but may have significant impacts on specific portions of the County: severe winter storms, severe thunderstorms/windstorms, tornadoes, wildfire, and earthquakes. Sinkholes and hurricanes/tropical storms are also considered to impact large portions of the County, but these hazards potentially may have serious impacts on fairly specific portions of the County. Non-specific hazards will impact all unincorporated areas of the County and a participating municipalities entire corporate limits (refer to Maps 1A through 1L for corporate limit boundaries).

In order to assess existing and future vulnerability, an analysis of existing land use and zoning policy was performed. Land use within this section is broken down by land use according to existing zoning policy and whether a given property is currently developed or undeveloped. The process for determining the development status of a given piece of property is outlined in subsection C.1 above. GIS data is not currently available to compile a more detailed land use analysis based on actual development conditions; however, this data should be compiled during implementation of the strategies outlined in this plan.

Additionally, developed land has been categorized by zoning classification within the vulnerability analysis for each participating jurisdiction outlined in Section 3 of the plan. This methodology, although not ideal, does provide some additional insight into existing development patterns.

### a. Existing Vulnerability

This section provides an overview of the vulnerability of existing development to hazards deemed to impact the County overall. Based upon the unpredictable nature of these events, it was determined that the entire unincorporated areas of the county are susceptible to the impact of these events.

In order to assess existing vulnerability from such hazard events, current development trends were examined based on current land development regulations. The following table provides an overview of developed land for the unincorporated areas of Moore County categorized by residential and non-residential uses. Use classification is based on the current zoning classification of a given property. Although this process does not provide a completely accurate picture of current development conditions, the data does provide a worthwhile estimate of existing and future vulnerability. The following provides which zoning district designations have been classified under residential or non-residential uses (refer to Appendix H for a description of each zoning district designation):

**Residential:** R-MH, RA, RA-2, RA-2-CUD, RA-20, RA-30, RA-40, RA-5, RA-CUD, RA-USB, GC-SL, GC-W, RE

**Non-Residential:** RB, RB-CUD, B-1, B-2, I-1, I-2, I-2-CUD, O-P, P-C, PUD/CUD, VB, VB-CUD

It should be noted that the non-residential classification may contain some residential structures in the form of mixed use development or as an accessory to an agricultural or equestrian use. The residential classification was utilized for zoning districts that are reserved for the protection of existing and future housing developments.

**Table 78: Moore County Unincorporated Areas Developed Land/Existing Vulnerability**

| Land Use | Acres | % of Total County Acreage | Building Value |
|---|---|---|---|
| Residential | 118,708 | 33.6% | $971,677,160 |
| Non-Residential | 11,104 | 3.1% | $802,441,740 |

*Source: Moore County and HCP, Inc.*

According to the information reported above, 129,812 acres of developed property (14,203 parcels) are considered vulnerable, with a total collective building value of $1,774,118,900.

**b. Future Vulnerability**

The following table summarizes all vacant land currently within unincorporated portions of Moore County by zoning districts as outlined above. This analysis was performed in an effort to determine the hazard potential if development under current regulations is fully realized within portions of the County currently zoned for residential development. The number of additional structures was based on an average residential lot size of 11.3 acres (118,708 residentially zoned and developed acres/10,505 residentially zoned and developed parcels).

In order to estimate the future value of structures and property within portions of the County that are currently vacant, an estimate of total potential investment (property and structures) was calculated. This figure was derived by utilizing an average per acre value for each use based on existing conditions. Current tax values in relation to total existing development stock by land use yielded an average residential structure value of $87,365. This analysis was not conducted for property zoned for non-residential development. A substantial percentage of the acreage developed under the non-residential category in Moore County is comprised of golf courses. It is difficult to make projections regarding future development as it relates to new golf course/recreational facilities. Additionally, for the purposes of this plan golf courses are not deemed to be critical elements of the community with respect to mitigation.

Note that the following figures serve as approximate value per acre based upon existing tax values provided through the County Tax Department. They are not intended to reflect current market conditions or specific value in relation to property within Moore County. Additionally, the following table assumes build-out of large portions of the County in the form of residential development based on current developed conditions within the County. The proposed scenario is possible under current land development policy; however, many other factors should be considered, such as resource availability, impact on community facilities, and environmental constraints.

**Table 79: Moore County Undeveloped Land/Future Vulnerability**

| Land Use | # of Acres | % of Total County Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Residential Undeveloped | 210,923 | 59.7% | 18,666 | $1,630,755,090 |

*Source: Moore County, and HCP, Inc.*

### c. Estimated Impact On Residential Development

The hazard mitigation planning guidelines also require jurisdictions to estimate the number of structures that may be impacted in the future based on current development guidelines and patterns. In order to meet this requirement, additional residential units have been calculated based on the County's existing housing stock.

The total acreage for residential use outlined in the table above of 118,708 acres results in an average of 11.3 acres per unit. This figure was then divided by the total vacant acreage falling within a residential zoning classification (210,923 acres). The results of this analysis estimate that within the unincorporated portions of Moore County, approximately 18,666 additional housing units are anticipated through build-out within the non-specific hazard area. This estimate assumes that current development regulations will remain consistent. Based on an average household size of 2.38, as reported in the 2000 US Census, this development will result in an estimated population increase of 44,425 persons. It should be noted that these figures assume build-out of portions of Moore County zoned for residential devleopment. No estimate of how long this process will take has been factored into the analysis.

No estimate of commercial or industrial use development has been conducted within the context of this plan. It is difficult to formulate a justifiable projection due to the many factors that impact growth and expansion of these uses.

## *3. Flooding*

Flooding primarily impacts Moore County during thunderstorm events, heavy rains, and in some cases when upstream precipitation and drainage results in dam systems leading into the County getting overwhelmed. The following sections provide an analysis of vulnerability of properties within the county's flood zones and an overview of the impacts associated with riverine flooding, hurricanes/tropical storms, and dam/levee failure. Analysis for the individual municipalities is provided in Section 3 of the plan under the municipal profile for each respective jurisdiction.

### a. Flood Insurance Rate Maps (FIRMS)

Map 1A through 1L (Appendix A) graphically depicts the extent of the high risk flooding areas within Moore County as defined by the Moore County 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.

Table 80 provides information on the number of acres in the FEMA-defined 100-year and 500-year floodplains within Moore County.

**Table 80: Moore County Flood Zones**

| Flood Zone | Acres | % of Total County Acreage |
|---|---|---|
| A/AE | 21,163 | 6.0% |
| X-500 | 114 | 0.03% |
| Total | 21,277 | 6.03% |

*Source: Moore County, FEMA, HCP, Inc.*

### b. 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 land use vulnerability discussion. Estimates for development within the floodplain are based on actual existing conditions within these two flood zones. These two zones were 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 81: Moore County Floodprone Structures**

| Land Use | Acres | % of Total County Acreage | Building Value |
|---|---|---|---|
| Residential | 2,940 | 0.8% | $10,007,110 |
| Non-Residential | 590 | 0.2% | $64,712,450 |
| Total | 3,530 | 1.0% | $74,719,560 |

*Source: Moore County, FEMA, HCP, Inc.*

### c. Future Vulnerability

The following table provides a breakdown of development potential for portions of Moore County falling within the "AE" and "A" flood zones. This analysis has been based on the same methodology outlined in the land use vulnerability section.

**Table 82: Moore County Undeveloped Property in Floodplain**

| Land Use | Acres | % of Total County Acreage | Additional Units | Total Potential Developed Value |
|---|---|---|---|---|
| Residential Undeveloped | 14,890 | 4.2% | 1,317 | $115,415,295 |

*Source: Moore County, FEMA, HCP, Inc.*

#### d. Estimated Impact On Residential Development

As outlined above, there are approximately 14,890 acres of vacant land zoned for residential development within Moore County's 100-year floodplain. Based on an average of 11.3 acres per unit, this will result in an additional 1,317 residential units within the 100-year floodplain at build out. If this development were to transpire, an additional 3,134 individuals would be located within a FEMA defined flood hazard area.

### *4. Drought/Heat Waves*

No analysis was performed to address the drought/extreme heat hazard. All properties and citizens are equally vulnerable to this risk within Moore County. The County 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, the County has been required to institute mandatory water restrictions as a result of persistent drought conditions. This issue is at the forefront of discussions relating to public health and safety within the County. Moore County, in conjunction with all participating municipalities, will continue to work on a long-term solution to water resource management.

### *5. Man-Made Hazards*

#### a. Rail Corridors

There are several rail corridors that traverse Moore County, depicted on Map 1A through 1L (Appendix A), where applicable. These rail lines run through both incorporated and unincorporated portions of the County. Although there are no development standards currently in place to specifically address mitigation of the adverse impacts associated these rail corridors, it is important that the facilities be recognized as a hazard within this plan.

The following tables provide an overview of existing and potential vulnerability for portions of the County located within one hundred feet of the existing rail lines that traverse Moore County.

**Table 83: Moore County Developed/Undeveloped Land within 100 Feet of a Rail Line**

| Land Use | Acres | % of Total County Acreage | Building Value |
|---|---|---|---|
| Developed | 6,608 | 1.9% | $32,907,950 |
| Undeveloped | 11,966 | 3.4% | n/a |
| Total | 18,574 | 5.3% | $32,907,950 |

*Source: HCP, Inc.*

### b. Military Installations

There are two large military installations (Fort Bragg and Pope Air Force Base) located immediately adjacent to Moore County, in Hoke and Cumberland counties. The boundaries of these facilities are shown on Map 3. The County has no jurisdictional authority regarding these facilities; however, the MAC felt that it was appropriate to acknowledge these facilities as potentially hazardous. The MAC has incorporated some language into the County mitigation strategies relating to continued coordination between both of these military installations and Hoke and Cumberland counties with respect to future development and expansion.

### c. Shearon Harris Nuclear Power Plant

Map 3 depicts the location of the Shearon Harris Nuclear Facility as it relates to Moore County. Over two million North Carolinians – one-quarter of the state's population – live within 50 miles of the Shearon Harris nuclear power plant, according to a report by researchers at the School of Public Health, UNC-Chapel Hill. People living in that region would be exposed to radiation released from the reactor or radioactive-waste cooling pools in the event of an accident.

The US Nuclear Regulatory Commission (NRC) considers a 50-mile radius the potential exposure zone following a serious accident at a reactor or at the cooling pools that hold highly radioactive "spent" fuel rods removed from a reactor core. The 50-mile region around the Harris plant encompasses all of Wake, Durham, Chatham, Orange, Harnett, Johnson, and Lee Counties, and large portions of the populations of Alamance, Cumberland, Franklin, Granville, Hoke, and Moore Counties. Residents of eleven other counties are also included in the 50-mile radius.

Through the implementation of this plan, Moore County will work to ensure that all County residents are aware of this hazard and that emergency plans are in place to address a potential disaster.

## *D. 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. Moore County's AECs include wetlands and public trust areas. The presence and protection of fragile areas can provide natural hazard mitigation benefits. Wetlands and open space areas generally act as natural flood controls by storing tremendous amounts of floodwater, and slowing and 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 in Moore County.

### *1. 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. All navigable rivers and streams in Moore County, including the Deep and Little Rivers, and Drowning Creek, are considered to be public trust areas.

### *2. 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. Natural resource fragile areas are scattered throughout Moore County.

### 3. *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. Some wetlands, such as swamps, are 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 Moore County. Specific wetlands locations must be delineated in the field on case-by-case basis by the US Army Corps of Engineers.

### 4. *Water Supply Watersheds*

All surface waters in North Carolina are assigned a primary classification by the NC Division of Water Quality (DWQ). All waters must meet the standards for at least Class C (fishable/swimmable) waters. The other primary classifications provide additional levels of protection for primary water contact recreation (Class B) and drinking water (Water Supply Classes I through V). The following describes the water classifications:

- Class B: Waters protected for all Class C uses in addition to primary recreation. Primary recreational activities include swimming, skin diving, water skiing, and similar uses involving human body contact with water where such activities take place in an organized manner or on a frequent basis.

- Class C: Waters protected for uses such as secondary recreation, fishing, wildlife, fish consumption, aquatic life including propagation, survival and maintenance of biological integrity, and agriculture. Secondary recreation includes wading, boating, and other uses involving human body contact with water where such activities take place in an infrequent, unorganized, or incidental manner.

- Water Supply II (WS-II): Waters used as sources of water supply for drinking, culinary, or food processing purposes where a WS-I classification is not feasible. These waters are also protected for Class C uses. WS-II waters are generally in predominantly undeveloped watersheds. All WS-II waters are HQW by supplemental classification. HQ waters are those which are rated excellent based on biological and physical/chemical characteristics.

- Water Supply III (WS-III): Waters used as sources of water supply for drinking, culinary, or food processing purposes where a more protective WS-I or II classification is not feasible. These waters are also protected for Class C uses. WS-III waters are generally in low to moderately developed watersheds.

- Water Supply IV (WS-IV): Waters used as sources of water supply for drinking, culinary, or food processing purposes where a WS-I, II, or III classification is not feasible. These waters are also protected for Class C uses. WS-IV waters are generally in moderately to highly developed watersheds or Protected Areas.

- Trout Waters (Tr): This supplemental classification is intended to protect freshwaters which have conditions that shall sustain and allow for trout propagation and survival of stocked trout on a year-round basis. This classification is not the same as the NC Wildlife Resources Commission's *Designated Public Mountain Trout Waters* designation.

In addition to the DWQ trout water designation, public trout waters managed by the Wildlife Resources Commission are designated as Public Mountain Trout Waters (DPMTW) and are identified by signs posted along the stream banks or lake shore. These waters are located both on and off state game lands. Gameland streams and ponds are on state-owned lands, private lands under formal lease by the state, or U.S. Forest Service lands. Trout waters off game lands are primarily on state parks or on privately owned land where public fishing is allowed. While there are seldom any changes in designation of gameland waters, the non-gameland category is subject to change at the discretion of the individual landowners who may decide to post their land against trespass. There are five (5) water supply watersheds in Moore County. These areas are depicted on Map 4.

## *E. 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 the county. The damage or destruction of publicly owned facilities could disrupt the everyday lives of Moore County's citizens. 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, 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 Moore County and each of the participating municipalities. Critical facilities located within the unincorporated portions of the County are provided on Map 1A through 1L. The location of critical facilities within participating municipalities have been provided on the Maps within Section 3 for each respective jurisdiction.

The critical facilities listing and associated maps were compiled by the MAC through the planning process associated with this update.

**Table 84: Moore County Critical Facilities**

| Facility | Address | Type* | Map ID | Replacement Value** |
|---|---|---|---|---|
| **MOORE COUNTY** | | | | |
| EMS Base 3 | 969 Seven Lakes Drive | PS | 36 | $5,180.00 |
| Westmore Fire Dept | 1211 Dover Church Rd | PS | 37 | $53,410.00 |
| Highfalls Fire Dept | 1281 NC Hwy 22 | PS | 38 | $99,350.00 |
| Crainscreek Fire Dept | 4525 Lobelia Rd | PS | 39 | $0.00 |
| Eastwood Fire Dept | 980 NC 73 West End | PS | 40 | $434,320.00 |
| West End Fire Dept | 4203 NC Hwy 73 | PS | 41 | $268,720.00 |
| Eagle Springs Fire Dept | 1932 NC Highway 211 | PS | 42 | $0.00 |
| NC Forestry | 1358 NC Hwy 73 | Public | 43 | $440,510.00 |
| Crainscreek Comm Tower | 7129 Marks Rd | Comm | 44 | $66,540.00 |
| Seven Lakes Comm Tower | 536 Longleaf Dr | Comm | 45 | $0.00 |
| Westmoore Comm Tower | 1211 Dover Church Rd | Comm | 46 | $14,120.00 |
| Moore County Airport | 7825 Aviation Dr | Public | 47 | $5,011,950.00 |
| Highfalls Elementary | 1220 NC Hwy 22 | Inst | 48 | $2,217,700.00 |
| Sandhills-Farm Life Elementary | 2201 Farmview Life Rd | Inst | 49 | $3,774,490.00 |
| West End Elementary | 488 Nc Hwy 211 | Inst | 50 | $2,913,520.00 |
| West Pine Middle School | 144 Archie Rd | Inst | 51 | $58,120.00 |
| North Moore High School | 1504 North Moore Rd | Inst | 52 | $5,050,590.00 |
| Seven Lakes Fire Dept/EMS | 718 Seven Lakes Dr | PS | 53 | $2,913,520.00 |
| **TOWN OF ABERDEEN** | | | | |
| Aberdeen Elementary School | 503 Sandhills Blvd | Inst | 1 | $2,723,050.00 |
| Aberdeen Primary School | 310 Keyser St | Inst | 2 | $0.00 |
| Southern Middle School | 717 Johnson St | Inst | 3 | $9,966,160.00 |
| Academy of Moore | 12588 Hwy 15/501 | Inst | 4 | $0.00 |
| Daycare Facility (Anita Shamberger) | 101 Pine Brae Lane | Inst | 5 | $247,970.00 |
| Daycare Facility (Carolyn Smith) | 108 Central Dr | Inst | 6 | $58,880.00 |
| Daycare Facility (Brandi Thomas) | 102 Vincent Way | Inst | 7 | $143,160.00 |
| Daycare Facility (Patricia Bailey) | 915 Colonial Dr | Inst | 8 | $140,590.00 |
| Kingswood Nursing Center | 915 Pee Dee Rd | Med | 9 | $0.00 |
| Providence Place | 1712 N Poplar St | Med | 10 | $82,750.00 |
| Magnolia Gardens | 594 Murray Hill Rd | Med | 11 | $425,110.00 |
| Public Works Facility | 121 Purnell Circle | Util | 12 | $652,858.00 |

| Facility | Address | Type* | Map ID | Replacement Value** |
|---|---|---|---|---|
| Aberdeen Police Dept | 804 N Sandhills Blvd | PS | 13 | $683,690.00 |
| Aberdeen Fire Dept | 800 Holly St | PS | 14 | $908,015.00 |
| Aberdeen Town Hall | 115 N Poplar St | Public | 15 | $957,675.00 |
| Aberdeen Finance Building | 107 N Poplar St | Public | 16 | $263,623.00 |
| Aberdeen/Rockfish RR | 305 Fayetteville St | Public | 17 | $0.00 |
| Aberdeen Post Office | 111 S Poplar St | Public | 18 | $224,750.00 |
| EMS Base 6 | 800 Holly St | PS | 19 | $236,710.00 |
| Crestline Fire Dept | 10861 NC 211 | PS | 20 | $0.00 |
| Aberdeen Rescue | 401 Lakeshore Dr | PS | 21 | $487,000.00 |
| **TOWN OF CAMERON** | | | | |
| Cameron Fire Dept | 170 Red Hill Rd | PS | 22 | $363,310.00 |
| Cameron Police Dept | 235 Carter St | PS | 23 | $0.00 |
| Cameron Elementary | 2636 NC Hwy 24/27 | Inst | 24 | $2,849,220.00 |
| Union Pines High School | 1577 Union Church Rd | Inst | 25 | $91,450.00 |
| **TOWN OF CARTHAGE** | | | | |
| EMS Base 2 | 781 Grady Rd | PS | 26 | $0.00 |
| EOC/E911 | 103 W Saunders St | PS | 27 | $27,500.00 |
| Carthage Fire Dept | 4396 US 15 | PS | 28 | $780,840.00 |
| Carthage Rescue | 108 Bruce St | PS | 29 | $0.00 |
| Carthage Police Dept | 1396 US Hwy 15501 | PS | 30 | $0.00 |
| Carthage Sheriffs Office | 101 Dowd St | PS | 31 | $576,480.00 |
| Carthage Comm Tower | 6404 Glendon Carthage Rd | Comm | 32 | $0.00 |
| Carthage Elementary | 312 Rockingham St | Inst | 33 | $2,663,410.00 |
| New Century Middle School | 1577 Union Church Rd | Inst | 34 | $91,450.00 |
| Pinckney Academy | 160 Pinckney Rd | Inst | 35 | $1,526,770.00 |
| **VILLAGE OF FOXFIRE VILLAGE** | | | | |
| West End Fire/Police Dept | 5 Town Hall Dr | PS | 54 | $145,320.00 |
| **TOWN OF PINEBLUFF** | | | | |
| Pinebluff Fire Dept | 110 S Pecan St | PS | 55 | $100,830.00 |
| Pinebluff Police Dept | 325 E Baltimore Ave | PS | 56 | $158,310.00 |
| Pinebluff Comm Tower | 110 N Pecan St | Comm | 57 | $346,320.00 |
| **VILLAGE OF PINEHURST** | | | | |
| Communication Tower | Pinehurst Water Tower | Comm | 58 | $28,180.00 |
| Pinehurst Fire/Police Dept | 405 Magnolia Rd | PS | 59 | $590,190.00 |
| Pinehurst Fire Dept | 15 Parker Lane | PS | 60 | $283,940.00 |
| Moore Regional Comm Tower | 155 Memorial Dr | Comm | 61 | $9,790,880.00 |

| Facility | Address | Type* | Map ID | Replacement Value** |
|---|---|---|---|---|
| Pinehurst Elementary | 100 Dundee Rd | Inst | 62 | $3,818,640.00 |
| Moore Regional Hospital | 155 Memorial Dr | Inst | 87 | Not available |
| **TOWN OF ROBBINS** | | | | |
| Robbins Fire Dept | 141 East S Broad St | PS | 63 | $60,570.00 |
| Robbins Police /Rescue | 141 Horner St | PS | 64 | $280,820.00 |
| Robbins Comm Tower | 120 S Rockingham St | Comm | 65 | $0.00 |
| Robbins Elementary | 268 Rushwood Rd | Inst | 66 | $3,272,730.00 |
| Elise Middle School | 108 W Elm St | Inst | 67 | $2,795,790.00 |
| **TOWN OF SOUTHERN PINES** | | | | |
| Southern Pines Fire/Rescue Dept | 500 W Pennsylvania Ave | PS | 68 | $0.00 |
| Southern Pines Police Dept | 450 W Pennsylvania Ave | PS | 69 | $473,850.00 |
| Southern Pines Comm Tower | 720 Morganton Rd | Comm | 70 | $100,000.00 |
| Southern Pines Elementary | 255 South May St | Inst | 71 | $2,896,050.00 |
| Southern Pines Primary | 1250 West New York Ave | Inst | 72 | $0.00 |
| Pinecrest High School | 250 Voit Gilmore Lane | Inst | 73 | $3,777,360.00 |
| Southern Pines Admin Building | 125 SE Broad St | Public | 74 | $329,790.00 |
| Southern Pines Library | 170 W Connecticut Ave | Public | 75 | $115,740.00 |
| Planning/Finance | 180 SW Broad St | Public | 76 | $115,740.00 |
| Public Works | 140 Memorial Park | Public | 77 | $518,400.00 |
| **TOWN OF TAYLORTOWN** | | | | |
| Taylortown Police Dept | 8350 Main St | PS | 78 | $252,160.00 |
| **TOWN OF VASS** | | | | |
| EMS Base 8/Rescue | 211 Main St | PS | 79 | $9,310.00 |
| Circle V Fire Dept | 131 S Alma St | PS | 80 | $450,140.00 |
| Vass Police Dept | 140 S Alma St | PS | 81 | $59,250.00 |
| Lakeview Elementary School | 141 James St | Inst | 82 | $7,165,170.00 |
| Vass Public Library | 128 Seaboard St | Public | 83 | $135,610.00 |
| **VILLAGE OF WHISPERING PINES** | | | | |
| Whispering Pines Fire/Police | 16 Hardee Lane | PS | 84 | $169,430.00 |
| Whispering Pines Rescue | 1320 Rays Bridge Rd | PS | 85 | $0.00 |
| Village Hall Municipal Admin | 10 Pine Ridge Dr | Public | 86 | $150,510.00 |

* *PS* = Public Safety; *Public* = Public Facility; *Comm* = Communication; *Inst* = Institution
**If no replacement value is listed, a building value was not available in the County tax records.
Source: Moore County Tax Records.

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. Maps of all infrastructure systems operated by Moore County are available for review at the County Public Works Office.

## *F. 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 consecutive ten-year period, since 1978. A repetitive loss 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). No repetitive loss properties exist within Moore County or any of the participating jurisdictions.

# SECTION 7. MITIGATION STRATEGIES

## A. INTRODUCTION

This section of the Hazard Mitigation Plan Update outlines all of the goals, policies, and strategies that will be implemented at the County and municipal level. It should be noted that all goals, objectives and implementing strategies have been revised from the 2005 plan. The modifications of these plan elements were 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 Mitigation Advisory Committee and their members' respective jurisdictions. The mitigation strategies developed through the planning process will be implemented at the County level, and in some cases, municipal level. Moore County will take the lead in undertaking all strategies outlined within this plan, with support and assistance from MAC members and all participating jurisdictions.

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

1. **Prevention Mechanisms** include regulatory methods such as planning and zoning, building regulations, open space planning, land development regulations, and stormwater management.

2. **Property Protection** actions diminish the risk of structural damage through acquisition of land, relocation of buildings, modifying high-risk structures, and floodproofing high-risk structures.

3. **Natural Resource Protection** can soften hazard impacts through mechanisms such as erosion and sediment control or wetlands protection.

4. **Emergency Services** measures include warning, response capabilities, Town critical infrastructures protection, 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.

## *B. 2005 MITIGATION PROGRESS REPORT*

### *1. Public Participation*

Moore County works very closely with the citizens to provide programs and support that will improve the County's resiliency to natural disasters. Over the last five years, the County has taken significant steps to improve upon existing emergency service functions and programs. The public played an integral part in carrying out all of these efforts. All issues relating to emergency management policies and programs have been thoroughly discussed with the public and the Moore County Board of Commissioners. 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 County intends to expand public outreach efforts, as outlined in the updated strategies.

### *2. Monitoring and Evaluation*

Moore County has utilized the information within this document for day-to-day planning efforts. Through monitoring the status of this plan, the County has not only improved upon the data resources utilized in the vulnerability analysis, but also expanded upon the general strategies outlined in the 2005 plan. The County's administration maintains a dialogue with the County Board of Commissioners regarding mitigation/emergency management issues, and provides the public with information when deemed necessary.

### *3. Incorporation of Mitigation Plan into Other Planning Mechanisms*

Over the last five years, Moore County has made several land development policy amendments. The information and strategies outlined within the County's existing HMP were factored into discussions during the development of these documents. This coordination ensures that information outlined in the mitigation plan is carrying over into land use policy. Additionally, the County reviewed its Flood Damage Prevention Ordinance to ensure compliance with current standards. The County also considered the HMP during decisions relating to capital expenditures such as infrastructure improvements.

### *4. Mitigation Strategy Progress*

#### **a. Moore County**

The following section provides a status update regarding the mitigation strategies outlined in the 2005 Moore County Hazard Mitigation Plan. Some of these strategies have been

completed and will not be reflected within the plan update. If a strategy was deemed to be ongoing, or was not completed, then it will remain within the update and will be considered for implementation within the next five years.

*Strategy #1:* Identify, delineate, and map areas of potential flooding.

*Progress:* This information has not been compiled to date; however, the county as well as several participating municipalities (Aberdeen and Pinehurst) require the use of "flood of record" contours in their respective Flood Damage Prevention Ordinances.

*Status:* Ongoing

*Strategy #2:* Map the geographic boundaries of areas flooded during Hurricane Floyd using Geographic Information System (GIS) technology.

*Progress:* This information was never compiled. The county has determine that the flooding impacts within the county are inconsistent and unpredictable. Due to this fact, the county will not pursue compiling this data.

*Status:* Ongoing

*Strategy #3:* Direct development away from areas that flood.

*Progress:* The County, as well as most participating jurisdictions, currently enforces a local Flood Damage Prevention Ordinance. This ordinance does not restrict development within floodplain areas, but does impose additional development requirements, including the required elevation of structures and increased regulation of manufactured homes. The County has determined that this should be enough to protect the County's limited floodplain area.

*Status:* Removed

*Strategy #4: Use GIS to identify all undeveloped parcels located within the floodplain.*

*Progress:* This task has been completed, and the data has been included in this update.

*Status:* Completed

*Strategy #5:* Maintain all development permit records on the County's GIS.

*Progress:* Currently the County maintains all development permit records through a software based system. This system may potentially be linked to the County GIS, but this has not been completed to date. The County does not view this activity as a priority and therefore has removed this item as a strategy in this plan update. Additionally, all jurisdictions providing independent building inspections maintain permit records on a software-based system.

*Status:* Removed

*Strategy #6:* Use GIS technology to identify all structures located in the floodplain.

*Progress:* This task has been completed, and the information is presented within this update.

*Status:* Completed

*Strategy #7:* Compile flood hazard mitigation information and mail to everyone that owns property in the floodplain.

*Progress:* This activity has not been completed. This effort will be outlined as a Community Rating System Strategy for the County under this update. Individual municipalities participating in this plan including Aberdeen and Pinehurst annually provide this information to citizens through direct mail.

*Status:* Revised

*Strategy #8:* Compile flood mitigation information and make it available to Moore County residents and businesses. One option is to prepare a disaster safety calendar that focuses on flood hazard preparedness/mitigation measures.

*Progress:* The County maintains information relating to floodplains and floodplain development for review by County residents. Additionally, the County holds public information sessions to educate the public about the hazards of flooding and other natural disasters. The County will continue to provide this information and hold public forum. These activities are reflected in the revised strategies.

*Status:* Revised

*Strategy #9:* Work with local Meals on Wheels and/or Habitat for Humanity chapters to apply non-structural mitigation measures to the homes of low-income senior citizens in the floodplain.

*Progress:* This effort is underway and ongoing.

*Status:* Ongoing

*Strategy #10:* Ensure that reception of national weather service radio signal is good in all of Moore County and that weather alert radios are installed in schools, day care centers/homes, and nursing homes, etc.

*Progress:* This effort is underway and ongoing.

*Status:* Ongoing

*Strategy #11:* Appoint an individual responsible for notifying all emergency responders when a tornado watch or warning is issued. This individual will notify all agencies by sending an alert tone signal over all emergency radio frequencies available at the Moore County Emergency Services 911 Center.

*Progress:* All issues relating to emergency communication measures are outlined within the Moore County Emergency Operations Plan (EOP). Incorporating this item in the EOP is a more appropriate place for this procedure to be outlined and therefore this strategy has been removed from this update.

*Status:* Removed

*Strategy #12:* Coordinate response/recovery efforts within Moore County.

*Progress:* This effort is ongoing on an as-needed basis.

*Status:* Ongoing

*Strategy #13:* Appoint an individual to provide information for upgrading the emergency services website.

*Progress:* Moore County is currently in the process of revising its website. This effort will involve the update of all departmental information including emergency management.

*Status:* Completed

*Strategy #14:* Ensure all new mobile homes are securely tied down in accordance with the NC State Building Code.

*Progress:* This effort is underway and ongoing.

*Status:* Ongoing

*Strategy #15:* Provide safety recommendations for mobile home residents based on modern research.

*Progress:* This effort is underway and ongoing.

*Status:* Ongoing

*Strategy #16:* Inform citizens that the weather alert radios are the tornado warning system in Moore County.

*Progress:* This initiative is clearly defined within this plan update as a high priority strategy. This is considered a very important component of the County's effort to ensure that all residents are alerted of inclement weather.

*Status:* Revised

*Strategy #17:* Publish a special section in the local newspaper with emergency information about tornadoes, including numbers of Moore County Emergency Services and American Red Cross.

*Progress:* Currently there is no formal policy within the County relating to the publishing of this information. The County may consider utilizing this activity through the community outreach initiatives outlined in this update.

*Status:* Revised

*Strategy #18:* Sponsor Family Disaster Planning classes for community groups throughout the County.

*Progress:* These services are provided in the form of community-wide public information meetings. These meetings will continue to be held at a minimum of twice annually.

*Status:* Revised

*Strategy #19:* Compile tornado mitigation information and make it available to county residents and business owners.

*Progress:* The County maintains information relating tornadoes and tornado mitigation measures for review by County residents. Additionally, the County holds public information sessions to educate the public about the hazards of tornadoes and other natural disasters. The County will continue to provide this information and hold public forum. These activities are reflected in the revised strategies.

*Status:* Revised

*Strategy #20:* Develop a fire management plan that includes a clear statement of objectives, and incorporates information on land, threatened structures, degree of fire risk, fire history and fire management measures.

*Progress:* Issues relating to emergency response and fire protection are outlined within the Moore County Emergency Operations Plan. The EOP will be considered the source for all information relating to emergency service provision and response.

*Status:* Removed

*Strategy #21:* Provide adequate resources for fire containment at different levels of fire activity.

*Progress:* Issues relating to emergency response and fire protection are outlined within the Moore County Emergency Operations Plan. The EOP will be considered the source for all information relating to emergency service provision and response.

*Status:* Removed

*Strategy #22:* Provide training on wildfire fire fighting techniques and tactics to fire departments. This training should be through a cooperative effort with NC Forest Service and Sandhills Community College.

*Progress:* The Moore County Public Safety Department works with all County fire departments to ensure that individuals within each operation receive adequate training. Emergency service officials within the County are consistently receiving training in an effort to improve upon emergency service provision.

*Status:* Ongoing

*Stategy #23:* Be aware of recent weather (a long period without rain increases the risk of wildfire).

*Progress:* This effort is underway and ongoing.

*Status:* Ongoing

*Strategy #24:* Determine the County's ability to response to wildfire and provide training to fire departments on wildfire strategies and incident command.

*Progress:* The Moore County Public Safety Department works with all County fire departments to ensure that individuals within each operations receive adequate training. Emergency service officials within the County are consistently receiving training in an effort to improve upon emergency service provision.

*Status:* Ongoing

*Strategy #25:* Provide training to fire departments on community based defensible space and fuel breaks plans, prescribed fire planning and wildfire pre-attack planning for interface fires, identify roads that may not be wide enough to allow firefighting equipment to get through.

*Progress:* The Moore County Public Safety Department works with all County fire departments to ensure that individuals within each operations receive adequate training. Emergency service officials within the County are consistently receiving training in an effort to improve upon emergency service provision.

*Status:* Ongoing

*Strategy #26:* Provide information to fire departments on house numbering ordinances and ensure that house numbers are visible from the roadside.

*Progress:* This effort is ongoing and underway. It should be noted that house numbering procedures and location are dictated by Moore County Ordinances.

*Status:* Ongoing

*Strategy #27:* Coordinate firefighting mutual aid within the County and with other counties.

*Progress:* This effort is underway and ongoing.

*Status:* Ongoing

*Strategy #28:* Employ or encourage participation of rural residents in fire prevention work, such as establishment and maintenance of fire breaks and other fuel treatments.

*Progress:* Moore County maintains a very active Community Emergency Response Team (CERT) program. These individuals are trained in assisting with emergency response activities. The expansion of this program is covered under the updated strategies within this plan.

*Status:* Revised

*Strategy #29:* Erect signs that convey local wildfire conditions and place in obvious locations.

*Progress:* This effort has not been completed, and will be considered through this plan update.

*Status:* Revised

*Strategy #30:* Provide educational materials to citizens regarding ways to reduce the potential impacts of fire to structures.

*Progress:* The County does maintain information relating to fire protection and wildfires for review by County residents. Additionally, the County holds public information sessions to educate the public about the hazards of house fires, wildfires and other natural disasters. The County will continue to provide this information and hold public forum. These activities are reflected in the revised strategies.

*Status:* Revised

*Strategy 31:* Publish information in the local newspapers with emergency information about thunderstorms and lightning. Place special emphasis on what people should do if they are caught outside.

*Progress:* Currently there is no formal policy within the County relating to the publishing of this information. The County may consider utilizing this activity through the community outreach initiatives outlined in this update.

*Status:* Revised

**b. Village of Pinehurst**

The Village of Pinehurst did not participate in the 2005 Moore County planning process. The Village, at that time, developed and implemented a plan independently. The following provides an overview of the Village's primary existing strategies, as well as the progress that has been made over the last five years.

*Strategy #1:* Designing a Public Awareness Brochure.

*Progress:* Hard copy public awareness information is available at Village Hall; however, the web is currently utilized as the predominant means of communication. The Village is very pro-active about providing comprehensive and current information relating to protection from natural and man-made hazards on their website.

*Status:* Completed

*Strategy #2:* Updating the Village of Pinehurst Website.

*Progress:* This effort has been completed, and the website is updated on a regular basis.

*Status:* Completed/Ongoing

*Strategy #3:* Providing information on natural disasters in the Village's quarterly newsletter.

*Progress:* The Village produces this newsletter approximately once every three months. The newsletter contains seasonal information relating to protection from both natural and man-made hazards on an as needed/seasonal basis.

*Status:* Completed/Ongoing

*Strategy #4:* Educate the elected officials, department heads, and other employees on the importance of hazard mitigation and how specific mitigation goals can improve their departments.

*Progress:* This effort is carried out through day-to-day activities and monthly Village Council meetings. The Village has been very instrumental in carrying out the strategies outlined within the 2004 plan.

*Status:* Ongoing

*Strategy #5:* Continue to integrate or introduce new mitigation strategies into daily functions of each department.

*Progress:* This effort is underway and ongoing.

*Status:* Ongoing

*Strategy #6:* Update Emergency Operations Plan.

*Progress:* The Village updates its Emergency Operations Plan on an annual basis to ensure that all procedures and processes are current and appropriate.

*Status:* Completed

*Strategy #7:* Continue to update/amend the Pinehurst Development Ordinance.

*Progress:* A complete overhaul of the Pinehurst Development Ordinance was completed. The Village does, as a practice, update all development regulations on an as-needed basis.

*Status:* Completed

*Strategy #8:* Develop and implement a Stormwater Master Plan.

*Progress:* The Village has completed the development and implementation of their stormwater master plan. The Village maintains a listing of stormwater improvements that need to be completed, and completes 4 to 6 projects on an annual basis. The Village maintains a very effective stormwater management program, and will continue to do so through this update. The Village has also initiated a program to purchase lots in drainage ways to preclude development in floodprone areas and preserve greenspace.

*Status:* Completed/Ongoing

*Strategy #9:* Continue to expand on and implement the Village Parks and Recreation Plan.

*Progress:* The Village is currently in the process of implementing the recommendations outlined within its Parks and Recreation Plan. This effort will continue and involve the establishment of additional recreational and open space areas within the Village's corporate limits.

*Status:* Ongoing

*Strategy #10:* Continue to work with Progress Energy to maintain tree limbs at a safe distance from power lines.

*Progress:* This effort is underway and ongoing.

*Status:* Ongoing

## *C. MITIGATION STRATEGIES*

The overall hazard mitigation planning effort is focused on providing Moore County with an action plan that will strive toward the achievement of these goals. In order to establish this plan, the MAC was charged with developing objectives and specific implementing actions tied to each of these goal statements. The following provides definitions of how goals, objectives, and implementing action relate to one another:

- **Goals** – A broad-based statement of intent that establishes the direction for the Moore County Hazard Mitigation Plan. Goals state desired outcomes for the overall implementation process.

- **Objective** – The stated means of achieving each defined goal, or tasks to be executed in the process of achieving stated goals.

- **Implementing Actions** – 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 objectives, and corresponding 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.

These goals will replace those outlined within the County's existing plan. The following goals are listed from the 2005 plan:

- Develop all-hazards comprehensive mitigation plan.
- Create and implement methods to inform the community about natural hazards, hazard mitigation, and to increase public awareness of the risks present in the community, as well as the resources available to reduce those risks.
- Integrate mitigation concepts into routine functions of government and coordinate with enforcement authorities to ensure compliance with mitigation requirements.
- Develop a system for recording hazard events and repetitive losses with cost of impact associated for historical information relating to prioritization of mitigation projects and identification of vulnerability.

These goals have been provided in order to provide linkage to the 2005 plan. It was determined by the MAC that these goals were no longer appropriate or accurate. In order to outline a stronger statement of intent with regards to mitigation in Moore County, the revised goals listed above have been incorporated into this HMP update.

Table 85 outlines all objectives and implementing strategies developed through the Moore County multi-jurisdictional planning process. The table provides a description of each objective and supporting actions aimed at furthering each. The tables also provide guidance relating to funding sources, priority, and a variety of other information required to implement the plan effectively.

The actions in the following tables have been ranked based on a cost-benefit review conducted by the 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 2010/2011 and 2011/2012 and be continued.

- **Medium Priority** – Policies that have at least two of the following characteristics (but not all three) and should be implemented in fiscal years 2012/2013 to 2014/2015:

  - 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 2015/2016):

  - 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.

Objectives were generated by and approved by the MAC. The MAC considered the applicability of each objective to Moore County and the participating jurisdictions. These objectives provided a context through which the MAC established and formalized specific actions aimed at reducing the County's vulnerability to natural hazards. It should be noted that these objectives have been modified from the 2005 mitigation plan. The following summarizes the mitigation objectives:

1. Ensure interagency communication and coordination in the event of a natural or man-made disaster. This effort should focus on providing adequate communication systems and protocols for Public Safety agencies and emergency response units (County and Municipal) to effectively and efficiently implement the Moore County Emergency Operations Plan (EOP).

2. Reduce the possibility of damage and losses to existing assets, including people, critical infrastructures, and public facilities. This effort should involve the investigation of structural solutions to risk posed by natural hazards for facilities deemed vulnerable and/or critical. Additionally, the County will aim to ensure that all residents and business owners are aware of the potential hazards associated with their environment and the ways they can protect themselves.

3. Provide residents with adequate warning of potential floods and other meteorological events. This effort should involve the development of citizen information related to natural, technological, and man-made disaster response.

4. The Moore County MAC will work towards the development of a comprehensive strategy aimed at improving upon the management of water levels as dictated by dam facilities located within the County. This effort will also focus on the protection of structures impacted by rising water levels associated with dam facilities.

5. Provide safe and efficient evacuation routes during natural and manmade hazard events. In meeting this objective, the County should focus on the provision of safe, secure, and convenient shelter facilities for all residents.

6. Ensure that local officials are well trained regarding natural hazards and appropriate prevention and mitigation activities. These efforts should focus on building political support and commitment to becoming less vulnerable to hazards.

7. Ensure that existing drainage systems (pipes, culverts, channels) are adequate and functioning properly in an effort to minimize localized and widespread flooding. This effort may entail the drafting of development regulations to prevent increases in runoff and subsequent increases in downstream flood flows to the maximum extent practicable.

8. Ensure that local building codes/ordinances are consistent with FEMA guidelines and are properly enforced.

9. Manage growth through sustainable principles and practices to limit hazard areas through expansion and protection of green spaces, parks, and bikeways/greenways. Preserve areas where natural hazard potential is high (i.e., steeply sloping areas, floodplains, etc.).

10. Explore funding options for mitigation activities and post-disaster recovery efforts.

The following tables provide a detailed breakdown of specific mitigation actions that will aid Moore County and all participating jurisdictions in furthering the goals and objectives discussed within this section of the plan. Unless otherwise notes, all strategies are intended to benefit Moore County as well as each participating municipality. These implementing actions are intended to address the next five years. Subsequent to this period, the MAC will revisit these

actions as outlined within Section 8, Plan Maintenance. If a jurisdiction has developed strategies specific to their community, they are listed following the overall Moore County strategies.

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

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

**Table 85: Moore County Mitigation Strategies**

| Number | Strategy | Goal Addressed (see page 7-12) | Hazard Addressed (see page 4-1) | Mitigation Action Status | Priority | Responsible Party/Dept. |
|---|---|---|---|---|---|---|
| **Objective #1: Ensure interagency communication and coordination in the event of a natural or man-made disaster. This effort should focus on providing adequate communication systems and protocols for Public Safety agencies and emergency response units (County and Municipal) to effectively and efficiently implement the Moore County Emergency Operations Plan (EOP).** | | | | | | |
| 1 | Moore County Public Safety will work to broaden efforts regarding the dissemination of information relating to natural and man-made hazard events. This effort will focus on forwarding information provided by NCEM to municipal staff members and elected officials (existing buildings). | 1, 5 | 1, 2, 3, 4, 5, 6, 9 | New | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Staff and elected officials of all participating jurisdictions |
| 2 | Moore County Public Safety will schedule and hold one county-wide conference call annually. This conference call will include all participating municipalities, all county fire departments, and all county law enforcement agencies. This effort will require three separate scheduled calls as follows: municipal contacts, law enforcement contacts, fire department contacts. The lead contact as listed in the Moore County EOP shall act as the participant for each respective municipal jurisdiction (existing buildings). | 1, 4, 5 | 1, 2, 3, 4, 5, 6, 9 | New | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Lead emergency contact for each participating jurisdiction |
| 3 | Moore County Public Safety will continue to utilize the County's existing emergency notification system, and improve upon the accuracy and effectiveness of this system when feasible. | 1, 4, 5 | 1, 2, 3, 4, 5, 6, 9 | New | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |

| Number | Strategy | Goal Addressed (see page 7-12) | Hazard Addressed (see page 4-1) | Mitigation Action Status | Priority | Responsible Party/Dept. |
|---|---|---|---|---|---|---|
| 4 | Moore County Public Safety will exercise the County's EOP once annually. All participating jurisdictions should attend and participate in this exercise. | 1, 2, 3, 4, 5, 6 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | Revised | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Lead emergency contact for each participating jurisdiction |
| 5 | In the event of a substantial natural and/or man-made disaster situation, Moore County Public Safety will deliver a VIPER radio to the lead contact (as listed in the EOP) for each municipality. | 1, 4 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | New | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Lead emergency contact for each participating jurisdiction |
| **Objective #2: Reduce the possibility of damage and losses to existing assets, including people, critical infrastructures, and public facilities. This effort should involve the investigation of structural solutions to risk posed by natural hazards for facilities deemed vulnerable and/or critical. Additionally, the County will aim to ensure that all residents and business owners are aware of the potential hazards associated with their environment and the ways they can protect themselves.** | | | | | | |
| 6 | The lead contact for all jurisdictions participating in this plan will acknowledge the importance of developing a strong functional understanding of the County EOP. Additionally, all participating jurisdictions shall provide support, as required, to implement the EOP. | 1, 4 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | Revised | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Lead emergency contact for each participating jurisdiction |
| 7 | Moore County will hold a minimum of two public outreach symposiums annually. The focus of these symposiums will be on providing county residents and business owners with information relating to emergency preparedness and response (new and existing buildings). | 1, 4, 5, 6 | 1, 2, 3, 4, 5, 6, 9 | Revised | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Moore County Office of Planning and Community Development |

| Number | Strategy | Goal Addressed (see page 7-12) | Hazard Addressed (see page 4-1) | Mitigation Action Status | Priority | Responsible Party/Dept. |
|---|---|---|---|---|---|---|
| 8 | Moore County Public Safety will work to improve upon the County's existing special needs registry. This effort will require the cooperation and assistance of all participating jurisdictions. | 1, 4, 5 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | New | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Lead emergency contact for each participating jurisdiction |
| 9 | Moore County will conduct outreach activities aimed at educating business owners about addressing the issue of continuity of operations in the face of natural and man-made disasters. Following a disaster, the reopening of commercial operations is critical to recovery efforts. | 1, 4 | 1, 2, 3, 4, 5, 6, 9 | New | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Moore County Office of Planning and Community Development |
| 10 | Moore County Public Safety will work with local residents on the establishment of additional Community Emergency Response Teams (CERT). This effort will also address the ongoing training and support of the eleven teams currently operating within the County. The County will rely on grant funding for the training and equipment expense associated with establishing new CERT units. | 1, 3, 4, 5, 6 | 1, 2, 3, 4, 5, 6, 9 | New | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Moore County Community Emergency Response Teams (CERT) |
| **Objective #3: Provide residents with adequate warning of potential floods and other meteorological events. This effort should involve the development of citizen information related to natural, technological, and man-made disaster response.** | | | | | | |
| 11 | Moore County Public Safety with the assistance of the MAC will develop a public service campaign focused on stressing the importance of maintaining a National Oceanic and Atmospheric Administration (NOAA) weather radio within all homes and businesses. | 1, 3, 5 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | Revised | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |

| Number | Strategy | Goal Addressed (see page 7-12) | Hazard Addressed (see page 4-1) | Mitigation Action Status | Priority | Responsible Party/Dept. |
|---|---|---|---|---|---|---|
| 12 | Moore County will continue to utilize the County's existing emergency notification system as a secondary line of communication to all residents and business owners regarding natural and man-made hazard events. County residents should not rely on this system in taking preparedness measures. The first line of communication should come through a NOAA weather radio system. | 1, 5 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | Revised | Medium | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |
| 13 | All participating jurisdictions shall subsidize the County's efforts to provide advance notification regarding natural and man-made hazard events. This effort should involve the use of first responders employed by each of the municipal jurisdictions (new and existing buildings). | 1, 4, 5 | 1, 2, 3, 4, 5, 6, 9 | New | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |
| **Objective #4: The Moore County MAC will work towards the development of a comprehensive strategy aimed at improving upon the management of water levels as dictated by dam facilities located within the County.** | | | | | | |
| 14 | Moore County Public Safety will work with NCEM to acquire grant funding that will be utilized to acquire and locate flood gauges strategically along watercourses impacting the County. The goal of this effort will be to provide the state and County with better information regarding riverine water levels (new and existing buildings). | 1, 5, 6 | 6 | New | Medium | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |
| 15 | Subsequent to the establishment of additional stream gauges as noted above, Moore County Public Safety will convene a working group including all individuals charged with floodplain and dam management within the County. This working group will be charged with drafting a coordinated Dam Management Plan and Strategy (new and existing buildings). | 1, 5, 6 | 6 | New | Medium | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Moore County Mitigation Advisory Committee |

| Number | Strategy | Goal Addressed (see page 7-12) | Hazard Addressed (see page 4-1) | Mitigation Action Status | Priority | Responsible Party/Dept. |
|---|---|---|---|---|---|---|
| 16 | Moore County Planning and Inspections, with the assistance of all participating jurisdictions, will work towards the development of a vulnerability assessment to address the potential impacts of dam breaches throughout the County. This effort will aim to assess existing vulnerability, as well as mitigate future risk through informed planning efforts (new and existing buildings). | 1, 5, 6 | 6 | New | Low | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Moore County GIS Department |
| 17 | Moore County will consider the development of stormwater regulations aimed at reducing the downstream effects of future development (new buildings). | 1, 5, 6 | 6 | New | Low | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |
| **Objective #5: Provide safe and efficient evacuation routes during natural and mad-made hazard events. In meeting this objective, the County should focus on the provision of safe, secure, and convenient shelter facilities for all residents.** | | | | | | |
| 18 | Moore County Public Safety will publish and disseminate evacuation information as soon as possible through media outlets defined in the County Emergency Operations Plan. | 1, 4, 5 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | Revised | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Lead emergency contact for each participating jurisdiction |
| 19 | Moore County Public Safety will work closely with the American Red Cross to ensure that adequate shelter facilities are available to address all hazards identified within this plan. This effort will involve securing an alternate power source for all shelter facilities. This will be achieved either through an ongoing memorandum of understanding with NCEM or acquisition. Additionally, the County will aim to install transfer switches at all shelter facilities. The County acknowledges that this effort will require grant assistance. | 1, 4, 5 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | New | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |

| Number | Strategy | Goal Addressed (see page 7-12) | Hazard Addressed (see page 4-1) | Mitigation Action Status | Priority | Responsible Party/Dept. |
|---|---|---|---|---|---|---|
| 20 | Moore County Public Safety currently provides one pet-friendly shelter, which is located at Southern Middle School. The County will work to establish additional pet-friendly shelters to serve other portions of the County. | 1, 4, 5 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | Revised | Low | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |
| **Objective #6: Ensure that local officials are well trained regarding natural hazards and appropriate prevention and mitigation activities. These efforts should focus on building political support and commitment to becoming less vulnerable to hazards.** | | | | | | |
| 21 | Moore County will work to establish the MAC as a function of the Local Emergency Planning Committee (LEPC). Under this scenario, the MAC will meet quarterly. | 1, 2, 3, 4, 5, 6 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | New | High | **Primary Responsible Party**<br>Moore County Public Safety Department<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |
| 22 | Members of the MAC will report all implementation progress regarding the Mitigation Plan to their respective elected bodies through established standard reporting mechanisms. | 1, 2, 3, 4, 5, 6 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | Revised | High | **Primary Responsible Party**<br>Moore County Public Safety Department, Moore County Office of Planning and Community Development<br><br>**Secondary Responsible Party**<br>Lead emergency contact for each participating jurisdiction |
| 23 | The MAC member representing each participating jurisdiction will ensure that mitigation issues and programs are addressed annually within the context of budget discussions. Programs and/or project identified through this plan, or quarterly MAC meetings, may require local contributions. In order to ensure that necessary funding is available, mitigation issues should be addressed by all participating jurisdictions as deemed necessary (new and existing buildings). | 1, 2, 3, 4, 5, 6 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | New | High | **Primary Responsible Party**<br>Moore County Public Safety Department, Moore County Office of Planning and Community Development<br><br>**Secondary Responsible Party**<br>Lead emergency contact for each participating jurisdiction |

| Number | Strategy | Goal Addressed (see page 7-12) | Hazard Addressed (see page 4-1) | Mitigation Action Status | Priority | Responsible Party/Dept. |
|---|---|---|---|---|---|---|
| 24 | Moore County Public Safety will establish an annual calendar of events outlining the dates of all emergency management, public safety, and mitigation functions and programs. This calendar will be disseminated to all elected officials and posted on the County's website (new and existing buildings). | 1, 2, 3, 4, 5, 6 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | New | High | **Primary Responsible Party**<br>Moore County Office of Public Safety<br><br>**Secondary Responsible Party**<br>Lead emergency contact for each participating jurisdiction |
| **Objective #7: Ensure that existing drainage systems (pipes, culverts, channels) are adequate and functioning properly in an effort to minimize localized and widespread flooding. This effort may entail the drafting of development regulations to prevent increases in runoff and subsequent increases in downstream flood flows to the maximum extent practicable.** | | | | | | |
| 25 | Moore County, as well as all participating jurisdictions, will continue to enforce NC State stormwater regulations (new and existing buildings). | 1, 2, 5, 6 | 1, 2, 6 | New | High | **Primary Responsible Party**<br>Moore Coun ty Office of Planning and Community Development<br><br>**Secondary Responsible Party**<br>Administrative staff of all participating jurisdictions |
| 26 | The Village of Pinehurst, Town of Southern Pines, and the Village of Whispering Pines will continue to enforce and maintain their local stormwater control ordinances (new and existing buildings). | 1, 2, 5, 6 | 1, 2, 6 | New | High | **Primary Responsible Party**<br>Administrative staff of the Village of Pinehurst, Town of Southern Pines, and the Village of Whispering Pines<br><br>**Secondary Responsible Party**<br>Moore County Office of Planning and Community Development |
| 27 | Moore County will address the issue of drainage and stormwater management solutions within the context of the County Comprehensive Plan update (new and existing buildings). | 1, 2, 5, 6 | 1, 2, 6 | New | High | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br><br>**Secondary Responsible Party**<br>Moore County Planning Board |

| Number | Strategy | Goal Addressed (see page 7-12) | Hazard Addressed (see page 4-1) | Mitigation Action Status | Priority | Responsible Party/Dept. |
|---|---|---|---|---|---|---|
| 28 | Moore County will monitor all areas identified as local drainage "hot spots" within this plan and work towards drainage solutions where deemed feasible. The County acknowledges that not all drainage issues may be rectified; however, this plan establishes an inventory of drainage issues/concerns (new and existing buildings). | 1, 2, 5, 6 | 1, 2, 6 | New | Medium | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br><br>**Secondary Responsible Party**<br>Moore County Geographic Information Systems |
| **Objective #8: Ensure that local building codes/ordinances are consistent with FEMA guidelines and are properly enforced.** | | | | | | |
| 29 | Moore County, as well as all participating jurisdictions, will continue to enforce the NC State Building Code (new buildings). | 1, 2, 5, 6 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | Ongoing | High | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br><br>**Secondary Responsible Party**<br>Administrative staff of all participating jurisdictions |
| 30 | The Moore County Planning and Inspections Department will continue to maintain and enforce the County's Flood Damage Prevention Ordinance. The County will continue to provide this service for all participating jurisdictions with the exception of: Aberdeen, Pinehurst, Southern Pines, and Pinebluff. These jurisdictions, as exhibited in their respective capability assessments, maintain the staff resources to carry out these efforts internally (new buildings). | 1, 2, 5, 6 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | Ongoing | High | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br><br>**Secondary Responsible Party**<br>Administrative staff of all participating jurisdictions |
| 31 | Moore County will consider the establishment of a comprehensive stormwater management ordinance (new and existing buildings). | 1, 2, 6 | 1, 2, 6 | New | Low | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |

| Number | Strategy | Goal Addressed (see page 7-12) | Hazard Addressed (see page 4-1) | Mitigation Action Status | Priority | Responsible Party/Dept. |
|---|---|---|---|---|---|---|
| **Objective #9: Manage growth through sustainable principles and practices to limit hazard areas through expansion and protection of green spaces, parks, and bikeways/greenways. Preserve areas where natural hazard potential is high (i.e., steeply sloping areas, floodplains, etc.).** | | | | | | |
| 32 | Moore County, as well as all participating jurisdictions, will consider joining the Community Rating System program. The initial step in achieving CRS status will be the request of a pre-audit assessment (new and existing buildings).<br><br>Note: The Village of Whispering Pines is already a participant in the Community Rating System program. | 1, 2, 6 | 1, 2, 6 | New | Low | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners & the elected boards of all participating jurisdictions |
| 33 | Moore County will work towards the development of a Comprehensive Plan Update. This update will address a variety of issues, including open space preservation, floodplain development, sustainable development, and mitigation (new and existing buildings). | 1, 2, 6 | 1, 2, 3, 4, 5, 6, 7, 8, 9 | New | High | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |
| 34 | Moore County will work closely with all local land preservation efforts and programs. These efforts will focus on land acquisition within portions of the County that are vulnerable to natural hazards. | 1, 3, 6 | 1, 2, 6 | New | Low | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |
| 35 | Moore County, as well as all participating jurisdictions, will continue to require elevation certificates for all development within a Special Flood Hazard Area (SFHA). All elevation certificates will be submitted on an official FEMA Elevation Certificate Form (new buildings). | 1, 2, 5, 6 | 1, 2, 6 | Ongoing | High | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br><br>**Secondary Responsible Party**<br>Administrative staff of all participating jurisdictions |

| Number | Strategy | Goal Addressed (see page 7-12) | Hazard Addressed (see page 4-1) | Mitigation Action Status | Priority | Responsible Party/Dept. |
|---|---|---|---|---|---|---|
| **Objective #10: Explore funding options for mitigation activities and post-disaster recovery efforts.** | | | | | | |
| 36 | Moore County will work with County residents on the application for Hazard Mitigation Assistance funding (HMA) for the elevation/floodproofing/acquisition/ relocation of repetitive loss properties (existing buildings). | 1, 2, 3 | 1, 2, 6 | New | Medium | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |
| 37 | Moore County Public Safety will work with all municipalities on the establishment of a County-wide pre-disaster debris management contract. This effort will improve the efficiency of post-disaster recovery. Additionally, this effort will streamline the process of securing reimbursement and grant funds following a disaster. | 1, 4 | 1, 2, 3, 4, 5, 6, 9 | New | High | **Primary Responsible Party**<br>Moore County Office of Public Safety<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners & the elected boards of all participating jurisdictions |
| **Objective #11: Moore County and all participating jurisdictions acknowledge the presence of man-made hazards within the community, and will take steps to ensure that the potential effects of these hazards are mitigated through intergovernmental cooperation and coordination.** | | | | | | |
| 38 | Moore County will work closely with Hoke and Cumberland Counties to ensure that all growth and expansion of Pope Air Force Base and Fort Bragg are managed and that all associated hazards are minimized (new and existing buildings). | 1, 2, 6 | Man-made | New | High | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |

| Number | Strategy | Goal Addressed (see page 7-12) | Hazard Addressed (see page 4-1) | Mitigation Action Status | Priority | Responsible Party/Dept. |
|---|---|---|---|---|---|---|
| 39 | Moore County will consider the development of policy relating to the encroachment of development on the rail corridors traversing through County within the County's Comprehensive Plan Update. Participating jurisdictions impacted by rail corridors will also consider the adoption of such a policy initiative (new buildings). | 1, 2, 6 | Man-made | New | Low | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development & the administrative staffs of all participating jurisdictions<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners & the elected boards of all participating jurisdictions |
| 40 | The Moore County Office of Public Safety will work to ensure that County residents are prepared for the potential effects of an incident at the Shearon Harris Nuclear Facility located near Holly Springs, NC (existing buildings). For a detailed explanation of the hazards associated with this facility, refer to Section 6 of the plan. | 1, 2, 6 | Man-made | New | High | **Primary Responsible Party**<br>Moore County Office of Public Safety<br><br>**Secondary Responsible Party**<br>Moore County Board of Commissioners |

## D. INDIVIDUAL MUNICIPAL STRATEGIES

### 1. Town of Aberdeen

The following strategies are specific to the Town of Aberdeen. The primary responsibility for implementation of these strategies is Kathy Liles (the town's Planning Director). Questions regarding the following statements/strategies should be directed to the Town of Aberdeen:

- Implement at least one of the three stormwater BMP's identified through the Town's existing comprehensive stormwater mapping project.
- Promote floodplain mapping of the Ray's Mill Pond (Pee Dee Lake) and Creek system.
- Ensure adequate notification of parties potentially affected by revisions to floodplain boundaries as a result of NCDOT road improvement projects.
- Seek funding to relocate the repetitively flooded Rescue Building located downstream of the Aberdeen Lake Dam.
- Incorporate the Emergency Evacuation Limits of intermediate to high hazard dams onto maps in use in Town Hall, Police, and Fire Departments. Notify all potentially affected property owners.
- Provide in-house training for Public Works administrators to ensure compliance of public infrastructure installation with the FDPO.
- Incorporate dam maintenance into the CIP. This task should be coordinated with County efforts.
- Revise Land Development Plan goals, objectives, and policies to address natural resource protection, hazard mitigation, and rail corridor protection.
- Add ½ mile of greenway trail to serve as buffer to Aberdeen Lake Park.
- Continue to show improvement and maintain ISO audit ratings of building inspections and the fire department at the highest levels possible with available funding.
- Identify any sewer manholes within floodprone areas that require flood proofing.
- Investigate the feasibility and cost of floodproofing manholes within floodprone areas.
- Promote use of freeboard for construction of projects adjacent to floodplain boundaries.

## *E. COMMUNITY RATING SYSTEM STRATEGY*

The Community Rating System (CRS) is a voluntary program developed by FEMA to encourage communities to improve stormwater and floodplain management. Participation in the program results in a discount on flood insurance for all NFIP policy holders within the corporate limits of a participating jurisdiction as outlined in the following table.

**Table 86: CRS Related Benefits**

| | Property Owner Insurance Discount | | |
|---|---|---|---|
| Rate Class | SFHA* | Non-SFHA** | Credit Points Required |
| 1 | 45% | 10% | 4,500 + |
| 2 | 40% | 10% | 4,000 - 4,499 |
| 3 | 35% | 10% | 3,500 - 3,999 |
| 4 | 30% | 10% | 3,000 - 3,499 |
| 5 | 25% | 10% | 2,500 - 2,999 |
| 6 | 20% | 10% | 2,000 - 2,499 |
| 7 | 15% | 5% | 1,500 - 1,999 |
| 8 | 10% | 5% | 1,000 - 1,499 |
| 9 | 5% | 5% | 500 - 999 |
| 10 | 0% | 0% | 0 - 499 |

*Special Flood Hazard Area.
**Preferred risk policies are available only in B, C, and X zones for properties that are shown to have a minimal risk of flood damage. The preferred risk policy does not receive premium rate credits under the CRS because it already has a lower premium than other policies. Although they are in SFHAs, Zones AR and A99 are limited to a 5% discount. Premium reductions are subject to change.
Source: Federal Emergency Management Agency.

The only jurisdiction in Moore County that is currently a participant in the Community Rating System (CRS) is the Village of Whispering Pines. The mitigation strategies in the table above state that all other jurisdictions, including Moore County, will consider participating in this program through the implementation of this plan. The following strategies clearly outline all activities that will be required of a given jurisdiction if said jurisdiction decides to undertake the effort of joining the CRS. The MAC may work together on several of these activities to reduce cost and duplication of effort, if multiple communities decide to enter into the program. The following table provides a comprehensive overview of what is required to carry out each defined CRS activity.

| | |
|---|---|
| **Strategy** | Require a finished floor elevation certificate for all development within the special flood hazard area (SFHA) in both incorporated and unincorporated portions of the County. All elevation certificates should be submitted on an official FEMA elevation certificate. No certificate of occupancy shall be issued for any development within a defined special flood hazard area without the submittal of the required elevation certificate. |
| **CRS Activity** | 310: Elevation Certificates |
| **Estimated CRS Points** | 70 |
| **Hazards Addressed** | Hurricanes, flooding, dam/levee failure |
| **Possible Funding Sources** | Funded through existing staff resources. |
| **Responsibility** | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br>**Secondary Responsible Party**<br>Individual municipal jurisdictions |
| **CRS Documentation** | All required elevation certificates shall be kept on file in the Moore County Office of Planning and Community Development or a respective jurisdictions administrative office (if the community provides internal inspection services). |

| | |
|---|---|
| **Strategy** | Maintain a map information service involving the following:<br>▸ Provide information relating to Flood Insurance Rate Maps (FIRM) to all inquirers, including provision of information on whether a given property is located within a flood hazard area.<br>▸ Provide information regarding the flood insurance purchase requirement.<br>▸ Maintain historical **and** current FIRMs.<br>▸ Advertise once annually in the local newspaper.<br>▸ Provide information to inquirers about local floodplain management requirements. |
| **CRS Activity** | 320: Map Information Service |
| **Estimated CRS Points** | 140 |
| **Hazards Addressed** | Hurricane, flooding, dam/levee failure |
| **Possible Funding Sources** | Existing department and staff resources |
| **Responsibility** | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br>**Secondary Responsible Party**<br>Individual municipal jurisdictions |

| | |
|---|---|
| **CRS Documentation** | The participating jurisdiction shall maintain the following information:<br>• 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.<br>• Records of all agencies who have inquired, or were provided information.<br>• Copies of historical and current FIRMs.<br>• An affidavit documenting that this service was publicized in the local newspaper once annually.<br>**Municipal jurisdictions seeking CRS credit must maintain a statement that Moore County has agreed to provide this service on their behalf.** |

| | |
|---|---|
| **Strategy** | The participating jurisdiction will mail annually a notice 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. |
| **CRS Activity** | 330: Outreach Activities |
| **Estimated CRS Points** | 130 |
| **Hazards Addressed** | Flooding, hurricane, severe winter weather, wildfire, thunderstorm/tornado |
| **Possible Funding Sources** | All communities participating in the Community Rating System shall share the cost of mailing floodplain notices to all property owners within an SFHA. |
| **Responsibility** | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br>**Secondary Responsible Party**<br>Individual municipal jurisdictions |
| **CRS Documentation** | ▸ A copy of the notice mailed to all property owners located within an SFHA.<br>▸ A listing of all property owners to whom the notice was mailed.<br>▸ A notice certifying the date the notices were mailed. |

| | |
|---|---|
| **Strategy** | The participating jurisdiction will work with local real estate agencies to enure that agents are informing clients when property for sale is located within an SFHA. The jurisdiction will provide these agencies with brochures documenting the concerns relating to development located within floodprone areas and ways that homeowners may make their homes more disaster resistant to strong winds, lightning, and heavy rains. |
| **CRS Activity** | 340: Hazard Disclosure |
| **Estimated CRS Points** | 56 |
| **Hazards Addressed** | Hurricane, flooding, dam/levee failure |
| **Possible Funding Sources** | Existing department and staff resources |
| **Responsibility** | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br>**Secondary Responsible Party**<br>Individual municipal jurisdictions |

| | |
|---|---|
| **CRS Documentation** | The participating jurisdiction shall maintain the following information:<br>▸ Disclosure statements from five local real estate agencies stating that it is their agency's policy to inform clients if a property is located within an SFHA.<br>▸ A copy of the brochure that the county has disseminated to real estate agents. |

| | |
|---|---|
| **Strategy** | The participating jurisdiction will make information regarding hazards and development regulations within floodplains available through the following:<br>▸ Ensuring that the local library maintains information relating to flooding and flood protection.<br>▸ Providing a link on their website to FEMA resources addressing flooding and flood protection.<br>▸ All participating jurisdictions, if a website is in place, will provide a link on their website to FEMA resources addressing flooding and flood protection, evacuation procedures, disaster preparedness, and post-disaster recovery. |
| **CRS Activity** | 350: Flood Protection Information |
| **Estimated CRS Points** | 97 |
| **Hazards Addressed** | Flood, hurricane, severe winter weather, wildfire, thunderstorm/tornado |
| **Possible Funding Sources** | Existing department and staff resources |
| **Responsibility** | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br>**Secondary Responsible Party**<br>Individual municipal jurisdictions |
| **CRS Documentation** | The participating jurisdiction shall maintain the following information:<br>▸ A listing of publication dates for all materials on file at the local library.<br>▸ A statement from the Librarian that the flood-related materials are listed within the library's resource management system. |

| | |
|---|---|
| **Strategy** | The participating jurisdiction 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:<br>▸ Providing site-specific flood and flood-related information on an as-needed basis.<br>▸ Maintaining a list of contractors with experience in floodproofing and retrofit techniques.<br>▸ Providing information on windproofing construction methods for new and renovated structures.<br>▸ Maintaining materials providing an overview of how to select a qualified contractor.<br>▸ Making site visits upon request to review occurrences of flooding, drainage problems, and sewer problems. If applicable, the inspector should provide one-on-one advice to the property owner.<br>▸ Providing advice and assistance regarding CRS activity 530.<br>▸ Advertising the availability of this service once annually within the local newspaper.<br>▸ Maintaining a log of all individuals assisted through this service including all site visits. |

| | |
|---|---|
| **CRS Activity** | 360: Flood Protection Assistance |
| **Estimated CRS Points** | 66 |
| **Hazards Addressed** | Flood, hurricane, severe winter weather, wildfire, thunderstorm/tornado |
| **Possible Funding Sources** | Existing department and staff resources |
| **Responsibility** | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br>**Secondary Responsible Party**<br>Individual municipal jurisdictions |
| **CRS Documentation** | The participating jurisdiction shall maintain the following information:<br>▸ Affidavit of publication for the advertisement regarding the provision of flood protection assistance.<br>▸ A copy of the contractor's list on file in the Inspections Department.<br>▸ A copy of the document outlining how to hire a contractor on file in the Inspections Department. |

| | |
|---|---|
| **Strategy** | The participating jurisdiction 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 the Moore County Office of Planning and Community Development. |
| **CRS Activity** | 440: Flood Data Maintenance |
| **Estimated CRS Points** | 149 |
| **Hazards Addressed** | Hurricane, flooding, dam/levee failure |
| **Possible Funding Sources** | Existing department and staff resources |
| **Responsibility** | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br>**Secondary Responsible Party**<br>Individual municipal jurisdictions |
| **CRS Documentation** | The participating jurisdiction shall maintain the following information:<br>▸ A hard copy of all digital tax parcel records maintained by the GIS.<br>▸ A summary of data included within the County's GIS system. |

| | |
|---|---|
| **Strategy** | Moore County, in conjunction with all municipal jurisdictions participating in this plan update, will work on the five-year implementation of the plan. At the end of the five-year period, the County will again update the plan. |
| **CRS Activity** | 510: Floodplain Management Planning |
| **Estimated CRS Points** | 359 |
| **Hazards Addressed** | All hazards |
| **Possible Funding Sources** | Funding for annual maintenance and implementation of the hazard mitigation plan will be provided through the Moore County annual budget ordinance. |

| | |
|---|---|
| **Responsibility** | **Primary Responsible Party**<br>Moore County Office of Planning and Community Development<br>**Secondary Responsible Party**<br>Individual municipal jurisdictions |
| **CRS Documentation** | A copy of the current Moore County Multi-Jurisdictional Hazard Mitigation Plan. |

| | |
|---|---|
| **Strategy** | The participating jurisdiction will continue to support the NC Office of Dam Safety efforts to monitor and inspect all dams throughout the County, as well as the State of North Carolina. The County, and all participating municipalities, rely on this agency to ensure that all dam facilities, both public and private, are properly maintained and stable. |
| **CRS Activity** | 630: Dam Safety |
| **Estimated CRS Points** | 75 |
| **Hazards Addressed** | Hurricane, flooding, dam/levee failure |
| **Possible Funding Sources** | Existing department and staff resources |
| **Responsibility** | **Primary Responsible Party**<br>Moore County Board of Commissioners & the elected boards of all participating jurisdictions<br><br>**Secondary Responsible Party**<br>Moore County Office of Public Safety |
| **CRS Documentation** | No documentation required. |

# SECTION 8. PLAN MAINTENANCE AND IMPLEMENTATION PROCEDURES

## A. INTRODUCTION

The Plan Maintenance and Implementation Procedures section of the plan has been completely revised to reflect the County's intentions for implementation, maintenance, and public participation over the next five years. It was determined by the MAC that this section should be revised through each update to better define these issues and appropriately lay out a plan for implementation.

## B. IMPLEMENTATION

Implementation of the Moore County Multi-Jurisdictional Hazard Mitigation Plan will commence with adoption of the document by the County and all participating jurisdictions. Resolutions of Adoption are provided as Appendix D of the plan.

Upon adoption, the Moore County Multi-Jurisdictional Hazard Mitigation Plan faces the truest test of its worth – implementation. Implementation implies two concepts: action and priority. These are closely related. While this plan puts forth many worthwhile and high priority recommendations, the decision about which action to undertake first 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.

Another important implementation mechanism that is highly effective and low-cost is incorporation of the hazard mitigation plan recommendations and their underlying principles into other county and municipal plans and regulatory mechanisms, such as Capital Improvements Plans and Land Use Plans. The County 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.

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

Simultaneous to 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 a bank of ideas on how any required local match or participation requirement can be met. When funding does become available, the MAC will be in a position to capitalize on the opportunity. 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.

## *C. ROLE OF THE MITIGATION ADVISORY COMMITTEE IN IMPLEMENTATION AND MAINTENANCE*

With adoption of this plan, the MAC will be tasked with plan implementation and maintenance. The MAC, led by Joey Raczkowski of the Moore County Planning and Community Development 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 Moore County Board of Commissioners; and
- Inform and solicit input from the public.

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

## *D. 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 County will revisit this plan on a quarterly basis and after a hazard event. The Emergency Services Director 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 twice 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 a biennial 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 be reviewed as well during the monitoring and update of this plan to determine feasibility of future implementation.

Updating of the plan will be by written changes and submissions, as the MAC deems appropriate and necessary, and as approved by the Moore County Board of Commissioners or the participating jurisdictions' 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 the County and all participating municipalities.

## *E. 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 within the context of the defined biennial review process. When the MAC reconvenes for updates, they 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. Additionally, the adopted plan will be posted on the County's website and all amendments/plan discussions will take place at regularly scheduled Planning Board and Board of Commissioners meetings. All meetings will be open to the public and advertised in the local newspaper.

## *F. INCORPORATION OF EXISTING PLANNING MECHANISMS*

The MAC, which will meet on a quarterly basis, will provide a mechanism for ensuring that the actions identified in this plan are incorporated into ongoing County and municipal planning activities. The participating jurisdictions currently utilize comprehensive land use planning and building codes to guide and control development in the communities. After the County and

participating municipalities adopt the Multi-Jurisdictional 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 live/safety criteria are met for new construction.

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

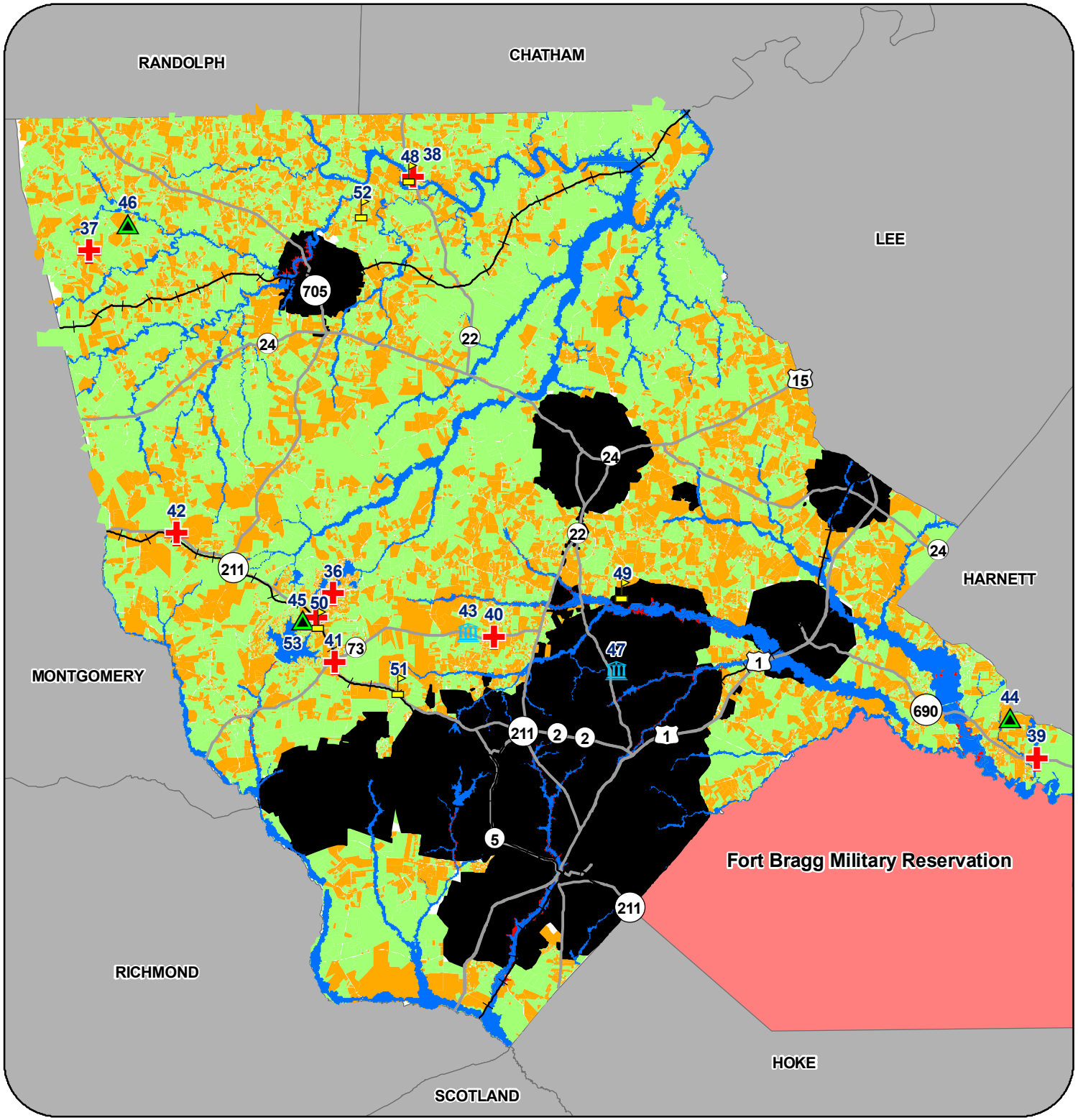
During the HMP planning/implementation period, each participating jurisdiction will strive for the objective of formal adoption of the HMP polices.

# Appendix A
# Maps

Map 1A

# Moore County Hazard Mitigation Plan

## Unincorporated County




### Legend

- Municipalities
- Surrounding Counties
- Fort Bragg Military Reservation
- Railroads & 100 Foot Buffer
- Primary Roads

**Critical Facilities**

- Communications
- Institutional
- Public Safety
- Public/Municipal

**Land Use**

- Developed
- Undeveloped

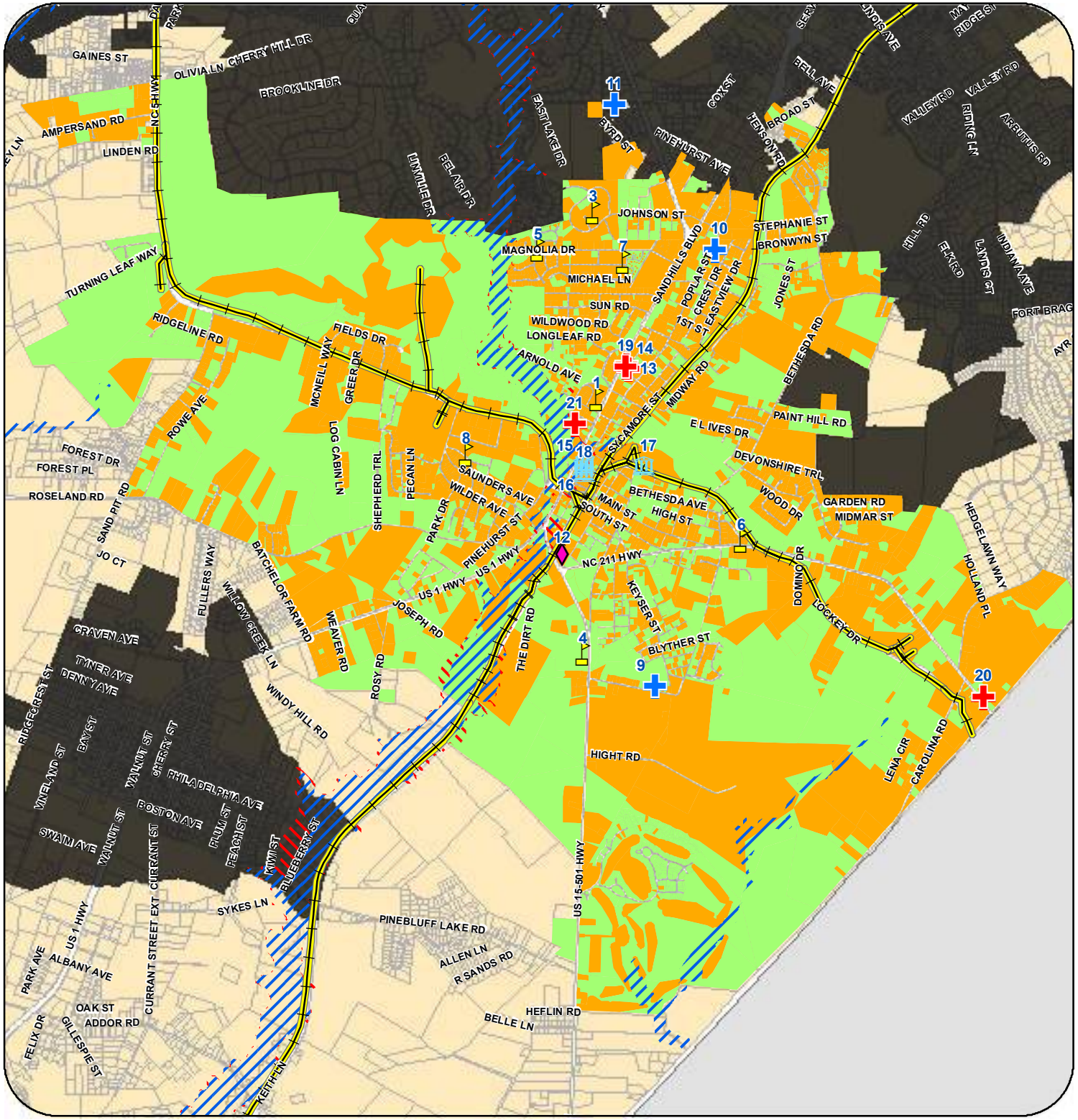
**Flood Zone**

- X-500
- A/AE

1 inch = 5 miles

0 1.25 2.5 5 7.5 10 Miles

HCP Holland Consulting Planners, Inc.




**Map 1B**

# Moore County Hazard Mitigation Plan

## Town of Aberdeen

**Legend**

- Moore County
- Surrounding Counties
- Municipalities
- Railroads
- Railroad 100ft Buffer

**Critical Facilities**

- Institutional
- Medical
- Public Safety
- Public/Municipal
- Utility

**Flood Zone**

- X-500
- A/AE

**Land Use**

- Developed
- Undeveloped

N
W E
S

1 inch = 1 miles

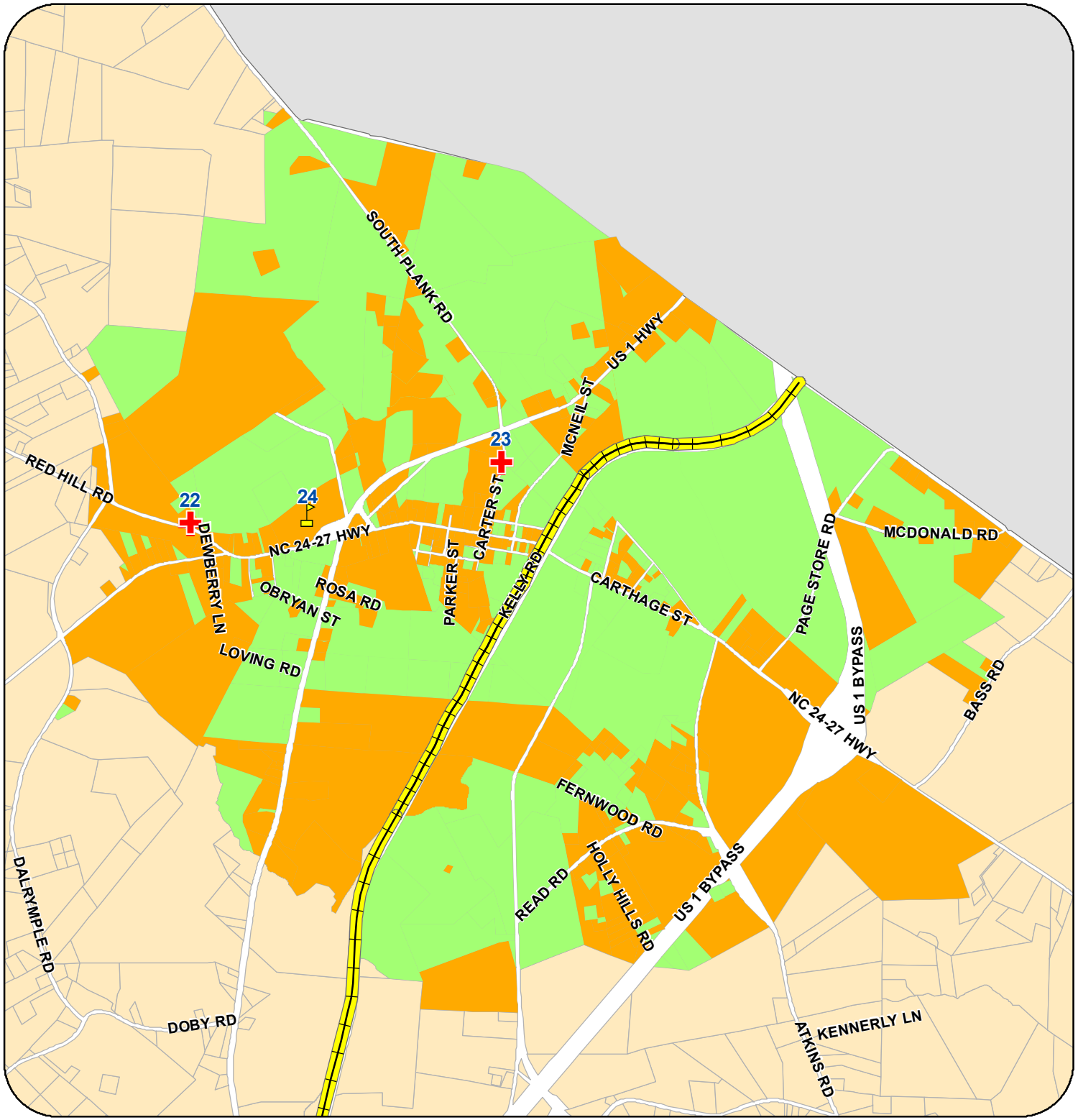
0 0.2 0.4 0.8 1.2 1.6 Miles

HCP Holland Consulting Planners, Inc.

Map 1C

# Moore County Hazard Mitigation Plan

## Town of Cameron




**Legend**

- Moore County
- Surrounding Counties
- Railroad
- Railroad 100ft Buffer

**Critical Facilities**

- Institutional
- Public Safety

**Land Use**

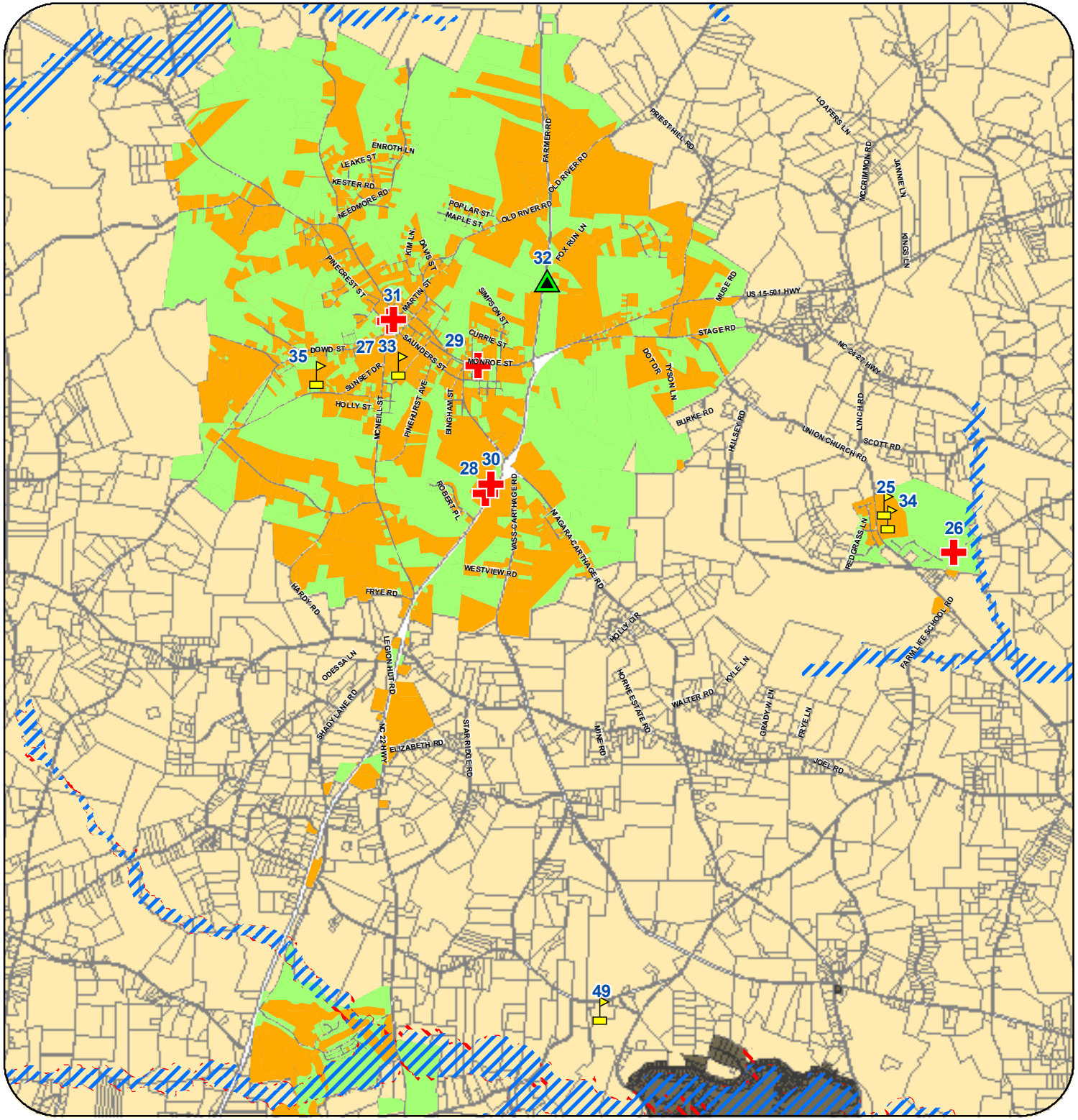
- Developed
- Undeveloped

N W E S

1 inch = 2,300 feet

0 650 1,300 2,600 3,900 5,200 Feet

HCP Holland Consulting Planners, Inc.




**Map 1D**

# Moore County Hazard Mitigation Plan

## Town of Carthage

### Legend

- Municipalities
- Moore County

**Critical Facilities**

- Communications
- Institutional
- Public Safety
- Public/Municipal

**Flood Zone**

- X-500
- A/AE

**Land Use**

- Developed
- Undeveloped

N
W E
S

1 inch = 1 miles

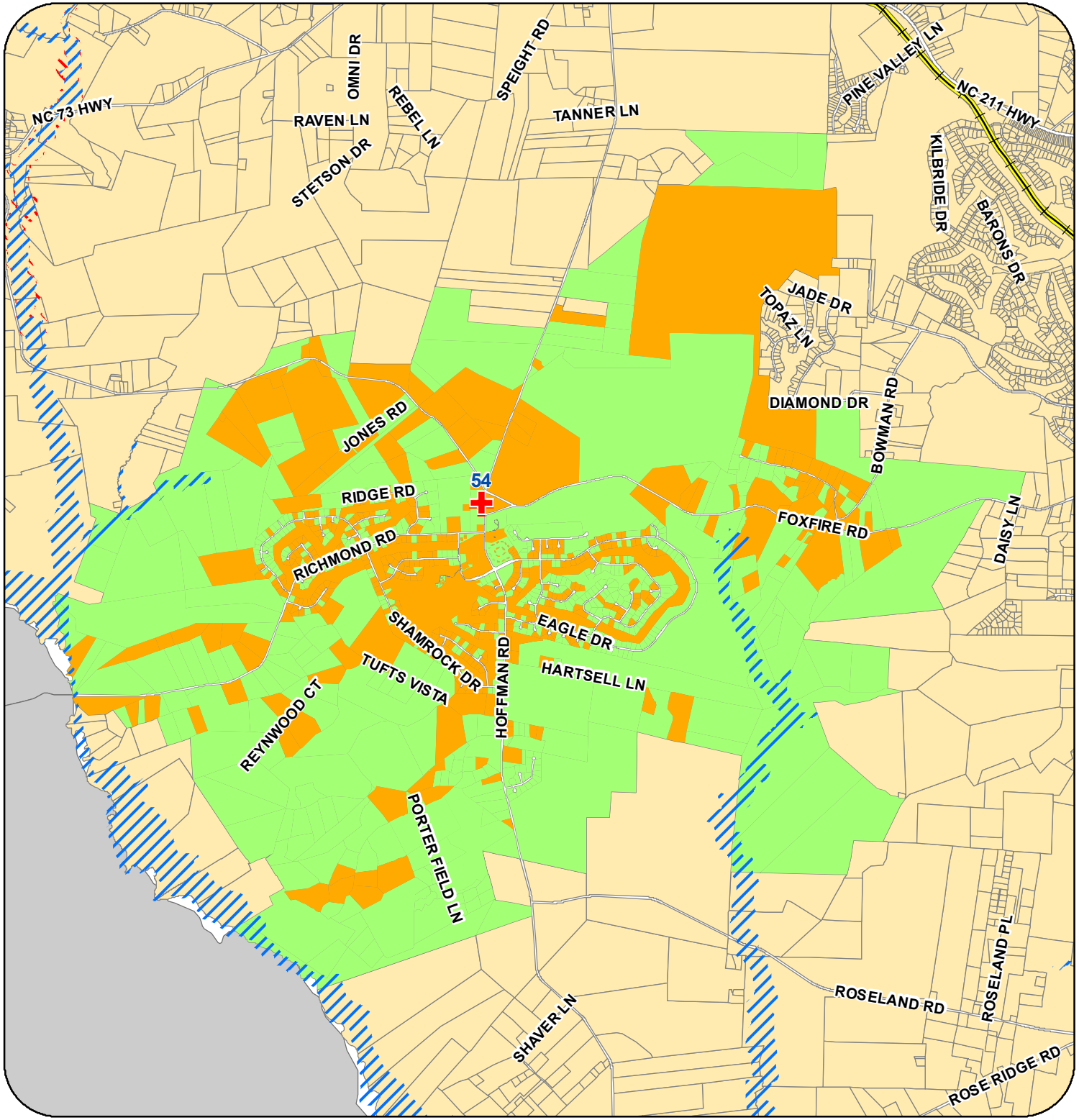
0 0.3 0.6 1.2 1.8 2.4 Miles

HCP Holland Consulting Planners, Inc.

Map 1E

# Moore County Hazard Mitigation Plan

## Village of Foxfire Village




**Legend**

- Moore County
- Surrounding Counties
- Railroad
- Railroad 100ft Buffer

**Critical Facilities**

- Public Safety

**Flood Zone**

- X-500
- A/AE

**Land Use**

- Developed
- Undeveloped

N W E S

1 inch = 1 miles

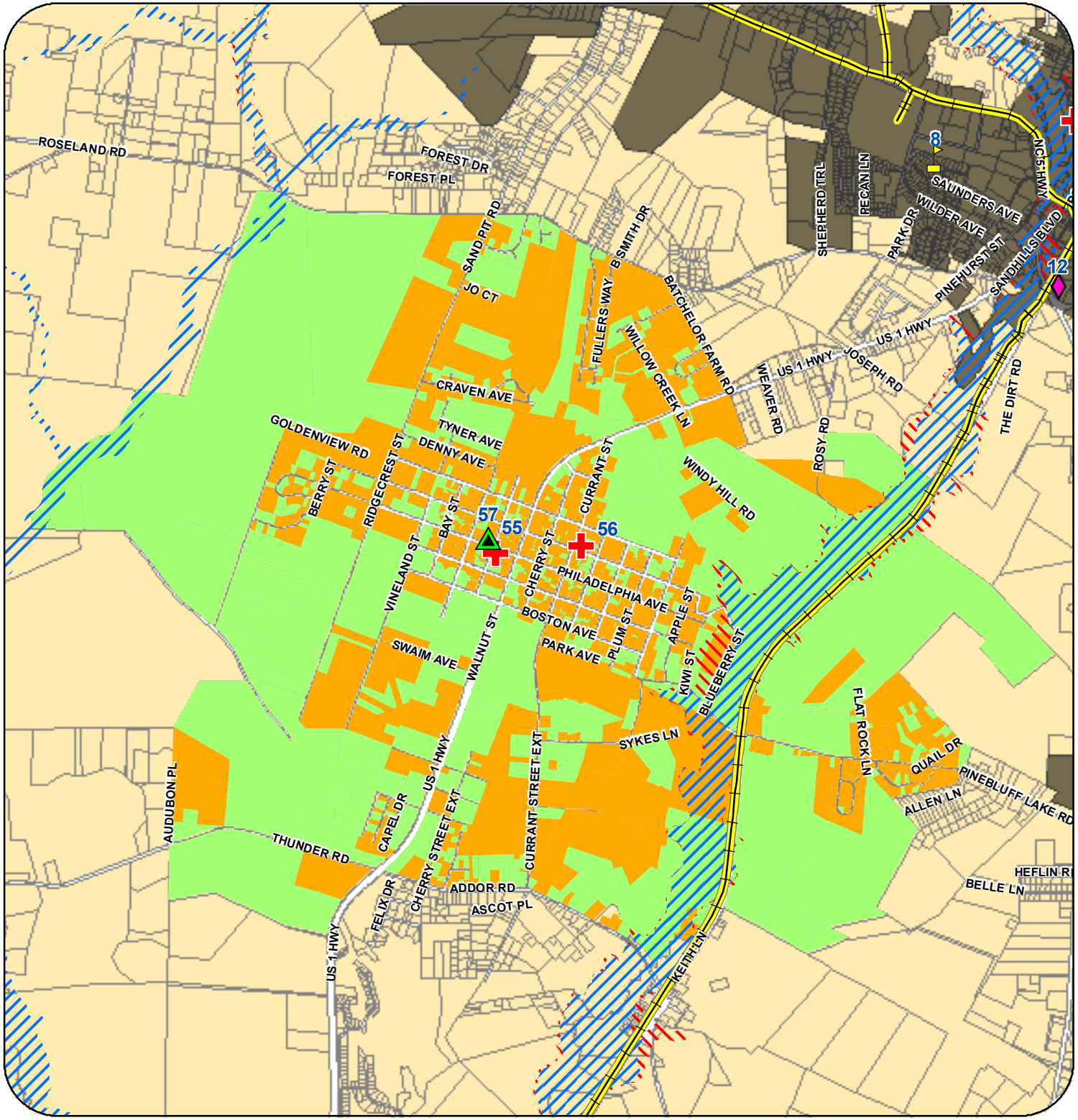
0 0.25 0.5 1 1.5 2 Miles

HCP Holland Consulting Planners, Inc.

Map 1F

# Moore County Hazard Mitigation Plan

## Town of Pinebluff




**Legend**

- Moore County
- Municipalities
- Railroads
- Railroad 100ft Buffer

**Critical Facilities**

- Communications
- Institutional
- Public Safety
- Utility

**Flood Zone**

- X-500
- A/AE

**Land Use**

- Developed
- Undeveloped

N
W E
S

1 inch = 3,300 feet

0 0.25 0.5 1 1.5 Miles

HCP Holland Consulting Planners, Inc.

**Map 1G**

# Moore County Hazard Mitigation Plan

## Village of Pinehurst

**Legend**

- Municipalities
- Moore County
- Railroads
- Railroad 100ft Buffer

**Critical Facilities**

- Communications
- Hospital
- Institutional
- Public Safety

**Flood Zone**

- X-500
- A/AE

**Land Use**

- Developed
- Undeveloped

N
W E
S

1 inch = 1 miles

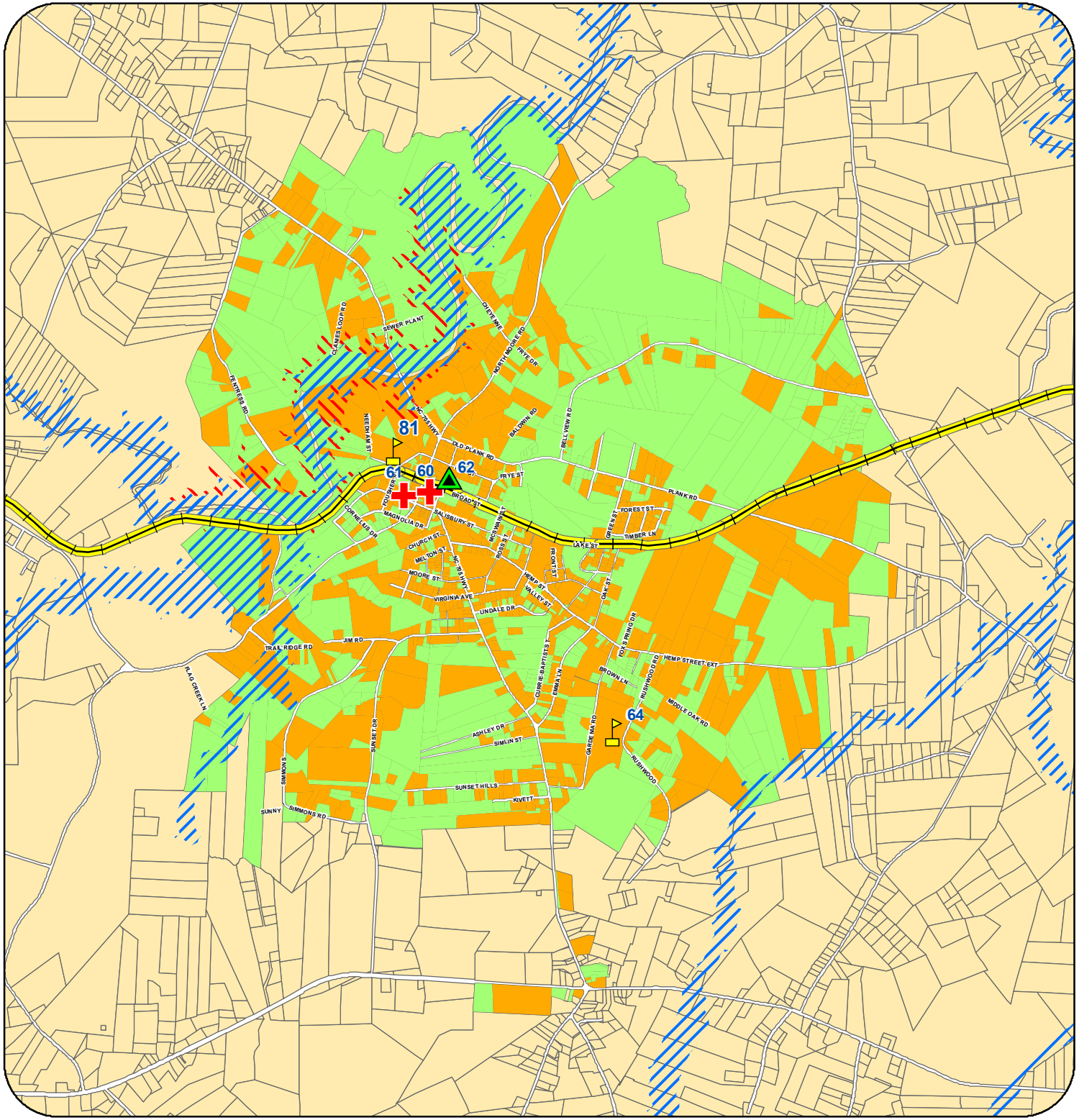
0 0.35 0.7 1.4 2.1 2.8 Miles

HCP Holland Consulting Planners, Inc.

Map 1H

# Moore County Hazard Mitigation Plan

## Town of Robbins




**Legend**

- Moore County
- Railroad
- Railroad 100ft Buffer

**Critical Facilities**

- Communications
- Institutional
- Public Safety

**Flood Zone**

- X-500
- A/AE

**Land Use**

- Developed
- Undeveloped

N W E S

1 inch = 3,000 feet

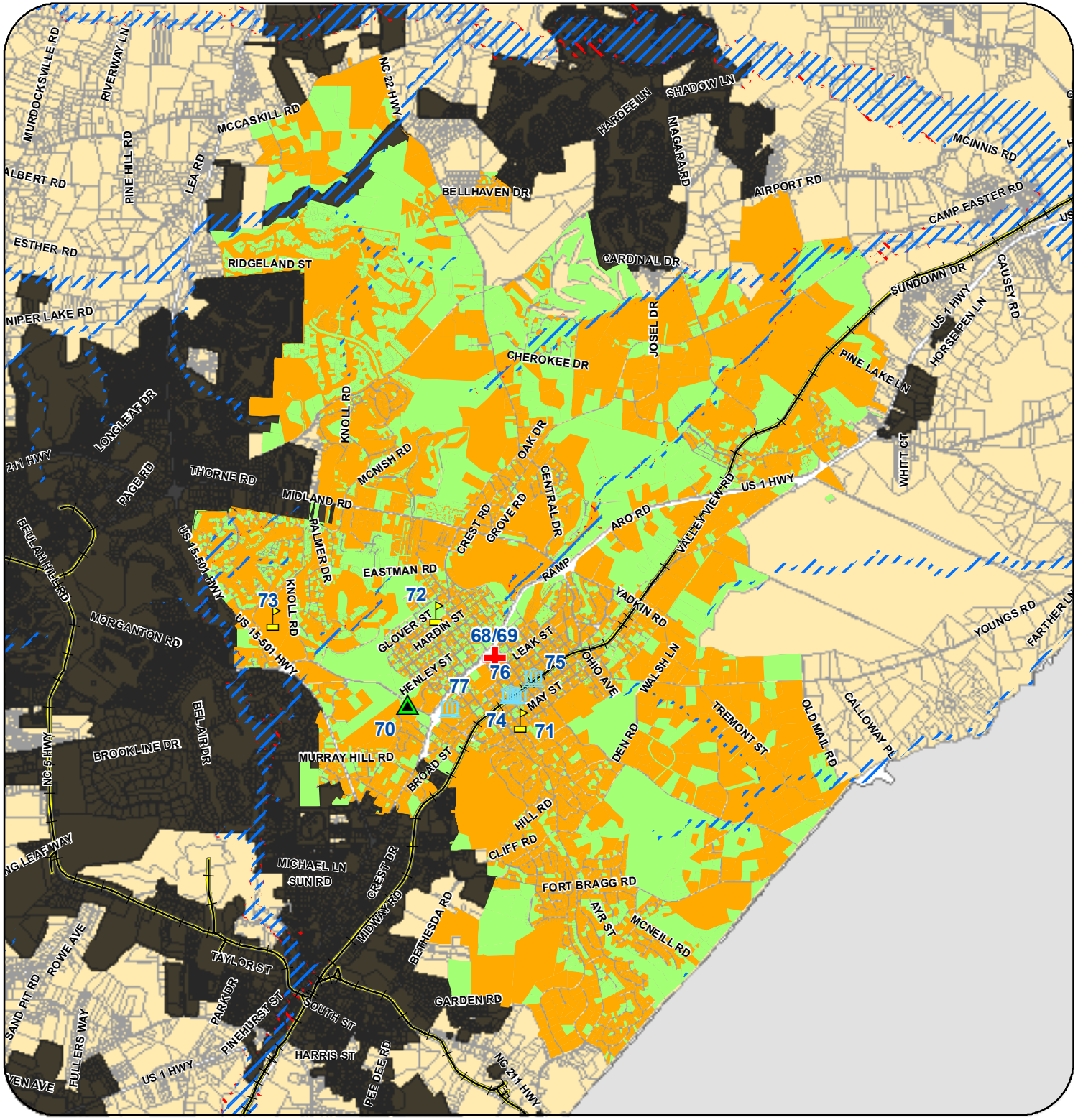
0 0.15 0.3 0.6 0.9 1.2 Miles

HCP Holland Consulting Planners, Inc.

Map 11

# Moore County Hazard Mitigation Plan

## Town of Southern Pines




**Legend**

- Moore County
- Surrounding Counties
- Municipalities
- Railroads
- Railroad 100ft Buffer

**Critical Facilities**

- Communications
- Institutional
- Public Safety
- Public/Municipal

**Flood Zone**

- X-500
- A/AE

**Land Use**

- Developed
- Undeveloped

1 inch = 1 miles

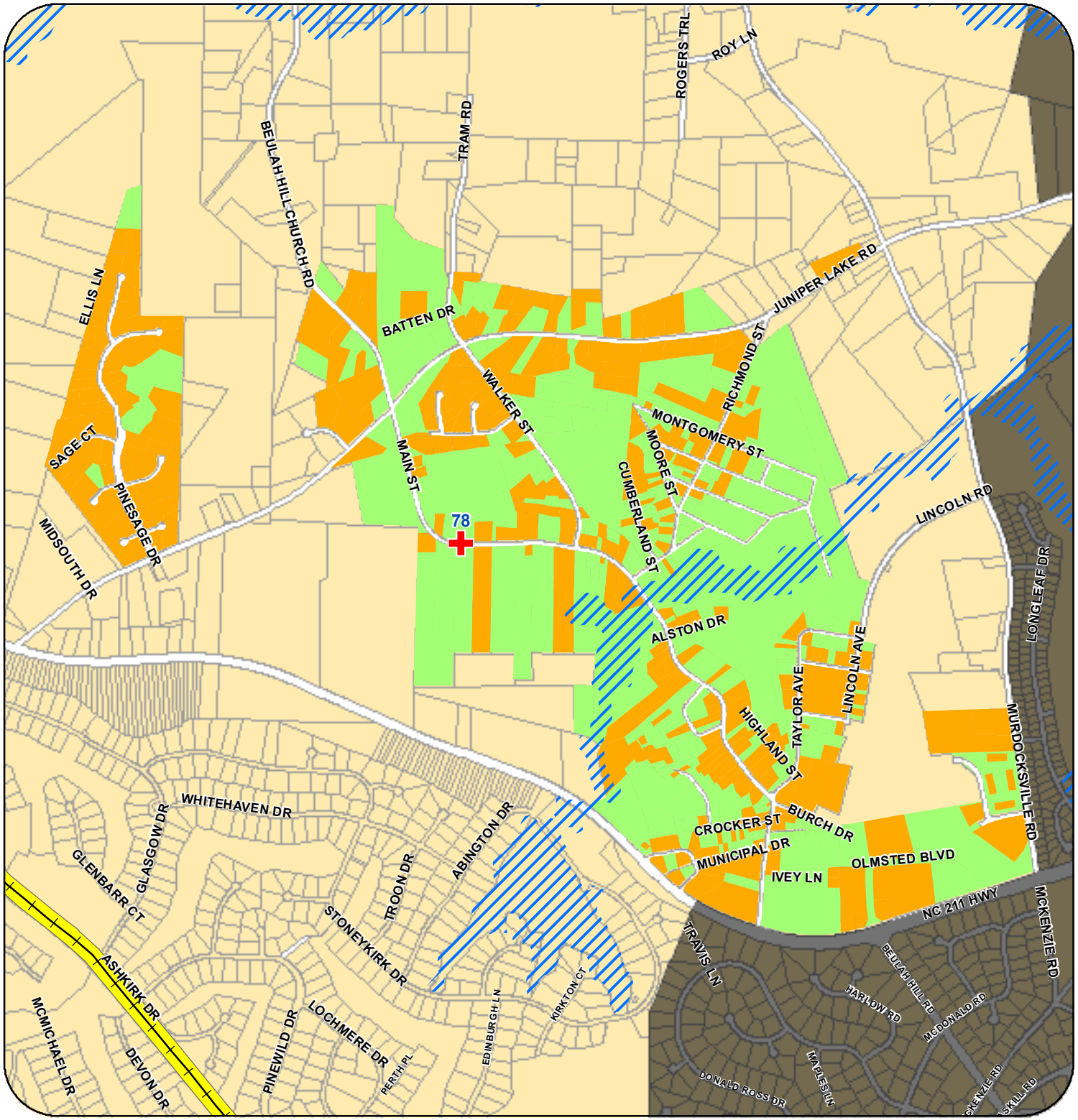
0 0.4 0.8 1.6 2.4 3.2 Miles

HCP Holland Consulting Planners, Inc.

Map 1J

# Moore County Hazard Mitigation Plan

## Town of Taylortown




**Legend**

- Moore County
- Municipalities
- Railroad
- Railroad 100ft Buffer
- Public Safety

**Flood Zone**

- X-500
- A/AE

**Land Use**

- Developed
- Undeveloped

N W E S

1 inch = 1,500 feet

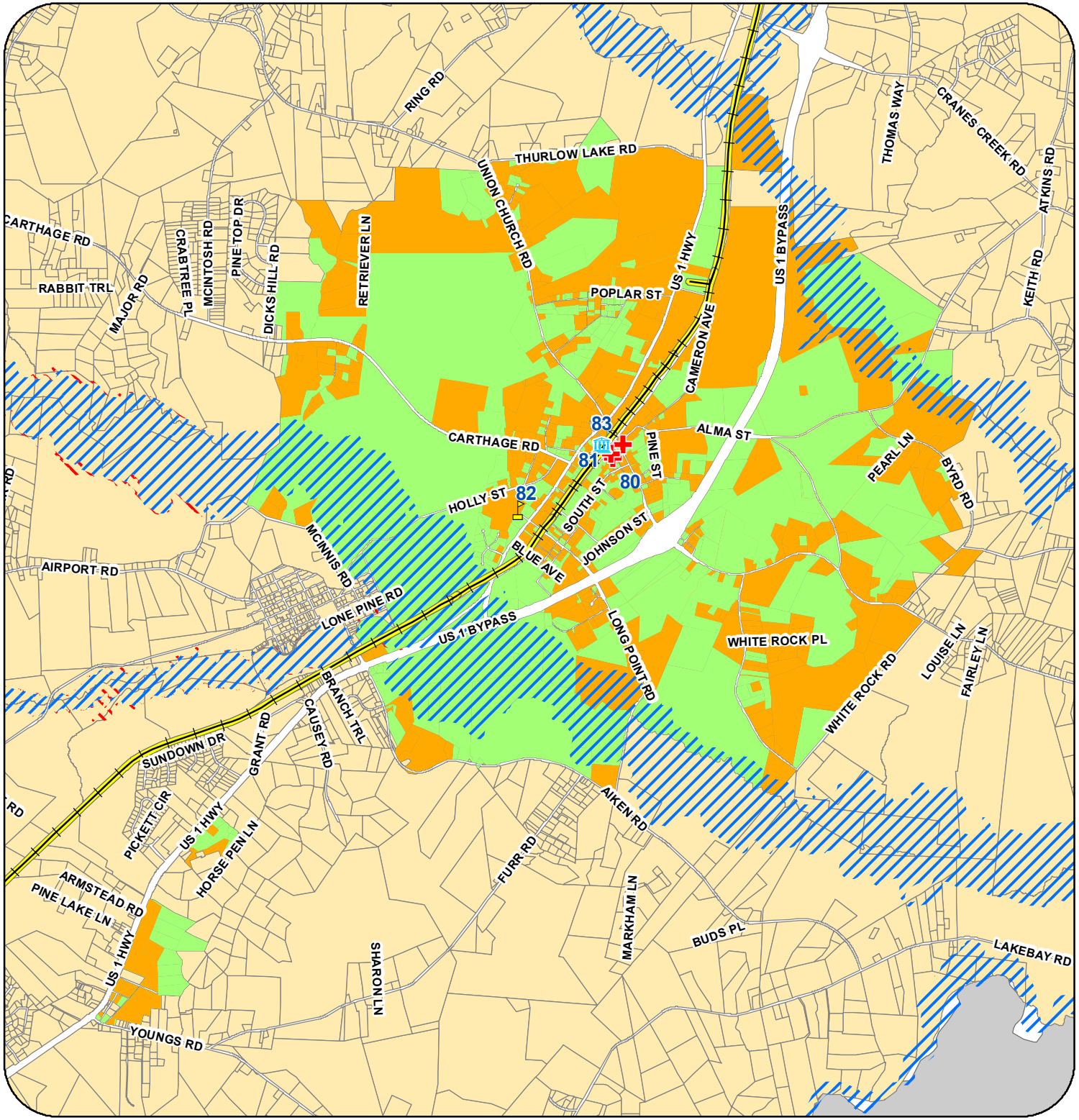
0 465 930 1,860 2,790 3,720 Feet

HCP Holland Consulting Planners, Inc.

Map 1K

# Moore County Hazard Mitigation Plan

## Town of Vass




**Legend**

- Moore County
- Surrounding Counties
- Railroad
- Railroad 100ft Buffer

**Critical Facilities**

- Institutional
- Public Safety
- Public/Municipal

**Flood Zone**

- X-500
- A/AE

**Land Use**

- Developed
- Undeveloped

N W E S

1 inch = 4,000 feet

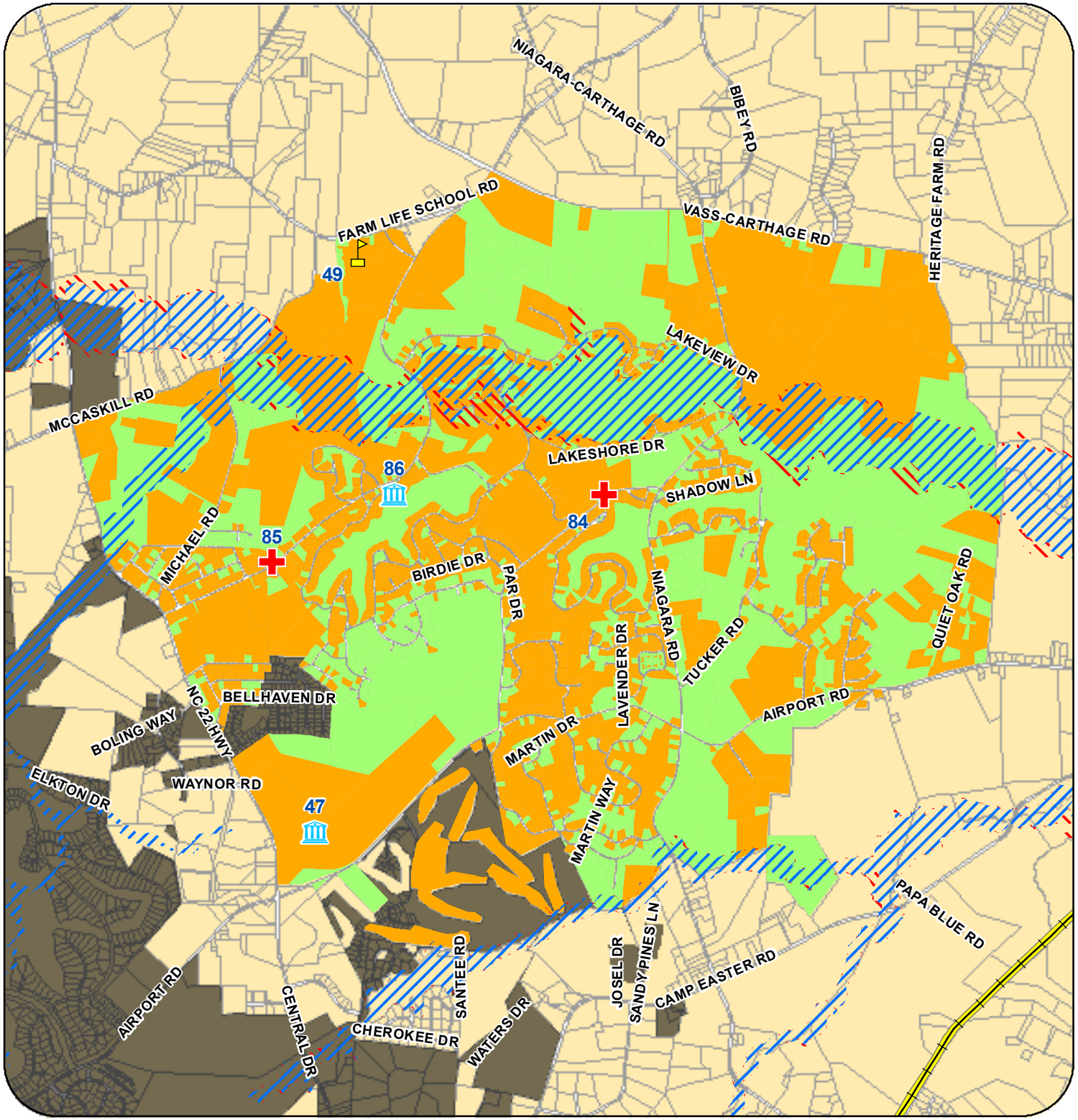
0 0.2 0.4 0.8 1.2 1.6 Miles

HCP Holland Consulting Planners, Inc.

Map 1L

# Moore County Hazard Mitigation Plan

## Town of Whispering Pines




**Legend**

- Moore County
- Municipalities
- Railroads
- Railroad 100ft Buffer

**Critical Facilities**

- Institutional
- Public Safety
- Public/Municipal

**Flood Zone**

- X-500
- A/AE

**Land Use**

- Developed
- Undeveloped

1 inch = 3,500 feet

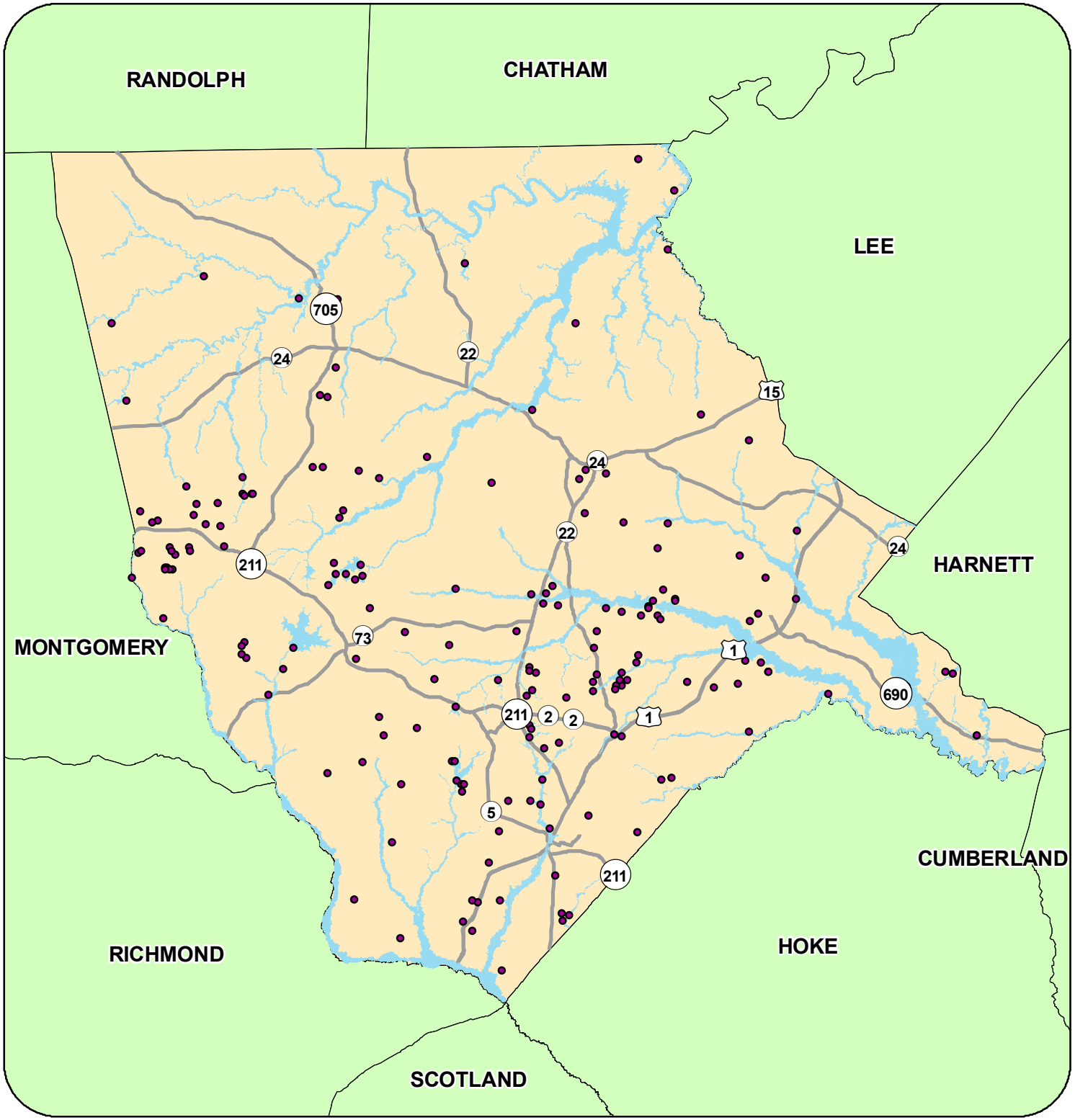
0 0.15 0.3 0.6 0.9 1.2 Miles

HCP Holland Consulting Planners, Inc.

Map 2

# Moore County Hazard Mitigation Plan

## Dam Locations



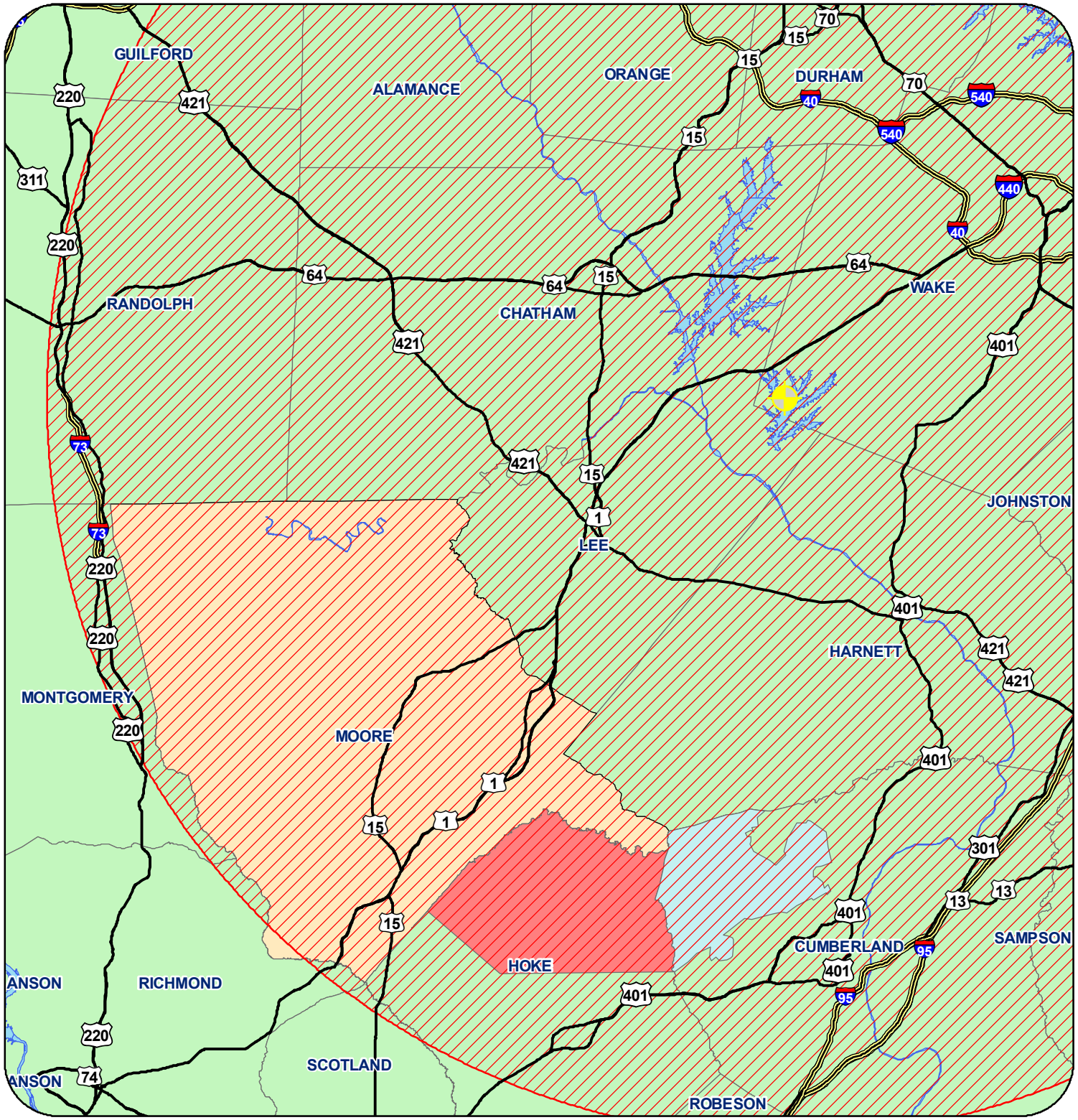

**Legend**

- Dam Locations
- Flood Zone
- Primary Roads
- Surrounding Counties
- Moore County

1 inch = 5 miles

0 1.5 3 6 9 12 Miles

HCP Holland Consulting Planners, Inc.




Map 3

# Moore County Hazard Mitigation Plan

## Shearon Harris Nuclear Plant Impact Radius & Regional Millitary Installations

**Legend**

- Shearon Harris Nuclear Plant
- 50 Mile Radius
- Pope Air Force Base
- Fort Bragg Military Reservation
- Interstate
- US Highway
- Hydrology
- State
- Moore County

N
W E
S

1 inch = 9 miles

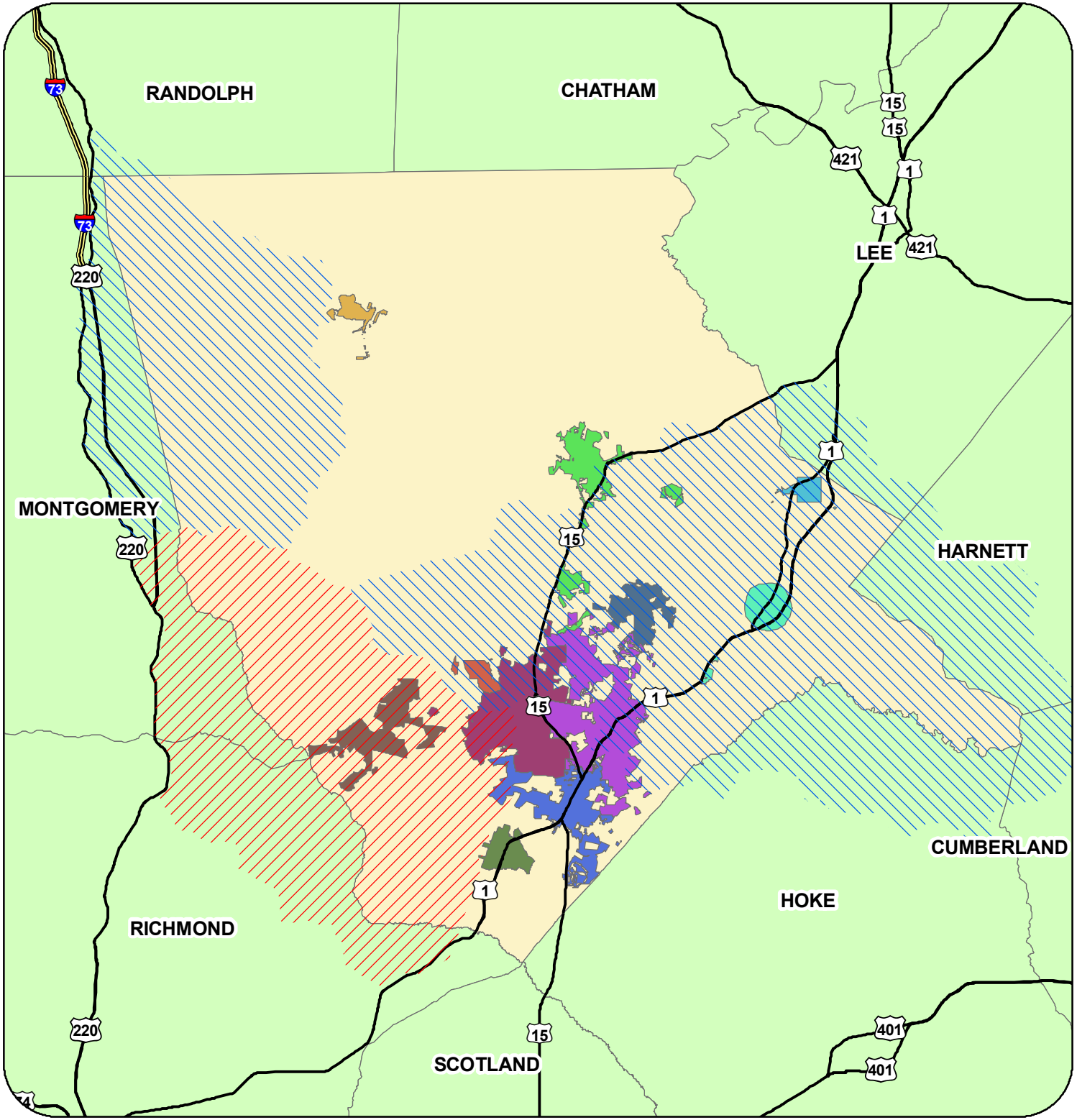
0 2.5 5 10 15 20 Miles

HCP Holland Consulting Planners, Inc.

Map 4

# Moore County Hazard Mitigation Plan

## Water Supply Watersheds




**Legend**

- Counties
- Moore County

**Major Roads**

- Interstate
- US Highway

**Municipalities**

- ABERDEEN
- CAMERON
- CARTHAGE
- FOXFIRE VILLAGE
- PINEBLUFF
- PINEHURST
- ROBBINS
- SOUTHERN PINES
- TAYLORTOWN
- VASS
- WHISPERING PINES

**Class**

- WS-II
- WS-III

N W E S

1 inch = 6 miles

0 1.5 3 6 9 12 Miles

HCP Holland Consulting Planners, Inc.

# Appendix B
# MAC Meeting Documentation

Moore County MAC
October 6, 2009

| Name | Jurisdiction |
| --- | --- |
| Bruce Gould | Village of Pinehurst |
| CAROL LUCAS | CAMERON |
| Jody Smith | Town of Vass |
| MELISSA ADAMS | TOWN OF CARTHAGE |
| George Hayfield | Town of Robbins |
| Brian Borchardt | Village of Whispering Pines |
| Charles Davis | Town of Aberdeen |
| KATHERINE LILES | ABERDEEN |
| Debra Ensminger | Moore County |
| Joey Raczkowski | Moore County |
| ROBERT FARRELL | MOORE COUNTY |
| Andrew Gardner | Moore County |

SIGN-IN SHEET
MOORE COUNTY HAZARD MITIGATION PLAN
MAC MEETING NOVEMBER 10, 2009

| NAME | REPRESENTING | E-MAIL |
|---|---|---|
| Ulysses Barrett Jr | Taylortown | FAX 295-4182 |
| Kathy Blake | Town of Southern Pines | kblake@southernpines.ne |
| Carol Lucas | Town of Cameron | cameronnc@charterinternet.com |
| Andrew Gardner | Moore County | agardner@moorecountync.gov |
| Debra Ensminger | Moore County | densminger@moorecountync.gov |
| Robert Farrell | Moore County | rfarrell@moorecountync.gov |
| Charles Davis | Town of Aberdeen | cdavis@Town-of-aberdeen.net |
| Kathy Liles | Town of Aberdeen | kliles@townofaberdeen.ne |
| Melissa Adams | Town of Carthage | mpadams@nc.rr.com |
| Brian Borchardt | Whispering Pines | bborchardt@whisperingpinesnc.net |
| Tom Collins | Foxfire Village | TCollins57@NC.RR.co |
| Jody Smith | Town of Vass | townofvass@charter.net |
| Scot Brooks | Moore County | Sbrooks@MOORECOUNTYNC.gov |
| Jay Gibson | Village of Pinehurst | jgibson@villageofpinehurst.org |
| George Hayfield | Town of Robbins | robbinsmanager@embarqmail.com |

TOPS FORM 99522
MADE IN U.S.A.

Moore County MAC
February 17, 2010

| | |
|---|---|
| Brian Borchardt | Village of Whispering Pines |
| Sharyl Carter | " " " |
| KATHY LILES | ABERDEEN |
| Charles Davis | Aberdeen |
| Jody Smith | VASS |
| JAY GIBSON | VILLAGE OF PINEHURST |
| SCOT BROOKS | MOORE COUNTY PUBLIC SAFETY |
| Andrew Gardner | Moore County Planning |
| Joey Raczkowski | " " " |
| JEREMY RUST | " " " |
| ROBERT FARRELL | " " " |
| Debra ENSWINGER | " " |
| CAROL LUCAS | TOWN of CAMERON |
| JOHN A MCKIVER | TOWN OF PINEBLUFF |
| Kathy Blake | Town of Southern Pines |

Moore County MAL
3/18/2010

| | |
|---|---|
| ROBERT FARRELL | MOORE COUNTY |
| JEREMY RUST | MOORE COUNTY |
| Andrew Gardner | Moore County |
| Melissa Adams | Carthage |
| Charles Davis | Aberdeen |
| JOHN A MCKIVER | PINEBLUFF |
| George Hayfield | Robbins |
| Kathy Blake | Town of Southern Pines |
| Hampton William | TSP |
| SCOT Brooks | MOORE COUNTY Public SAFETY |
| George ERICKSON | FOXFIVE Village |
| SHARUL CARTER | WHISPERING PINES |

**Moore County Multi-Jurisdiction Hazard Mitigation Plan Meeting**

A Public Meeting will be held by the Moore County Mitigation Advisory Committee at 6:00 PM on Thursday, April 22, 2010 at the Aberdeen Recreation Center located at 301 Lake Park Crossing, Aberdeen, NC 28315.

The Mitigation Advisory Committee is a joint committee comprised of representatives from all municipalities as well as Moore County to discuss natural and manmade hazard mitigation.

All interested parties are invited to attend. The purpose of the meeting is to discuss draft documents pertaining to the Moore County Multi-Jurisdiction Hazard Mitigation Plan which is to be updated in 2010 in conformance with State and Federal requirements for Moore County to remain eligible for emergency disaster funding.

Information pertaining to the proposed actions is available for inspection in the Planning Department Office located at 1048 Carriage Oaks Drive, Carthage, NC during normal business hours.

Accommodations for individuals with disabilities or impairments will be made upon request to the extent that reasonable notice is given.

**Moore County Multi-Jurisdictional Hazard Mitigation Plan Meeting**

The Moore County Mitigation Advisory Committee (MAC) will hold a public meeting at 10:00 a.m., on Monday, May 17, 2010, at the Moore County Planning and Development Department located at 1048 Carriage Oaks Drive, Carthage, NC.

The MAC is a joint committee comprised of County representatives as well as participating municipalities to discuss natural and manmade hazard mitigation in Moore County.

The purpose of the meeting is to discuss draft documents pertaining to the Moore County Multi-Jurisdictional Hazard Mitigation Plan which must be updated in 2010 in order to remain eligible for state and federal emergency disaster funding. Information regarding the proposed actions is available for inspection in the Planning and Development Department Offices during normal business hours.

All interested parties are encouraged to attend the meeting. Accommodations for individuals with disabilities or impairments will be made upon request to the extent that reasonable notice is given.

# Appendix C
# NCEM Review Comments

## INSTRUCTIONS FOR USING THE PLAN REVIEW CROSSWALK FOR REVIEW OF LOCAL MITIGATION PLANS

Attached is a Plan Review Crosswalk based on the ***Local Multi-Hazard Mitigation Planning Guidance***, published by FEMA in July, 2008. This Plan Review Crosswalk is consistent with the *Robert T. Stafford Disaster Relief and Emergency Assistance Act* (Stafford Act), as amended by Section 322 of the *Disaster Mitigation Act of 2000* (P.L. 106-390), the *National Flood Insurance Act of 1968,* as amended by the *National Flood Insurance Reform Act of 2004* (P.L. 108-264) and *44 Code of Federal Regulations (CFR) Part 201 – Mitigation Planning,* inclusive of all amendments through October 31, 2007.

**SCORING SYSTEM**
**N – Needs Improvement:** The plan does not meet the minimum for the requirement. Reviewer's comments must be provided.
**S – Satisfactory:** The plan meets the minimum for the requirement. Reviewer's comments are encouraged, but not required.

Each requirement includes separate elements. All elements of a requirement must be rated "Satisfactory" in order for the requirement to be fulfilled and receive a summary score of "Satisfactory." A "Needs Improvement" score on elements shaded in gray (recommended but not required) will not preclude the plan from passing.

When reviewing single jurisdiction plans, reviewers may want to put an N/A in the boxes for multi-jurisdictional plan requirements. When reviewing multi-jurisdictional plans, however, all elements apply. States that have additional requirements can add them in the appropriate sections of the *Local Multi-Hazard Mitigation Planning Guidance* or create a new section and modify this Plan Review Crosswalk to record the score for those requirements. Optional matrices for assisting in the review of sections on profiling hazards, assessing vulnerability, and identifying and analyzing mitigation actions are found at the end of the Plan Review Crosswalk.

**The example below illustrates how to fill in the Plan Review Crosswalk.:**

**Assessing Vulnerability: Overview**

***Requirement §201.6(c)(2)(ii):*** *[The risk assessment **shall** include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description **shall** include an overall summary of each hazard and its impact on the community.*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the **new or updated** plan include an **overall summary** description of the jurisdiction's **vulnerability** to each hazard? | Section II, pp. 4-10 | The plan describes the types of assets that are located within geographically defined hazard areas as well as those that would be affected by winter storms. | | |
| B. Does the **new or updated** plan address the **impact** of each hazard on the jurisdiction? | Section II, pp. 10-20 | The plan does not address the impact of two of the five hazards addressed in the plan.<br>**Required Revisions:**<br>• Include a description of the impact of floods and earthquakes on the assets.<br>**Recommended Revisions:**<br>This information can be presented in terms of dollar value or percentages of damage. | | |
| | | **SUMMARY SCORE** | | |

## LOCAL MITIGATION PLAN REVIEW SUMMARY

The plan cannot be approved if the plan has not been formally adopted. Each requirement includes separate elements. All elements of the requirement must be rated "Satisfactory" in order for the requirement to be fulfilled and receive a score of "Satisfactory." Elements of each requirement are listed on the following pages of the Plan Review Crosswalk. A "Needs Improvement" score on elements shaded in gray (recommended but not required) will not preclude the plan from passing. Reviewer's comments must be provided for requirements receiving a **"Needs Improvement"** score.

| Prerequisite(s) (Check Applicable Box) | NOT MET | MET |
|---|---|---|
| **1. Adoption by the Local Governing Body: §201.6(c)(5)** OR | N/A | N/A |
| 2. Multi-Jurisdictional Plan Adoption: §201.6(c)(5) **AND** | | X |
| 3. Multi-Jurisdictional Planning Participation: §201.6(a)(3) | | X |

| Planning Process | N | S |
|---|---|---|
| 4. Documentation of the Planning Process: §201.6(b) and §201.6(c)(1) | | X |

| Risk Assessment | N | S |
|---|---|---|
| 5. Identifying Hazards: §201.6(c)(2)(i) | | X |
| 6. Profiling Hazards: §201.6(c)(2)(i) | | X |
| 7. Assessing Vulnerability: Overview: §201.6(c)(2)(ii) | | X |
| **8. Assessing Vulnerability: Addressing Repetitive Loss Properties. §201.6(c)(2)(ii)** | | X |
| 9. Assessing Vulnerability: Identifying Structures, Infrastructure, and Critical Facilities: §201.6(c)(2)(ii)(B) | | X |
| 10. Assessing Vulnerability: Estimating Potential Losses: §201.6(c)(2)(ii)(B) | | X |
| 11. Assessing Vulnerability: Analyzing Development Trends: §201.6(c)(2)(ii)(C) | | X |
| 12. Multi-Jurisdictional Risk Assessment: §201.6(c)(2)(iii) | | X |

*States that have additional requirements can add them in the appropriate sections of the *Local Multi-Hazard Mitigation Planning Guidance* or create a new section and modify this Plan Review Crosswalk to record the score for those requirements.

### SCORING SYSTEM

Please check one of the following for each requirement.

**N – Needs Improvement:** The plan does not meet the minimum for the requirement. Reviewer's comments must be provided.

**S – Satisfactory:** The plan meets the minimum for the requirement. Reviewer's comments are encouraged, but not required.

| Mitigation Strategy | N | S |
|---|---|---|
| 13. Local Hazard Mitigation Goals: §201.6(c)(3)(i) | | X |
| 14. Identification and Analysis of Mitigation Actions: §201.6(c)(3)(ii) | | X |
| **15. Identification and Analysis of Mitigation Actions: NFIP Compliance. §201.6(c)(3)(ii)** | | X |
| 16. Implementation of Mitigation Actions: §201.6(c)(3)(iii) | | X |
| 17. Multi-Jurisdictional Mitigation Actions: §201.6(c)(3)(iv) | | X |

| Plan Maintenance Process | N | S |
|---|---|---|
| 18. Monitoring, Evaluating, and Updating the Plan: §201.6(c)(4)(ii) | | X |
| 19. Incorporation into Existing Planning Mechanisms: §201.6(c)(4)(ii) | | X |
| 20. Continued Public Involvement: §201.6(c)(4)(iii) | | X |

| Additional State Requirements* | N | S |
|---|---|---|
| Insert State Requirement | | |
| Insert State Requirement | | |
| Insert State Requirement | | |

### LOCAL MITIGATION PLAN APPROVAL STATUS

| | |
|---|---|
| **PLAN NOT APPROVED** | |
| **See Reviewer's Comments** | |
| **PLAN APPROVED** | X |

**Local Mitigation Plan Review and Approval Status**

| | | |
|---|---|---|
| **Jurisdiction:** Moore County and Municipalities | **Title of Plan: Moore County Multi-Jurisdictional Hazard Mitigation Plan** | **Date of Plan:** December 6, 2010 |
| **Local Point of Contact: Joey Raczkowski** | **Address: P.O. Box 905 1048 Carriage Oaks Drive Carthage, NC 28327** | |
| **Title: Planning Director** | | |
| **Agency: Moore County** | | |
| **Phone Number: 910-947-5010** | **E-Mail:** | |

| | | |
|---|---|---|
| **State Reviewer: Meagan Honnold** | **Title: Environmental/Hazard Mitigation Specialist** | **Date: 8/5/10** |

| | | |
|---|---|---|
| **FEMA Reviewer:** Jordon H. Ricks Linda L. Byers (QC) | **Title:** Hazard Mitigation Community Planner FEMA Lead Planning Specialist | **Date:** 11/09/10; 12/22/10; 6/15/11 (final review) November 16, 2010 |
| **Date Received in FEMA Region IV** | 09/24/10; 12/15/10 (revisions); 6/14/11 (adoption resolutions) | |
| **Plan Not Approved** | November 16, 2010 | |
| **Plan Approved** | June 15, 2011 | |
| **Date Approved** | June 15, 2011 | |

| Jurisdiction: | Comments: | DFIRM | | NFIP Status* | | | CRS Class |
|---|---|---|---|---|---|---|---|
| | | IN PLAN | NOT IN PLAN | Y | N | N/A | # |
| 1. Moore County (Unincorporated) | | | X | X | | | - |
| 2. Aberdeen, Town of | | | X | X | | | - |
| 3. Cameron, Town of | | | X | X | | | - |
| 4. Carthage, Town of | | | X | X | | | - |
| 5. Foxfire Village, Village of | | | X | X | | | - |
| 6. Pinebluff, Town of | | | X | X | | | - |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 7. Pinehurst, Village of | Pinehurst did not participate in the 2005 Moore County Multi-Jurisdictional Hazard Mitigation Plan, but it has been included in this update. | | X | X | | | - |
| 8. Robbins, Town of | | | X | X | | | - |
| 9. Southern Pines, Town of | | | X | X | | | - |
| 10. Taylortown, Town of | | | X | | X | | - |
| 11. Vass, Town of | | | X | X | | | - |
| 12. Whispering Pines, Village of | Only jurisdiction in Moore County that is currently a participant in the Community Rating System (CRS) → see Section 7 (p. 28) | | X | X | | | 10 |

*** Notes:** **Y = Participating** **N = Not Participating** **N/A = Not Mapped**

**PREREQUISITE(S)**

**1. Adoption by the Local Governing Body**

***Requirement §201.6(c)(5)***: *[The local hazard mitigation plan **shall** include] documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County Commissioner, Tribal Council).*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE NOT MET | SCORE MET |
|---|---|---|---|---|
| A. Has the local governing body adopted **new or updated** plan? | Appendix D | The plan will be adopted by all jurisdictions following approval by NCEM.<br>State Comments:<br>Appendix D is designated to contain all resolutions of adoption once the Plan Update has been formally reviewed/approved by NCEM and FEMA. Participating jurisdictions will have one calendar year to formally approve the plan once "Approval Pending Adoption" status is granted by FEMA. (Reference: Local Multi-Hazard Mitigation Planning Guidance, Tab 6, p. 19-20).<br><br>**The updated plan has not yet been adopted by any of the participating jurisdictions. To be completed.**<br>This is an update for a multi-jurisdictional Plan. | N/A | N/A |
| B. Is supporting documentation, such as a resolution, included? | Appendix D | State Comments:<br>Per above, Appendix D is designated to contain all resolutions of adoption once the Plan Update has been formally reviewed/approved by NCEM and FEMA. Participating jurisdictions will have one calendar year to formally approve the plan once "Approval Pending Adoption" status is granted by FEMA. (Reference: Local Multi-Hazard Mitigation Planning Guidance, Tab 6, p. 19-20).<br><br>**Recommended Revision from State:**<br>It might be helpful to include a blank appendix as a place holder for the resolutions. Appendix D is for Public Hearing Documentation, resolutions should be in a separate Appendix. Also, you might want to consider including a blank template for the adoption resolutions here.<br><br>**To be completed once NCEM and FEMA has approved.**<br>This is an update for a multi-jurisdictional Plan. | N/A | N/A |
| | | **SUMMARY SCORE** | N/A | N/A |

**2. Multi-Jurisdictional Plan Adoption**

***Requirement §201.6(c)(5)***: *For multi-jurisdictional plans, each jurisdiction requesting approval of the plan **must** document that it has been formally adopted.*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE NOT MET | SCORE MET |
|---|---|---|---|---|
| A. Does the **new or updated** plan indicate the specific jurisdictions represented in the plan? | Section 1.C – Page 1-4<br><br>Cover Page | State Comments: Per page 1-4, the following jurisdictions are participating in the Plan Update:<br>• Moore County<br>• Town of Aberdeen<br>• Town of Cameron<br>• Town of Carthage<br>• Village of Foxfire Village<br>• Town of Pinebluff<br>• Village of Pinehurst<br>• Town of Robbins<br>• Town of Southern Pines<br>• Town of Taylortown<br>• Town of Vass<br>• Village of Whispering Pines<br><br>It should be noted that Pinehurst has participated in this update, but was not **formerly included in the 2005 County plan.**<br><br>FEMA reviewer agrees with comments provided by State reviewer. | | X |
| B. For each jurisdiction, has the local governing body adopted the **new or updated** plan? | Appendix D<br><br>Section 8 (p. 1) | State Comments:<br>It looks like Appendix D (Public Hearing Documentation) is designated to contain all resolutions of adoption once the Plan Update has been formally reviewed/approved by NCEM and FEMA. Participating jurisdictions will have one calendar year to formally approve the plan once "Approval Pending Adoption" status is granted by FEMA. (Reference: Local Multi-Hazard Mitigation Planning Guidance, Tab 6, p. 19-20).<br><br>**The updated plan has not yet been adopted by any of the participating jurisdictions. To be completed.**<br><br>None of the local governing bodies have adopted the updated Plan.<br><br>**REQUIRED:**<br>The updated Plan must be adopted within one calendar year of FEMA's "approval pending adoption" of the Updated Plan. | | |

| | | | | |
|---|---|---|---|---|
| | | *For more information, see "Adoption by the Local Governing Body", in the Local Multi-Hazard Mitigation Planning Guidance, p. 17-18.*<br><br>**Received:**<br><br>All of the participating jurisdictions in Moore County signed their adoption resolutions for the updated Plan during the time period between 18 January 2011 and 17 May 2011. | | X |
| C. Is supporting documentation, such as a resolution, included for each participating jurisdiction? | Appendix D<br><br>Section 8 (p. 1) | State Comments:<br>Per above, Appendix D is designated to contain all resolutions of adoption once the Plan Update has been formally reviewed/approved by NCEM and FEMA. Participating jurisdictions will have one calendar year to formally approve the plan once "Approval Pending Adoption" status is granted by FEMA. (Reference: Local Multi-Hazard Mitigation Planning Guidance, Tab 6, p. 19-20).<br><br>**Recommended Revision from State:**<br>It might be helpful to include a blank appendix as a place holder for the resolutions. Appendix D is for Public Hearing Documentation, resolutions should be in a separate Appendix. Also, you might want to consider including a blank template for the adoption resolutions here.<br><br>**To be completed upon review by NCDEM and FEMA review.**<br><br>No documentation of adoption has been received from any of the local governing bodies. The Plan states that resolutions will be added upon adoption and presented as Appendix D.<br><br>**REQUIRED REVISION:**<br><br>The updated Plan shall include a copy of the resolution or other documentation of formal adoption of the Updated Plan within one calendar year.<br><br>*For more information, see "Adoption by the Local Governing Body", in the Local Multi-Hazard Planning Guidance, p. 17-18.* | | |

| | | | | |
|---|---|---|---|---|
| | | **Community Comments:**<br>**Appendix D of the plan has been incorporated as a place holder for adoption documentation**<br><br>**Received:**<br><br>FEMA received adoption resolutions from all of the participating jurisdictions on 14 June 2011. | | X |
| | | | **SUMMARY SCORE** | X |

**3. Multi-Jurisdictional Planning Participation**

***Requirement §201.6(a)(3)***: *Multi-jurisdictional plans (e.g., watershed plans) may be accepted, as appropriate, as long as each jurisdiction has participated in the process … Statewide plans will not be accepted as multi-jurisdictional plans.*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE NOT MET | SCORE MET |
|---|---|---|---|---|
| A. Does the **new or updated** plan describe **how** each jurisdiction participated in the plan's development? | Section 1 (C)<br>Page 1-3 to 1-6<br><br>Section 1 (p. 3-6) | State Comments:<br>A comprehensive overview of the Plan Update process is described on pages 1-3 through 1-6. Six Mitigation Advisory Council meetings were conducted between August 2009 and May 2010. Also, several other smaller meetings took place between staff and various interests involving plan development. Pages 1-5 through 1-6 gives a brief summary of each meeting. Each meeting focused on a specific aspect of the planning process.<br>On page 1-4, there is a description of the Mitigation Advisory Committee (MAC) and each jurisdictions participation on it. Also, it is worth mentioning that on this page, it is pointed out that "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 offices." The MAC was convened to addressed the "multi-disciplinary" aspects of the HMP.<br><br>This section has been modified based on the new plan format and process; however, the information is present and comprehensive in nature.<br><br>The updated Plan describes how each jurisdiction participated in the Plan's development. It states that all incorporated jurisdictions in Moore County were included in this effort, and all of them contributed to the overall cost of the plan update. | | X |

| | | | | |
|---|---|---|---|---|
| | | Also, representatives from each jurisdiction comprised the membership of the County's Mitigation Action Committee (MAC). | | |
| B. Does the updated plan identify all participating jurisdictions, including new, continuing, and the jurisdictions that no longer participate in the plan? | Section 1 (C) Page 1-4<br><br>Section 1 (p. 3-4) | State Comments:<br>All participating jurisdictions are described on page 1-4. This includes Moore County and the eleven participating municipalities. As indicated in the list of MAC members and their respective jurisdictions on page 1-4, Pinehurst is a new participant in the Moore County HMP Update.<br><br>The updated Plan states that all incorporated jurisdictions in Moore County have opted to be included in this effort. It mentions that the Village of Pinehurst is a new participant under the Moore County HMP Update, while all other jurisdictions participated in the 2005 version of the Plan. | | X |
| | | **SUMMARY SCORE** | | X |

**PLANNING PROCESS:** *§201.6(b): An open public involvement process is essential to the development of an effective plan.*

**4. Documentation of the Planning Process**

***Requirement §201.6(b):*** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process **shall** include:*
*(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
*(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*
*(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

***Requirement §201.6(c)(1):*** *[The plan **shall** document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

| Element | **Location in the Plan** (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the plan provide a narrative description of the process followed to prepare the **new or updated** plan? | Section 1 (C) – Page 1-3 to 1-6 | State Comments:<br>A comprehensive overview of the Plan Update process is described on pages 1-3 through 1-6. Six Mitigation Advisory Council meetings were conducted between August 2009 and May 2010. Also, several other smaller meetings took place between staff and various interests involving plan development. Pages 1-5 through 1-6 gives a brief summary of each meeting. Each meeting focused on a specific aspect of the planning process. The first | | |

**4. Documentation of the Planning Process**

***Requirement §201.6(b):*** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process* ***shall*** *include:*
*(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
*(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*
*(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

***Requirement §201.6(c)(1):*** *[The plan* ***shall*** *document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

| | Location in the | | SCORE | |
|---|---|---|---|---|
| | Section 1 (p. 3-6) | two meetings focused primarily on the process itself and to gauge the needs of each community participating in the process. The meeting in April was a public input session which allowed the public an opportunity to comment and ask questions about the overall process and plan update. Advertisements inviting the public to this meeting appear in Appendix B.<br><br>The planning process discussion reflects the actual process that was undertaken for the plan update. There was some minor restructuring of this narrative from the existing document; however, the requirement to describe the process that the jurisdiction undertook to update the plan has been more clearly stated.<br><br>The updated Plan provides a descriptive narrative of the comprehensive review process. It begins with the County's appropriation of funds in the annual budget for updating the Plan, elaborates on the discussion topics from each of the numerous meetings, and it concludes with a statement concerning the Plan's adoption process. | | X |
| B. Does the **new or updated** plan indicate who was involved in the **current** planning process? (For example, who led the development at the staff level and were there any external contributors such as contractors? Who participated on the plan committee, provided information, reviewed drafts, *etc.*?) | Section 1 (C) – Page 1-3 to 1-6 | State Comments: Page 1-3 indicates that Andrew Gardner of the Moore County Planning and Community Development Department headed up the HMP update effort. Then Page 1-4 describes who was on the Mitigation Advisory Committee and the importance of making this update and the process a "team effort". Also, mentioned here is the fact that MAC members would be assisting the consultant (Holland Consulting Planners with compiling the information, input and background required to develop (and update) the plan. Also, representatives from the following stakeholder offices/organizations were contacted for comments and input: NC Department of Transportation and the American Red Cross. Also, adjoining counties to Moore County were made aware of the plan update available for review on the County website. | | |

**4. Documentation of the Planning Process**

***Requirement §201.6(b):*** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process* ***shall*** *include:*
*(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
*(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*
*(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

***Requirement §201.6(c)(1):*** *[The plan* ***shall*** *document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

| | Location in the | | SCORE | |
|---|---|---|---|---|
| | Section 1 (p. 3-6) | A full disclosure of all parties involved in the update process has been outlined within the description of the planning process.<br><br>The updated Plan states that primary responsibility for the Plan's updating efforts was placed in the hands of Mr. Andrew Gardner of the Moore County Planning and Community Development Department.<br><br>Moore County also convened a Mitigation Advisory Committee (MAC) to address the "multi-disciplinary" aspect of hazard mitigation. The names of the sixteen individuals comprising this Committee are listed.<br><br>Along with being charged with the responsibility of working through the planning process, the MAC members provided technical assistance for the consultant (Holland Consulting Planners). The consultant's contribution is credited in the tables and maps throughout Section 3 and Appendix A, respectively. | | X |
| C. Does the **new or updated** plan indicate how the public was involved? (Was the public provided an opportunity to comment on the plan during the drafting stage and prior to the plan approval?) | Section 1 (C) – Page 1-3 to 1-9 | State Comments: A public input meeting was held on April 22nd which gave the public an opportunity to comment on the HMP update. It also provided an overview of the project. The meeting was advertised in the local newspaper. It was an informational question and answer session. Individuals from the public who attended the meeting were mainly concerned about emergency service provision within the county and wanted to make sure that CERT teams were addressed in the plan update. Advertisements for the public meeting are provided in Appendix B. Also, prior to adoption, there will be a final public hearing so that the public and other stakeholder groups | | |

**4. Documentation of the Planning Process**

***Requirement §201.6(b):*** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process* ***shall*** *include:*
*(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
*(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*
*(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

***Requirement §201.6(c)(1):*** *[The plan* ***shall*** *document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

| | Location in the | | SCORE | |
|---|---|---|---|---|
| | Section 1 (p. 6); Appendix B; Appendix D | can make comments on and provide input to the final plan update. These public hearing notices, meeting minutes and resolutions will be provided in Appendix D. The meeting held on April 22nd was the time that the public could comment during drafting stage and the public hearing after FEMA approval is the public input that will occur prior to plan approval.<br><br>Pages 1-5 to 1-6 outline the meetings that were held during the plan update process. Within this narrative it is noted where meetings were advertised to solicit public input. Affidavits of publication of notices for the two advertised meetings, which were not available at the time this plan was printed, will be provided in Appendix B of the final document.<br><br>Appendix B of the updated Plan presents documentation of the publicly-advertised meetings. The Plan was available for review and open to comments from the public on the Moore County website.<br><br>As for public input prior to the Plan's adoption, it is stated that a final public hearing shall be held for the County along with all participating jurisdictions. The public and all stakeholder groups will be given the opportunity to provide input during these sessions.<br><br>**REQUIRED REVISION:**<br><br>The updated Plan must indicate how the public was given opportunities to comment on the plan during the drafting stage *and* prior to plan approval. | | |

**4. Documentation of the Planning Process**

***Requirement §201.6(b):*** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process* ***shall*** *include:*
*(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
*(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*
*(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

***Requirement §201.6(c)(1):*** *[The plan* ***shall*** *document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

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| | Section 1 (p. 6) | *For more information, see "Documentation of the Planning Process," in the Local Multi-Hazard Mitigation Planning Guidance (July 2008), Requirements §201.6(b) and §201.6(c)(1), p.26-27.*<br><br>**Recommended Revision:**<br><br>The updated Plan states in Appendix D that the Public Hearing Documentation is "to be added" after the County's adoption meetings. Provide documentation of the adoption hearings after the events have occurred.<br><br>**Community Comments**:<br>**Review the narrative outlined under the meetings for April 2010 and February 2011 on page 1-6.**<br><br>**RECEIVED REVISION:**<br><br>The revised Plan includes a statement addressing that Moore County has scheduled a public hearing in February 2011, following receipt of a certified pending adoption letter, to allow for public comment on the final draft plan.<br><br>However, this crosswalk element cannot receive a "satisfactory" score because the public hearing has not yet occurred. The score will be changed after the final adoption meeting for at least one participating jurisdiction has been documented. | | |

**4. Documentation of the Planning Process**

***Requirement §201.6(b):*** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process* ***shall*** *include:*
*(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
*(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*
*(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

***Requirement §201.6(c)(1):*** *[The plan* ***shall*** *document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

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| | | **Received:**<br><br>All participating jurisdictions in the Moore County HMP submitted individual affidavits of publication confirming that the local governing bodies held public hearings to inform their citizens about formally adopting the updated Plan. Each affidavit displays a copy of the legal notice of public hearing that was presented in the local paper. | | X |
| D. **Does the new or updated plan discuss the** opportunity for neighboring communities, agencies, businesses, academia, nonprofits, and other interested parties to be involved in the planning process? | Section 1 (C) – Page 1-6<br><br>Section 1 (p. 6); Appendix B | State Comments: Page 1-6 in the paragraph after the summary of the meetings includes information on the participation of neighboring communities (adjoining counties), other agencies (NC Department of Transportation) and nonprofits (the American Red Cross). These groups were invited to make comments and provide input.<br><br>The last three paragraphs on page 1-6 states that the NC Department of Transportation, American Red Cross, and neighboring Counties were specifically asked for comments on the plan update. It is not noted in the update, however, that neighboring communities, as well as other interested parties, were invited via newspaper advertisements to attend meetings open to the public.<br><br>The updated Plan confirms that the MAC sought input from representatives of the State's Department of Transportation and the Moore County Chapter of the American Red Cross. All adjoining counties also were made aware that the Plan was available for review on the Moore County website.<br><br>The advertisements for the final two MAC meetings also announce that "all interested parties [were] encouraged to attend." | | X |

**4. Documentation of the Planning Process**

***Requirement §201.6(b):*** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process* ***shall*** *include:*
*(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
*(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*
*(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

***Requirement §201.6(c)(1):*** *[The plan* ***shall*** *document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

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| E. Does the planning process describe the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information? | Section 1 (E) – Pages 1-9 to 1-10<br><br>Municipal Overview Section 3 (Capability)<br><br>Section 4 Pages 5-4 to 5-7<br><br><br><br><br><br><br><br><br><br><br><br>Section 1 (p. 9-10) | State Comments: This section describes how existing policy and regulatory documents were used to assist in the preparation of the HMP update such as the County's Land Use Plan, Zoning Ordinance, and Flood Damage Prevention Ordinance. Furthermore, the use of these other documents helped to conduct a thorough vulnerability assessment. Also, the flow chart on page 1-7 shows that the step of "Applying knowledge to update land use and mitigation policies" will help to "develop rational land use policies to mitigation natural hazards", therefore the mitigation plan will incorporate other land use plans and land use plans will incorporate the mitigation plan.<br><br>**Recommended Revision from State:**<br>**It might be helpful to include a few more examples of where specific information from these documents fit into the plan update. For example during any of the MAC meetings were existing planning documents reviewed and was there discussion on how they could be incorporated? If this information appears somewhere else in the plan, please site that location in the column to the left.**<br>**State approves revisions as of 9/1/10**<br><br>This is clearly stated within the plan update.<br><br>The updated Plan confirms that Moore County referenced several existing sources of information throughout the planning process, particularly during MAC meetings. A few of the acknowledged plans/studies/guides include:<br><br>• Moore County Land Use Plan<br>• Moore County Zoning Ordinance<br>• Moore County Flood Damage Prevention Ordinance | | X |

**4. Documentation of the Planning Process**

***Requirement §201.6(b):*** *In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process* ***shall*** *include:*
*(1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval;*
*(2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process; and*
*(3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.*

***Requirement §201.6(c)(1):*** *[The plan* ***shall*** *document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.*

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| **F. Does the updated plan document how the planning team reviewed and analyzed each section of the plan and whether each section was revised as part of the update process?** | Section 1 (D)<br>Pages 1-7 to 1-9<br><br>Section 1 (p. 5-9) | State Comments: This section states that the plan involved a comprehensive review of all components of the existing plan. A model was used, which is illustrated on page 1-7, to guide the update process. From discussing risk assessment, prior occurrences of inclement weather and the current political and budgetary climate, revised strategies were developed based on factors listed in bulleted form on page 1-7. This section also mentions that this plan was quite a deviation from the existing plan. Then the format and each section is summarized on pages 1-8 through 1-9. Each section was revised as part of the update process.<br><br>This review provides a statement of how each section of the plan was reviewed by the MAC.<br><br>The updated Plan includes a section that describes how the MAC reviewed all efforts carried out since the adoption of the 2005 plan. Summaries of the six MAC meetings explain which sections were examined during each particular meeting.<br><br>It is expressed that the plan format employed in the development of this update is "a significant deviation" from Moore County's 2005 plan. | | X |
| | | **SUMMARY SCORE** | | X |

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

**5. Identifying Hazards**

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the **new or updated** plan include **a description** of the types of **all natural hazards** that affect the jurisdiction? | Section 4, Pages 4-1 to 4-24 | State Comments: There is a description of the types of all natural hazards that affect the jurisdiction. Each description includes a detailed description, historical impact and likelihood of occurrence for the following hazards:<br>• Flooding<br>• Hurricanes<br>• Severe Winter Storms<br>• Thunderstorms and Tornadoes<br>• Wildfire<br>• Dam/Levee Failure<br>• Droughts/Heat Wave<br>• Sinkholes<br>• Earthquakes<br>The decision to remove certain hazards and add others from the updated plan was based on discussions held with the MAC during the planning process, outlined in Section 1, see justification for removal on page 4-24. | | |
| | Section 4 (p. 1, 24) | FEMA reviewer agrees with comments provided by State reviewer. In addition, it is explicitly stated that the following hazards were not identified within the context of this document due to lack of history or recorded activity in Moore County:<br>• Tsunamis<br>• Landslides<br>• Volcanoes | | X |
| | | **SUMMARY SCORE** | | X |

**6. Profiling Hazards**

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

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the risk assessment identify the **location** (*i.e.*, geographic area affected) of each natural hazard addressed in the **new or updated** plan? | Appendix A<br>Maps 1A to 1L<br>Map 2<br>Map 3<br><br>Section 4<br>Pages 4-1 to 4-24<br><br>Section 6 | State Comments: Maps in Appendix A show different land uses and overlay flood zones, however this does not specifically in a narrative form address the locations of each natural hazard in the jurisdictions in this plan. Only flood zones are illustrated in these maps.<br><br>**Recommended Revision from State:**<br>**Please include a narrative description that identifies the location of each hazard and/or include maps that illustrate all hazards and not just the flood hazard throughout the county. OR explain why only flood hazard is shown and mapping capability restraints.**<br>**State approves revisions as of 9/1/10**<br><br>These maps clearly define the all hazards exposure area, areas impacted by man-made hazards, dam locations, and all defined flood hazard areas. | | |
| | Section 4 (p. 2-24); Appendix A; Appendix E; Appendix F | The updated Plan identifies the locations in Moore County that are affected by each of the natural hazards addressed. Narratives in the individual hazard profiles along with numerous maps describe the specific geographical territories.<br><br>Appendix E is an inventory of previous hazard events, and the first column identifies the location of those events. Appendix F is Moore County's dam inventory and it indicates the specific bodies of water on which these structures exist. | | X |
| B. Does the risk assessment identify the **extent** (*i.e.*, magnitude or severity) of each hazard addressed in the **new or updated** plan? | Section 4, Pages 4-1 to 4-24<br><br>Table 73<br>Table 74 | State Comments: This section goes over each hazard in detail, which includes the extent of each hazard in terms of historical impact and likelihood of occurrence. Various charts and visuals detail this information for each hazard. Also, Table 73 ranks the natural hazard potential by several factors for each hazard which does identify the magnitude and severity of each hazard based on that combination of factors. Also, Table 74, Moore County Hazard Impact provides and estimate of damage potential and likelihood of occurrence. Information from town staff members, data documenting historical occurrences and other information was taken into consideration for this table. | | |

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| | Section 4 (p. 2-24); Appendix E | The decision to remove certain hazards and add others from the updated plan was based on discussions held with the MAC during the planning process, outlined in Section 1, see justification for removal on page 4-24.<br><br>The updated Plan provides information concerning the possible extent (i.e., "How bad can it be?") of the identified natural hazards in Moore County. Scientific scales or quantitative measurements are provided adequately within the hazard profiles or in the Hazard Inventory.<br><br>However, the updated Plan does not clearly address extent for the following hazard(s):<br><br>• Flooding<br>• Wildfires<br><br>**REQUIRED REVISION:**<br><br>The updated Plan must describe the extent of each natural hazard addressed in the Plan. Express "extent" in terms of scientific scales or quantitative measurements.<br><br>*For more information, see "Profiling Hazards", in the Local Multi-Hazard Mitigation Planning Guidance (July 2008), Requirement §201.6(c)(2)(i), p.32-35.*<br><br>**Recommended Revision:**<br><br>Clearly address how bad flooding can be in Moore County. Support the statement that "many rivers set new flood records" (as expressed in the summary for Hurricane Floyd in Section 4). Below are example measurements used to explain extent for floods:<br><br>• Flood stage levels<br>• Flood gage depth<br>• Stream flow<br>• Possible damage scenarios | | |

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| | | For wildfires, describe the total number of acres burned during each of the recorded events.<br><br>**Community Comments:**<br>**Review the narrative outlined in the vulnerability assessment within Section 6 in conjunction with Section 3. This section provides detailed damage estimates for each natural hazard.**<br>**Non Specific Hazards are outlined starting on page 6-3 and Flooding is covered beginning on Page 6-6. Section 3, pages 3-7 through 3-72 under the community profile for each municipality outlined in Section 3 provides this information for participating jurisdiction.**<br><br>**RECEIVED REVISION(S):**<br><br>None<br><br>**Recommended Revision for next Plan update:**<br><br>Clearly address how bad flooding and wildfires can be in Moore County. Use scientific scales or quantitative measurements to explain the extent of these two hazards. Neither Section 3 nor Section 6 of the revised Plan contains this information. | | X |
| C. Does the plan provide information on **previous occurrences** of each hazard addressed in the **new or updated** plan? | Section 4, Pages 4-1 to 4-24 | State Comments: There is a section on each hazard which includes a sub-section on historical occurrences.<br><br>**Recommended Revision from State:**<br>**However, it seems like either not much activity occurred for each hazard with the exception of wildfire after 2004 (at the time of the last plan update.) In each subsection on historical impact for each hazard, it might be a good idea to include a sentence that reads something like this-- that no significant activity took place for this hazard since the plan update.**<br>**State approves revisions as of 9/1/10**<br><br>The decision to remove certain hazards and add others from the updated plan was based on discussions held with the MAC during the planning process, outlined in Section 1, see justification for removal on page 4-24. | | |

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| | Section 4 (p. 2-24); Appendix E | The Plan provides information pertaining to previous hazard events within each of the hazard profiles and primarily in Appendix E. The recorded events are summarized in narratives and in a table that includes descriptive information (i.e., date, location, magnitude, death/injuries, and damages estimates). | | X |
| D. Does the plan include the **probability of future events** (*i.e.*, chance of occurrence) for each hazard addressed in the **new or updated** plan? | Section 4, Pages 4-1 to 4-24<br><br>Table 73<br>Table 74<br><br>Section 4 (p. 3-25) | State Comments: For each hazard there is a subsection on likelihood of occurrence which addresses the question of the probability of future events. Also, Table 73 ranks the hazards by frequency which does to something to indicate future probability. Also, Table 74 describes the likelihood of occurrence as highly likely, likely, possible and unlikely with highly likely with near 100% probability of occurrence in the next year.<br><br>The decision to remove certain hazards and add others from the updated plan was based on discussions held with the MAC during the planning process, outlined in Section 1, see justification for removal on page 4-24.<br><br>The concluding paragraph in each of the individual hazard profiles includes a statement that addresses the probability of future hazard events.<br><br>However, Table 74 provides a more thorough description of future likelihood. The "likelihood of occurrence" column uses four levels of term "likely," each of which is defined according to the annual percent chance of one hazard event. | | X |
| | | **SUMMARY SCORE** | | X |

**7. Assessing Vulnerability: Overview**

***Requirement §201.6(c)(2)(ii):*** *[The risk assessment **shall** include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description **shall** include an overall summary of each hazard and its impact on the community.*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
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| A. Does the **new or updated** plan include an **overall summary** description of the jurisdiction's **vulnerability** to each hazard? | Moore County (Unincorporated) Section 6 Pages 6-1 to 6-16<br><br>Municipalities (See Notes) | **State Comments:** Section 3 includes municipal profiles which describes each jurisdiction and includes a subsection on vulnerability assessment. Below are the page numbers for where each jurisdiction in the plan and subsection 4 in each of these sections describes existing vulnerability and future vulnerability. Section 6 is a vulnerability assessment for the unincorporated portions of Moore County. Also, this section provides a vulnerability assessment for the County overall which includes development vulnerability, fragile areas, critical facilities and repetitive loss structures.<br>**Town of Aberdeen:** Page 3-1 to 3-7<br>**Town of Cameron:** Page 3-8 to 3-13<br>**Town of Carthage:** Page 3-14 to 3-19<br>**Village of Foxfire Village:** Page 3-20 to 3-25<br>**Town of Pinebluff:** Page 3-26 to 3-32<br>**Village of Pinehurst:** Page 3-33 to 3-39<br>**Town of Robbins:** Page 3-40 to 3-46<br>**Town of Southern Pines:** Page 3-47 to 3-53<br>**Town of Taylortown:** Page 3-54 to 3-59<br>**Town of Vass:** Page 3-60 to 3-66<br>**Village of Whispering Pines:** Page 3-67 to 3-72 | | |
| | Section 3 (p. 3-72); Section 4 (p. 23-25); Section 6 (p. 1-7); Appendix A | The updated Plan sufficiently addresses Moore County's vulnerability to each hazard. The municipal profiles provide detailed assessments of development within floodplains, while the maps in Appendix A illustrate these risk-prone areas.<br>Considering that *vulnerability* is described in terms of a community's "exposure to risk," it is the "potential impact" column of Table 74 that is most revealing. Thus, Moore County would be most vulnerable to the following hazards based on their theoretical destructive capacities:<br>• Dam/Levee Failures<br>• Severe Winter Storms<br>• Severe Thunderstorms/Windstorms<br>• Tornadoes | | X |

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| B. Does the **new or updated** plan address the **impact** of each hazard on the jurisdiction? | Moore County (Unincorporated)<br>Section 6<br>Pages 6-1 to 6-16<br><br>Section 4<br>4-1 to 4-24<br><br>Section 4 (p. 23-25) | **State Comments:** Section 3 includes profiles of each municipality/jurisdiction in the plan. There are subsections for each jurisdiction which describe development trends and anticipated growth and then tables show acreage and numbers of buildings that are currently in flood zones and projected to be in flood zones plus the value of these structures. This is important information pertaining to the hazard of flooding however none of the other hazards are addressed specifically for each jurisdiction. Section 6 considers the impact that hazards have on the County's entire unincorporated area and maps are provided to further clarify the impact area of a respective hazard type. For each jurisdiction in Section 3, the following was stated which assumes that all jurisdictions within this plan are susceptible to impacts from the hazards identified: "As detailed in the section discussing hazard identification, property in Moore County is deemed to be vulnerable to severe winter storms, severe thunderstorms/windstorms, hurricanes, tornadoes, localized flooding, and drought/heat waves. Based upon the unpredictable nature of these events, it was determined that the entire corporate limits area of each municipality is also susceptible to the impact of these events.<br><br>**Recommended Revision from State:**<br>**Please provide more specific information on the impact that each hazard has on each jurisdiction, if necessary. If not necessary, please explain why.**<br>**State approves revisions as of 9/1/10**<br><br>**Town of Aberdeen:** Page 3-1 to 3-7<br>**Town of Cameron:** Page 3-8 to 3-13<br>**Town of Carthage:** Page 3-14 to 3-19<br>**Village of Foxfire Village:** Page 3-20 to 3-25<br>**Town of Pinebluff:** Page 3-26 to 3-32<br>**Village of Pinehurst:** Page 3-33 to 3-39<br>**Town of Robbins:** Page 3-40 to 3-46<br>**Town of Southern Pines:** Page 3-47 to 3-53<br>**Town of Taylortown:** Page 3-54 to 3-59<br>**Town of Vass:** Page 3-60 to 3-66<br>**Village of Whispering Pines:** Page 3-67 to 3-72<br><br>Table 73 ("Moore County Ranking of Hazard Potential") in the updated Plan compares the destructive capacity of the identified hazards in Moore County. The hazards are ranked in the | | X |

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| | | categories of injuries, deaths, and property damage loss. It is noted that, due to lack of historical data, the following hazards received the same score for all factors:<br><br>• Wildfire<br>• Dam/Levee failure<br>• Sinkholes<br>• Earthquakes<br><br>The updated Plan also presents Table 74 to address the impact of each hazard on the entire Moore County. Specifically, this table evaluates the hazards according to an "impact rating" along with a "potential impact" level. The respective terms and levels are well-defined in subsequent footnotes. | | |
| | | **SUMMARY SCORE** | | X |

**8. Assessing Vulnerability: Addressing Repetitive Loss Properties**

***Requirement §201.6(c)(2)(ii):*** *[The risk assessment]* ***must*** *also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged floods.*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| **A. Does the new or updated plan describe vulnerability in terms of the types and numbers of *repetitive loss properties* located in the identified hazard areas?** | Moore County (Unincorporated) Section 6 Pages 6-1 to 6-16<br><br>Municipalities (See Notes)<br><br>Section 3 (p. 7-72); Section 6 (p. 16) | ***Note: This requirement becomes effective for all local plans approved after October 1, 2008.***<br><br>State Comments: No repetitive loss structures exist within Moore County.<br><br>**Town of Aberdeen:** Page 3-1 to 3-7<br>**Town of Cameron:** Page 3-8 to 3-13<br>**Town of Carthage:** Page 3-14 to 3-19<br>**Village of Foxfire Village:** Page 3-20 to 3-25<br>**Town of Pinebluff:** Page 3-26 to 3-32<br>**Village of Pinehurst:** Page 3-33 to 3-39<br>**Town of Robbins:** Page 3-40 to 3-46<br>**Town of Southern Pines:** Page 3-47 to 3-53<br>**Town of Taylortown:** Page 3-54 to 3-59<br>**Town of Vass:** Page 3-60 to 3-66<br>**Village of Whispering Pines:** Page 3-67 to 3-72<br><br>Each of the municipal profiles in the updated Plan includes a brief paragraph that addresses repetitive loss properties in that jurisdiction. All of the statements indicate that none of the communities have any such properties.<br><br>The conclusion of the Plan's vulnerability assessment also confirms that no repetitive loss properties exist within Moore County or any of the participating jurisdictions. | | X |
| | | **SUMMARY SCORE** | | X |

**9. Assessing Vulnerability: Identifying Structures**

***Requirement §201.6(c)(2)(ii)(A):*** *The plan* ***should*** *describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area … .*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the **new or updated** plan describe vulnerability in terms of the **types and numbers** of **existing** buildings, infrastructure, and critical facilities located in the identified hazard areas? | Moore County (Unincorporated) Section 6 Page 6-16<br><br>Municipalities – See Notes<br><br>Section 3 (p. 1-72); Section 6 (p.7, 12-16); Appendix A | **State Comments:** In Section 3, each jurisdiction is described and there is a subsection on vulnerability that includes information on land use and building type and value for each jurisdiction and then what percentage of that land and structures (non-residential and residential) that lie within flood zones. Section 6, describes vulnerability of unincorporated areas of the county and tables 78 and 81show existing vulnerability of both residential and non-residential structures in relation to flood zones. Developed and undeveloped areas and acreage are addressed in relation to other hazards.<br><br>**Recommended Revision from State:**<br>**Other hazards are not specifically addressed in relation to their proximity to existing buildings and the buildings'vulnerability. If it is not necessary to do so, please explain why they are not. Or if this information is contained in the plan, please be more specific on the location.**<br>**State approves revisions as of 9/1/10**<br><br>**Town of Aberdeen:** Page 3-1 to 3-7<br>**Town of Cameron:** Page 3-8 to 3-13<br>**Town of Carthage:** Page 3-14 to 3-19<br>**Village of Foxfire Village:** Page 3-20 to 3-25<br>**Town of Pinebluff:** Page 3-26 to 3-32<br>**Village of Pinehurst:** Page 3-33 to 3-39<br>**Town of Robbins:** Page 3-40 to 3-46<br>**Town of Southern Pines:** Page 3-47 to 3-53<br>**Town of Taylortown:** Page 3-54 to 3-59<br>**Town of Vass:** Page 3-60 to 3-66<br>**Village of Whispering Pines:** Page 3-67 to 3-72<br><br>The municipal profiles in the updated Plan include information about the number of existing residential and non-residential structures for all eleven participating jurisdictions in Moore County. In regard to development within identified hazard areas, particularly flood zones, there are tables that tally the | | X |

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| | | number of vulnerable properties and their estimated building values.<br><br>Table 84 in the updated Plan is a comprehensive listing of critical facilities that exist throughout Moore County. Associated color-coded maps pinpointing the facilities' locations are provided in Appendix A. | | |
| **B.** Does the **new or updated** plan describe vulnerability in terms of the **types and numbers** of **future** buildings, infrastructure, and critical facilities located in the identified hazard areas? | Moore County (Unincorporated) Section 6 Pages 6-1 to 6-16<br><br>Municipalities (See Notes) | ***Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.***<br><br>**State Comments:** In Section 3, each jurisdiction is described and there is a subsection on vulnerability that includes information on land use and building type and value for each jurisdiction and then what percentage of that land and structures (non-residential and residential) that lie within flood zones. Section 6, describes future vulnerability of unincorporated areas of the county in terms of developed and undeveloped areas and then subsequent tables illustrate how many acres of each lie within 100 feet of a rail line which is described as an area of risk for man-made hazards.<br><br>**Recommended Revision from State:**<br>**Other hazards are not specifically addressed in relation to their proximity to existing buildings and the buildings'vulnerability. If it is not necessary to do so, please explain why they are not. Or if this information is contained in the plan, please be more specific on the location.**<br>**State approves revisions as of 9/1/10**<br><br>**Town of Aberdeen:** Page 3-1 to 3-7<br>**Town of Cameron:** Page 3-8 to 3-13<br>**Town of Carthage:** Page 3-14 to 3-19<br>**Village of Foxfire Village:** Page 3-20 to 3-25<br>**Town of Pinebluff:** Page 3-26 to 3-32<br>**Village of Pinehurst:** Page 3-33 to 3-39<br>**Town of Robbins:** Page 3-40 to 3-46<br>**Town of Southern Pines:** Page 3-47 to 3-53<br>**Town of Taylortown:** Page 3-54 to 3-59<br>**Town of Vass:** Page 3-60 to 3-66<br>**Village of Whispering Pines:** Page 3-67 to 3-72 | | |

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| | Section 3 (p. 1-72); Section 6 (p. 7-8) | The municipal profiles in the updated Plan include information about the number of future residential and non-residential structures within designated flood zones for all eleven participating jurisdictions in Moore County. In order to determine maximum build-out, there are formulas that apply a value of one residential/non-residential unit per calculated acreage of undeveloped property.<br><br>In another section of the Plan that addresses residential development, it is estimated that an additional 1,317 parcels will exist at build out within the County's 100-year floodplain. | | X |
| | | | **SUMMARY SCORE** | X |

**10. Assessing Vulnerability: Estimating Potential Losses**

***Requirement §201.6(c)(2)(ii)(B):*** *[The plan **should** describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate … .*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the **new or updated** plan estimate **potential dollar losses** to vulnerable structures? | Moore County (Unincorporated) Section 6 Pages 6-1 to 6-16 | ***Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.***<br><br>**State Comments:** Throughout section 3, non-residential and residential building and structures located in flood prone areas and their building value is listed in tables for each jurisdiction for both existing and future vulnerability. Dollar values are included. Also, in section 6, dollar values are giving for residential and non-residential structures in flood prone/unincorporated areas of Moore County as well as those developed areas near rail lines. Please exp<br>**Town of Aberdeen:** Page 3-1 to 3-7<br>**Town of Cameron:** Page 3-8 to 3-13<br>**Town of Carthage:** Page 3-14 to 3-19<br>**Village of Foxfire Village:** Page 3-20 to 3-25<br>**Town of Pinebluff:** Page 3-26 to 3-32<br>**Village of Pinehurst:** Page 3-33 to 3-39<br>**Town of Robbins:** Page 3-40 to 3-46<br>**Town of Southern Pines:** Page 3-47 to 3-53<br>**Town of Taylortown:** Page 3-54 to 3-59<br>**Town of Vass:** Page 3-60 to 3-66<br>**Village of Whispering Pines:** Page 3-67 to 3-72 | | |
| | Section 3 (p. 3-72); Section 6 (p. 4-8, 12-15) | The updated Plan offers a wealth of information regarding the estimated potential dollar losses to Moore County's existing and future development. There are numerous tables within the individual municipal profiles that present building values (in terms of dollars) for existing and future residential and non-residential parcels.<br><br>In addition, Table 84 displays the estimated replacement values for the majority of the designated critical facilities that exist throughout Moore County. These values were obtained from the Moore County Tax Records. | | X |

| | | | | |
|---|---|---|---|---|
| B. Does the **new or updated** plan describe the **methodology** used to prepare the estimate? | Section 6 – Pages 6-1 to 6-6<br><br>Section 3 (p. 4-72);Section 6 (p. 7-8) | ***Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.***<br><br>**State Comments:** A description of the methodology used to come to dollar estimates for vulnerable structures is described throughout portions of section 6 that address existing and future vulnerability of unincorporated areas of Moore County. When it came to assessing vulnerability and dollar losses for non-specific areas, zoning information was used to determine developed and non-developed areas. This information was further used to categorize structures in developed areas into residential and non-residential and dollar estimates were calculated based on current data for existing vulnerability. The same was done for future vulnerability/potential dollar losses, but tax value in relation to total existing development stock by land use was used for future dollars and assuming that a build-out of large portions of the County will come in the form of residential development based on current developed conditions in the County.<br><br>The same methodology outlined on these pages was utilized for the development of the vulnerability overview for each participating municipality.<br><br>The updated Plan describes in great depth the methodology used to prepare property loss estimates for existing and future development. Information on current property values for both residential and non-residential structures was sourced from the Moore County Tax Records. Future property values, however, were calculated based on "total potential investment" and by using an "average per structure value" based upon existing conditions. | | X |
| | | **SUMMARY SCORE** | | X |

**11. Assessing Vulnerability: Analyzing Development Trends**

***Requirement §201.6(c)(2)(ii)(C):*** *[The plan **should** describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the **new or updated** plan describe land uses and development trends? | Section 6 | ***Note: A "Needs Improvement" score on this requirement will not preclude the plan from passing.***<br><br>**State Comments:** Yes, Section 6 thoroughly describes land use and development trends in order to assess existing and future vulnerability of residential and non-residential structures and developed and undeveloped areas of Moore County. Tables throughout this section illustrate the used of this information.<br><br>This is generally covered through the information provided within the vulnerability analysis. | | |
| | Section 2 (p. 3); Section 3 (p. 1-72) | The updated Plan contains a cluster of tables in the municipal profiles that provide breakdowns of developed, undeveloped, and publicly-owned lands throughout Moore County and its participating jurisdictions. More importantly, the Plan contains land use and development trends for the identified floodplains throughout the County.<br><br>The municipal profiles also contain passages that describe trends in population growth within each community from 1990 through 2012. As a whole, the population of Moore County has increased 44.5 percent from 1990 through 2008. This information was provided courtesy of the US Census Bureau and the NC Office of State Planning. | | X |
| | | **SUMMARY SCORE** | | X |

**12. Multi-Jurisdictional Risk Assessment**

***Requirement §201.6(c)(2)(iii):*** *For multi-jurisdictional plans, the risk assessment* ***must*** *assess each jurisdiction's risks where they vary from the risks facing the entire planning area.*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the **new or updated** plan include a risk assessment for each participating jurisdiction as needed to reflect unique or varied risks? | Moore County (Unincorporated) Section 6 Pages 6-1 to 6-16<br><br>Municipalities Section 3 (Vulnerability Assessment) | State Comments:<br>Risk Assessment is described for each jurisdiction and the unincorporated areas of the county in terms of vulnerability to flood hazards and man-made hazards along the railway corridor, however in the Section 4. Hazard Identification and Analysis, other hazards besides just flooding and man-made hazards are listed and this section seems to include some risk assessment for the county as a whole, but does not address specific jurisdictions.<br>**Recommended Revisions from State:**<br>**Please see Comments above. Please include a risk assessment for each jurisdiction for each hazard discussed in Section 4. If there is a reason only flooding and man-made risks were addressed, please explain why. Also, because some risk assessment is included in Section 4, it is advisable that Section 4. Is cited in the column to the left.**<br>**State approves revisions as of 9/1/10**<br><br>**Town of Aberdeen:** Page 3-1 to 3-7<br>**Town of Cameron:** Page 3-8 to 3-13<br>**Town of Carthage:** Page 3-14 to 3-19<br>**Village of Foxfire Village:** Page 3-20 to 3-25<br>**Town of Pinebluff:** Page 3-26 to 3-32<br>**Village of Pinehurst:** Page 3-33 to 3-39<br>**Town of Robbins:** Page 3-40 to 3-46<br>**Town of Southern Pines:** Page 3-47 to 3-53<br>**Town of Taylortown:** Page 3-54 to 3-59<br>**Town of Vass:** Page 3-60 to 3-66<br>**Village of Whispering Pines:** Page 3-67 to 3-72 | | |
| | Section 3 (p. 1-72); Appendix A | The individual municipal profiles provide very detailed risk assessments for each of the participating jurisdictions. In particular, these profiles examine existing vulnerability in the floodplain zones of each community, while the maps in Appendix A offer a visual perspective of the unique and varied risks. | | X |
| | | **SUMMARY SCORE** | | X |

**MITIGATION STRATEGY:** *§201.6(c)(3): The plan shall include a mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.*

**13. Local Hazard Mitigation Goals**

***Requirement §201.6(c)(3)(i):*** *[The hazard mitigation strategy **shall** include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A Does the **new or updated** plan include a description of mitigation **goals** to reduce or avoid long-term vulnerabilities to the identified hazards? | Section 7<br>Pages 7-12 | State Comments: Yes, the updated plan includes a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazard. All goals, objectives, and strategies have been modified from the 2005 plan. This is clearly explained within the plan's narrative. Goals, which are listed as strategies in this plan update or descriptive, yet concise and address all hazards that are relevant to Moore County and participating jurisdictions. Plus the Village of Pinehurst is listed separately because they did not participate in the 2005 plan, so a description of their existing strategies is included which will likely be folded into the multi-jurisdictional strategies at the next update. | | |
| | Section 7 (p. 12-15) | The updated Plan describes six individual goals, all of which replace those outlined within Moore County's existing plan from 2005. These new goals are stated as follows:<br>1. Promote the public health, safety, and general welfare of residents and minimize public and private losses due to natural hazards.<br>2. Reduce the risk and impact of future natural disasters by regulating development in known high hazard areas.<br>3. Pursue the funds to reduce the risk of natural hazards to existing developments where such hazards are clearly identified and the mitigation efforts are cost-effective.<br>4. Effectively expedite post-disaster reconstruction.<br>5. Provide education to citizens that empower them to | | X |

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| | | protect themselves and their families from natural hazards.<br><br>6. Protect fragile, natural, and scenic areas within the planning jurisdiction.<br><br>The Plan also presents the ten (10) mitigation objectives that support these goals. | | |
| | | **SUMMARY SCORE** | | X |

**14. Identification and Analysis of Mitigation Actions**

***Requirement §201.6(c)(3)(ii):*** *[The mitigation strategy **shall** include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.*

| Element | **Location in the Plan** (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the **new or updated** plan identify and analyze a **comprehensive range** of specific mitigation actions and projects for each hazard? | Section 7<br>Pages 7-12 to 7-32<br><br>Section 7 (p. 16-26) | Stat e Comments: Yes, the updated plan identifies and analyzes a comprehensive range of mitigation actions. A large majority of them are related to flooding which is the County's main hazard, but there are strategies/goals that focus on wildfires, tornadoes, general emergency preparedness, man-made hazards.<br><br>All goals, objectives, and strategies have been modified from the 2005 plan. This is clearly explained within the plan's narrative.<br><br>Table 85 in the updated Plan displays forty (40) unique mitigation strategies that address the identified natural hazards in Moore County and its participating jurisdictions. There is at least one strategy for each natural hazard. | | X |
| B Do the identified actions and projects address reducing the effects of hazards on **new** buildings and infrastructure? | Section 7<br>Pages 7-16 to 7-26<br>(listed in table) | State Comments: Objective #8 addresses local building codes/ordinances to make sure that they are consistent with FEMA guidelines and are properly enforced which includes enforcing building codes and the County's Flood Damage Prevention Ordinance, but there is no specific mention of reducing hazards on NEW buildings and infrastructure.<br><br>**Recommended Revisions from State: Please include a mitigation action or overall objective that specifically deals with NEW buildings, infrastructure, future development. Or** | | |

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| | Section 7 (p. 16-26) | **specifically site which mitigation action addresses this in the column to the left.**<br>**State approves revisions as of 9/1/10**<br><br>All goals, objectives, and strategies have been modified from the 2005 plan. This is clearly explained within the plan's narrative.<br><br>The table of Moore County's mitigation strategies clearly indicates whether a particular activity addresses hazard reduction on new structures.<br><br>One such strategy includes mandatory elevation certificates for all development within a Special Flood Hazard Area (SFHA). This is an ongoing, high-priority initiative throughout Moore County and all participating jurisdictions. | | X |
| C. Do the identified actions and projects address reducing the effects of hazards on **existing** buildings and infrastructure? | Section 7<br>Pages 7-16 to 7-26<br>(listed in table)<br><br>Section 7 (p. 16-26) | State Comments: **See comment above, Please include a specific action to address existing buildings and infrastructure and reducing hazards related to them. Or specifically site which mitigation action addresses this in the column to the left.**<br>**State approves revisions as of 9/1/10**<br><br>All goals, objectives, and strategies have been modified from the 2005 plan. This is clearly explained within the plan's narrative.<br><br>The table of Moore County's mitigation strategies clearly indicates whether a particular activity addresses hazard reduction on existing structures.<br><br>For instance, there is a new, medium-priority strategy that describes how Moore County will work with County residents on the application of Hazard Mitigation Assistance (HMA) funding for the elevation/floodproofing/acquisition/relocation of repetitive loss properties. | | X |
| | | **SUMMARY SCORE** | | X |

**15. Identification and Analysis of Mitigation Actions: National Flood Insurance Program (NFIP) Compliance**

***Requirement: §201.6(c)(3)(ii):*** *[The mitigation strategy] must also address the jurisdiction's participation in the National Flood Insurance Program (NFIP), and continued compliance with NFIP requirements, as appropriate.*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| **A. Does the new or updated plan describe the jurisdiction (s) participation in the NFIP?** | Section 5<br>Page 5-4 to 5-5 | ***Note: This requirement becomes effective for all local mitigation plans approved after October 1, 2008.***<br><br>State Comments: There is a thorough explanation of the use of the Floodplain Damage Prevention Ordinance which is one of the main factors that keeps all jurisdictions with the exception of Taylor town NFIP compliant. This section goes over the purpose, objectives and provisions for the Special Flood Hazard Area.<br><br>This is clearly stated within the update. | | |
| | Section 5 (p. 4) | The updated Plan states that all jurisdictions involved in this planning process, with the exception of Taylortown, are NFIP participants. | | X |
| **B. Does the mitigation strategy identify, analyze and prioritize actions related to continued compliance with the NFIP?** | Section 7<br>Page 7-15<br>Page 7-27<br>CRS Documentation in tables on pages 7-28 through 7-32 | ***Note: This requirement becomes effective for all local mitigation plans approved after October 1, 2008.***<br><br>State Comments: The NFIP is mentioned as a factor that the Mitigation Action Committee took into consideration when devising mitigation strategies. Page 7-27, describes Moore County's participation in the Community Rating System (CRS), which is a program which encourages communities to improve storm water and floodplain management which in turn results in decreased insurance costs for policy holders in participating communities. Only one jurisdiction currently participates, but according to the mitigation strategies, all jurisdictions, including Moore County will consider participation in this program. Specific CRS Documentation or Activity is included in the tables on pages 7-28 through 7-32. CRS relates to continued compliance/going above and beyond floodplain management standards of the NFIP. | | |

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| | Section 7 (p. 15-26) | This information is documented in the plan update.<br><br>The Mitigation Strategy section of the updated Plan does identify, analyze and prioritize actions related to continued compliance with the NFIP. In particular, Moore County includes the following objective to diminish the extent of flood prone areas:<br><br>"Ensure that existing drainage systems (pipes, culverts, channels) are adequate and functioning properly in an effort to minimize localized and widespread flooding. This effort may entail the drafting of development regulations to prevent increases in runoff and subsequent increases in downstream flood flows to the maximum extent possible." | | X |
| | | **SUMMARY SCORE** | | X |

**16. Implementation of Mitigation Actions**

***Requirement: §201.6(c)(3)(iii):*** *[The mitigation strategy section **shall** include] an action plan describing how the actions identified in section (c)(3)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization **shall** include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.*

| Element | **Location in the Plan** (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the **new or updated** mitigation strategy include how the actions are **prioritized**? (For example, is there a discussion of the process and criteria used?) | Section 7<br>Pages 7-13 to 7-14<br><br>Section 7 (p. 13-15) | State Comments: This section states that actions in the mitigation action table were ranked based on a cost-benefit review which was conducted by the MAC through the planning process. And high, medium and low levels of priority are described.<br><br>Prioritization is outlined for each specific strategy. The methodology for the prioritization is provided on Pages 6-12 to 6-13.<br><br>The updated Plan explains that the actions' priorities were based on a cost-benefit review conducted by the MAC. Each implementing action received a priority of "low," "medium," or "high" based on this review.<br><br>High-priority activities, for example, were deemed… | | X |

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| | | - Highly cost-effective<br>- Administratively and politically feasible<br>- Anticipated implementation prior to FY 2012/2013<br><br>The updated Plan further explains that the MAC will consider availability of funding as an additional factor when deciding whether to implement high-priority initiatives. As for those given low priority, the likelihood of their implementation will depend upon grant funding. | | |
| B. Does the **new or updated** mitigation strategy address how the actions will be implemented and administered, including the responsible department, existing and potential resources and the timeframe to complete each action? | Section 7<br>Pages 7-12 to 7-32<br><br>Section 7 (p. 1, 13-26) | State Comments: These items are addressed in the Mitigation Strategy, Objective/Actions table on pages 7-16 through 7-32. How the actions will be implemented is addressed along with the description of the strategy. Responsible party is included in the last column of this table. Also, on page 7-13 a timeframe for completion is described based on level of priority assigned to each action and most actions are intended to be addressed in the next five years. Funding for these actions is mentioned briefly on page 7-14 related to the fact that low priority projects may ultimately be contingent upon funding. Also, in the Mitigation Action Tables on pages 7-28 through 7-32, possible funding sources are listed<br><br>All goals, objectives, and strategies have been modified from the 2005 plan. This is clearly explained within the plan's narrative.<br><br>The updated Plan states that the mitigation strategies developed through the planning process will be implemented at the County and municipal levels. Moore County will take the lead in undertaking all strategies outlined within this Plan, with support and assistance from MAC members and all participating jurisdictions.<br><br>Table 85 provides the designated priority level for each of the listed strategies. The corresponding implementation dates for these levels are clearly defined. For example, the Plan states that "high priority" strategies should be implemented in the fiscal years 2010/2011 and 2011/2012. | | X |

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| C. Does the **new or updated** prioritization process include an emphasis on the use of a **cost-benefit review** to maximize benefits? | Section 7<br>Page 7-13<br>Page 7-15<br><br>Section 1 (p. 7); Section 7 (p. 13, 15) | State Comments:<br>Cost-effectiveness was a factor used in devising mitigation strategies as stated on page 7-15, but more importantly, the actions in the mitigation action tables were ranked based on a cost benefit review conducted by the Mitigation Action Committee. Highly cost effective actions were ranked a high priority which means prioritization was done in a way to maximize benefits based on a cost-benefit review.<br><br>This information is documented in the plan update.<br><br>The updated Plan explains that the MAC conducted a cost-benefit review of every action, and they have been ranked accordingly. A breakdown of the factors used to conduct the cost-benefit review is provided. | | X |
| D. Does the **updated** plan identify the completed, deleted or deferred mitigation actions as a benchmark for progress, and if activities are unchanged (*i.e.*, deferred), does the updated plan describe why no changes occurred? | Section 7 (B.3)<br>Pages 7-2 to 7-12<br><br>Section 7 (p. 2-11, 16-26) | State Comments: This section of the plan describes the progress that has been made over the last five years with respect to the 2005 mitigation plan strategies. Additionally, the progress report states whether a strategy has been eliminated from the update, revised, or will be an ongoing effort. If a strategy was eliminated, justification for the elimination is given.<br><br>The updated Plan presents a progress report that indicates the status of all forty-one (41) mitigation strategies from the 2005 version of the plan. This report identifies whether the activities are completed, ongoing, revised, or removed. Detailed statements that justify their designated status are included.<br><br>In addition, Table 85 displays the status of each listed mitigation action (i.e., “new,” “ongoing,” or “revised”). | | X |
| | | **SUMMARY SCORE** | | X |

**17. Multi-Jurisdictional Mitigation Actions**

***Requirement §201.6(c)(3)(iv):*** *For multi-jurisdictional plans, there **must** be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan.*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A Does the **new or updated** plan include identifiable **action items** for each jurisdiction requesting FEMA approval of the plan? | Section 7<br>Pages 7-16 to 7-26<br>Page 7-15 | State Comments: Pg 7-2 explains that pages 7-2 through 7-11 provides a status update on the strategies that were outlined in 2005. For strategies that were deemed incomplete they remain in the update and will be considered for implementation in the next five years. The progress reports (7-2 through 7-11) states whether a strategy has been eliminated from the update, revised, or will be an ongoing effort. If a strategy was eliminated, justification for the elimination is given. The specific actions that are still being considered for implementation are listed in the table on pages 7-12 through 7-32. There are clearly identifiable actions listed. Also, in Mitigation Action tables, appearing on pages 7-28 through 7-32 responsible party is listed which is primarily always Moore County Office of Planning and Community Development and secondarily individual municipal jurisdictions.<br><br>**Recommended Revisions from State:**<br>**Where possible list out specific jurisdictions or site a section where it is explained why Moore County is the lead and why no specific jurisdictions are mentioned.**<br><br>**State approves revisions as of 9/1/10**<br><br>All goals, objectives, and strategies have been modified from the 2005 plan. This is clearly explained within the plan's narrative. | | |
| | Section 7 (p. 15-26) | The forty unique strategies presented in Table 85 of the updated Plan include at least one initiative for each of Moore County's participating jurisdictions. All initiatives will be overseen at the county level. However, as exhibited in their respective capability assessments throughout Section 3, a few jurisdictions | | X |

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| | | maintain the staff resources to implement certain mitigation efforts internally. | | |
| B. Does the **updated** plan identify the completed, deleted or deferred mitigation actions as a benchmark for progress, and if activities are unchanged (*i.e.*, deferred), does the updated plan describe why no changes occurred? | Section 7 (B.3)<br>Pages 7-2 to 7-12<br><br>Section 7 (p. 2-11) | State Comments: This section of the plan describes the progress that has been made over the last five years with respect to the 2005 mitigation plan strategies. Additionally, the progress report states whether a strategy has been eliminated from the update, revised, or will be an ongoing effort. If a strategy was eliminated, justification for the elimination is given.<br><br>The updated Plan features a progress report that profiles forty-one (41) mitigation strategies for Moore County and the Village of Pinehurst from the 2005 Plan. This segment presents the status for these strategies along with brief explanations that describe their current progress (including those that are "ongoing"). | | X |
| | | **SUMMARY SCORE** | | X |

## PLAN MAINTENANCE PROCESS

### 18. Monitoring, Evaluating, and Updating the Plan

***Requirement §201.6(c)(4)(i):*** *[The plan maintenance process **shall** include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.*

| Element | **Location in the Plan** (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the **new or updated** plan describe the method and schedule for **monitoring** the plan, including the responsible department? | Section 8.D<br>Pages 8-3 to 8-4 | State Comments: This section states that the participating jurisdictions intend to track progress and update mitigation strategies on a quarterly basis and after a hazard event. The Emergency Services Director will take the lead and work with the Mitigation Action Committee (MAC). The MAC will meet twice a year to monitor and update the plan in preparation for the 5 year written update. This section explains what factors will be taken into consideration to evaluate and monitor changes in vulnerability which might lead to a need to change actions and capabilities.<br><br>This section has been completely revised from the 2005 plan. | | |

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| | Section 8 (p. 2-3) | FEMA reviewer agrees with comments provided by State reviewer. Responsible parties are identified, while the Plan's monitoring method and schedule are addressed in great detail.<br><br>In addition, the Plan includes information about how the MAC will monitor potential funding opportunities for the Plan's mitigation activities. | | X |
| B. Does the **new or updated** plan describe the method and schedule for **evaluating** the plan, including how, when and by whom (*i.e.* the responsible department)? | Section 8.D<br>Pages 8-3 to 8-4<br><br>Section 8 (p. 3-4) | State Comments: Evaluation in the plan implementation will take place by looking at any changes that take place in vulnerability. To do this, a representative from the responsible department for each strategy will track and report on a twice a year basis to the MAC on status and whether implementation has met objectives to reduce vulnerability.<br><br>This section has been completely revised from the 2005 plan.<br><br>FEMA reviewer agrees with comments provided by State reviewer. Responsible parties are identified, while the Plan's evaluation method and schedule are thoroughly addressed. | | X |
| C. Does the **new or updated** plan describe the method and schedule for **updating** the plan within the five-year cycle? | Section 8.D<br>Pages 8-1 to 8-4<br><br>Section 8 (p. 3-4) | State Comments: This section states that the participating jurisdictions intend to track progress and update mitigation strategies on a quarterly basis and after a hazard event. The Emergency Services Director will take the lead and work with the Mitigation Action Committee (MAC). The MAC will meet twice a year to monitor and update the plan in preparation for the 5 year written update. This section explains what factors will be taken into consideration to evaluate and monitor changes in vulnerability which might lead to a need to change actions and capabilities and include/consider the bullet points listed on page 8-3 under "Updates to this plan will:"<br><br>This section has been completely revised from the 2005 plan.<br><br>FEMA reviewer agrees with comments provided by State reviewer. Responsible parties are identified, while their method and schedule for updating the Plan are thoroughly addressed. | | X |
| | | **SUMMARY SCORE** | | X |

**19. Incorporation into Existing Planning Mechanisms**

***Requirement §201.6(c)(4)(ii):*** *[The plan **shall** include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the **new or updated** plan identify other local planning mechanisms available for incorporating the mitigation requirements of the mitigation plan? | Section 8<br>Page 8-1<br>Page 8-4<br><br>Section 8 (p. 1, 4) | State Comments: Page 8-1 mentions the importance of incorporation the HMP into other planning mechanisms because it is a highly cost effective way to implement some of the actions to reduce risk. Other county and municipal plans and regulatory mechanisms and Capital Improvement Plans and Land Use Plans are identified. Also, page 8-4, states that the MAC will meet to ensure that actions in this plan are incorporated into other County, municipal plans which are comprehensive land use plans (CAMA plans) along with building codes which guide and regulate development.<br><br>This section has been completely revised from the 2005 plan.<br><br>FEMA reviewer agrees with comments provided by State reviewer. | | X |
| B. Does the **new or updated** plan include a process by which the local government will incorporate the mitigation strategy and other information contained in the plan (*e.g.*, risk assessment) into other planning mechanisms, when appropriate? | Section 8.D<br>Pages 8-1 to 8-4<br><br>Section 8 (p. 4-5) | State Comments:<br>The MAC will meet on a quarterly basis to ensure that actions in this plan are incorporated into other County, municipal plans which are comprehensive land use plans (CAMA plans) along with building codes which guide and regulate development.<br><br>This section has been completely revised from the 2005 plan.<br><br>FEMA reviewer agrees with comments provided by State reviewer. | | X |
| C. Does the **updated** plan explain how the local government incorporated the mitigation strategy and other information contained in the plan (*e.g.*, risk assessment) into other planning mechanisms, when appropriate? | Section 8.D<br>Pages 8-1 to 8-4 | State Comments: Page 8-1 supports the importance of incorporating the plan into the day-to-day functions and priorities of government and development. It is understood that an effort to integrate mitigation into other planning mechanisms is achieved through routine actions of monitoring implementation efforts, attending meetings and | | |

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| | | promoting a safe, sustainable community. The county and participating municipalities will integrate hazard mitigation strategies into CAMA plans and building codes. Also, participating jurisdictions and members of the MAC will work with the State Building code office and the planning department for capital improvement planning to be sure that goals of the HMP are integrated into these to ensure safety criteria and high hazard areas have low risk uses.<br><br>This section has been completely revised from the 2005 plan. | | |
| | Section 8 (p. 1-4) | The updated Plan thoroughly explains how various aspects of this Plan will be integrated into Moore County's existing codes and regulatory mechanisms.<br><br>However, the Plan does not address whether these current mechanisms have *already* received content from the 2005 Plan.<br><br>**REQUIRED REVISION:**<br><br>The updated Plan must explain how the local government incorporated the mitigation plan into other planning mechanisms, when appropriate, as a demonstration of progress in local mitigation efforts.<br><br>*For more information, see "Plan Maintenance Process," in the Local Multi-Hazard Mitigation Planning Guidance (July 2008), Requirements §201.6(b) and §201.6(c)(1), p.26-27.*<br><br>**Community Comments:**<br>**Review the narrative outlined under Section 7.B.3 on Page 7-2** | | |
| | Section 7 (p. 2) | **RECEIVED REVISION:**<br><br>The revised Plan explains that the information and strategies outlined within its existing HMP factored | | X |

| | | | | |
|---|---|---|---|---|
| | | into discussions during the development of several existing mechanisms, particularly Moore County's land development/use policy. The Plan was further referenced in decisions relating to capital expenditures such as infrastructure improvements. | | |
| | | **SUMMARY SCORE** | | X |

**Continued Public Involvement**

***Requirement §201.6(c)(4)(iii):*** *[The plan maintenance process **shall** include a] discussion on how the community will continue public participation in the plan maintenance process.*

| Element | Location in the Plan (section or annex and page #) | Reviewer's Comments | SCORE N | SCORE S |
|---|---|---|---|---|
| A. Does the **new or updated** plan explain how **continued public participation** will be obtained? (For example, will there be public notices, an on-going mitigation plan committee, or annual review meetings with stakeholders?) | Section 8<br>Page 8-4 | State Comments: page 8-4 describes continued public involvement as this plan is implemented and updated in the form of one public hearing every two years and the plan update and maintenance process will include continued public and stakeholder involvement.<br><br>**Recommended Revisions from State:**<br>**Please give more specific detail on where the plan will be posted for public comment or how the public will be notified that it is available for comment and how public hearings will be advertised.**<br><br>A description of the continued public participation process is clearly stated in the plan update. | | |
| | Section 8 (p. 4) | FEMA reviewer agrees with comments provided by State reviewer.<br><br>In addition, all scheduled meetings of the Planning Board and the Board of Commissioners will be advertised in the local newspaper and open to the public. The adopted final Plan will be posted on the Moore County website. | | X |
| | | **SUMMARY SCORE** | | X |

# Appendix D
# Public Hearing Documentation

**MOORE COUNTY**

**RESOLUTION ADOPTING THE**
**MOORE COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE**

WHEREAS, the citizens and property within Moore County are subject to the effects of natural hazards and man-made hazard events that pose threats to lives and cause damages to property, and with the knowledge and experience that certain areas, i.e., flood hazard areas, are particularly susceptible to flood hazard events; and

WHEREAS, Moore County desires to seek ways to mitigate situations that may aggravate such circumstances; and

WHEREAS, the Legislature of the State of North Carolina, 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, has 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, in Article 1 of Chapter 166A of the North Carolina General Statutes (adopted in Session Law 2001-214 – Senate Bill 300 effective July 1, 2001), has stated in Item 6.01(b)(2): "For a state of disaster proclaimed pursuant to G.S. 166A-6(a) after August 1, 2002, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act;" and

WHEREAS, it is the intent of the Board of Commissioners of Moore 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; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan and update it every five years in order to receive future Hazard Mitigation Grant Program Funds; and

NOW, THEREFORE, be it resolved that the Board of Commissioners of Moore County hereby:

1. Adopts the Moore County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Vests the Planning and Community Development 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 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.

3. Appoints the Planning and Community Development Director to assure that the Hazard Mitigation Plan is reviewed annually and in greater detail at least once every five years.

4. Agrees to take such other official action as may be reasonably necessary to carry out the strategies outlined within the 2010 Moore County Multi-Jurisdictional Hazard Mitigation Plan.

Adopted this 17 day of May, 2011.

Nick Picerno
Chairman, Moore County Board of Commissioners

ATTEST:

Laura Williams
Clerk to the Moore County Board of Commissioners

(SEAL)

COUNTY OF MOORE
CORPORATE
SEAL
NORTH CAROLINA

# AFFIDAVIT OF PUBLICATION

NORTH CAROLINA

MOORE COUNTY

DAVID WORONOFF, PUBLISHER of THE PILOT, a tri-weekly newspaper published in Moore County and the State of North Carolina, being duly sworn, deposes and says: that the attached advertisement:

Public Hearing - May 17

was published in the aforesaid newspaper for 2 consecutive issues/~~weeks~~ beginning with the issue dated the 6 day of May, 20 11 and ending with the issue of May 11, 20 11.

Sworn to and subscribed before me, this 19 day of May, 20 11.

Marie D Cummings

Notary Public

My Commission Expires

**LEGAL NOTICE**

Notice is hereby given that a Public Hearing will be held before the Moore County Board of Commissioners at 6:00 PM on Tuesday, May 17, 2011 in the Board of Commissioners' Meeting room located on the second floor of the Historic Courthouse, Carthage, NC. The purpose of the hearing is to consider the following:

Consideration of the adoption of the Moore County Multi-Jurisdictional Hazard Mitigation Plan. This is a public hearing which includes opportunities for public comment and input during the review process.

Information pertaining to the proposed action is available for inspection in the Planning Department Office, located at 1048 Carriage Oaks Drive, Carthage, NC, during normal business hours. Changes may be made in the application that reflects information presented at the hearing. Interested person are invited to attend.

Accommodations for individuals with disabilities or impairments will be made upon request to the extent that reasonable notice is given.

00226543 5:6,11c

MARIE D CUMMINGS
My Commission Expires
NOTARY
PUBLIC
7-27-2013
MOORE COUNTY, NC

**TOWN OF ABERDEEN**

**RESOLUTION ADOPTING THE**
**MOORE COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE**

WHEREAS, the citizens and property within Moore County are subject to the effects of natural hazards and man-made hazard events that pose threats to lives and cause damages to property, and with the knowledge and experience that certain areas, i.e., flood hazard areas, are particularly susceptible to flood hazard events; and

WHEREAS, the Town desires to seek ways to mitigate situations that may aggravate such circumstances; 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 Section 1 Part 166A of the North Carolina General Statutes (adopted in Session Law 2001-214 – Senate Bill 300 effective July 1, 2001), states in Item (a) (2) "For a state of disaster proclaimed pursuant to G.S. 166A-6(a) after August 1, 2002, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act that is updated every five years"; and

WHEREAS, it is the intent of the Board of Commissioners of Moore 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; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan and update it every five years in order to receive future Hazard Mitigation Grant Program Funds; and

WHEREAS, the Town of Aberdeen actively participated in the planning process of the multi-jurisdictional Moore County plan and has fulfilled all their part of the multi-jurisdictional planning elements required by FEMA;

NOW, THEREFORE, be it resolved that the Town Board of Commissioners of the Town of Aberdeen hereby:

1. Adopts the Moore County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Separately adopts the sections of the plan that are specific to the Town of Aberdeen; and

3. Vests the Town Manager 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 Town Manager to assure that, in cooperation with Moore County, the Hazard Mitigation Plan is reviewed annually and in greater detail at least once every five years.

5. Agrees to take such other official action as may be reasonably necessary to carry out the strategies outlined within the 2010 Moore County Multi-Jurisdictional Hazard Mitigation Plan.

Adopted this 18th day of January, 2011.

Elizabeth B. Mofield

Elizabeth B. Mofield, Mayor
Town of Aberdeen

ATTEST:

Regina M. Rosy

Regina M. Rosy, Town Clerk (SEAL)

# AFFIDAVIT OF PUBLICATION

RECEIVED JAN 13 2011

## NORTH CAROLINA

## MOORE COUNTY

DAVID WORONOFF, PUBLISHER of THE PILOT, a tri-weekly newspaper published in Moore County and the State of North Carolina, being duly sworn, deposes and says: that the attached advertisement:

Public Hearing - January 10, 2011

was published in the aforesaid newspaper for 1 ~~consecutive~~ (issues/weeks beginning with the issue dated the 31 day of December, 20 10 and ending with the issue of December 31, 20 10.

Sworn to and subscribed before me, this 7th day of January, 20 11.

Marie D Cummings
Notary Public

My Commission Expires

MARIE D CUMMINGS
My Commission Expires
NOTARY
PUBLIC
7-27-2013
MOORE COUNTY, NC

**LEGAL NOTICE**
**TOWN OF ABERDEEN**
**NOTICE OF PUBLIC HEARING**
**ON THE MOORE COUNTY**
**MULTI-JURISDICTIONAL**
**2010 HAZARD MITIGATION PLAN UPDATE**

Notice is hereby given that the Town of Aberdeen Board of Commissioners will conduct a public hearing on January 10, 2011, at 6:00 PM, at the John Curtis McInnis Board Room in the Robert N. Page Municipal Building at 115 N. Poplar Street, to discuss the Moore County Multi-Jurisdictional 2010 Hazard Mitigation Plan Update. Following the public hearing, the Board will consider adoption of the plan. All citizens are encouraged to attend.

A copy of the plan is available for public review at the Town Hall and is posted to the Town web site. The public is encouraged to review the draft plan.

For questions and/or additional information, please contact Katherine Liles at 910-944-7024.

00218304 12:31c

TOWN OF CAMERON

# RESOLUTION ADOPTING THE MOORE COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE

WHEREAS, the citizens and property within Moore County are subject to the effects of natural hazards and man-made hazard events that pose threats to lives and cause damages to property, and with the knowledge and experience that certain areas, i.e., flood hazard areas, are particularly susceptible to flood hazard events; and

WHEREAS, the county desires to seek ways to mitigate situations that may aggravate such circumstances; 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 Section 1 Part 166A of the North Carolina General Statutes (adopted in Session Law 2001-214 – Senate Bill 300 effective July 1, 2001), states in Item (a) (2) "For a state of disaster proclaimed pursuant to G.S. 166A-6(a) after August 1, 2002, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act that is updated every five years"; and

WHEREAS, it is the intent of the Board of Commissioners of Moore County to fulfill this obligation in order that the County will be eligible for federal and state assistance in the event that a state disaster is declared for a hazard event affecting the county; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan and update it every five years in order to receive future Hazard Mitigation Grant Program Funds; and

WHEREAS, the Town of Cameron actively participated in the planning process of the multi-jurisdictional Moore County plan and has fulfilled all their part of the multi-jurisdictional planning elements required by FEMA;

NOW, THEREFORE, be it resolved that the Board of Commissioners of the Town of Cameron hereby:

1. Adopts the Moore County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Separately adopts the sections of the plan that are specific to the Town of Cameron; and

3. Vests the Town Clerk 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 Town clerk to assure that, in cooperation with Moore County, the Hazard Mitigation Plan is reviewed annually and in greater detail at least once every five years.

5. Agrees to take such other official action as may be reasonable necessary to carry out the strategies outlined within the 2010 Moore County Multi-Jurisdictional Hazard Mitigation Plan.

Adopted this 22nd day of February, 2011.

TOWN OF CAMERON INCORPORATED 1876 SEAL NORTH CAROLINA

Michael W. Thomason
Mayor, Town of Cameron

ATTEST:

Carol Lucas
Town Clerk

# AFFIDAVIT OF PUBLICATION

NORTH CAROLINA

MOORE COUNTY

DAVID WORONOFF, PUBLISHER of THE PILOT, a tri-weekly newspaper published in Moore County and the State of North Carolina, being duly sworn, deposes and says: that the attached advertisement:

Public Hearing - 2-22-11

was published in the aforesaid newspaper for 2 consecutive ~~issues~~/weeks beginning with the issue dated the 9 day of February, 2011 and ending with the issue of February 16, 2011.

D. R. Woronoff

Sworn to and subscribed before me, this 23 day of February, 2011.

Sarah H. Frye

Aug. 5, 2011

My Commission Expires

**LEGAL NOTICE**
**Town of Cameron**
**Notice of Public Hearing**
**On the Moore County Multi-Jurisdictional**
**2010 Hazard Mitigation Plan Update**

Notice is hereby given that the Town of Cameron Board of Commissioners will conduct a public hearing on February 22, 2011, at 7:00 p.m. in the Town Hall to discuss the Moore County Multi-Jurisdictional 2010 Hazard Mitigation Plan Update. Following the public hearing the Board of Commissioners will consider adoption of the plan. All citizens are encouraged to attend.

A copy of the plan is available for public review at the Town Hall. The public is encouraged to review the draft plan. For questions and/or additional information, please contact Carol Lucas at 910-245-3212.

00220576 2:9,16c

SARAH H FRYE
NOTARY PUBLIC
MOORE COUNTY, NC
My Commission Expires 8-5-2011

**TOWN OF CARTHAGE**
**RESOLUTION ADOPTING THE**
**MOORE COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE**

WHEREAS, the citizens and property within Moore County are subject to the effects of natural hazards and man-made hazard events that pose threats to lives and cause damages to property, and with the knowledge and experience that certain areas, i.e., flood hazard areas, are particularly susceptible to flood hazard events; and

WHEREAS, the county desires to seek ways to mitigate situations that may aggravate such circumstances; 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 Section 1 Part 166A of the North Carolina General Statutes (adopted in Session Law 2001-214 – Senate Bill 300 effective July 1, 2001), states in Item (a) (2) "For a state of disaster proclaimed pursuant to G.S. 166A-6(a) after August 1, 2002, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act that is updated every five years"; and

WHEREAS, it is the intent of the Board of Commissioners of Moore 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; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan and update it every five years in order to receive future Hazard Mitigation Grant Program Funds; and

WHEREAS, the Town of Carthage actively participated in the planning process of the multi-jurisdictional Moore County 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 Moore County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Separately adopts the sections of the plan that are specific to the Town of Carthage; and

3. Vests the Town Manager 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 Town Manager to assure that, in cooperation with Moore County, the Hazard Mitigation Plan is reviewed annually and in greater detail at least once every five years.

5. Agrees to take such other official action as may be reasonably necessary to carry out the strategies outlined within the 2010 Moore County Multi-Jurisdictional Hazard Mitigation Plan.

Adopted this 21st day of March, 2011

Mayor, Town of Carthage

ATTEST:

Town Clerk (SEAL)

# AFFIDAVIT OF PUBLICATION

NORTH CAROLINA

MOORE COUNTY

DAVID WORONOFF, PUBLISHER of THE PILOT, a tri-weekly newspaper published in Moore County and the State of North Carolina, being duly sworn, deposes and says: that the attached advertisement:

Public Hearing- Mitigation

was published in the aforesaid newspaper for 2 consecutive issues/weeks beginning with the issue dated the 16 day of March, 20 11 and ending with the issue of March 16, 20 11.

Sworn to and subscribed before me, this 21 day of March, 20 11.

**LEGAL NOTICE**
**NOTICE**
**PUBLIC HEARING**
**TOWN OF CARTHAGE**
**BOARD OF COMMISSIONERS**
**MARCH 21, 2011**
**7:00 P.M.**

Notice is hereby given that the Town of Carthage Board of Commissioners has scheduled a Public Hearing on Monday March 21, 2011 at 7:00 p.m. at the McDonald Building located at 203 McReynolds Street in Carthage. The purpose of the Public Hearing is to discuss the Moore County Multi-Jurisdictional 2010 Hazard Mitigation Plan Update. Following the public hearing the council may consider adoption of the plan.

A copy of the plan is available for public review at the Town Hall. For questions and/or additional information, please contact Melissa P. Adams at (910) 947-2331.

Melissa P. Adams, MMC Town Clerk

00222255 3:6,16c

Sarah H. Frye

Aug. 5, 2011

My Commission Expires

SARAH H FRYE
NOTARY PUBLIC
MOORE COUNTY, NC
My Commission Expires 8-5-2011

R11-09

FOXFIRE VILLAGE

RESOLUTION ADOPTING THE
MOORE COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE

WHEREAS, the citizens and property within Moore County are subject to the effects of natural hazards and man-made hazard events that pose threats to lives and cause damages to property, and with the knowledge and experience that certain areas, i.e., flood hazard areas, are particularly susceptible to flood hazard events; and

WHEREAS, the county desires to seek ways to mitigate situations that may aggravate such circumstances; 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 Section 1 Part 166A of the North Carolina General Statutes (adopted in Session Law 2001-214 – Senate Bill 300 effective July 1, 2001), states in Item (a) (2) "For a state of disaster proclaimed pursuant to G.S. 166A-6(a) after August 1, 2002, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act that is updated every five years"; and

WHEREAS, it is the intent of the Board of Commissioners of Moore 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; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan and update it every five years in order to receive future Hazard Mitigation Grant Program Funds; and

WHEREAS, Foxfire Village actively participated in the planning process of the multi-jurisdictional Moore County plan and has fulfilled all their part of the multi-jurisdictional planning elements required by FEMA;

NOW, THEREFORE, be it resolved that the Village Council of Foxfire Village hereby:

1. Adopts the Moore County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Separately adopts the sections of the plan that are specific to Foxfire Village; and

3. Vests the Foxfire Village Mayor 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 Foxfire Village Mayor to assure that, in cooperation with Moore County, the Hazard Mitigation Plan is reviewed annually and in greater detail at least once every five years.

5. Agrees to take such other official action as may be reasonably necessary to carry out the strategies outlined within the 2010 Moore County Multi-Jurisdictional Hazard Mitigation Plan.

Adopted this 8 day of February, 2011.

George Erickson
Mayor, Foxfire Village

ATTEST:

Lisa A. Kweff
Village Clerk (SEAL)

FOXFIRE VILLAGE INCORPORATED 1977
VILLAGE SEAL

# AFFIDAVIT OF PUBLICATION

## NORTH CAROLINA
## MOORE COUNTY

DAVID WORONOFF, PUBLISHER of THE PILOT, a tri-weekly newspaper published in Moore County and the State of North Carolina, being duly sworn, deposes and says: that the attached advertisement:

Public Hearing - Hazard Mitigation

was published in the aforesaid newspaper for 1 consecutive issues/weeks beginning with the issue dated the 23 day of January, 20 11 and ending with the issue of January 23, 20 11.

Sworn to and subscribed before me, this 25 day of January, 20 11.

Marie D Cummings
Notary Public

My Commission Expires

MARIE D CUMMINGS
My Commission Expires
NOTARY PUBLIC
7-27-2013
MOORE COUNTY, NC

**LEGAL NOTICE**
**FOXFIRE VILLAGE**
**NOTICE OF PUBLIC HEARING ON THE MOORE COUNTY MULTI-JURISDICTIONAL 2010 HAZARD MITIGATION PLAN UPDATE**

Notice is hereby given that the Foxfire Village Council will conduct a public hearing on February 8, 2011, at 7:30 PM, at the Village Hall, to discuss the Moore County Multi-Jurisdictional 2010 Hazard Mitigation Plan Update. Following the public hearing, the Council will consider adoption of the plan. All citizens are encouraged to attend.

A copy of the plan is available for public review at the Village Administration office. The public is encouraged to review the draft plan.

For questions and/or additional information, please contact Lisa Kivett, Village Clerk at (910) 295-5107 ext. 200

00219139 1:23c

**TOWN OF PINEBLUFF**
**RESOLUTION ADOPTING THE**
**MOORE COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE**

WHEREAS, the citizens and property within Moore County are subject to the effects of natural hazards and man-made hazard events that pose threats to lives and cause damages to property, and with the knowledge and experience that certain areas, i.e., flood hazard areas, are particularly susceptible to flood hazard events; and

WHEREAS, the county desires to seek ways to mitigate situations that may aggravate such circumstances; 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 Section 1 Part 166A of the North Carolina General Statutes (adopted in Session Law 2001-214 – Senate Bill 300 effective July 1, 2001), states in Item (a) (2) "For a state of disaster proclaimed pursuant to G.S. 166A-6(a) after August 1, 2002, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act that is updated every five years"; and

WHEREAS, it is the intent of the Board of Commissioners of Moore 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; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan and update it every five years in order to receive future Hazard Mitigation Grant Program Funds; and

WHEREAS, the Town of Pinebluff actively participated in the planning process of the multi-jurisdictional Moore County 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 Town of Pinebluff hereby:

1. Adopts the Moore County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Separately adopts the sections of the plan that are specific to the Town of Pinebluff; and

3. Vests the Town of Pinebluff's Fire Chief 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 Town of Pinebluff's Fire Chief to assure that, in cooperation with Moore County, the Hazard Mitigation Plan is reviewed annually and in greater detail at least once every five years.

5. Agrees to take such other official action as may be reasonably necessary to carry out the strategies outlined within the 2010 Moore County Multi-Jurisdictional Hazard Mitigation Plan.

Adopted this 17th day of February, 2011.

Earlene L. McLamb
Mayor, Town of Pinebluff

ATTEST:

Betty O McDuffie
Town Clerk (SEAL)

# AFFIDAVIT OF PUBLICATION

RECEIVED FEB 14 2011

NORTH CAROLINA

MOORE COUNTY

DAVID WORONOFF, PUBLISHER of THE PILOT, a tri-weekly newspaper published in Moore County and the State of North Carolina, being duly sworn, deposes and says: that the attached advertisement:

Public Hearing - Hazard Mitigation

was published in the aforesaid newspaper for 2 consecutive issues/weeks beginning with the issue dated the 2 day of February, 20 11 and ending with the issue of February 9, 20 11.

Sworn to and subscribed before me, this 9 day of February, 20 11.

Marie D Cummings
Notary Public

My Commission Expires

MARIE D CUMMINGS
My Commission Expires
NOTARY
PUBLIC
7-27-2013
MOORE COUNTY, NC

**LEGAL NOTICE**
**TOWN OF PINEBLUFF**
**NOTICE OF PUBLIC HEARING**
**ON THE MOORE COUNTY**
**MULTI-JURISDICTIONAL**
**2010 HAZARD MITIGATION PLAN UPDATE**

Notice is hereby given that the Town of Pinebluff's Board of Commissioners will conduct a public hearing on February 17, 2011 at 7:30 p.m., at the Town Hall at 325 East Baltimore Avenue, to discuss the Moore County Multi-Jurisdictional 2010 Hazard Mitigation Plan Update. Following the public hearing, the Board will consider adoption of the plan. All citizens are encouraged to attend.

A copy of the plan is available for public review at the Town Hall. The public is encouraged to review the draft plan.

For questions and/or additional information, please contact the Town Hall at 910-281-3124.

00219964 2:2,9c

## VILLAGE OF PINEHURST

**RESOLUTION 11-06:**

## RESOLUTION ADOPTING THE MOORE COUNTY MULTI-JURISDICTIONAL 2010 HAZARD MITIGATION PLAN.

**THAT WHEREAS**, the citizens and property within Moore County are subject to the effects of natural hazards and man-made hazard events that pose threats to lives and cause damages to property, and with the knowledge and experience that certain areas, i.e., flood hazard areas, are particularly susceptible to flood hazard events; and

**WHEREAS**, the county desires to seek ways to mitigate situations that may aggravate such circumstances; 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 Section 1 Part 166A of the North Carolina General Statutes (adopted in Session Law 2001-214 – Senate Bill 300 effective July 1, 2001), states in Item (a) (2) "For a state of disaster proclaimed pursuant to G.S. 166A-6(a) after August 1, 2002, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act that is updated every five years"; and

**WHEREAS**, it is the intent of the Board of Commissioners of Moore 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; and

**WHEREAS**, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan and update it every five years in order to receive future Hazard Mitigation Grant Program Funds; and

**WHEREAS**, the Village of Pinehurst actively participated in the planning process of the multi-jurisdictional Moore County plan and has fulfilled all their part of the multi-jurisdictional planning elements required by FEMA;

**NOW, THEREFORE**, be it resolved that the Village Council of the Village of Pinehurst, North Carolina hereby:

**SECTION 1.** Adopts the Moore County Multi-Jurisdictional 2010 Hazard Mitigation Plan, said plan attached hereto as Exhibit A and made a part hereof, the same as if included verbatim.

**SECTION 2.** Separately adopts the sections of the plan that are specific to the Village of Pinehurst.

**SECTION 3.** Vests the Village Manager 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.

**SECTION 4.** Appoints the Village Manager to assure that, in cooperation with Moore County, the Hazard Mitigation Plan is reviewed annually and in greater detail at least once every five years.

**SECTION 5.** Agrees to take such other official action as may be reasonably necessary to carry out the strategies outlined within the Moore County Multi-Jurisdictional 2010 Hazard Mitigation Plan.

Adopted this 25th day of January, 2011.

(Municipal Seal)

VILLAGE OF PINEHURST
VILLAGE COUNCIL

By: Virginia F. Fallon
Virginia F. Fallon, Mayor

Attest:

Linda S. Brown
Linda S. Brown, Village Clerk

Approved as to Form:

Michael J. Newman, Village Attorney

# AFFIDAVIT OF PUBLICATION

## NORTH CAROLINA

## MOORE COUNTY

DAVID WORONOFF, PUBLISHER of THE PILOT, a tri-weekly newspaper published in Moore County and the State of North Carolina, being duly sworn, deposes and says: that the attached advertisement:

Public Hearing 1-25-11

was published in the aforesaid newspaper for 2 consecutive issues/weeks beginning with the issue dated the 9 day of January, 2011 and ending with the issue of January 16, 2011.

Sworn to and subscribed before me, this 17 day of January, 2011.

Marie D Cummings

Notary Public

My Commission Expires

MARIE D CUMMINGS
My Commission Expires
NOTARY PUBLIC
7-27-2013
MOORE COUNTY, NC

**LEGAL NOTICE**
**VILLAGE OF PINEHURST**
**NOTICE OF PUBLIC HEARING**
**ON THE MOORE COUNTY**
**MULTI-JURISDICTIONAL**
**2010 HAZARD MITIGATION PLAN**

**NOTICE IS HEREBY GIVEN** that the Pinehurst Village Council will conduct a public hearing on Tuesday, January 25, 2011 at 1:00 p.m. at the Assembly Hall at Village Hall, 395 Magnolia Road, Pinehurst, NC, to discuss the Moore County Multi-Jurisdictional 2010 Hazard Mitigation Plan. Following the public hearing, the Council will consider adoption of the plan. All citizens are encouraged to attend.

A copy of the plan is available for public review at the Planning and Inspections Department, Village Hall, 395 Magnolia Road, Pinehurst, NC, Monday through Friday from 8:30 a.m. to 5:00 p.m. The public is encouraged to review the draft plan. For questions and/or additional information, please contact Bruce Gould at 910-295-2581.

**ALL PERSONS INTERESTED AND WISHING TO BE HEARD** should be present in order that their opinion may be made a matter of record. If unable to be present, a citizen or his/her authorized agent may record his/her views by letter or memorandum delivered to the Village Clerk forty-eight (48) hours prior to the scheduled hearing.

Linda S. Brown, Village Clerk

**TOWN OF ROBBINS**
**PO Box 296**
**Robbins, NC 27325**
**(910) 948-2431**
**Fax: (910) 948-3981**

**Mayor Theron K. Bell**

Commissioners:
Lynn M. Loy, Mayor Pro Tem
A. H. Davis Jr.
Terri Holt
Joey Boswell
Claire A. Barrow

Town Manager
George Hayfield

I, Lisa K. Williams, Town Clerk of the Town of Robbins, North Carolina, do hereby certify that the attached is a true and correct copy of the Town of Robbins Resolution adopting the Moore County Multi-Jurisdictional Hazard Mitigation Plan Update which was adopted at a meeting of the Town of Robbins Board of Commissioners, North Carolina, on the 10th day of February 2011.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official Seal of the Town of Robbins, North Carolina, this the 14th day of February 2011.

Lisa K. Williams

Lisa K. Williams, Town Clerk

**TOWN OF ROBBINS**
**RESOLUTION ADOPTING THE MOORE COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE**

WHEREAS, the citizens and property within Moore County are subject to the effects of natural hazards and man-made hazard events that pose threats to lives and cause damages to property, and with the knowledge and experience that certain areas, i.e., flood hazard areas, are particularly susceptible to flood hazard events; and

WHEREAS, the county desires to seek ways to mitigate situations that may aggravate such circumstances; 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 Section 1 Part 166A of the North Carolina General Statutes (adopted in Session Law 2001-214 – Senate Bill 300 effective July 1, 2001), states in Item (a) (2) "For a state of disaster proclaimed pursuant to G.S. 166A-6(a) after August 1, 2002, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act that is updated every five years"; and

WHEREAS, it is the intent of the Board of Commissioners of Moore 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; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan and update it every five years in order to receive future Hazard Mitigation Grant Program Funds; and

WHEREAS, the Town of Robbins actively participated in the planning process of the multi-jurisdictional Moore County 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 Town of Robbins hereby:

1. Adopts the Moore County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Separately adopts the sections of the plan that are specific to the Town of Robbins; and

3. Vests the Town Manager 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 Town Manager to assure that, in cooperation with Moore County, the Hazard Mitigation Plan is reviewed annually and in greater detail at least once every five years.

5. Agrees to take such other official action as may be reasonably necessary to carry out the strategies outlined within the 2010 Moore County Multi-Jurisdictional Hazard Mitigation Plan.

Adopted this 10th day of February, 2011.

Therow K. Bell
Mayor, Town of Robbins

ATTEST:

Lisa K. Williams
Town Clerk (SEAL)

TOWN OF ROBBINS, NC
SEAL
MOORE COUNTY

# AFFIDAVIT OF PUBLICATION

NORTH CAROLINA

MOORE COUNTY

DAVID WORONOFF, PUBLISHER of THE PILOT, a tri-weekly newspaper published in Moore County and the State of North Carolina, being duly sworn, deposes and says: that the attached advertisement:

Public Hearing 2-10-11

was published in the aforesaid newspaper for 2 consecutive issues/weeks beginning with the issue dated the 23 day of January, 2011 and ending with the issue of January 30, 2011.

Sworn to and subscribed before me, this 31 day of January, 2011.

Marie D Cummings

Notary Public

My Commission Expires

MARIE D CUMMINGS
My Commission Expires
NOTARY
PUBLIC
7-27-2013
MOORE COUNTY, NC

**LEGAL NTOICE**
**TOWN OF ROBBINS**
**NOTICE OF PUBLIC HEARING**
**ON THE MOORE COUNTY**
**MULTI-JURISDICTIONAL**
**2010 HAZARD MITIGATION PLAN UPDATE**

Notice is hereby given that the Town of Robbins Board of Commissioners will conduct a public hearing on Thursday, February 10, 2011 at 6 p.m. at the Town Hall to discuss the Moore County Multi-Jurisdictional 2010 Hazard Mitigation Plan Update. Following the public hearing, the Council will consider adoption of the plan. All citizens are encouraged to attend.

A copy of the plan is available for public review at the Town Hall. The public is encouraged to review the draft plan.

For questions and/or additional information, please contact Town Manager George T. Hayfield at 910-948-2431.

00219536 1:23,30c

Town of Southern Pines

**RESOLUTION ADOPTING THE**
**MOORE COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE**

WHEREAS, the citizens and property within Moore County are subject to the effects of natural hazards and man-made hazard events that pose threats to lives and cause damages to property, and with the knowledge and experience that certain areas, i.e., flood hazard areas, are particularly susceptible to flood hazard events; and

WHEREAS, the county desires to seek ways to mitigate situations that may aggravate such circumstances; 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 Section 1 Part 166A of the North Carolina General Statutes (adopted in Session Law 2001-214 – Senate Bill 300 effective July 1, 2001), states in Item (a) (2) "For a state of disaster proclaimed pursuant to G.S. 166A-6(a) after August 1, 2002, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act that is updated every five years"; and

WHEREAS, it is the intent of the Board of Commissioners of Moore 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; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan and update it every five years in order to receive future Hazard Mitigation Grant Program Funds; and

WHEREAS, the Town of Southern Pines actively participated in the planning process of the multi-jurisdictional Moore County 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 Town of Southern Pines hereby:

1. Adopts the Moore County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Separately adopts the sections of the plan that are specific to the Town of Southern Pines; and

3. Vests the Town Manager 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 Town Manager to assure that, in cooperation with Moore County, the Hazard Mitigation Plan is reviewed annually and in greater detail at least once every five years.

5. Agrees to take such other official action as may be reasonably necessary to carry out the strategies outlined within the 2010 Moore County Multi-Jurisdictional Hazard Mitigation Plan.

Adopted this 8th day of February, 2011.

Mayor, Town of Southern Pines
C. Michael Haney

ATTEST:

Town Clerk (SEAL)
Eleanore M. Dreher

# AFFIDAVIT OF PUBLICATION

## NORTH CAROLINA

## MOORE COUNTY

DAVID WORONOFF, PUBLISHER of THE PILOT, a tri-weekly newspaper published in Moore County and the State of North Carolina, being duly sworn, deposes and says: that the attached advertisement:

Public Hearing – Hazard Mitigation

was published in the aforesaid newspaper for 2 consecutive issues/weeks beginning with the issue dated the 14 day of January, 20 11 and ending with the issue of January 23, 20 11.

Sworn to and subscribed before me, this 25 day of January, 20 11.

Marie D Cummings

Notary Public

My Commission Expires

MARIE D CUMMINGS
My Commission Expires
NOTARY PUBLIC
7-27-2013
MOORE COUNTY, NC

**LEGAL NOTICE**
**Town of Southern Pines**
**NOTICE OF PUBLIC HEARING**
**ON THE MOORE COUNTY**
**MULTI-JURISDICTIONAL**
**2010 HAZARD MITIGATION PLAN UPDATE**

Notice is hereby given that the Town of Southern Pines Town Council will conduct a public hearing on February 8, 2011, at 7:00 PM, at the Douglass Community Center, 1185 W. Pennsylvania Avenue, to discuss the Moore County Multi-Jurisdictional 2010 Hazard Mitigation Plan Update. Following the public hearing, the Council will consider adoption of the plan. All citizens are encouraged to attend.

A copy of the plan is available for public review at the Southern Pines Fire Department. The public is encouraged to review the draft plan.

For questions and/or additional information, please contact Fire Chief Hampton Williams at 910-692-2720.

00218868 1:16,23c

TOWN OF TAYLORTOWN

RESOLUTION ADOPTING THE
MOORE COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE

WHEREAS, the citizens and property within Moore County are subject to the effects of natural hazards and man-made hazard events that pose threats to lives and cause damages to property, and with the knowledge and experience that certain areas, i.e., flood hazard areas, are particularly susceptible to flood hazard events; and

WHEREAS, the county desires to seek ways to mitigate situations that may aggravate such circumstances; 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 Section 1 Part 166A of the North Carolina General Statutes (adopted in Session Law 2001-214 – Senate Bill 300 effective July 1, 2001), states in Item (a) (2) "For a state of disaster proclaimed pursuant to G.S. 166A-6(a) after August 1, 2002, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act that is updated every five years"; and

WHEREAS, it is the intent of the Board of Commissioners of Moore 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; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan and update it every five years in order to receive future Hazard Mitigation Grant Program Funds; and

WHEREAS, the (Insert Municipality) actively participated in the planning process of the multi-jurisdictional Moore County 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 Town of Taylortown Taylortown hereby:

1. Adopts the Moore County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Separately adopts the sections of the plan that are specific to the Town of Taylortown; and

3. Vests the Town Manager 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 Town Manager to assure that, in cooperation with Moore County, the Hazard Mitigation Plan is reviewed annually and in greater detail at least once every five years.

5. Agrees to take such other official action as may be reasonably necessary to carry out the strategies outlined within the 2010 Moore County Multi-Jurisdictional Hazard Mitigation Plan.

Adopted this 26th day of January, 2011.

Ulysses S. G. Barrett Jr.
Mayor, Town of Taylortown

ATTEST:

Carolyn Mitchell
Town Clerk

(SEAL)

TOWN OF TAYLORTOWN, INC.
CORPORATE SEAL
NORTH CAROLINA

# AFFIDAVIT OF PUBLICATION

NORTH CAROLINA

MOORE COUNTY

DAVID WORONOFF, PUBLISHER of THE PILOT, a tri-weekly newspaper published in Moore County and the State of North Carolina, being duly sworn, deposes and says: that the attached advertisement:

Public Hearing

was published in the aforesaid newspaper for 1 consecutive issues/weeks beginning with the issue dated the 23 day of January, 20 11 and ending with the issue of January 23, 20 11.

Sworn to and subscribed before me, this 1 day of June, 20 11.

Marie D Cummings

Notary Public

My Commission Expires

MARIE D CUMMINGS
My Commission Expires
NOTARY
PUBLIC
7-27-2013
MOORE COUNTY, N.C.

**LEGAL NOTICE**
**PUBLIC HEARING**

The Taylortown Town Council will hold a public hearing to inform the citizens of the Moore County Multi-jurisdictional Hazard Mitigation Plan set forth for the Town of Taylortown.

The hearing will be held on Tuesday, January 25, 2011 at 6:00 p.m. at the Town Hall meeting room. The public is invited to attend and make comments.

1:23c

00219512

**TOWN OF VASS**

**RESOLUTION ADOPTING THE**
**MOORE COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE**

**WHEREAS,** the citizens and property within Moore County are subject to the effects of natural hazards and man-made hazard events that pose threats to lives and cause damages to property, and with the knowledge and experience that certain areas, i.e., flood hazard areas, are particularly susceptible to flood hazard events; and

**WHEREAS,** the county desires to seek ways to mitigate situations that may aggravate such circumstances; 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 Section 1 Part 166A of the North Carolina General Statutes (adopted in Session Law 2001-214 – Senate Bill 300 effective July 1, 2001), states in Item (a) (2) "For a state of disaster proclaimed pursuant to G.S. 166A-6(a) after August 1, 2002, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act that is updated every five years"; and

**WHEREAS,** it is the intent of the Board of Commissioners of Moore 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; and

**WHEREAS,** Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan and update it every five years in order to receive future Hazard Mitigation Grant Program Funds; and

**WHEREAS,** the Town of Vass actively participated in the planning process of the multi-jurisdictional Moore County plan and has fulfilled all their part of the multi-jurisdictional planning elements required by FEMA;

**NOW, THEREFORE,** be it resolved that the Board of Commissioners of the Town of Vass hereby:

1. Adopts the Moore County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Separately adopts the sections of the plan that are specific to the Town of Vass; and

3. Vests the Town Administrator with the responsibility, authority, and the means to:

   (a) Inform all concerned parties of this action.
   (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map, and identify floodplain 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 Town Administrator to assure that, in cooperation with Moore County, the Hazard Mitigation Plan is reviewed annually and in greater detail at least once every five years.

5. Agrees to take such other official action as may be reasonably necessary to carry out the strategies outlined within the 2010 Moore County Multi-Jurisdictional Hazard Mitigation Plan.

Adopted this 14th day of February, 2011.

Henry E. Callahan

Henry E. Callahan, Mayor
Town of Vass

ATTEST:

Josephine E. Smith

Town Clerk (SEAL)

TOWN OF VASS
CORPORATE
SEAL
NORTH CAROLINA

# AFFIDAVIT OF PUBLICATION

NORTH CAROLINA

MOORE COUNTY

DAVID WORONOFF, PUBLISHER of THE PILOT, a tri-weekly newspaper published in Moore County and the State of North Carolina, being duly sworn, deposes and says: that the attached advertisement:

Public Hearing - 2-14-11

was published in the aforesaid newspaper for 2 consecutive ~~issues~~/weeks beginning with the issue dated the 2 day of February, 20 11 and ending with the issue of February 9, 20 11.

Sworn to and subscribed before me, this 9 day of February, 20 11.

Marie D Cummings
Notary Public

My Commission Expires

MARIE D CUMMINGS
My Commission Expires
NOTARY
PUBLIC
7-27-2013
MOORE COUNTY, NC

**LEGAL NOTICE**
**NOTICE OF PUBLIC HEARINGS**
**TOWN OF VASS**

Notice is hereby given that two public hearings will be held in the Community Room of the Vass Municipal Building on Monday, February 14, 2011 at 7:30 p.m. for the purpose of hearing public comments on the following items:

1) The Moore County Multi-Jurisdictional 2010 Hazard Mitigation Plan Update

2) Proposed text amendments to the Town of Vass Zoning Ordinance:

a) Amend the following sections by adding arcade/game rooms, bingo, billiard parlor/pool hall and electronic gaming promotions:
Sec.8.1 Table of Permitted Uses
Sec. 9.2A Accessory Uses
Sec. 12 Supplemental Requirements for Specific Uses
Table 15-1 Table of Parking Requirements
Sec. 18.3 Definitions

b) Adding Sec. 9.5.1 Orientation of Structures on the lot

c) Amending the definition of Manufactured Home, Class A and B in Section 18.3.

A copy of the Hazard Mitigation Plan and proposed text amendments is available for viewing at the clerk's office, 140 S. Alma St., during regular business hours or at the town's website at www.townofvassnc.gov. All interested parties are invited to attend and be heard.

J. Smith, CMC
Town Clerk
2:2,9c

00219987

# Village of Whispering Pines, NC

## RESOLUTION ADOPTING THE MOORE COUNTY MULTI-JURISDICTIONAL HAZARD MITIGATION PLAN UPDATE

WHEREAS, the citizens and property within Moore County are subject to the effects of natural hazards and man-made hazard events that pose threats to lives and cause damages to property, and with the knowledge and experience that certain areas, i.e., flood hazard areas, are particularly susceptible to flood hazard events; and

WHEREAS, the county desires to seek ways to mitigate situations that may aggravate such circumstances; 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 Section 1 Part 166A of the North Carolina General Statutes (adopted in Session Law 2001-214 – Senate Bill 300 effective July 1, 2001), states in Item (a) (2) "For a state of disaster proclaimed pursuant to G.S. 166A-6(a) after August 1, 2002, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act that is updated every five years"; and

WHEREAS, it is the intent of the Board of Commissioners of Moore 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; and

WHEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local governments must develop an All-Hazards Mitigation Plan and update it every five years in order to receive future Hazard Mitigation Grant Program Funds; and

WHEREAS, the Village of Whispering Pines actively participated in the planning process of the multi-jurisdictional Moore County plan and has fulfilled all their part of the multi-jurisdictional planning elements required by FEMA;

NOW, THEREFORE, be it resolved that the Village Council of the Village of Whispering Pines, NC, hereby:

1. Adopts the Moore County Multi-Jurisdictional Hazard Mitigation Plan; and

2. Separately adopts the sections of the plan that are specific to the Village of Whispering Pines; and

3. Vests the Village Manager 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 Village Manager to assure that, in cooperation with Moore County, the Hazard Mitigation Plan is reviewed annually and in greater detail at least once every five years.

5. Agrees to take such other official action as may be reasonably necessary to carry out the strategies outlined within the 2010 Moore County Multi-Jurisdictional Hazard Mitigation Plan.

Adopted this 9th day of February, 2011.

Mayor, Village of Whispering Pines, NC

ATTEST:

Village Clerk (SEAL)

# AFFIDAVIT OF PUBLICATION

## NORTH CAROLINA

## MOORE COUNTY

DAVID WORONOFF, PUBLISHER of THE PILOT, a tri-weekly newspaper published in Moore County and the State of North Carolina, being duly sworn, deposes and says: that the attached advertisement:

Public Hearing - 2-9-11

was published in the aforesaid newspaper for 1 consecutive ~~issues/weeks~~ beginning with the issue dated the 26 day of January, 20 11 and ending with the issue of January 26, 20 11.

Sworn to and subscribed before me, this 27 day of January, 20 11.

Marie D Cummings
Notary Public

My Commission Expires

MARIE D CUMMINGS
My Commission Expires
NOTARY
PUBLIC
7-21-2012
MOORE COUNTY, NC

**LEGAL NOTICE**
**NOTICE OF PUBLIC HEARINGS**
**BEFORE THE WHISPERING PINES**
**VILLAGE COUNCIL**

**NOTICE IS HEREBY GIVEN** that the Village Council of the Village of Whispering will hold two public hearings on Wednesday, February 9, 2011 at 6:00 p.m. in the lower level of the Whispering Pines Village Hall located at 10 Pine Ridge Drive, Whispering Pines, NC. The purpose of the public hearings is to solicit citizen input on the following items:

(1) A Resolution adopting the 2010 Moore County Multi-Jurisdictional Hazard Mitigation Plan Update, and

(2) A proposed text amendment to allow Multi-family dwellings and Assisted Care Facilities as uses within the Planned Residential district

Related documents are available for review at the Whispering Pines Village Hall Monday through Friday during the hours of 8:30 a.m. to 4:30 p.m. All interested citizens e invited to attend and be heard.

00219670 1:26c

# Appendix E
# Hazard Inventory

| Location or County | Date | Time | Type | Mag | Dth | Inj | PrD | CrD |
|---|---|---|---|---|---|---|---|---|
| 134 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089 | 7/22/1998 | 11:00 AM | Excessive Heat | N/A | 0 | 0 | 0 | 0 |
| 88 Statewide | 1/15/1994 | 0 | Extreme Cold | N/A | 3 | 0 | 500K | 0 |
| 89 Statewide | 1/19/1994 | 0 | Extreme Cold | N/A | 6 | 0 | 0 | 0 |
| 105 NCZ075 | 2/3/1996 | 10:00 PM | Extreme Cold | N/A | 0 | 0 | 0 | 0 |
| 92 MOORE | 9/24/1994 | 1500 | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 96 Southern | 6/24/1995 | 1340 | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 100 Southern Pines | 10/4/1995 | 1115 | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 109 Pinebluff | 7/23/1996 | 5:10 PM | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 113 Ern Part | 9/10/1996 | 4:50 PM | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 116 Countywide | 7/23/1997 | 1:22 AM | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 117 Countywide | 7/24/1997 | 1:00 AM | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 125 Cameron | 2/17/1998 | 6:40 AM | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 126 Robbins | 3/19/1998 | 3:00 AM | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 128 Robbins | 4/9/1998 | 5:00 AM | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 177 East Portion | 6/16/2003 | 5:50 PM | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 181 Central Portion | 8/5/2003 | 11:50 PM | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 182 Countywide | 8/8/2003 | 8:30 AM | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 183 East Portion | 8/9/2003 | 6:00 PM | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 184 Carthage | 8/10/2003 | 5:03 PM | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 198 Robbins | 6/9/2005 | 4:33 PM | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 210 Countywide | 6/14/2006 | 8:25 AM | Flash Flood | N/A | 0 | 0 | 0 | 0 |
| 234 Carthage | 6/29/2007 | 17:15 PM | Flash Flood | N/A | 0 | 0 | 0K | 0K |
| 265 Southern Pines | 9/6/2008 | 4:49 AM | Flash Flood | N/A | 0 | 0 | 0K | 0K |
| 266 Manly | 9/6/2008 | 7:00 AM | Flash Flood | N/A | 0 | 0 | 200K | 0K |
| 276 Howard Mill | 6/18/2009 | 4:10 AM | Flash Flood | N/A | 0 | 0 | 0K | 0K |
| 297 Carthage | 1/25/2010 | 2:49 AM | Flash Flood | N/A | 0 | 0 | 0K | 0K |
| 99 Robbins | 8/27/1995 | 1800 | Flash Flooding | N/A | 0 | 0 | 0 | 0 |
| 85 NCZ001>510 | 3/23/1993 | 1200 | Flash Floods | N/A | 0 | 0 | 0 | 0 |
| 120 NCZ028 - 039 - 042>043 - 073>077 - 084 - 086 | 1/27/1998 | 1:00 PM | Flood | N/A | 0 | 0 | 0 | 0 |
| 169 NCZ007>009 - 021>026 - 038>041 - 073>075 - 077 - 083>084 - 086 - 088 | 3/20/2003 | 6:30 AM | Flood | N/A | 0 | 0 | 150K | 0 |
| 170 NCZ021>023 - 025 - 038>041 - 073>076 - 083 | 4/10/2003 | 12:15 PM | Flood | N/A | 0 | 0 | 0 | 0 |
| 4 MOORE | 4/13/1970 | 2323 | Hail | 1.00 in. | 0 | 0 | 0 | 0 |
| 8 MOORE | 6/1/1974 | 1530 | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 21 MOORE | 6/16/1982 | 1920 | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 23 MOORE | 4/2/1983 | 1940 | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 25 MOORE | 3/28/1984 | 1810 | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 26 MOORE | 4/14/1984 | 1722 | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 29 MOORE | 3/24/1985 | 1340 | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 30 MOORE | 4/16/1985 | 1215 | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 34 MOORE | 6/7/1985 | 1810 | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 36 MOORE | 10/3/1985 | 1400 | Hail | 1.00 in. | 0 | 0 | 0 | 0 |
| 43 MOORE | 5/13/1987 | 1205 | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 44 MOORE | 8/21/1987 | 1500 | Hail | 1.00 in. | 0 | 0 | 0 | 0 |
| 47 MOORE | 8/29/1987 | 1730 | Hail | 1.75 in. | 0 | 0 | 0 | 0 |

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|---|---|---|---|---|---|---|---|---|
| 49 MOORE | 5/16/1988 | 1643 | Hail | 1.50 in. | 0 | 0 | 0 | 0 |
| 50 MOORE | 5/24/1988 | 1515 | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 51 MOORE | 5/24/1988 | 1545 | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 54 MOORE | 6/26/1988 | 1505 | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 56 MOORE | 7/10/1988 | 1555 | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 63 MOORE | 6/16/1989 | 1230 | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 65 MOORE | 4/2/1990 | 1507 | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 69 MOORE | 8/16/1990 | 1345 | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 70 MOORE | 1/16/1991 | 1040 | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 73 MOORE | 3/19/1992 | 1436 | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 77 MOORE | 6/21/1992 | 750 | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 80 MOORE | 7/18/1992 | 1620 | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 81 MOORE | 7/18/1992 | 1657 | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 86 Pinehurst | 3/24/1993 | 1725 | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 91 Robbins | 8/27/1994 | 1548 | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 94 MOORE | 5/15/1995 | 1503 | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 95 Southern Pines | 5/19/1995 | 1455 | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 97 Robbins | 7/3/1995 | 1235 | Hail | 1.00 in. | 0 | 0 | 0 | 0 |
| 98 Robbins | 7/3/1995 | 1300 | Hail | 2.75 in. | 0 | 0 | 0 | 0 |
| 111 West End | 7/31/1996 | 3:22 PM | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 115 Robbins | 7/5/1997 | 11:10 PM | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 118 Robbins | 9/10/1997 | 3:45 PM | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 127 Vass | 4/3/1998 | 8:39 PM | Hail | 1.00 in. | 0 | 0 | 0 | 0 |
| 129 Robbins | 5/20/1998 | 5:19 PM | Hail | 1.00 in. | 0 | 0 | 0 | 0 |
| 130 West End | 5/20/1998 | 5:52 PM | Hail | 1.00 in. | 0 | 0 | 0 | 0 |
| 131 Carthage | 5/27/1998 | 6:35 PM | Hail | 1.00 in. | 0 | 0 | 0 | 0 |
| 132 Eastwood | 5/27/1998 | 6:40 PM | Hail | 1.00 in. | 0 | 0 | 0 | 0 |
| 137 Eagle Spgs | 8/26/1999 | 4:05 PM | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 146 Robbins | 5/21/2000 | 5:55 PM | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 152 Aberdeen | 9/25/2000 | 4:35 PM | Hail | 0.88 in. | 0 | 0 | 0 | 0 |
| 154 Robbins | 4/1/2001 | 11:50 AM | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 155 Carthage | 4/1/2001 | 12:25 PM | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 157 Carthage | 6/1/2001 | 11:25 AM | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 171 Cameron | 4/26/2003 | 4:50 PM | Hail | 0.88 in. | 0 | 0 | 0 | 0 |
| 172 Eagle Spgs | 4/30/2003 | 2:45 PM | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 173 Robbins | 4/30/2003 | 3:00 PM | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 176 Cameron | 5/31/2003 | 11:50 AM | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 197 Aberdeen | 5/24/2005 | 3:46 PM | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 201 Robbins | 1/11/2006 | 3:35 PM | Hail | 0.88 in. | 0 | 0 | 0 | 0 |
| 202 Eagle Spgs | 4/17/2006 | 2:10 PM | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 203 Southern Pines | 4/17/2006 | 2:25 PM | Hail | 1.00 in. | 0 | 0 | 0 | 0 |
| 204 High Falls | 5/18/2006 | 5:15 PM | Hail | 1.75 in. | 0 | 0 | 0 | 0 |
| 205 Robbins | 5/18/2006 | 5:29 PM | Hail | 0.88 in. | 0 | 0 | 0 | 0 |
| 206 Carthage | 5/18/2006 | 6:00 PM | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 208 Southern Pines | 5/18/2006 | 6:10 PM | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 209 Vass | 5/18/2006 | 6:20 PM | Hail | 0.75 in. | 0 | 0 | 0 | 0 |
| 219 Southern Pines | 8/30/2006 | 12:50 PM | Hail | 1.25 in. | 0 | 0 | 0 | 0 |
| 229 High Falls | 4/15/2007 | 17:10 PM | Hail | 1.00 in. | 0 | 0 | 0K | 0K |
| 232 Southern Pines | 6/12/2007 | 15:10 PM | Hail | 0.75 in. | 0 | 0 | 0K | 0K |
| 233 Robbins | 6/29/2007 | 16:35 PM | Hail | 0.75 in. | 0 | 0 | 0K | 0K |
| 243 West End | 3/15/2008 | 19:27 PM | Hail | 1.00 in. | 0 | 0 | 0K | 0K |
| 244 Eastwood | 3/15/2008 | 19:35 PM | Hail | 0.75 in. | 0 | 0 | 0K | 0K |
| 245 Carthage | 4/4/2008 | 21:20 PM | Hail | 1.00 in. | 0 | 0 | 0K | 0K |
| 247 Carthage | 4/4/2008 | 21:33 PM | Hail | 1.75 in. | 0 | 0 | 0K | 0K |

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|---|---|---|---|---|---|---|---|---|
| 248 Carthage | 5/9/2008 | 22:34 PM | Hail | 1.00 in. | 0 | 0 | 0K | 0K |
| 250 Garren Hill | 5/20/2008 | 17:15 PM | Hail | 0.75 in. | 0 | 0 | 0K | 0K |
| 251 Pinebluff | 5/20/2008 | 17:24 PM | Hail | 0.75 in. | 0 | 0 | 0K | 0K |
| 252 Aberdeen | 5/20/2008 | 17:25 PM | Hail | 1.75 in. | 0 | 0 | 0K | 0K |
| 253 Addor | 5/20/2008 | 17:25 PM | Hail | 1.00 in. | 0 | 0 | 0K | 0K |
| 255 Parkwood | 6/14/2008 | 18:41 PM | Hail | 0.88 in. | 0 | 0 | 0K | 0K |
| 257 Glendon | 7/5/2008 | 13:48 PM | Hail | 1.00 in. | 0 | 0 | 0K | 0K |
| 261 Carthage | 7/22/2008 | 16:03 PM | Hail | 1.00 in. | 0 | 0 | 0K | 0K |
| 262 Mt Pleasant | 7/22/2008 | 16:45 PM | Hail | 1.75 in. | 0 | 0 | 0K | 0K |
| 263 West End | 7/23/2008 | 12:12 PM | Hail | 0.75 in. | 0 | 0 | 0K | 0K |
| 270 Spies | 4/14/2009 | 14:00 PM | Hail | 0.75 in. | 0 | 0 | 0K | 0K |
| 273 Murdocksville | 6/2/2009 | 16:08 PM | Hail | 0.88 in. | 0 | 0 | 0K | 0K |
| 278 High Falls | 7/20/2009 | 14:45 PM | Hail | 1.00 in. | 0 | 0 | 0K | 0K |
| 280 Glendon | 7/20/2009 | 14:50 PM | Hail | 1.00 in. | 0 | 0 | 0K | 0K |
| 281 Glendon | 7/20/2009 | 14:55 PM | Hail | 0.88 in. | 0 | 0 | 0K | 0K |
| 283 Harris | 7/20/2009 | 18:04 PM | Hail | 0.88 in. | 0 | 0 | 0K | 0K |
| 284 Leaman | 7/27/2009 | 13:03 PM | Hail | 0.88 in. | 0 | 0 | 0K | 0K |
| 285 High Falls | 7/27/2009 | 13:24 PM | Hail | 1.75 in. | 0 | 0 | 0K | 0K |
| 122 Robbins | 2/3/1998 | 12:00 PM | Heavy Rain | N/A | 0 | 0 | 0 | 0 |
| 124 Aberdeen | 2/16/1998 | 12:00 PM | Heavy Rain | N/A | 0 | 0 | 0 | 0 |
| 223 Robbins | 11/22/2006 | 10:45 AM | Heavy Rain | N/A | 0 | 0 | 0K | 0K |
| 119 NCZ027>028 - 041>043 - 073>077 - 083>084 - 086 | 1/19/1998 | 6:00 AM | Heavy Snow | N/A | 0 | 0 | 0 | 0 |
| 153 NCZ007>011 - 021>028 - 038>043 - 073>077 - 083 | 11/19/2000 | 11:00 AM | Heavy Snow | N/A | 0 | 0 | 0 | 0 |
| 121 NCZ024>025 - 039>041 - 074>075 - 077 - 088 | 2/3/1998 | 9:00 PM | High Wind | 35 kts. | 0 | 0 | 0 | 0 |
| 123 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089 | 2/16/1998 | 10:00 PM | High Wind | 52 kts. | 0 | 0 | 0 | 0 |
| 187 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089 | 3/7/2004 | 7:20 PM | High Wind | 65 kts. | 0 | 0 | 136K | 0 |
| 107 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089 | 7/12/1996 | 8:00 AM | Hurricane | N/A | 0 | 0 | 0 | 0 |
| 112 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089 | 9/5/1996 | 5:00 PM | Hurricane | N/A | 7 | 2 | 0 | 0 |
| 139 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089 | 9/4/1999 | 9:00 PM | Hurricane | N/A | 0 | 0 | 0 | 3.0M |
| 140 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089 | 9/15/1999 | 4:00 PM | Hurricane | N/A | 0 | 0 | 3.0B | 500.0M |

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|---|---|---|---|---|---|---|---|---|
| 102 NCZ075 | 1/6/1996 | 1:00 PM | Ice Storm | N/A | 0 | 0 | 0 | 0 |
| 103 NCZ075 | 1/11/1996 | 10:00 PM | Ice Storm | N/A | 0 | 0 | 0 | 0 |
| 104 NCZ075 | 2/2/1996 | 2:00 AM | Ice Storm | N/A | 0 | 0 | 0 | 0 |
| 135 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089 | 12/23/1998 | 2:00 PM | Ice Storm | N/A | 0 | 0 | 0 | 0 |
| 147 Cameron | 6/14/2000 | 5:00 PM | Lightning | N/A | 0 | 0 | 0 | 0 |
| 149 Pinehurst | 6/26/2000 | 3:50 PM | Lightning | N/A | 0 | 0 | 0 | 0 |
| 156 Robbins | 5/24/2001 | 6:30 PM | Lightning | N/A | 0 | 1 | 0 | 0 |
| 164 Robbins | 5/23/2002 | 6:30 PM | Lightning | N/A | 1 | 0 | 0 | 0 |
| 188 Southern Pines | 7/14/2004 | 4:00 PM | Lightning | N/A | 0 | 0 | 10K | 0 |
| 189 Southern Pines | 7/14/2004 | 4:35 PM | Lightning | N/A | 0 | 0 | 150K | 0 |
| 217 Southern Pines | 8/8/2006 | 2:13 PM | Lightning | N/A | 1 | 0 | 0 | 0 |
| 222 NCZ038 - 073>075 - 083 | 11/22/2006 | 10:45 AM | Strong Wind | 32 kts. | 0 | 0 | 0K | 1K |
| 230 NCZ075 | 4/16/2007 | 9:15 AM | Strong Wind | 37 kts. | 0 | 0 | 0K | 5K |
| 240 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088 | 2/10/2008 | 12:00 PM | Strong Wind | 43 kts. | 0 | 0 | 5K | 0K |
| 267 NCZ007>011 - 022 - 024>028 - 038>039 - 041>043 - 073>078 - 084>085 - 088 | 1/7/2009 | 8:00 AM | Strong Wind | 46 kts. | 0 | 0 | 30K | 0K |
| 295 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088 | 11/11/2009 | 12:00 PM | Strong Wind | 35 kts. | 0 | 0 | 10K | 0K |
| 296 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088 | 12/9/2009 | 10:00 AM | Strong Wind | 40 kts. | 0 | 0 | 1K | 0K |
| 226 Robbins | 3/2/2007 | 3:29 AM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 227 Carthage | 4/12/2007 | 1:38 AM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 228 Samarcand | 4/15/2007 | 13:48 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 231 Pinehurst | 6/8/2007 | 19:20 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 235 West End | 8/21/2007 | 17:30 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 236 Carthage | 8/21/2007 | 17:45 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 241 High Falls | 3/4/2008 | 21:30 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 242 West End | 3/4/2008 | 22:05 PM | Thunderstorm Wind | 52 kts. | 0 | 0 | 0K | 0K |
| 246 West End | 4/4/2008 | 21:20 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 249 Addor | 5/20/2008 | 17:15 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 254 Pinebluff | 6/9/2008 | 18:50 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 256 Parkwood | 6/14/2008 | 18:41 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |

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|---|---|---|---|---|---|---|---|---|
| 258 Pinebluff | 7/6/2008 | 15:36 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 259 Vass | 7/6/2008 | 16:00 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 260 Robbins | 7/22/2008 | 15:45 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 264 Carthage | 7/27/2008 | 23:40 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 271 Taylortown | 5/28/2009 | 19:22 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 272 Hill Crest | 5/28/2009 | 19:40 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 274 Leaman | 6/9/2009 | 20:30 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 275 Harris | 6/9/2009 | 20:48 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 277 Samarcand | 7/13/2009 | 6:27 AM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 279 Mc Connell | 7/20/2009 | 14:45 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 282 West End | 7/20/2009 | 18:00 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 15K | 0K |
| 286 Southern Pines | 7/28/2009 | 16:30 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 287 Manly | 7/28/2009 | 17:52 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 288 Hill Crest | 7/28/2009 | 18:15 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 289 Roseland | 8/5/2009 | 14:00 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 290 Vass | 8/5/2009 | 14:20 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 291 Robbins | 8/5/2009 | 20:05 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 292 Howard Mill | 8/22/2009 | 16:50 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 293 Howard Mill | 8/22/2009 | 16:55 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 0K | 0K |
| 294 Robbins | 8/22/2009 | 17:05 PM | Thunderstorm Wind | 50 kts. | 0 | 0 | 2K | 0K |
| 83 Carthage | 1/24/1993 | 1445 | Thunderstorm Winds | 0 kts. | 0 | 0 | 0 | 0 |
| 87 Carthage | 8/20/1993 | 1915 | Thunderstorm Winds | 0 kts. | 0 | 0 | 0 | 0 |
| 90 N Portion | 8/5/1994 | 1340 | Thunderstorm Winds | 0 kts. | 0 | 0 | 0 | 0 |
| 93 Pinebluff & Pinehurst | 1/7/1995 | 0 | Thunderstorm Winds | 0 kts. | 0 | 0 | 650K | 0 |
| 101 Vass-lobelia | 11/11/1995 | 1805 | Thunderstorm Winds | 0 kts. | 0 | 0 | 50K | 0 |
| 7 MOORE | 5/24/1973 | 1500 | Tornado | F1 | 0 | 0 | 250K | 0 |
| 13 MOORE | 3/4/1977 | 1230 | Tornado | F1 | 0 | 0 | 25K | 0 |
| 14 MOORE | 8/5/1978 | 1900 | Tornado | F1 | 0 | 0 | 0K | 0 |

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|---|---|---|---|---|---|---|---|---|
| 16 MOORE | 2/11/1981 | 145 | Tornado | F2 | 0 | 0 | 2.5M | 0 |
| 17 MOORE | 2/11/1981 | 155 | Tornado | F2 | 0 | 0 | 250K | 0 |
| 18 MOORE | 6/10/1982 | 530 | Tornado | F1 | 0 | 1 | 25K | 0 |
| 19 MOORE | 6/16/1982 | 1730 | Tornado | F1 | 0 | 0 | 3K | 0 |
| 71 MOORE | 3/29/1991 | 1433 | Tornado | F1 | 0 | 2 | 250K | 0 |
| 178 Aberdeen | 7/2/2003 | 12:49 PM | Tornado | F0 | 0 | 0 | 0 | 0 |
| 190 Vass | 9/8/2004 | 10:25 AM | Tornado | F0 | 0 | 0 | 0 | 0 |
| 191 Vass | 9/17/2004 | 11:55 AM | Tornado | F0 | 0 | 0 | 0 | 0 |
| 192 Southern Pines | 9/27/2004 | 4:41 PM | Tornado | F1 | 0 | 0 | 0 | 0 |
| 193 Parkwood | 9/27/2004 | 5:20 PM | Tornado | F0 | 0 | 0 | 0 | 0 |
| 1 MOORE | 6/3/1959 | 1715 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 2 MOORE | 10/7/1965 | 1205 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 3 MOORE | 8/24/1968 | 1900 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 5 MOORE | 4/13/1970 | 2330 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 6 MOORE | 3/3/1971 | 1620 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 9 MOORE | 6/1/1974 | 1530 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 10 MOORE | 6/16/1974 | 1530 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 11 MOORE | 6/23/1974 | 1415 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 12 MOORE | 3/24/1975 | 1215 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 15 MOORE | 8/1/1980 | 1545 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 20 MOORE | 6/16/1982 | 1915 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 22 MOORE | 6/16/1982 | 1930 | Tstm Wind | 52 kts. | 0 | 0 | 0 | 0 |
| 24 MOORE | 3/20/1984 | 2300 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 27 MOORE | 5/8/1984 | 1330 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 28 MOORE | 7/6/1984 | 1800 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 31 MOORE | 4/16/1985 | 1215 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 32 MOORE | 6/5/1985 | 1945 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 33 MOORE | 6/7/1985 | 1755 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 35 MOORE | 6/7/1985 | 1824 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 37 MOORE | 5/30/1986 | 1315 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 38 MOORE | 6/20/1986 | 1600 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 39 MOORE | 6/24/1986 | 1400 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 40 MOORE | 7/21/1986 | 1200 | Tstm Wind | 61 kts. | 0 | 0 | 0 | 0 |
| 41 MOORE | 8/2/1986 | 1830 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 42 MOORE | 5/2/1987 | 1815 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 45 MOORE | 8/29/1987 | 1650 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 46 MOORE | 8/29/1987 | 1706 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 48 MOORE | 3/26/1988 | 1900 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 52 MOORE | 6/9/1988 | 1455 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 53 MOORE | 6/9/1988 | 1500 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 55 MOORE | 7/10/1988 | 1455 | Tstm Wind | 70 kts. | 0 | 0 | 0 | 0 |
| 57 MOORE | 2/21/1989 | 927 | Tstm Wind | 0 kts. | 0 | 2 | 0 | 0 |
| 58 MOORE | 2/21/1989 | 940 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 59 MOORE | 4/27/1989 | 1725 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 60 MOORE | 4/27/1989 | 1750 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 61 MOORE | 6/5/1989 | 1715 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 62 MOORE | 6/15/1989 | 1805 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 64 MOORE | 6/16/1989 | 1645 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 66 MOORE | 5/2/1990 | 1930 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 67 MOORE | 5/2/1990 | 2220 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 68 MOORE | 6/22/1990 | 930 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 72 MOORE | 8/7/1991 | 1120 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 74 MOORE | 3/19/1992 | 1500 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 75 MOORE | 3/19/1992 | 1505 | Tstm Wind | 65 kts. | 0 | 0 | 0 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 76 MOORE | 6/21/1992 | 715 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 78 MOORE | 6/26/1992 | 1815 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 79 MOORE | 7/3/1992 | 1620 | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 82 MOORE | 11/4/1992 | 1645 | Tstm Wind | 0 kts. | 0 | 1 | 0 | 0 |
| 106 Carthage | 6/24/1996 | 5:02 PM | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 108 Carthage | 7/15/1996 | 2:30 PM | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 110 Robbins | 7/25/1996 | 7:08 PM | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 114 Foxfire Village | 6/2/1997 | 11:35 AM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 133 Southern Pines | 6/30/1998 | 6:45 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 136 Pinebluff | 8/14/1999 | 3:30 PM | Tstm Wind | 0 kts. | 0 | 0 | 10K | 0 |
| 138 Eastwood | 8/26/1999 | 4:45 PM | Tstm Wind | 0 kts. | 0 | 0 | 0 | 0 |
| 145 Carthage | 4/17/2000 | 9:10 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 148 Taylortown | 6/26/2000 | 3:30 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 150 Carthage | 7/7/2000 | 12:00 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 151 Countywide | 8/18/2000 | 5:00 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 158 Robbins | 6/22/2001 | 7:25 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 159 Southern Pines Arpt | 8/27/2001 | 6:55 PM | Tstm Wind | 59 kts. | 0 | 0 | 50K | 0 |
| 160 Vass | 8/27/2001 | 7:30 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 162 Robbins | 5/13/2002 | 6:06 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 163 Aberdeen | 5/13/2002 | 6:45 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 165 Robbins | 7/4/2002 | 5:55 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 166 Carthage | 11/11/2002 | 8:55 AM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 174 Southern Pines | 5/2/2003 | 6:10 PM | Tstm Wind | 60 kts. | 0 | 0 | 0 | 0 |
| 175 Carthage | 5/25/2003 | 2:25 PM | Tstm Wind | 52 kts. | 0 | 0 | 0 | 0 |
| 179 West End | 8/5/2003 | 6:02 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 180 Carthage | 8/5/2003 | 6:20 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 195 Carthage | 3/8/2005 | 9:05 AM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 196 Pinehurst | 3/8/2005 | 9:15 AM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 199 Robbins | 7/7/2005 | 5:55 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 200 Vass | 7/22/2005 | 4:35 PM | Tstm Wind | 50 kts. | 0 | 0 | 5K | 0 |
| 207 Carthage | 5/18/2006 | 6:05 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 211 Aberdeen | 6/21/2006 | 3:50 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 212 Robbins | 7/19/2006 | 2:00 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 213 Aberdeen | 7/19/2006 | 4:43 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 214 Southern Pines | 7/27/2006 | 1:30 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 215 Southern Pines | 7/28/2006 | 7:00 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 216 Robbins | 8/7/2006 | 3:15 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 218 Carthage | 8/30/2006 | 6:10 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 220 Southern Pines | 8/30/2006 | 12:50 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 221 Carthage | 9/28/2006 | 7:00 PM | Tstm Wind | 50 kts. | 0 | 0 | 0 | 0 |
| 84 Statewide | 3/12/1993 | 1600 | Winter Storm | N/A | 2 | 10 | 50.0M | 0 |
| 141 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089 | 1/18/2000 | 2:00 AM | Winter Storm | N/A | 0 | 0 | 0 | 0 |
| 142 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089 | 1/22/2000 | 6:00 PM | Winter Storm | N/A | 0 | 0 | 0 | 0 |
| 143 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089 | 1/24/2000 | 5:00 AM | Winter Storm | N/A | 0 | 0 | 0 | 0 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 144 NCZ007>011 - 021>028 - 038>043 - 073>077 - 083>086 - 088>089 | 1/28/2000 | 10:00 AM | Winter Storm | N/A | 0 | 0 | 0 | 0 |
| 161 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089 | 1/3/2002 | 12:00 AM | Winter Storm | N/A | 0 | 0 | 0 | 0 |
| 167 NCZ007>011 - 021>028 - 038>043 - 073>077 - 083>084 | 12/4/2002 | 3:00 PM | Winter Storm | N/A | 0 | 0 | 0 | 0 |
| 168 NCZ007>011 - 021>027 - 038>043 - 073>077 - 083>084 - 086 | 2/16/2003 | 12:00 PM | Winter Storm | N/A | 0 | 0 | 0 | 0 |
| 185 NCZ007>011 - 021>028 - 038>043 - 073>078 - 083>086 - 088>089 | 1/26/2004 | 4:30 AM | Winter Storm | N/A | 0 | 0 | 0 | 0 |
| 186 NCZ007 - 021>028 - 038>039 - 041>043 - 073>078 - 083>086 - 088>089 | 2/26/2004 | 9:00 AM | Winter Storm | N/A | 0 | 0 | 0 | 0 |
| 194 NCZ011 - 026>028 - 041>043 - 075>078 - 084>086 - 088>089 | 12/26/2004 | 1:00 AM | Winter Storm | N/A | 0 | 0 | 0 | 0 |
| 224 NCZ038 - 041 - 073 - 075 - 083 - 088 | 2/1/2007 | 8:00 AM | Winter Storm | N/A | 0 | 0 | 0K | 0K |
| 238 NCZ007 - 009 - 021 - 023>026 - 038>040 - 042 - 073>077 - 083>084 - 086 - 088 | 1/19/2008 | 16:00 PM | Winter Storm | N/A | 0 | 0 | 0K | 0K |
| 268 NCZ009 - 039 - 041 - 043 - 073>076 - 084 | 1/20/2009 | 12:00 AM | Winter Storm | N/A | 0 | 0 | 0K | 0K |
| 225 NCZ038 - 041 - 073 - 075 - 083 - 088 | 2/1/2007 | 8:00 AM | Winter Weather | N/A | 0 | 0 | 0K | 0K |
| 237 NCZ007 - 021>025 - 038>042 - 073>077 - 083>086 - 088 | 1/17/2008 | 2:00 AM | Winter Weather | N/A | 0 | 0 | 0K | 0K |
| 239 NCZ007 - 009 - 021 - 023>026 - 038>040 - 042 - 073>077 - 083>084 - 086 - 088 | 1/19/2008 | 16:00 PM | Winter Weather | N/A | 0 | 0 | 0K | 0K |
| 269 NCZ042 - 073>078 - 084 | 2/4/2009 | 4:00 AM | Winter Weather | N/A | 0 | 0 | 0K | 0K |
| TOTALS: | | | | | 20 | 19 | 3.055B | 503.006M |

# Appendix F
# Moore County Dam Inventory

| STATE_ID | Dam Name | DAM_STATUS | HAZARD_POTENTIAL | COUNTY | RIVER_STREAM | RIVER_BASIN | NEAREST_TOWN | DAM_TYPE | DAM_PURPOSE |
|---|---|---|---|---|---|---|---|---|---|
| MOORE-001 | Arch Johnson Pond Dam | IMPOUNDING | Low | Moore | Little River-Os | Cape Fear | Whispering Pines | RE | R |
| MOORE-002 | Hatchery Pond Dam | IMPOUNDING | Low | Moore | Suck Creek | Cape Fear | Carthage | RE | |
| MOORE-003 | Frith Pond Dam | IMPOUNDING | Low | Moore | Mclendon Creek | Cape Fear | Robbins | RE | R |
| MOORE-004 | Seven Lakes Dam #7 | IMPOUNDING | Low | Moore | Big Juniper Creek-Os | Cape Fear | | RE | R |
| MOORE-005 | Municipal Lake Dam | EXEMPT | Low | Moore | Nicks Creek-Tr | Cape Fear | | RE | |
| MOORE-006 | J. Ross Pond Dam #3 | IMPOUNDING | Low | Moore | Little River-Tr | Cape Fear | Lakeview Nc | RE | I |
| MOORE-008 | Longleaf Golf Course Dam | IMPOUNDING | High | Moore | Mill Creek | Cape Fear | | RE | I |
| MOORE-013 | Swan Lake Dam | IMPOUNDING | High | Moore | Aberdeen Creek | Cape Fear | Southern Pines | RE | R |
| MOORE-017 | Robbins Millpond Dam | EXEMPT | Low | Moore | Buck Branch-Os | Cape Fear | Robbins | RE | |
| MOORE-018 | Michael Pond Dam | BREACHED | Low | Moore | Bear Creek-Tr | Cape Fear | | RE | R |
| MOORE-019 | E. Griffin Pond Dam | IMPOUNDING | Low | Moore | Trib. Mill Creek | Cape Fear | Lakeview | RE | R |
| MOORE-020 | Firestone Pond Dam | IMPOUNDING | High | Moore | James Creek-Tr | Cape Fear | | RE | I |
| MOORE-021 | Lambert Pond Dam | IMPOUNDING | Low | Moore | Deep River-Tr | Cape Fear | | RE | I |
| MOORE-023 | Jordan Pond Dam | IMPOUNDING | Low | Moore | Cabin Creek-Tr | Cape Fear | Robbins | RE | R |
| MOORE-024 | Camp Easter Pond Dam | IMPOUNDING | Low | Moore | Trib. Mill Creek | Cape Fear | Lakeview | RE | R |
| MOORE-031 | Kelly Pond Dam | IMPOUNDING | Low | Moore | Mcclendon Creek-Os | Cape Fear | Carbonton | RE | R |
| MOORE-033 | Caddell Pond Dam | EXEMPT | Low | Moore | Dunham Creek-Tr | Cape Fear | Vass | RE | RI |
| MOORE-034 | Causey Pond Dam | EXEMPT | Low | Moore | Mcdeed Creek-Tr | Cape Fear | Lakeview | RE | |
| MOORE-035 | Carthage Pond Dam #1 | IMPOUNDING | Low | Moore | Killett's Creek-Tr | Cape Fear | Carthage | RE | S |
| MOORE-036 | Reardon Pond Dam | IMPOUNDING | Low | Moore | Trib Dunhams Crk. | Cape Fear | Vass | RE | I |
| MOORE-037 | Riddle Pond Dam | EXEMPT | Low | Moore | Dunham Creek-Os | Cape Fear | Vass | RE | RI |
| MOORE-038 | D. Matthews Pond Dam | IMPOUNDING | Low | Moore | Little River-Tr | Cape Fear | Vass | RE | I |
| MOORE-039 | Williams Lake Dam #8 | IMPOUNDING | Low | Moore | Wet Creek-Os | Cape Fear | Robbins | RE | I |
| MOORE-040 | Woodlake Dam | IMPOUNDING | High | Moore | Crains Creek | Cape Fear | Mount Pleasant | RE | R |
| MOORE-041 | Simpson Lake Dam | IMPOUNDING | High | Moore | Little River-Tr | Cape Fear | Pope Air Force Base | RE | I |
| MOORE-042 | Hedrick Lake Dam | BREACHED | Low | Moore | James Ck-Os | Cape Fear | Pope Air Force Base | RE | F |
| MOORE-043 | Lake Bay Dam | BREACHED | Low | Moore | James Creek | Cape Fear | Pope Field | RE | R |
| MOORE-044 | Lake Mcphaul Dam | IMPOUNDING | Low | Moore | Rockfish Creek | Cape Fear | Raeford | RE | R |
| MOORE-046 | Pine Lake Shooting Pres. Dam | IMPOUNDING | Low | Moore | Little River | Cape Fear | Whispering Pines | RE | R |
| MOORE-047 | Underwood Lake Dam | IMPOUNDING | Low | Moore | Wet Creek-Os | Cape Fear | Robbins | RE | R |
| MOORE-048 | Shadow Lake Dam | EXEMPT | Low | Moore | Little River | Cape Fear | Whispering Pines | RE | R |
| MOORE-049 | Long Leaf Lake Dam | IMPOUNDING | Low | Moore | Little River-Os | Cape Fear | Whispering Pines | RE | R |
| MOORE-050 | Monroe Lake Dam Lower | EXEMPT | Low | Moore | Nicks Creek-Os | Cape Fear | Whispering Pines | RE | R |
| MOORE-056 | Mid Pines Lake Dam | BREACHED | High | Moore | Mcdeeds Creek | Cape Fear | Lakeview | RE | R |
| MOORE-057 | Southern Pines Waterworks Dam | IMPOUNDING | High | Moore | Mill Creek | Cape Fear | Lakeview | RE | R |
| MOORE-058 | Thaggards Lake Dam | IMPOUNDING | High | Moore | Little River | Cape Fear | Lakeview | REPGCN | R |
| MOORE-059 | Fly Rod Lake Dam | IMPOUNDING | Low | Moore | Little River-Os | Cape Fear | Whispering Pines | RE | R |
| MOORE-060 | Stanley Pond Dam | DRAINED | Low | Moore | Dunham'S Creek-Os | Cape Fear | Vass | RE | RI |
| MOORE-061 | Spring Valley Lake Dam | IMPOUNDING | High | Moore | Little River-Tr | Cape Fear | Whispering Pines | RE | R |
| MOORE-062 | Pine Lake Dam | IMPOUNDING | High | Moore | Little River-Tr | Cape Fear | Whispering Pines | RE | R |
| MOORE-063 | Shadow Lake Dam | IMPOUNDING | Low | Moore | Little River-Tr | Cape Fear | Whispering Pines | RE | R |
| MOORE-064 | Warrior Lake Dam | IMPOUNDING | High | Moore | Mill Creek | Cape Fear | Lakeview | RE | R |
| MOORE-065 | Fox Lake Dam | IMPOUNDING | Low | Moore | Mill Ck-Os | Cape Fear | Pope Air Force Base | RE | RI |
| MOORE-066 | Greene Lake Dam | IMPOUNDING | Intermediate | Moore | Mill Ck-Tr | Cape Fear | Lakeview | RE | R |
| MOORE-067 | Devane Lake Dam | IMPOUNDING | Low | Moore | Little Governor Creek-Trib | Cape Fear | Carbanton | RE | R |
| MOORE-068 | Morse Lake Dam | IMPOUNDING | Low | Moore | Crane Ck-0s | Cape Fear | Vass | RE | R |
| MOORE-069 | Thurlow Lake Dam | IMPOUNDING | High | Moore | Crane Ck-Os | Cape Fear | Vass | RE | RI |
| MOORE-070 | Troy Lumber Company Lake Dam | IMPOUNDING | Low | Moore | Little River-TR | Cape Fear | Lakeview | RE | I |
| MOORE-071 | Crystal Lake Dam | IMPOUNDING | High | Moore | Mill Creek | Cape Fear | Lakeview | RE | R |
| MOORE-072 | Forrest Lake Dam | EXEMPT | Low | Moore | Little River-OS | Cape Fear | Pope Air Force Base | RE | R |
| MOORE-073 | Griffin Lake Dam | IMPOUNDING | Intermediate | Moore | Little River-Tr | Cape Fear | Pope Air Force Base | RE | R |
| MOORE-074 | Boy Scouts Of America Dam Upper | IMPOUNDING | High | Moore | Suck Creek | Cape Fear | Carbonton | RE | R |
| MOORE-081 | Boy Scouts Of America Dam Lower | IMPOUNDING | High | Moore | Suck Creek | Cape Fear | Carbonton | RE | R |
| MOORE-084 | Hussey Lake Dam | IMPOUNDING | Low | Moore | Wolf Ck-Os | Cape Fear | Robbins | RE | R |
| MOORE-085 | Harris Lake Dam | IMPOUNDING | Low | Moore | Mills Creek-Os | Cape Fear | Robbins | RE | I |
| MOORE-091 | Mcduffie Lake Dam | EXEMPT | Low | Moore | Mill Creek-Os | Cape Fear | Robbins | RE | R |
| MOORE-092 | Harris Lake Dam #1 | IMPOUNDING | High | Moore | Mill Creek-Os | Cape Fear | Robbins | RE | I |
| MOORE-093 | Harris Lake Dam #2 | EXEMPT | Low | Moore | Mill Creek-Os | Cape Fear | Robbins | RE | I |

| STATE_ID | Dam Name | DAM_STATUS | HAZARD_POTENTIAL | COUNTY | RIVER_STREAM | RIVER_BASIN | NEAREST_TOWN | DAM_TYPE | DAM_PURPOSE |
|---|---|---|---|---|---|---|---|---|---|
| MOORE-094 | Lewis Lake Dam | IMPOUNDING | Low | Moore | Mill Creek-Os | Cape Fear | Robbins | RE | R |
| MOORE-095 | R. Green Lake Dam | IMPOUNDING | Low | Moore | Mill Creek-Os | Cape Fear | Robbins | RE | R |
| MOORE-096 | Williams Lake Dam #7 | IMPOUNDING | Low | Moore | Wet Creek-Os | Cape Fear | Robbins | RE | R |
| MOORE-098 | Blue Lake Dam | EXEMPT | Intermediate | Moore | Joes Fork Creek-Os | Cape Fear | Whispering Pines | RE | |
| MOORE-099 | Barnes Lake Dam | IMPOUNDING | Low | Moore | Crane Creek-Os | Cape Fear | Lobelia | RE | I |
| MOORE-100 | Van Arsdale Lake Dam | IMPOUNDING | Low | Moore | Little River-Os | Cape Fear | Spring Lake | RE | R |
| MOORE-101 | Blue Farm | IMPOUNDING | High | Moore | Nick'S Creek-Os | Cape Fear | Whispering Pines | RE | R |
| MOORE-102 | Marsh Lake Dam | IMPOUNDING | Low | Moore | Mcclendon'S Creek-Os | Cape Fear | Carbonton | RE | R |
| MOORE-103 | Von Cannon Lake Dam | BREACHED | Low | Moore | Nick'S Creek-Os | Cape Fear | | RE | |
| MOORE-104 | Matthews Lake Dam | IMPOUNDING | Low | Moore | Little River-Tr | Cape Fear | | RE | |
| MOORE-106 | Cox Lake Dam | IMPOUNDING | Low | Moore | Nick'S Creek-Tr | Cape Fear | | RE | |
| MOORE-107 | Carolina Lake Dam | IMPOUNDING | Intermediate | Moore | Herds Creek | Cape Fear | Vass | RE | R |
| MOORE-108 | Little River Farm Dam | IMPOUNDING | Low | Moore | Little River-Os | Cape Fear | Vass | RE | R |
| MOORE-111 | Seven Lakes Dam #1 | IMPOUNDING | High | Moore | Big Juniper Creek | Cape Fear | Lillington | RE | R |
| MOORE-112 | Seven Lakes Dam #2 | IMPOUNDING | High | Moore | Big Juniper Creek | Cape Fear | Lillington | RE | R |
| MOORE-113 | Seven Lakes Dam #3 | IMPOUNDING | High | Moore | Big Juniper Creek-Tr | Cape Fear | Lillington | RE | R |
| MOORE-114 | Seven Lakes Dam #4 | IMPOUNDING | High | Moore | Big Juniper Creek | Cape Fear | Lillington | RE | R |
| MOORE-115 | Seven Lakes Dam #5 | IMPOUNDING | High | Moore | Big Juniper Creek | Cape Fear | Lillington | RE | R |
| MOORE-116 | Seven Lakes Dam #6 | IMPOUNDING | Low | Moore | Mcclendon'S Creek | Cape Fear | | RE | |
| MOORE-118 | Oldham Lake Dam | IMPOUNDING | Low | Moore | Mcclendon'S Creek-Tr | Cape Fear | Carthage | RE | R |
| MOORE-120 | Larsen Lake Dam | IMPOUNDING | Low | Moore | Nick'S Creek-Tr | Cape Fear | | RE | R |
| MOORE-122 | Robbins Raw Water Reservoir | IMPOUNDING | Low | Moore | Bear Creek | Cape Fear | Robbins | RE | S |
| MOORE-124 | George Williams Dam #1 | IMPOUNDING | Low | Moore | Buffalo Creek-Tr | Cape Fear | Garners Store | RE | RI |
| MOORE-125 | F. Marsh Pond Dam | IMPOUNDING | Low | Moore | Big Governor'S Creek-Tr | Cape Fear | Carbonton | RE | I |
| MOORE-126 | A & C Enterprise Dam | IMPOUNDING | Low | Moore | Lick Creek | Cape Fear | Glendon | RE | R |
| MOORE-127 | Camp Hawthornburg Dam | IMPOUNDING | Low | Moore | Deep River-Tr | Cape Fear | Glendon | RE | R |
| MOORE-129 | Pinehurst Unit 15 Dam | IMPOUNDING | High | Moore | Joe'S Fork Creek-Tr | Cape Fear | Whispering Pines | RE | R |
| MOORE-130 | Pinehurst Gc#6, Dam #1 | IMPOUNDING | Low | Moore | Nick'S Creek-Tr | Cape Fear | | RE | R |
| MOORE-131 | Pinehurst Gc #6, Dam #2 | IMPOUNDING | High | Moore | Nick'S Creek-Tr | Cape Fear | | RE | R |
| MOORE-134 | Lower Matthews Pond Dam | IMPOUNDING | Low | Moore | Little River-Os | Cape Fear | | RE | R |
| MOORE-136 | J. Williams Lake Dam | EXEMPT | Low | Moore | Mill Creek | Cape Fear | | RE | R |
| MOORE-137 | Pinehurst Gc#6 Dam#3 | IMPOUNDING | High | Moore | Nick'S Creek-Tr | Cape Fear | Whispering Pines | RE | R |
| MOORE-138 | Anita Lake Dam | EXEMPT | Low | Moore | Little River-Tr | Cape Fear | | RE | |
| MOORE-140 | Pinebrook-Pinehurst Unit 14 | IMPOUNDING | High | Moore | Juniper Creek Trib | Cape Fear | Whispering Pines | RE | R |
| MOORE-141 | Thomas Pond Dam | IMPOUNDING | Low | Moore | Little Crane Creek-Os | Cape Fear | | RE | RI |
| MOORE-143 | Pinewild Lake Dam | IMPOUNDING | High | Moore | Joe'S Fork Creek-Tr | Cape Fear | | RE | R |
| MOORE-144 | Dr. R. Tate Pond Dam | EXEMPT | Low | Moore | Little River-Tr | Cape Fear | Vass | RE | R |
| MOORE-145 | Cardinal Lake Dam | IMPOUNDING | High | Moore | Unnamed tributary to Mill Cree | Cape Fear | | RE | RI |
| MOORE-146 | Whisper Lake Dam | IMPOUNDING | Low | Moore | Little River-Os | Cape Fear | Vass | RE | R |
| MOORE-147 | Fairway Farms Dam | IMPOUNDING | Low | Moore | Unnam. Trib. Deep River | Cape Fear | Carbonton | RE | I |
| MOORE-148 | Edwin Williams Pond Dam | IMPOUNDING | Low | Moore | Buffalo Creek-Tr | Cape Fear | Robbins | RE | I |
| MOORE-149 | Neville Pond Dam | IMPOUNDING | Low | Moore | Mclendons Creek-Tr | Cape Fear | Carbonton,Nc | RE | RI |
| MOORE-151 | George Williams Dam # 2 | IMPOUNDING | Low | Moore | Buffalo Creek-Tr | Cape Fear | Garners Store | RE | RI |
| MOORE-154 | Sandhills Comm. Coll. Dam | IMPOUNDING | Low | Moore | Mill Creek-Os | Cape Fear | Lakeview | RE | I |
| MOORE-155 | Randall Monroe Dam | IMPOUNDING | Low | Moore | Wet Creek-Tr | Cape Fear | Robbins | RE | RI |
| MOORE-156 | Sandhills Comm. College Dam#2 | IMPOUNDING | Low | Moore | Mill Creek-Tr | Cape Fear | Lakeview | RE | RI |
| MOORE-157 | J.L. Frith Pond Dam #2 | IMPOUNDING | High | Moore | Mcclendon'S Creek-Tr | Cape Fear | Robbins | RE | R |
| MOORE-158 | St. Joseph Hospital Dam | IMPOUNDING | Low | Moore | Mill Creek-Tr | Cape Fear | Vass | RE | I |
| MOORE-159 | Breeden Lake Dam | IMPOUNDING | Low | Moore | Mclendons Ck-Tr | Cape Fear | Carthage | RE | R |
| MOORE-160 | Lake Heron Dam | IMPOUNDING | Low | Moore | Little Creek | Cape Fear | Spring Lake | RE | R |
| MOORE-161 | Lawrence Lyerly Dam | IMPOUNDING | Low | Moore | Dunham'S Creek-Tr | Cape Fear | Fayetteville | RE | RI |
| MOORE-162 | Little River Farm Dam #2 | IMPOUNDING | Low | Moore | Wads Creek-Tr | Cape Fear | Whispering Pines | RE | |
| MOORE-163 | Bibey Pond Dam #1 | IMPOUNDING | High | Moore | Little River-Tr | Cape Fear | Whispering Pines | RE | I |
| MOORE-164 | Bibey Pond Dam #2 | IMPOUNDING | High | Moore | Little River-Tr | Cape Fear | Whispering Pines | RE | I |
| MOORE-165 | Lake Whippoorwill Dam | IMPOUNDING | Low | Moore | Little Creek-Tr | Cape Fear | Spring Lake | RE | R |
| MOORE-166 | Lanson Farm Dam #1 (Lower) | IMPOUNDING | Low | Moore | Mill Creek-Trib | Cape Fear | Lakeview | RE | I |
| MOORE-167 | Lanson Farm Dam #2 (Upper) | IMPOUNDING | Low | Moore | Mill Creek-Trib | Cape Fear | Lakeview | RE | I |
| MOORE-168 | Wet Creek Farm Lagoon #1 | IMPOUNDING | Low | Moore | Wet Creek-Trib | Cape Fear | Robbins | RE | O |

| STATE_ID | Dam Name | DAM_STATUS | HAZARD_POTENTIAL | COUNTY | RIVER_STREAM | RIVER_BASIN | NEAREST_TOWN | DAM_TYPE | DAM_PURPOSE |
|---|---|---|---|---|---|---|---|---|---|
| MOORE-169 | Wet Creek Farm Lagoon #2 | IMPOUNDING | Low | Moore | Wet Creek-Trib | Cape Fear | Robbins | RE | O |
| MOORE-170 | Wet Creek Farm Pond Dam | IMPOUNDING | Low | Moore | Wet Creek-Trib | Cape Fear | Robbins | RE | R |
| MOORE-171 | Holly Ridge Farm Lagoon #1 | IMPOUNDING | Low | Moore | Wet Creek-Trib | Cape Fear | Robbins | RE | O |
| MOORE-172 | Holly Ridge Farm Lagoon #2 | IMPOUNDING | Low | Moore | Wet Creek-Trib | Cape Fear | Robbins | RE | O |
| MOORE-178 | Pinesage Lake Dam | IMPOUNDING | High | Moore | Nick'S Creek-Tr | Cape Fear | Pinehurst | RE | R |
| MOORE-180 | Johnson Pond Dam | BREACHED | High | Moore | Little River-Trib | Cape Fear | Spring Lake | RE | R |
| MOORE-181 | Mcneil Lake Dam | IMPOUNDING | High | Moore | Little River-Trib | Cape Fear | Spring Lake | RE | R |
| MOORE-185 | Deerfield Swine Waste Lagoon Dike No. 3 | IMPOUNDING | Low | Moore | Waste Lagoon | Cape Fear | | RE | O |
| MOORE-186 | Belle Meade Retirement Center Dam | IMPOUNDING | Low | Moore | Trib-Mill Creek | Cape Fear | Lakeview | RE | R |
| MOORE-187 | Whispering Woods Golf Course Dam | IMPOUNDING | High | Moore | Trib-Mill Creek | Cape Fear | | RE | RI |
| MOORE-188 | Thomas Brothers Dam | IMPOUNDING | Low | Moore | Crane Creek Trib | Cape Fear | Vass | RE | I |
| MOORE-189 | Nick's Creek Water Intake Dam | BREACHED | High | Moore | Nick's Creek | Cape Fear | | RE | S |
| MOORE-190 | Allred Farms Hog Lagoon #12 | IMPOUNDING | Low | Moore | unnamed trib to Bear Creek | Cape Fear | Robins | RE | O |
| MOORE-192 | Camp Durant Wastewater Pond Dike | EXEMPT | Low | Moore | | Cape Fear | | RE | O |
| MOORE-193 | Keatley Pond | EXEMPT | Low | Moore | Unamed Trib to James Creek | Cape Fear | | RE | R |
| MOORE-194 | Edgewater Dam | EXEMPT | Low | Moore | | Cape Fear | | RE | R |
| MOORE-007 | Pinehurst National Dam #4 | IMPOUNDING | Low | Moore | Aberdeen Creek-Os | Lumber | Aberdeen | RE | RI |
| MOORE-009 | Lake Pinehurst Pond Dam #3 | IMPOUNDING | Low | Moore | Horse Creek-Tr | Lumber | | RE | R |
| MOORE-010 | Pinecrest High School Dam | IMPOUNDING | High | Moore | Aberdeen Creek-Tr | Lumber | Aberdeen | RE | RI |
| MOORE-011 | Breslin Pond Dam | IMPOUNDING | Low | Moore | Horse Creek-Os | Lumber | | RE | R |
| MOORE-012 | Garner Pond Dam | EXEMPT | Low | Moore | Horse Creek-Tr | Lumber | | RE | R |
| MOORE-014 | Taylor Pond Dam | EXEMPT | Low | Moore | Aberdeen Creek-Tr | Lumber | | RE | |
| MOORE-015 | Frye Pond Dam | IMPOUNDING | Low | Moore | Horse Creek-Tr | Lumber | | RE | |
| MOORE-016 | Rowe Pond Dam | IMPOUNDING | Low | Moore | Aberdeen Creek-Tr | Lumber | | RE | |
| MOORE-022 | Samarkand Pond Dam | IMPOUNDING | Low | Moore | Drowning Creek-Os | Lumber | Wagram | RE | |
| MOORE-025 | Legacy Golf Links Dam No. 2 | IMPOUNDING | Low | Moore | Quewhiffle Creek-Tr | Lumber | Wagram | RE | R |
| MOORE-026 | Hight Pond Dam | IMPOUNDING | Low | Moore | Aberdeen Ck-Tr | Lumber | | RE | |
| MOORE-027 | Cardinal Club Pond Dam | IMPOUNDING | High | Moore | Aberdeen Creek-Tr | Lumber | | RE | R |
| MOORE-028 | Richardson Pond Dam | IMPOUNDING | Low | Moore | Jackson Creek-Os | Lumber | Jackson Springs | RE | R |
| MOORE-029 | Sandhill Furniture Company Pond Dam | IMPOUNDING | Low | Moore | Deep Creek-Tr | Lumber | | RE | R |
| MOORE-030 | Lake Diamond Dam | IMPOUNDING | Intermediate | Moore | Deep Creek | Lumber | | RE | R |
| MOORE-032 | Blue - Freeman Pond Dam | IMPOUNDING | Low | Moore | Aberdeen Creek-Tr | Lumber | | RE | R |
| MOORE-045 | Legacy Golf Links Dam No. 3 | IMPOUNDING | Low | Moore | Quewhiffle Creek-Tr | Lumber | Wagram | RE | R |
| MOORE-051 | Eighteenth Fairway Dam | IMPOUNDING | High | Moore | Aberdeen Creek | Lumber | Aberdeen | RE | R |
| MOORE-052 | Watson Lake Dam #1 | IMPOUNDING | High | Moore | Aberdeen Creek | Lumber | Aberdeen | RE | R |
| MOORE-053 | Yadco Lake Dam | IMPOUNDING | Low | Moore | Aberdeen Ck-Os | Lumber | Aberdeen | RE | RO |
| MOORE-054 | Aberdeen Town Lake Dam | IMPOUNDING | High | Moore | Aberdeen Creek | Lumber | Aberdeen | RE | R |
| MOORE-055 | Powell Lake Dam | IMPOUNDING | Intermediate | Moore | Aberdeen Ck-Tr | Lumber | Aberdeen | RE | R |
| MOORE-075 | Lake Mckenzie Dam | IMPOUNDING | Low | Moore | Drowning Creek-Os | Lumber | Wagram | RE | RI |
| MOORE-076 | Arthur Williams Dam | EXEMPT | Low | Moore | Aberdeen Creek-Tr | Lumber | Wagram | RE | R |
| MOORE-077 | Bengston Lake Dam #1 | IMPOUNDING | Low | Moore | Jackson Creek-Os | Lumber | Jackson Springs | RE | I |
| MOORE-078 | Bengston Lake Dam #2 | IMPOUNDING | Low | Moore | Jackson Creek-Os | Lumber | Jackson Springs | RE | R |
| MOORE-079 | Bengston Lake Dam #3 | IMPOUNDING | Low | Moore | Jackson Creek-Os | Lumber | Jackson Springs | RE | R |
| MOORE-080 | Bengston Lake Dam #4 | IMPOUNDING | Low | Moore | Jackson Creek-Os | Lumber | Jackson Springs | RE | R |
| MOORE-082 | Rankin Lake Dam | EXEMPT | Low | Moore | Drowning Creek-Os | Lumber | Wagram | RE | R |
| MOORE-083 | Sandy Woods Lake Dam | IMPOUNDING | Low | Moore | Deep Creek-Os | Lumber | Wagram | RE | R |
| MOORE-086 | Jordan Lake Dam | IMPOUNDING | Low | Moore | Drowning Creek-Os | Lumber | Alma | RE | I |
| MOORE-087 | Williams Lake Dam #1 | IMPOUNDING | Low | Moore | Drowning Creek-Os | Lumber | Alma | RE | RI |
| MOORE-088 | Williams Lake Dam #3 | IMPOUNDING | Low | Moore | Drowning Creek-Os | Lumber | Alma | RE | RI |
| MOORE-089 | Williams Lake Dam #4 | IMPOUNDING | Low | Moore | Drowning Creek-Os | Lumber | Alma | RE | RI |
| MOORE-090 | Williams Lake Dam #5 | IMPOUNDING | Low | Moore | Drowning Creek-Os | Lumber | Alma | RE | RI |
| MOORE-097 | Holly Hills Lake Dam | IMPOUNDING | Low | Moore | Aberdeen Creek-Tr | Lumber | Wagram | RE | R |
| MOORE-105 | Municipal Lake Dam | EXEMPT | Low | Moore | Aberdeen Creek-Tr | Lumber | | RE | |
| MOORE-109 | Mckeithan Lake Dam | IMPOUNDING | High | Moore | Drowning Ck-Tr | Lumber | Pinebluff | RE | |
| MOORE-110 | Southern Pines #1 Lagoon Dike | IMPOUNDING | Low | Moore | Drowning Creek-Os | Lumber | | RE | S |
| MOORE-117 | Mac Chappel Waste Lagoon | BREACHED | Low | Moore | Drowning Creek-Os | Lumber | | RE | |
| MOORE-119 | Legacy Golf Links Dam No. 1 | IMPOUNDING | Low | Moore | Quewhiffle Creek-Tr | Lumber | | RE | RI |
| MOORE-121 | Watson Lake Dam #2 | IMPOUNDING | High | Moore | Aberdeen Creek | Lumber | Aberdeen | RE | R |

| STATE_ID | Dam Name | DAM_STATUS | HAZARD_POTENTIAL | COUNTY | RIVER_STREAM | RIVER_BASIN | NEAREST_TOWN | DAM_TYPE | DAM_PURPOSE |
|---|---|---|---|---|---|---|---|---|---|
| MOORE-123 | Bunny Wallace Lake Dam | IMPOUNDING | Low | Moore | Deep Creek-Tr | Lumber | | RE | R |
| MOORE-128 | Craven Lake Dam | IMPOUNDING | Intermediate | Moore | Aberdeen Creek-Tr | Lumber | | RE | R |
| MOORE-132 | Queens Court Dam | IMPOUNDING | Intermediate | Moore | Horse Creek-Tr | Lumber | | RE | R |
| MOORE-133 | Lake Pinehurst Pond Dam #2 | IMPOUNDING | High | Moore | Horse Ck-Tr | Lumber | | RE | R |
| MOORE-135 | Lake Pinehurst Dam | IMPOUNDING | High | Moore | Horse Creek | Lumber | | RE | R |
| MOORE-139 | Lower Pompelli Lake Dam | EXEMPT | Low | Moore | Drowning Creek-Os | Lumber | | RE | |
| MOORE-142 | Foxfire Dam #1_Phase Iv | IMPOUNDING | Low | Moore | Deep Creek-Tr | Lumber | | RE | I |
| MOORE-150 | Pinehurst National-Dam #1 | IMPOUNDING | High | Moore | Aberdeen Creek-Tr | Lumber | Aberdeen | RE | R |
| MOORE-152 | Pinehurst National Dam 3a | IMPOUNDING | High | Moore | Aberdeen Creek-Tr | Lumber | Aberdeen | RE | I |
| MOORE-153 | John Garner Pond Dam | IMPOUNDING | High | Moore | Jackson Creek-Tr | Lumber | Jackson Springs | RE | R |
| MOORE-173 | Ellis Farm Pond Dam #1 | IMPOUNDING | Low | Moore | Drowning Creek-Trib | Lumber | Jackson Springs | RE | R |
| MOORE-174 | Ellis Farm Pond Dam #2 | IMPOUNDING | Low | Moore | Drowning Creek-Trib | Lumber | Jackson Springs | RE | R |
| MOORE-175 | Ellis Farm Pond Dam #4 | IMPOUNDING | Low | Moore | Drowning Creek-Trib | Lumber | Jackson Springs | RE | R |
| MOORE-176 | Ellis Farm Pond Dam #5 | DRAINED | Low | Moore | Drowning Creek-Trib | Lumber | Jackson Springs | RE | R |
| MOORE-177 | Ellis Farm Pond Dam #9 | IMPOUNDING | Low | Moore | Drowning Creek-Trib | Lumber | Jackson Springs | RE | R |
| MOORE-179 | Holly Course Dam | IMPOUNDING | Low | Moore | Sandy Run Creek | Lumber | | RE | R |
| MOORE-182 | Lake Auman Dam | IMPOUNDING | High | Moore | Jackson | Lumber | Jackson Springs | RE | R |
| MOORE-183 | Edwards Lake Dam | IMPOUNDING | Low | Moore | Trib-Deep Creek | Lumber | | RE | R |
| MOORE-184 | Mclendon Creek Dam | IMPOUNDING | High | Moore | Mclendon Creek | Lumber | West End | RE | R |
| MOORE-191 | Fairwoods Dam #4 | IMPOUNDING | High | Moore | | Lumber | | RE | RI |
| MOORE-195 | Duncan Dam | IMPOUNDING | Low | Moore | Bull Run Creek | Lumber | | RE | RF |

# Appendix G
# Funding Sources

1. 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: NCDEM, 919/715-8000, http://www.dem.dcc.state.nc.us

2. Adopt-a-Trail Program

Through the North Carolina Department of Environment and Natural Resources, this program provides grant funding for trail planning, construction, maintenance, and administration.
Contact: NCDENR, 919/846-9991, http://www.enr.state.nc.us

3. 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

4. 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.

5. 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

6. Community Facilities Loans

The US Department of Agriculture (USDA), Rural Housing Service (RHS) provides funding for construction of community facilities for public use.
Contact: USDA, RHS Williamston Area Office, 252/792-7603,
http://www.rurdev.usda.gov/rhs/index.html

7. Disaster Preparedness Improvement Grant (DPIG)

This grant provides federal matching funds for communities to develop hazard mitigation plans, expand existing plans, update disaster preparation plans, and to prepare the administrative plans required to qualify for Hazard Mitigation Grant Program grants. Funds for the DPIG are provided by FEMA and the Division of Emergency Management administers the program in North Carolina.
Contact: NCDEM, 919/715-8000, http://www.dem.dcc.state.nc.us

8. 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

9. Flood Mitigation Assistance Program (FMAP)

This program provides grants for cost-effective measures to reduce or eliminate the long-term risk of flood damage to the built environment and real property. The program's main goal is to reduce repetitive losses to the National Flood Insurance Program. 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: NCDEM, 919/715-8000, http://www.dem.dcc.state.nc.us

10. North Carolina Wetlands Restoration Program

This program, through the North Carolina Department of Environment and Natural Resources (NCDENR), Division of Water Quality, provides in-kind services for the restoration of wetlands and for increased effectiveness of wetland mitigation efforts.
Contact: NCDENR, Division of Water Quality, 919/733-5083,
http://h2o.ehnr.state.nc.us/wrp

11. Parks and Recreation Trust Fund (PARTF)

Through the North Carolina Department of Environment and Natural Resources, this program provides matching funds for local parks and recreation public facility development.
Contact: NCDENR, 919/715-2662, http://www.enr.state.nc.us/

12. Physical Disaster Loans

The Small Business Administration (SBA) offers loans to victims of declared physical disasters for uninsured losses. The loan limit on these funds may be increased by twenty percent to provide for mitigation measures.
Contact: SBA, 800/827-5722, http://www.sba.gov/

13. 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/

14. 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/r-n-r/pa/index.htm

15. 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

16. River Basin Surveys and Investigations

The US Department of Agriculture, Natural Resources Conservation Service provides technical assistance to local agencies for planning activities to solve problems related to the river basin, including wetland preservation.
Contact: NRCS, http://www.nrcs.usda.gov

17. Small Business Administration Disaster Assistance Program

This program provides loans to businesses affected by Presidentially-declared disasters. The program provides direct loans to businesses to repair or replace uninsured disaster damages to property owned by the business, including real estate, machinery and equipment, inventory and supplies. Businesses of any size are eligible. Nonprofit organizations are also eligible. The SBA administers the Disaster Assistance Program.

18. 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

19. Soil 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

20. 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, 202/565-1200, http://www.cr.nps.gov/index.htm

21. 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/rus/index.html

22. 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

# Appendix H
# Zoning Districts

# Moore County Zoning Districts

## A. RA-5 and RA-2 Residential and Agricultural Zoning Districts

These Residential and Agricultural Districts are established as districts in which the principal use of the land is for low-density residential and agricultural purposes. In promoting the purposes of this Ordinance, the specific intent of these districts is to:

1. Insure that residential development not having access to public water supplies and dependent upon private means of sewage disposal, will occur at sufficiently low densities to insure a healthful environment;

2. Prohibit commercial and industrial use of the land and to prohibit any other use which would substantially interfere with the development or continuation of dwellings and agriculture;

3. Discourage any use which would generate traffic on minor streets other than normal traffic to serve the residences and farms on those streets;

## B. RA-5 and RA-2 Conditional Use Districts

Identical to the companion Residential and Agricultural Districts except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance.

## C. RA-40, RA-30 and RA-20 Residential and Agricultural Districts

These districts are established as districts in which the principal use of the land is for single family dwellings, duplexes and agricultural uses. In promoting the purposes of this Ordinance, the specific intent of these districts is:

1. Encourage the construction of and the continued use of the land for single family dwellings;

2. Prohibit commercial and industrial use of land and other uses which would substantially interfere with the development of single family dwellings in these districts;

3. Discourage any use which would generate traffic on minor streets other than normal traffic to serve residences on those streets;

4. Discourage any use which, because of its character or size, would create requirements and costs for public services, such as police and fire protection, water supply and sewerage, substantially in excess of such requirements and costs if the district were developed solely for single family dwellings.

## D. RA-40, RA-30 and RA-20 Conditional Use Districts

Identical to the companion Residential and Agricultural Districts except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance.

## E. R-MH Mobile Home District

The R-MH Mobile Home District is established to encourage and protect the use of manufactured homes and manufactured home parks. The District is designed to prohibit commercial and industrial use of land and to regulate other uses that would substantially interfere with the development or continuation of manufactured homes and parks in the District.

## F. R-MH Mobile Home Conditional Use District

Identical to the companion R-MH Mobile Home District except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance.

## G. P-C Public and Conservation District

The P-C Public and Conservation District is established as a district in which the primary use of land is reserved for flood control, future thoroughfare rights-of-way, public recreation, community facility sites, forests and other similar open spaces which will encourage the continued use of land for conservation purposes.

## H. P-C Public and Conservation Conditional Use District

Identical to the companion P-C Public and Conservation District except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance.

## I. O-P Office and Professional District

The O-P Office and Professional District is established as a district in which the principal use of land is for office, institutional, clinics, and professional uses serving the surrounding residential districts. Also, the intent is to reduce traffic and parking congestion to a minimum in order to preserve residential values and promote the general welfare of the surrounding residential districts. In promoting the purposes of this Ordinance, the specific intent of this district is to:

1. Encourage the construction of and continued use of the land for professional office and institutional purposes;

2. Encourage the development of areas which will serve as a buffer zone between business districts and residential neighborhoods provided for in this Ordinance;

3. Prohibit commercial and industrial use of the land to prohibit any other use which would substantially interfere with the development or continuation of the office and professional structures in the district;

4. Discourage any use which, because of its character or size, would interfere with the use of land as an office and service center for the surrounding residential districts.

**J. O-P Office and Professional Conditional Use District**

Identical to the companion O-P Office and Professional District except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance.

**K. B-1 Neighborhood Business District**

The B-1 Neighborhood Business District is established as a district in which the principal use of land is for commercial and service uses to serve the nearby, predominantly residential districts. It is also the intent to reduce traffic and parking congestion to a minimum in order to preserve residential values and promote the general welfare of the surrounding residential districts.

This district is intended to encourage the construction of and continued use of the land for neighborhood commercial and service purposes and to discourage uses that would substantially interfere with the development or continuation of the business structures in the district.

**L. B-1 Neighborhood Business Conditional Use District**

Identical to the companion B-1 Neighborhood Business District except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance.

**M. B-2 Highway Business District**

This district is established as a district in which the principal use of the land is for the retailing of both perishable and durable goods, provision of commercial services to adjacent urban areas, and the provision of services to travelers. It is intended that this district will be located throughout the county at areas considered to be commercial nodes. These nodes will occur where traffic and population densities are greatest and where highway business uses already exist.

**N. B-2 Highway Business Conditional Use District**

Identical to the companion B-2 Highway Business District except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance.

**O. I-1 Light Industrial District**

The I-1 Light Industrial District is established as a district in which the principal use of land is for planned industrial development for light manufacturing operations, research and development firms, and similar operations that do not require water beyond the amount necessary for sanitation and health. This district is designed to accommodate industrial uses that will not create a nuisance or present a health or safety hazard to neighboring properties.

This district is designed to prevent heavy industrial uses that may place a demand upon public services that the county is not prepared or equipped to provide. Residential uses are prohibited.

**P. I-1 Light Industrial Conditional Use District**

Identical to the companion I-1 Light Industrial District except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance.

**Q. I-2 Heavy Industrial District**

The I-2 Heavy Industrial District is established as a district in which the principal use of land is for warehousing and mixes of industrial uses which will not consume water in amounts beyond the capabilities of existing water resources in the county. It is also the intention of this district to allow uses that will not generate health and safety hazards to County residents. In promoting the general purposes of this Ordinance, the specific intent of this district is:

To provide appropriate zoning districts for carrying out the basic long-term objectives of the comprehensive land use plan;

To encourage the continued use of land for industrial purposes and discourage any other use that would substantially interfere with the continuance of permitted uses in this district.

**R. I-2 Heavy Industrial Conditional Use District**

Identical to the companion I-2 Heavy Industrial District, except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance.

## S. Highway Corridor Overlay District

The purpose of the Highway Corridor Overlay District is to conserve and enhance the natural beauty of designated highways in the county and to minimize public safety hazards. These overlay districts are designed to prevent unsightly conditions as a result of office, professional, business or industrial development. Rather, the intention is to provide attractive highway corridors and gateways to our communities and to insure that development is in keeping with the historic character of the County, its natural ecosystem, and quality of life.

T. Planned Unit Development–**Hamlet (PUD-H)** is intended for mixed-use development in close proximity to existing municipalities where such development would complement these more urban areas and have better access to available infrastructure. A PUD-H shall meet the following requirements:

- Minimum area required: fifteen (15) contiguous acres. Parcels of land separated only by a public easement or right-of-way (road, utility, and railroad) shall be considered contiguous.
- Location requirements:
    - More than fifty percent 50% of the site is within the Urban Service Area, as defined in the adopted Moore County Land Use Plan (1999).
    - Abutting and having access to a major thoroughfare.

**Planned Unit Development–Rural (PUD-R)** is intended for the more rural areas of the county. While a mixture of uses is permitted, development is less intense than development in a PUD-H due to distance from existing municipalities and available infrastructure. A PUD-R shall meet the following requirements:

- Minimum area required: twenty-five (25) contiguous acres. Parcels of land separated only by a public easement or right-of-way (road, utility, and railroad) shall be considered contiguous.
- Location requirements:
    - More than fifty percent (50%) of the site is outside the Urban Service Area, as defined in the adopted Moore County Land Use Plan (1999).

## U. Rural Agricultural

The Rural Agricultural District is designed to reflect the pattern of development in rural Moore County. The Land Use Plan demonstrates strong support to preserve and protect current uses and way of life and also to protect property rights. Home occupations of all types, even those of a commercial or industrial nature are permitted (on lots greater than 20,000 square feet). A secondary temporary dwelling for family hardship circumstances is allowed, and additional dwellings may be added for every ten (10) acres of land.

## V. Rural Agricultural Conditional Use District

Identical to the companion Rural Agricultural District, except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance

**W. Rural Agricultural-Urban Service Boundary District**

The Rural Agricultural-Urban Service Boundary District is created to identify areas where Urban Services (sewer and water) could be provided over the next 10-15 years. Although the creation of this District implies no guarantee of services, it acknowledges areas undergoing growth pressures and affords slightly more protection from intrusive uses (for example, Intensive Swine Operations, Commercial Junk or Salvage Yards, Motor Cross and Go Cart Tracks are not permitted and Commercial and Industrial Home Occupations are a Conditional Use).

**X. Rural Agricultural-Urban Service Boundary Conditional Use District**

Identical to the companion Rural Agricultural District-Urban Service Boundary District, except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance.

**Y. Gated Community Seven Lakes District/Gated Community Woodlake District**

These Gated Community Districts are created to reflect existing unincorporated Gated Communities. Primarily governed by restrictive covenants, District regulations are designed to reflect deeded covenant restrictions. Other environmental regulations (for example, Watershed Overlay Regulations) do apply within these communities and some business uses are allowed.

**Z. Gated Community Seven Lakes/Gated Community Woodlake Conditional Use Districts**

Identical to the companion Gated Community Seven Lakes District/Gated Community Woodlake Districts, except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance

**AA. Village Business District**

The Village Business District is created to acknowledge the developed business area surrounding the Gated Community of Seven Lakes. Like businesses are encouraged within this area - no Highway Corridor Overlay landscape requirements are imposed although landscaping compatible with surrounding businesses properties will be required along existing NC Highways and encouraged within the District itself.

**BB. Village Business Conditional Use District**

Identical to the companion Village Business District except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance

**CC. Rural Business District**

The Rural Business District is created to reflect the wide array of businesses existing in rural previously unzoned areas of the County. The Land Use Plan encourages small business enterprise in rural areas - the District permits virtually all traditional small business uses and Conditionally permits more intrusive uses. No minimum lot size is prescribed - some minimum setback requirements do apply.

**DD. Rural Business Conditional Use District**

Identical to the companion Rural Business District except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance

**EE. Rural Equestrian District**

The Rural Equestrian District is created to acknowledge what has become known as "Horse Country," an expanding area of horse farms and similar activities east of US 1 and along Youngs and Lakebay Roads in the eastern section of the County. Existing non-horse related residences and activities are accommodated on lots with a minimum size of 45,000 square feet; new horse farms must consist of at least ten (10) acres.

**FF. Rural Equestrian Conditional Use District**

Identical to the companion Rural Equestrian District except that a Conditional Use Permit is required as a prerequisite to any use or development as provided in this Ordinance

**Watershed Overlay Districts**

The Watershed II Critical Area Overlay Zoning District (WS-II-CA), the Balance of Watershed II Overlay Zoning District (WS-III-BW), the Watershed III Critical Area Overlay Zoning District (WS-III-CA), the Balance of Watershed III Overlay Zoning District (WS-III-BW), and the Protected Area of Watershed IV Overlay Zoning District (WS-IV-PA) are established as overlay zoning districts that are superimposed over the applicable underlying general zoning district to protect the quality of public water supplies while allowing orderly development. Watershed Overlay Zoning Districts protect water quality by requiring vegetated buffers around surface water bodies and streams, and by limiting impervious surface coverage.