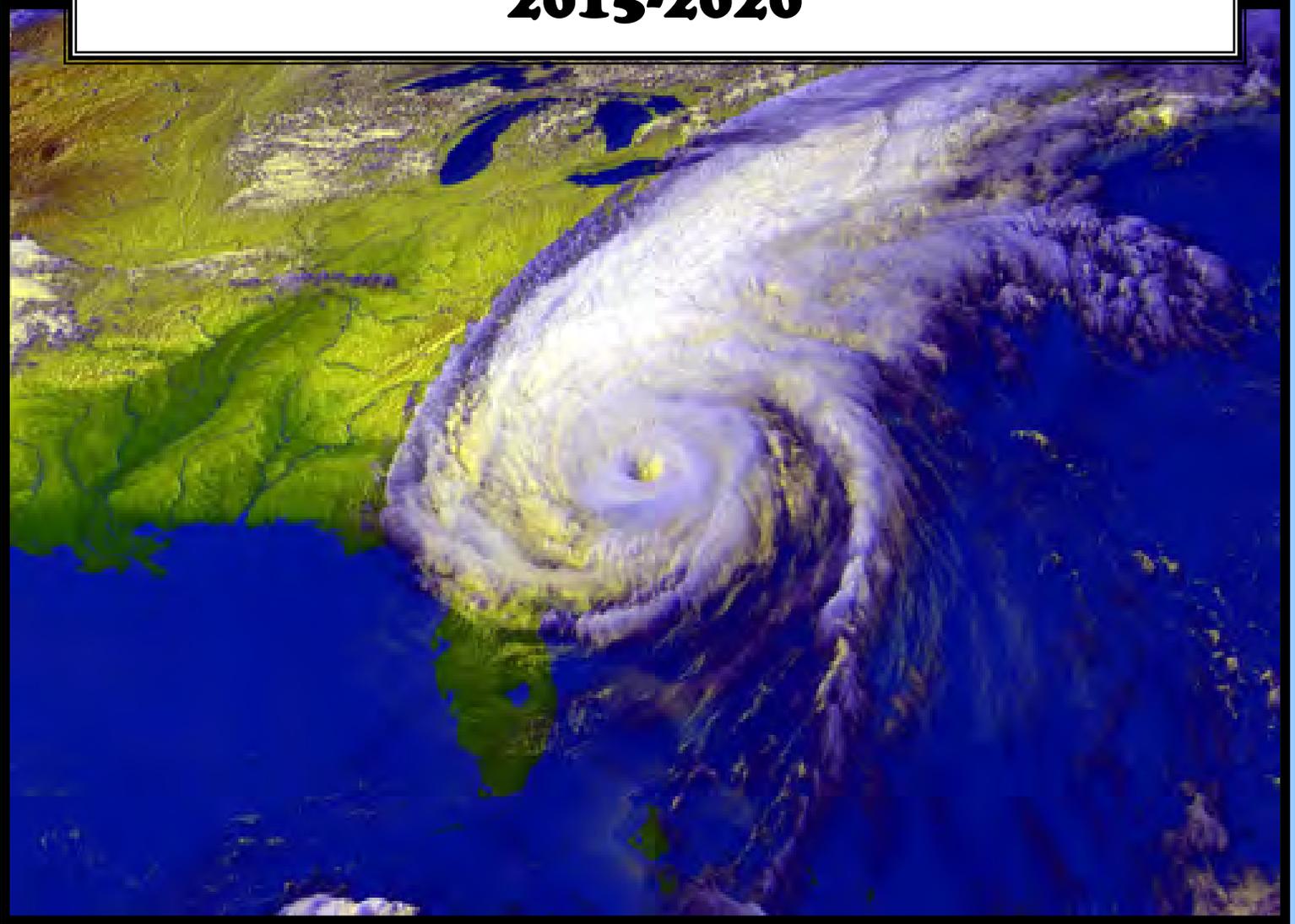


**N.E.W. REGIONAL  
HAZARD MITIGATION PLAN  
2015-2020**



**Nash, Edgecombe, Wilson  
Counties & Municipalities  
North Carolina**

## **ACKNOWLEDGMENT**

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Town of Pinetops



**BAILEY, CASTALIA, CONETOE, LEGGETT, MACCLESFIELD, MOMEYER, NASHVILLE, RED OAK, SARATOGA, SIMS, SPEED, WHITAKERS**



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- H. Maps**

# **NASH-EDGECOMBE-WILSON REGIONAL HAZARD MITIGATION PLAN 2015-2020 EXECUTIVE SUMMARY**

Our natural environment can create hazards and significant threats to population, property, and safety. These hazards can include floods, severe thunderstorms, extreme winter weather, tornadoes, hurricanes, wildfires and more. Local governments develop specific measures to reduce the impact of these hazards on people and our built environment. This is referred to as hazard mitigation.

The Federal Disaster Mitigation Act of 2000 recognizes the dangers posed by natural hazards and requires states and local governments to prepare hazard mitigation plans to "reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters".<sup>1</sup>

Project funding for local governments from the Federal Emergency Management Agency (FEMA) for disaster relief is contingent upon preparation and adoption of multi-hazard mitigation plans. Given funding limitations and overall effectiveness and efficiency considerations, regional efforts in hazard mitigation planning are encouraged by State and Federal agencies. A goal of NC Emergency Management is to have all 100 counties in North Carolina included in regional multi-county plans. This regional planning effort is in the form of a multi-jurisdictional hazard mitigation plan, which consists of three counties -- Nash (N.), Edgecombe (E.) and Wilson (W.), and the 25 incorporated municipalities located therein.

This hazard mitigation plan identifies and assesses major hazards and related vulnerabilities that impact local communities. It assesses community capabilities and develops mitigation strategies and actions to reduce the risks associated with hazards. It also details the region's demographics, the planning process, and plan maintenance.

The most effective mitigation measures are those implemented prior to a disaster. In its most recent Hazard Mitigation Plan, the State of North Carolina sums up the purpose of mitigation planning in a clear and simple goal statement: "*reduce the State's vulnerability and increase resilience to natural hazards, in order to protect people, property and natural resources*"<sup>2</sup>

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<sup>1</sup> Public Law 106-390, Disaster Mitigation Act of 2000 (See: <http://www.fema.gov/media-library/assets/documents/4596>)

<sup>2</sup> [2013 State Hazard Mitigation Plan](#), N. C. Department of Public Safety, Section III, p. 2 (See: <https://www.ncdps.gov/Index2.cfm?a=000003,000010,001623,000177,002107>)

In keeping with the state's goal statement, the purpose of this regional/multi-jurisdictional hazard mitigation planning effort is to:

1. Demonstrate local commitment to hazard mitigation planning on a regional scale;
2. Develop local action strategies to help reduce vulnerabilities to natural hazards and help minimize the potential for future damages and economic losses;
3. Promote local involvement and expand partnerships among various emergency providers and communities to help develop action strategies and combine resources to help accelerate recovery and redevelopment following natural hazard events;
4. Educate the public about natural hazards and mitigation actions at the local level;
5. Promote effective and efficient utilization of grant sources;
6. Update all community hazard mitigation plans in accord with the Federal Emergency Management Agency (FEMA) requirements to ensure continued qualification for additional grant funding in both pre-disaster and post-disaster situations; and
7. Include additional information provided by those local jurisdictions participating in the Community Rating System (CRS) in order to assist them in maintaining their current rating classification.

Goals were developed for this three county plan to help implement these purposes:

- Goal #1** Protect the public health, safety and welfare by increasing public awareness of hazards and by encouraging collective and individual responsibility for mitigating hazard risks.
- Goal #2** Improve technical capability to respond to hazards and to improve the effectiveness of hazard mitigation actions.
- Goal #3** Enhance existing, or create new, policies and ordinances that will help reduce the damaging effects of natural hazards.
- Goal #4** Protect the most vulnerable populations, buildings, and critical facilities through the implementation of cost-effective and technically feasible mitigation actions.

The advantages of a multi-county regional plan generally are:

1. Individual hazard mitigation plans can be integrated into a unified approach;
2. The approach can be funded 100%: 75% Federal and 25% State;
3. It allows for common formatting of information and the development of actions or implementation strategies among the various counties and their jurisdictions for consistency, improved organization, and ease of utilization;
4. A regional approach is a more cost effective use of tax funds;
5. A regional plan encourages the sharing of finite resources, the forging of partnerships, increased productivity, and effectiveness of mitigation strategies.

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All local governments in this plan are members of the Upper Coastal Plain Council of Governments (UCPCOG), which is federally recognized and serves as their regional Lead Development District agency. UCPCOG is familiar with the counties and municipalities, and has been involved in regional planning activities in the area for over 40 years. Nash County selected the UCPCOG as the contractor to provide the necessary services to complete this plan.

In developing the regional hazard mitigation plan for the three counties, the UCPCOG helped establish a planning team consisting of partners from all 28 governments within the three-county multi-jurisdictional area. These partners include elected representatives, many of whom also represent private, non-profit, and community organizations in other official capacities. The planning team also consists of municipal managers, administrators, planners, city engineers, code enforcement personnel, floodplain and stormwater managers, emergency responders and other representatives. State Hazard Mitigation and Emergency Management staff have also been involved in many steps of the process.

Previous hazard mitigation planning efforts for these three counties and their local governments was accomplished by the individual counties preparing multi-jurisdictional plans that included the county as well as communities within the county jurisdictions and submitting them to the State and FEMA for approval. Once completed and approved by the State, certified by FEMA, and adopted by all counties communities, this plan will replace all mitigation plans previously adopted by the participating jurisdictions.

The following table includes the counties and their municipalities included in this plan:

| <b>NASH-EDGECOMBE-WILSON REGIONAL HAZARD MITIGATION PLAN</b>   |                        |                           |
|--|------------------------|---------------------------|
| <b><u>REPRESENTED JURISDICTIONS</u></b>  |                        |                           |
| <b>Nash County**</b>   | <b>Wilson County**</b> | <b>Edgecombe County**</b> |
| Town of Bailey   | Town of Black Creek    | Town of Conetoe           |
| Town of Castalia   | Town of Elm City       | Town of Leggett           |
| Town of Dortches   | Town of Lucama         | Town of Macclesfield      |
| Town of Middlesex  | Town of Saratoga       | Town of Pinetops          |
| Town of Momeyer  | Town of Sharpsburg*    | Town of Princeville       |
| Town of Nashville  | Town of Sims           | Town of Sharpsburg*       |
| Town of Red Oak  | Town of Stantonsburg   | Town of Speed             |
| Town of Sharpsburg*  | City of Wilson         | Town of Tarboro           |
| Town of Spring Hope  |                        | Town of Whitakers*        |
| Town of Whitakers*   |                        | City of Rocky Mount*      |
| City of Rocky Mount*   |                        |                           |
| * Rocky Mount, Sharpsburg, and Whitakers are each located in more than one county and therefore listed as such |                        |                           |
| ** Includes all county areas outside municipality jurisdictions  |                        |                           |

## **SECTION 1: INTRODUCTION TO HAZARD MITIGATION PLANNING AND THE NASH-EDGECOMBE-WILSON REGIONAL HAZARD MITIGATION PLAN**

### **1.1 HAZARD MITIGATION PLANNING**

While necessary to sustain of human life, our natural environment can also create hazards and significant threats to population, property, and safety. These natural environmental hazards can include floods, severe thunderstorms, severe winter weather, tornadoes, hurricanes, wildfires and more. Some world regions are prone to the devastating hazards of volcanoes, earthquakes, and/or tsunamis that can impact large areas. As humans, we cannot currently prevent such hazardous natural events, but we can develop specific measures to reduce the impact of these hazards on people and our built environment. This concept of developing measures to reduce disaster damages is what is referred to as hazard mitigation. Hazard mitigation can be “defined as sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards”.<sup>1</sup> In recognition of this situation, the Federal Disaster Mitigation Act of 2000 not only recognized the dangers posed by natural hazards, but also required states and local governments to prepare hazard mitigation plans to "reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters".<sup>2</sup>

State and local governments have the responsibility to help protect the health, safety, and welfare of their citizens. State and local government resources are not only essential in emergency response activities, including protection, rapid response and recovery, but are also important in pre-disaster activities, including mitigation planning and preparedness prior to a disaster. Hazard mitigation planning is an effective action for local governments to undertake prior to a disaster in order to help mitigate or reduce the risks or losses from such hazards. Hazard mitigation planning is so important that project funding for local governments from the Federal Emergency Management Agency (FEMA) for disaster relief is contingent upon preparation of multi-hazard mitigation plans.

Identifying and assessing major hazards and related vulnerabilities that impact local communities as well as developing mitigation actions or strategies to reduce the risks associated with these hazards are the essential core elements of mitigation planning. The most effective mitigation measures are those that are implemented prior to a disaster. Who best to be at the forefront in this implementation than the local

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<sup>1</sup> FEMA [Local Mitigation Planning Handbook](#), March 2013 p. I-1.

<sup>2</sup> Public Law 106-390, Disaster Mitigation Act of 2000 (See: <http://www.fema.gov/media-library/assets/documents/4596>)

governments where regulatory or development-related decisions are made and implemented and where hazard mitigation opportunities can make a tangible difference at the local level? However, in order to help ensure success, planning should also be accomplished through participatory efforts involving a wide range of public and private partners. Additionally, the plan must represent the values and interests of the local communities, as well as serve these communities in a useful and purposeful manner.



**Emergency Management Cycle**

Mitigation activities are ongoing and overlap all phases of emergency management in order to address all natural hazards that are present or occur in an area. *“A fundamental premise of mitigation strategy is that current dollars invested in mitigation activities will significantly reduce the demand for future dollars by reducing the amount needed for emergency recovery, repair, and reconstruction following a disaster. Mitigation also calls for conservation of natural and ecologically sensitive areas (such as wetlands, floodplains, and dunes) which enables the environment to absorb some of the impact of hazard events. In this*

*manner, mitigation programs help communities attain a level of sustainability, ensuring long-term economic vitality and environmental health for the community as a whole.”<sup>3</sup>*

In its most recent Hazard Mitigation Plan, the State of North Carolina sums up the purpose of mitigation planning in a clear and simple goal statement:<sup>4</sup>

*“reduce the State’s vulnerability and increase resilience to natural hazards, in order to protect people, property and natural resources”*

In keeping with this goal, the purpose of this regional/multi-jurisdictional hazard mitigation planning effort is as follows:

<sup>3</sup> Local Hazard Mitigation Planning Manual, North Carolina Division of Emergency Management, November 1998, p.1.

<sup>4</sup> [2013 State Hazard Mitigation Plan](https://www.ncdps.gov/Index2.cfm?a=000003,000010,001623,000177,002107), N. C. Department of Public Safety, Section III, p. 2 (See: <https://www.ncdps.gov/Index2.cfm?a=000003,000010,001623,000177,002107>)

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1. Demonstrate local commitment to hazard mitigation planning principles and actions on a regional scale;
2. Develop local action strategies through locally committed emergency response advocates to help reduce vulnerabilities to natural hazards and help minimize the potential for future damages and economic losses;
3. Promote local involvement and expand partnerships among various emergency providers and communities to help develop hazard mitigation action strategies as well as to combine resources to help accelerate recovery and redevelopment following natural hazard events;
4. Educate the public about natural hazards and mitigation actions at the local level;
5. Promote effective and efficient utilization of grant sources in order to assist local communities in complying with both State and Federal legislative requirements for local and multi-jurisdictional hazard mitigation planning;
6. Update all community hazard mitigation plans in accord with the Federal Emergency Management Agency (FEMA) requirements to ensure continued qualification for additional grant funding in both pre-disaster and post-disaster situations; and
7. Include additional information provided by those local jurisdictions participating in the Community Rating System (CRS) in order to assist them in maintaining their current rating classification.

The 2013 State Hazard Mitigation Plan also listed major natural hazards that impact the State and may pose hazards for local counties and communities within the State. These hazards identified in the State Plan include the following:<sup>5</sup>

1. Flooding
2. Hurricanes and Coastal Hazards
3. Severe Winter Weather
4. Earthquakes
5. Wildfires
6. Dam Failures
7. Drought
8. Tornadoes/Thunderstorms
9. Geological (Sinkholes, Landslides/Debris Flows, Acidic and/or Expansive Soils)

Some of the above hazards are more likely to occur in the counties included in this multi-jurisdictional plan than others. Additional hazards may also be determined to impact the planning area. Section V of this Plan covers the hazards that have a higher probability of occurrence in the counties covered by this Plan.

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<sup>5</sup> **2013 State Hazard Mitigation Plan**, N. C. Department of Public Safety, Section III, p. 1 (See: <https://www.ncdps.gov/Index2.cfm?a=000003,000010,001623,000177,002107>)

Section VI of this Plan addresses the development of action strategies for hazard mitigation for this multi-county regional hazard mitigation plan in detail. In general, hazard mitigation action strategies can be described as three types of activities:

1. Structural mitigation – construction of dam and levee projects to protect against flooding, construction of disaster-resistant structures, and retrofitting of existing structures to withstand future hazardous events;
2. Non-structural mitigation – development of land use plans, zoning ordinances, subdivision regulations, and tax incentives and disincentives to discourage development in high-hazard risk areas; and
3. Educational programs – educating the public about potential natural hazards, the importance of mitigation, and disaster preparation.

## **1.2 REGIONAL HAZARD MITIGATION PLANNING**

Given funding limitations and other overall effectiveness and efficiency considerations as described below, regional efforts in hazard mitigation planning are being encouraged by State and Federal agencies. A goal of NC Emergency Management is to have all 100 counties in North Carolina included in regional multi-county plans. A regional approach is defined by the Federal Emergency Management Agency (FEMA) as any mitigation planning effort involving two or more county jurisdictions. This local 2013-2015 hazard mitigation planning effort in the Upper Coastal Plain Council of Governments (UCPCOG) region is in the form of a multi-jurisdictional/regional hazard mitigation plan, which consists of three counties -- Edgecombe, Nash, and Wilson, and the 25 incorporated municipalities located therein. This regional hazard mitigation planning effort has been named the "**Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan**".

Halifax County, Northampton County and their municipalities, also member governments of the UCPCOG region, were not included in this hazard mitigation planning effort. However, grant funds are anticipated to allow for the creation of a regional plan between them and their inclusion is anticipated in a future update to this plan. Upon their inclusion, updated information for their areas, including mitigation actions, can readily be integrated into this Plan.

There are benefits as well as challenges in preparing any multi-jurisdictional hazard mitigation plan. For example, such a plan can help improve communication and coordination among the various participants, reduce risks resulting from hazards that affect jurisdictions, increase the sharing of costs and resources, reduce unnecessary duplication of work, and provide a more regional approach and organizational structure. On the other hand there are potential challenges to a regional, multi-jurisdictional approach, including:

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- individual jurisdictional control and ownership over the mitigation process is deferred to the regional effort;
- all jurisdictions must work together even if there are differences in capabilities, or there is no history of working together, and/or there are conflicting priorities;
- specific hazard information and related risks, as well as mitigation actions, must be developed for each jurisdiction;
- large amounts of information and specific hazard mitigation jurisdictional details must be organized into a single document; and
- overall coordination, participation activities, and organizational efforts can be substantially compounded compared to the preparation of an individual jurisdictional plan.

In spite of these challenges, the advantages of a regional plan are generally greater and often include:

1. In a multi-county regional plan all individual hazard mitigation plans can be integrated into a unified approach at a regional level;
2. A regional approach can be funded 100%: 75% Federal and 25% State (the NC Department of Public Safety, Division of Emergency Management);
3. A regional approach allows for common formatting of information and the development of actions or implementation strategies among the various counties and their jurisdictions for consistency, improved organization and ease of utilization;
4. A regional approach is more cost beneficial, and funds are more likely to be available for such planning;
5. A regional plan encourages the sharing of finite resources, the forging of partnerships, increased productivity and effectiveness of mitigation strategies (goals and actions).



### **1.3 INVOLVEMENT OF THE UPPER COASTAL PLAIN COUNCIL OF GOVERNMENTS**

All local governments in this plan are members of the Upper Coastal Plain Council of Governments (UCPCOG), which is federally recognized and serves as their regional Lead Development District agency. UCPCOG is familiar with the counties and municipalities, and has been involved in regional planning activities in the area for over 40 years, Nash County selected the UCPCOG as the contractor to provide the necessary services to complete the **Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan 2015-2020**.



In 2012 the Planning and Development Services Department of the (UCPCOG) alerted Nash County of the availability of grant funding for hazard mitigation plan updates. Since this funding was only available for regional planning efforts, Nash County proposed a regional planning effort to include Nash, Edgecombe and Wilson counties, and the 25 incorporated municipalities located therein. Among these incorporated municipalities, there are three whose corporate limits extend into more than one county. For example, the City of Rocky Mount and the Town of Whitakers both cover areas within Nash and Edgecombe counties, and the Town of Sharpsburg includes areas in Nash, Edgecombe and Wilson counties. Under previous single county hazard mitigation plans, these three jurisdictions, along with the counties and the State, had to decide which county plan in which they should be included. No matter which county was chosen, the result was imperfect. Under the regional multi-county approach, all three of these municipalities are more appropriately covered, a further justification of a regional approach.

The opportunity to complete such a regional plan with available funding was finalized in a Hazard Mitigation Grant Agreement in late 2012 between the NC Department of Public Safety, Division of Environmental Management and Nash County – the lead county for the three-county hazard mitigation grant. All 28 local governments agreed in writing to participate in the regional plan.

A subcontract with the UCPCOG was initiated and finalized in February 2013. As the subcontracted agency, the UCPCOG is responsible for preparing the updates for the three counties and their respective incorporated jurisdictions within the scope and schedule set forth by the grant agreement between Nash County and the NC Department of Public Safety, Division of Emergency Management. According to the

grant award, the work must be completed by September 15, 2015. Submission and approval timelines require a preliminary plan to be submitted to the State of NC in February of 2015 in order to ensure that there is sufficient time to meet all State and Federal reviews and local government approval requirements.

In developing the regional hazard mitigation plan for the three counties, the UCPCOG helped establish a planning team consisting of partners from all 28 governments within the three-county multi-jurisdictional area. These partners include elected representatives, managers, administrators, planners, city engineers, code enforcement personnel, floodplain and stormwater managers, emergency responders and other representatives. State Hazard Mitigation and Emergency Management staff have also been involved in many steps of the process. Section 3.2 of this Plan covers the work and involvement of this team in more detail.

#### **1.4 DEVELOPMENT OF THIS REGIONAL HAZARD MITIGATION PLAN**

This regional hazard mitigation planning effort has been undertaken in order to prepare a combined, updated hazard mitigation planning document comprised of three identified counties, including Nash, Wilson and Edgecombe Counties, and their incorporated towns. In accord with FEMA, the Hazard Mitigation Plan for each jurisdiction requires an update every five years.

Although regional hazard mitigation planning is a relatively new concept in this area of North Carolina, all counties and local governments recognize the similarity of hazards facing this region's jurisdictions and share in the regional plan's preparation as an ongoing cooperative effort in developing essential mitigation activities and provision of emergency services for the entire region.

Previous hazard mitigation planning efforts for these three counties and their local governments was accomplished by the individual counties preparing multi-jurisdictional plans that included the county as well as communities within the county jurisdictions and submitting them to the State and FEMA for approval. Once completed and approved by the State, certified by FEMA, and adopted by all counties communities, this new multi-county regional hazard mitigation plan ([Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan](#)) will replace all mitigation plans previously adopted by any of the participating jurisdictions.

The planning process and format for the [Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan](#) has been developed in a manner that involved the three counties and their incorporated jurisdictions. This regional plan serves as a guide by identifying and assessing all major hazards within the region, and setting forth and helping to

implement continuity of mitigation strategies at a more integrated regional level as opposed to at an isolated jurisdiction level. The format of this Plan will assist in the facilitation of integrated implementation and future updates at the regional, county and sub-county levels. Development of this plan encourages communities to work together, share and maximize resources, and provide a regional approach to hazard mitigation efforts.

### **1.5 JURISDICTIONS INCLUDED IN THE HAZARD MITIGATION PLAN**

The following table includes the counties and their incorporated jurisdictions included in this plan:

**Table 1.1**

| <b>NASH-EDGECOMBE-WILSON REGIONAL<br/>HAZARD MITIGATION PLAN<br/><u>REPRESENTED JURISDICTIONS</u></b> |  |   |
|---|--|---|
| <b>Nash County</b>  | <b>Wilson County</b>                   | <b>Edgecombe County</b>                   |
| Town of Bailey  | Town of Black Creek                    | Town of Conetoe                           |
| Town of Castalia  | Town of Elm City                       | Town of Leggett                           |
| Town of Dortches  | Town of Lucama                         | Town of Macclesfield                      |
| Town of Middlesex   | Town of Saratoga                       | Town of Pinetops                          |
| Town of Momeyer   | Town of Sharpsburg*                    | Town of Princeville                       |
| Town of Nashville   | Town of Sims                           | Town of Sharpsburg*                       |
| Town of Red Oak   | Town of Stantonsburg                   | Town of Speed                             |
| Town of Sharpsburg*   | City of Wilson                         | Town of Tarboro                           |
| Town of Spring Hope   | Wilson County Planning<br>Jurisdiction | Town of Whitakers*                        |
| Town of Whitakers*  |  | City of Rocky Mount*                      |
| City of Rocky Mount*  |  | Edgecombe County Planning<br>Jurisdiction |
| Nash County Planning<br>Jurisdiction  |  |   |

\* Rocky Mount, Sharpsburg, and Whitakers are each located in more than one county and therefore listed as such

Although a portion of the Town of Kenly’s extraterritorial jurisdiction (ETJ) comes into Wilson County, because this area is basically undeveloped and nearly 90 percent of the Town’s corporate population resides outside of Wilson County <sup>1</sup>, the Town of Kenly is not included in this plan. (The Town of Kenly was not included in the previous 2010 Wilson County Hazard Mitigation Plan either.) The map on page 10 displays the location of all these jurisdictions.

<sup>6</sup> NC Municipal Population Estimates, Multi-County Municipalities, July 2013 Population Distribution. Office of State Budget and Management, (see [http://www.osbm.state.nc.us/ncosbm/facts\\_and\\_figures/socioeconomic\\_data/population\\_estimates/demog/multicountymunipop\\_2013.html](http://www.osbm.state.nc.us/ncosbm/facts_and_figures/socioeconomic_data/population_estimates/demog/multicountymunipop_2013.html))

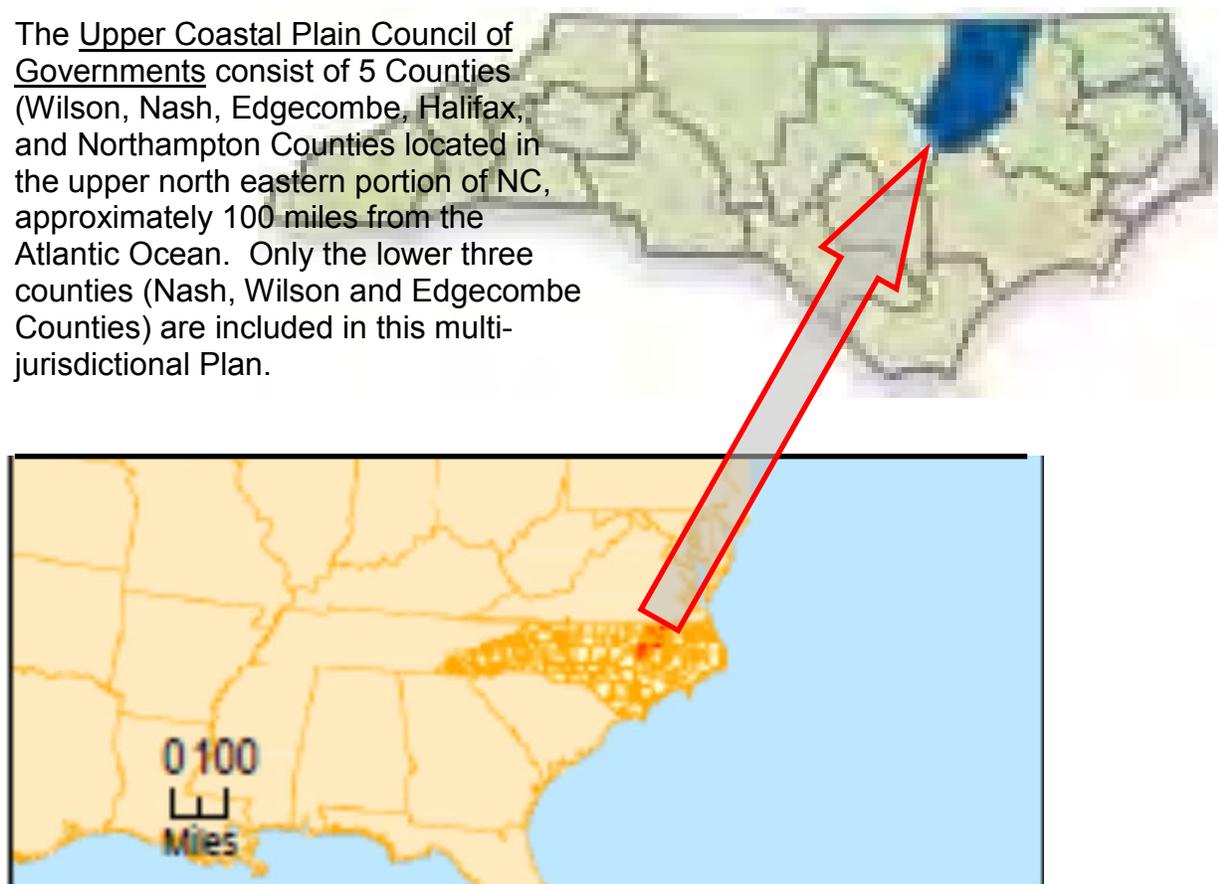
## 1.6 REVIEW OF EXISTING PLANS

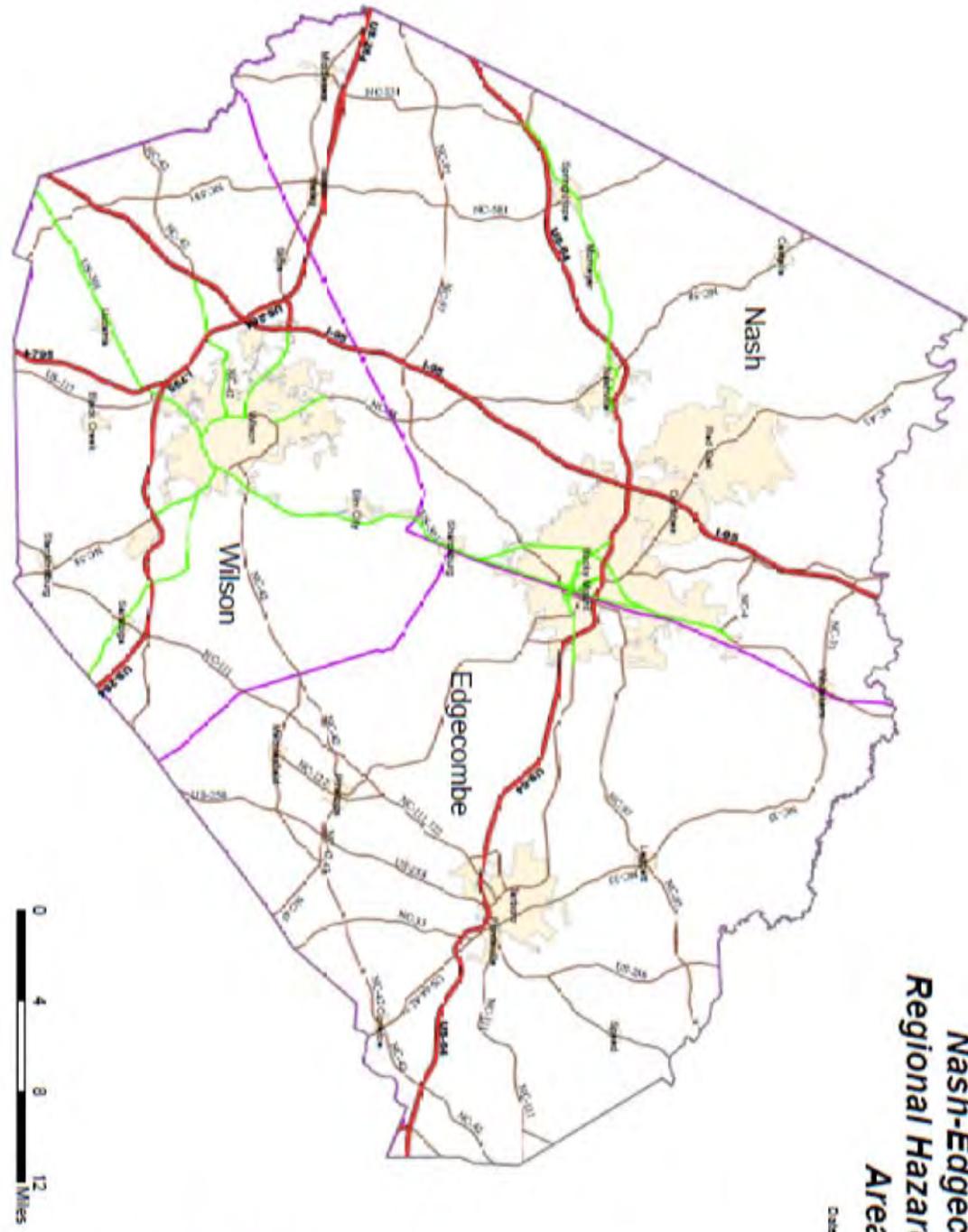
Various Plans and other resources were utilized to complete the **NASH-EDGECOMBE-WILSON REGIONAL HAZARD MITIGATION PLAN**. The following key documents were utilized in the development of this Plan:

1. 2010 and 2013 State Hazard Mitigation Plans
2. FEMA Local Mitigation Planning Handbook, March 2013
3. FEMA Local Mitigation Plan Review Guide, October 2011
4. Mitigation Ideas, A Resource for Reducing Risks to Natural Hazards, January 2013
5. Wilson County Hazard Mitigation Plan, 2009
6. Nash County Hazard Mitigation Plan, 2010
7. Edgecombe County Mitigation Plan, 2010
8. Wilson County Vulnerability Assessment, UNC Institute for the Environment, Capstone Fall 2011
9. Community Based Vulnerability Assessment, UNC Institute for the Environment, March 2009
10. Post- Disaster Hazard Mitigation Planning Guidance for State and Local Governments, Federal Emergency Management Agency, 1990.

## 1.7 LOCATION OF PLANNING REGION

The Upper Coastal Plain Council of Governments consist of 5 Counties (Wilson, Nash, Edgecombe, Halifax, and Northampton Counties) located in the upper north eastern portion of NC, approximately 100 miles from the Atlantic Ocean. Only the lower three counties (Nash, Wilson and Edgecombe Counties) are included in this multi-jurisdictional Plan.





**Nash-Edgecombe-Wilson  
Regional Hazard Mitigation Plan  
Area Map**

Date: 12/20/14



| Road Type |                    |
|-----------|--------------------|
|           | Controlled Access  |
|           | Division/Main-Line |
|           | Other Roads        |

|  |                      |
|--|----------------------|
|  | Municipal Boundaries |
|  | County Boundary      |

## SECTION 2: DESCRIPTION OF THE NASH-EDGECOMBE-WILSON COUNTY AREA

### 2.1 LOCATION, TOPOGRAPHY, GEOLOGY, AND GEOGRAPHY

The three counties in the Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan are located in the southern portion of the five county Upper Coastal Plain Council of Governments (UCPCOG) region of North Carolina. The region is located in the northwestern portion of the Eastern Coastal Plain section of North Carolina. These three southern-most counties in the UCPCOG region are approximately located between Raleigh and the Atlantic Coast, and the northern two counties are in the northern area of North Carolina with one county (Northampton) abutting Virginia.

Several topographic conditions contribute to natural hazards within the area, including waterways, low elevation areas and certain geological features. Although there are some variations in the physiographic landscape of the region, in general the counties are characterized by relatively flat terrain, with gentle hills, sandy soils and major, broad drainage ways, which are contained within the Neuse and Tar-Pamlico river basins. (These river basins are discussed in more detail in subsection 2.4: Surface Waters in this Section.

The combined area included in this plan is approximately 1,424 square miles, an area larger than the state of Rhode Island. The following table displays the total square miles within each of the three participating counties, as well as their highest and lowest elevations:

**Table 2.1**

| <b>PARTICIPATING COUNTY AREA'S HIGHEST &amp; LOWEST ELEVATIONS</b> |                           |  |   |  |
|--|---------------------------|--|---|--|
| <b>County</b>  | <b>Total Square Miles</b> | <b>Highest Elevation<br/>(feet above Mean Sea Level)</b> | <b>Lowest Elevation<br/>(feet above Mean Sea Level)</b> | <b>Additional Comments</b>   |
| <b>Nash</b>  | 543                       | 360 (in NW area of County)                               | 75 (in SE area of County)                               | Part of the "Fall Line" lying in the Coastal Plain providence to the east and Piedmont Providence to the west (granite bedrock)    |
| <b>Edgecombe</b>   | 507                       | 140 (in NW area of County)                               | 10 (in SE area of County)                               | Totally in the Coastal Plain Providence  |
| <b>Wilson</b>  | 374                       | 305 (in NW area of County)                               | 50 (in SE area of County)                               | Predominately in the Coastal Plain Providence with slate and crystalline bedrock; portion of Piedmont Providence in the NW section |

**Table 2.0 Data Sources:** Soil survey of Nash County ([http://www.nrcs.usda.gov/Internet/FSE\\_MANUSCRIPTS/north\\_carolina/nashNC1989/text.pdf](http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/north_carolina/nashNC1989/text.pdf)); Soil Survey of Wilson County ([http://www.nrcs.usda.gov/Internet/FSE\\_MANUSCRIPTS/north\\_carolina/wilsonNC1983/text.pdf](http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/north_carolina/wilsonNC1983/text.pdf)); Soil Survey of Edgecombe County ([http://www.nrcs.usda.gov/Internet/FSE\\_MANUSCRIPTS/north\\_carolina/edgecombeNC1979/edgecombe.pdf](http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/north_carolina/edgecombeNC1979/edgecombe.pdf))

From a geological standpoint, the three counties in this plan, especially Nash and Wilson, are primarily composed of sediment lying on slate or crystalline rock and granite bedrock.<sup>1</sup> This type of formation may contribute to this area not being able to absorb earthquake shock as well as California, as indicated by USGS Geophysicist John Bellini. Mr. Bellini stresses that the earth's crust under the East Coast doesn't absorb as much shock as the land under the highly seismically-active West Coast, allowing lesser shockwaves to travel further. This condition helps explain why the 2011 Earthquake with its epicenter five miles south southwest of Mineral, Virginia was felt across the Mid-Atlantic and East Coast, in spite of its moderate size of 5.8.<sup>2</sup> Mr. Bellini also points out the deep bedrock underlying much of the East Coast from South Carolina through North Carolina and the Virginia Coastal Plain consists of the East Coast Fault System. A minor fault line extends through Nash, Wilson, Edgecombe and Halifax Counties of North Carolina, as well as the southeastern portion of South Carolina northwards through the central and eastern portions of Virginia. As a result, repeated minor seismic activity can be anticipated in this coastal plain region.<sup>3</sup> As many as 22 earthquakes have occurred in NC since 1735 and these previous events have caused minor damage. Four earthquake source zones are listed in the Mid-Atlantic area (Eastern Tennessee Seismic Zone, Southern Appalachian Seismic Zone, Charleston, S.C. Seismic Zone, and Giles County, Virginia Seismic Zone) and could generate ground motion of sufficient strength to cause moderate damage. In spite of the existence of four regional earthquake ground sources that can have an impact in NC, the earthquake risk in NC is rated moderate according to Dr. Kenneth B. Taylor.<sup>4</sup> Thus the three Counties in this regional Plan have only a moderate earthquake risk.

Referred to as the "Fall Line" or "Fall Zone", this region is believed to be an old shore line that existed during the Pliocene Period. This prior shoreline is about 300 feet above the present sea level.

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<sup>1</sup> Speer, Alexander J., The Sims Pluton, Nash and Wilson Counties, North Carolina, Bulletin 97, 1997 (See: <http://digital.ncdcr.gov/cdm/ref/collection/p16062coll9/id/13550>)

<sup>2</sup> Wheeler, Russell L., Known or Suggested Quaternary Tectonic Faulting, Central and Eastern United States -New and Updated Assessments for 2005, US Dept. of the Interior and US Geological Survey, 2005 (See: <http://www.wjla.com/articles/2013/08/virginia-earthquake-2011-two-years-later-scars-and-memories-linger-93082.html#ixzz3Jrnznnq>)

<sup>3</sup> Karp, Justin, Virginia Earthquake 2011: Two Years Later, Scars and Memories Linger, August 23, 2013 (See: <http://pubs.usgs.gov/of/2005/1336/pdf/OFR-2005-1336.pdf>) East Coast Fault System, North Carolina, South Carolina, and Virginia

<sup>4</sup> Taylor, Kenneth B., Earthquake History of North Carolina, NC Geological Survey, Division of Land Resources, 2014 (Power Point Presentation by Dr. Kenneth B. Taylor, State Geologist; See: [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=50cb8f9b-b1ac-4421-a136-616697bb64b1&groupId=38334](http://portal.ncdenr.org/c/document_library/get_file?uuid=50cb8f9b-b1ac-4421-a136-616697bb64b1&groupId=38334))

Nash County lies within this Fall Zone between the Coastal Plain that stretches eastwards in the county and tapers out across the central portions of the county and the Piedmont province that continues into the western and northwestern portions of the county. Soils in the Piedmont province of the county are underlain by granite bedrock.

Nash County lies just north of Wilson County, has eight municipalities completely within its boundaries (Nashville, Bailey, Castalia, Dortches, Middlesex, Momeyer, Red Oak, and Spring Hope), and three municipalities (Rocky Mount, Sharpsburg, and Whitakers) partially within its boundaries. This county is the largest county among the three participating in this Plan. Nash County continues to experience population growth and development, primarily in the three towns (Dortches, Nashville, and Red Oak) to the northwest of Rocky Mount. The City of Rocky Mount is the largest municipality in the county, and it is located in the east-central side of the county, and crosses over into the neighboring Edgecombe County. The Town of Nashville, located near the geographic center of the county, is the county seat and is approximately 45 miles east of Raleigh.

Edgecombe County lies east of Nash and Northeast of Wilson Counties -- immediately beyond the break between the Piedmont and the Coastal Plain and therefore off the ancient shoreline. Being east of this Fall Line, all of Edgecombe County soil is composed of sand deposits left by the retreating ocean.

Edgecombe County is slightly smaller in size than Nash County and generally has not experienced the same population growth as the other two counties. The City of Rocky Mount is the most populous municipality in the county and it is located in the west-central side of the county, crossing over into neighboring Nash County. The town of Tarboro is the county seat. The Town of Sharpsburg is rather unique, in that it is located partially within all three of the counties in this plan.

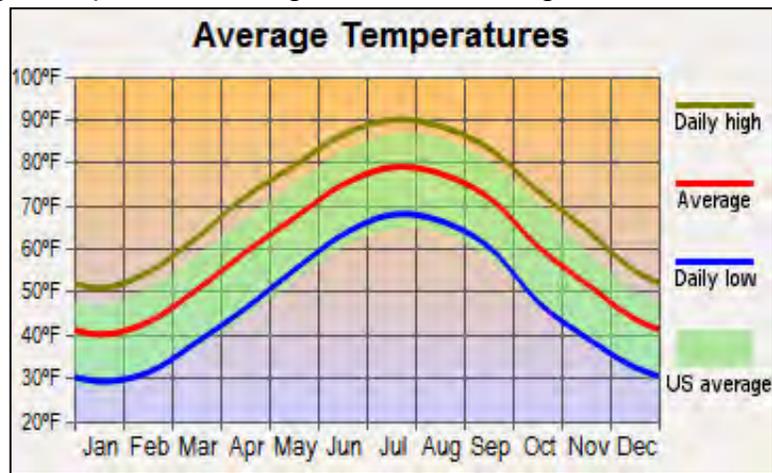
Wilson County, like Edgecombe County, is also composed primarily of sandy sediments underlain by clay sediments. Bedrock in the northwestern section of the County forms the division between the Coastal Plain and the Piedmont province of the State. Like the other two counties in this Plan, Wilson County slopes in a southeastern direction.

Wilson County is situated just 35 miles east of the City of Raleigh. Due to this proximity, certain areas in the western part of the county have been experiencing fairly rapid development over the past several years. Although the smallest of the three counties participating in this Plan, Wilson County has seven incorporated municipalities located completely within its borders. (These municipalities include Wilson, Black Creek, Elm City, Lucama, Saratoga, Sims, and Stantonsburg.) The largest municipality in Wilson County is the City of Wilson, which serves as the county seat (location of the county courthouse).

Subsection 2-5 includes a table that lists the population of all the counties and their respective municipalities. This table helps to demonstrate the extensiveness of this hazard mitigation planning effort.

## 2.2 CLIMATE

The three counties included in the Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan experience four distinct seasons (summer, fall, winter and spring) and related climatic conditions. Temperature fluctuations within each of the three- counties in the planning area are very similar. The following chart displays the average daily temperature variations for the area. During an average year, daily low temperatures range from an average of around 30 degrees (F) in January to the upper 60s during July and into early August. Daily high temperatures range from an average of around 51 degrees in January to 90 degrees in July and early August. It is interesting to observe that the average temperatures in the region are also very similar to the US averages throughout the year. The main difference is that the average daily high temperature in the region is around four degrees higher than the US average.<sup>5</sup>

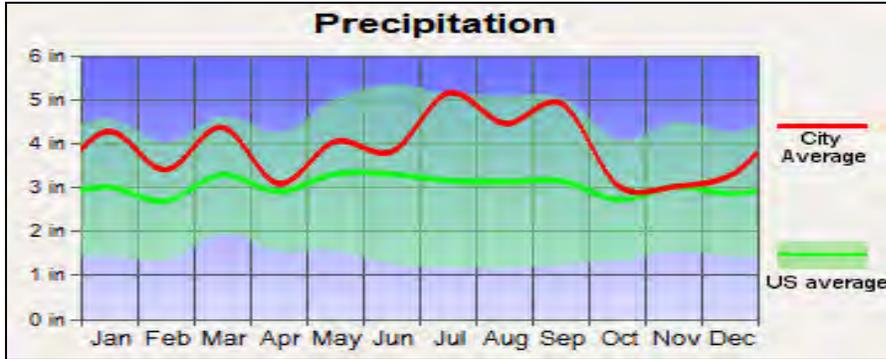


Rainfall, or precipitation, varies slightly in the three-county area as shown in the following graphs. In the Wilson, NC area (Wilson County), precipitation remains well above the US average in most months and is particularly high from July through September. Precipitation is close to or slightly above the national average in mid-April and from mid-October to early December during an average year.<sup>6</sup>

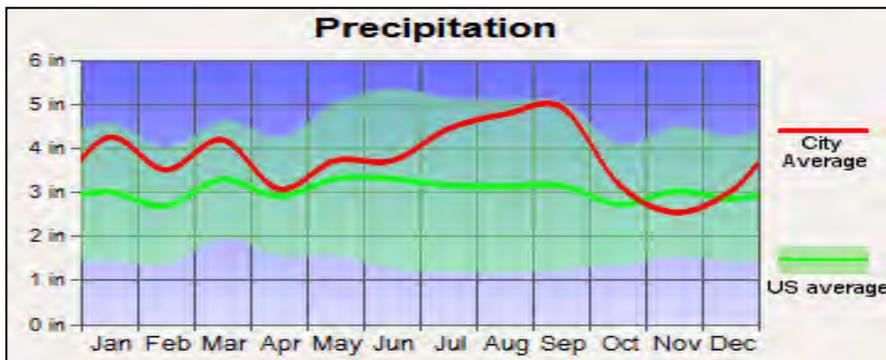
In the Rocky Mount (Nash County) area, precipitation on average is heaviest from mid-July through mid-September; during November the average precipitation rate dips below the US average. The Tarboro area (Edgecombe County) has a very similar precipitation rate as the Rocky Mount area, as is depicted in the graph above.

<sup>5</sup> See: <http://www.city-data.com>

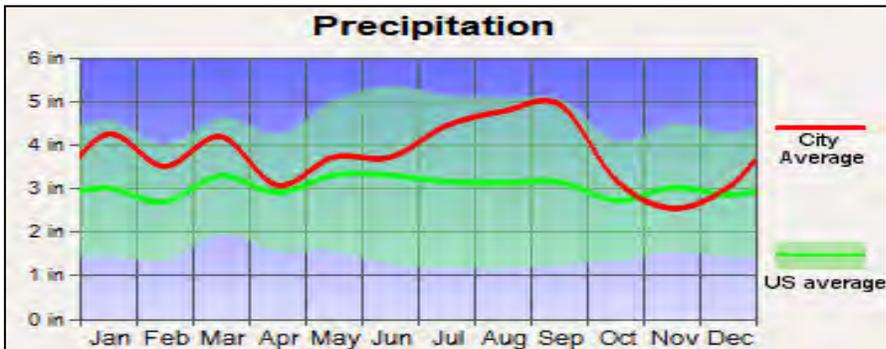
<sup>6</sup> For the various locations see: <http://www.city-data.com/city/Wilson-North-Carolina.html>; or <http://www.city-data.com/city/Tarboro-North-Carolina.html>; or <http://www.city-data.com/city/Rocky-Mount-North-Carolina.html>



**Wilson, NC Area (Wilson County) Precipitation**



**Rocky Mount, NC Area (Nash County) Precipitation**



**Tarboro, NC Area (Edgecombe County) Precipitation**

Although the three counties share similar general average temperatures and precipitation, as illustrated by the graphs, extreme temperatures and precipitation have been recorded within the area, as indicated in the following table, and can contribute to hazards.

**Table 2.2**

| <b>EXTREMES IN TEMPERATURE, PRECIPITATION AND SNOWFALL</b>  |                              |                                |                                       |                                  |
|---|------------------------------|--------------------------------|---------------------------------------|----------------------------------|
| <b>Jurisdiction</b>   | <b>Highest Temperature</b>   | <b>Lowest Temperature</b>      | <b>Greatest One-day Precipitation</b> | <b>Greatest One-day Snowfall</b> |
| Wilson County*  | 107F(7/22/1952)<br>Wilson SW | -5F (1/21/1985)<br>Wilson SW   | 7.42" (7/29/1950)<br>Wilson SW        | 13.7" (2/1/1948)<br>Wilson SW    |
| Nash County**   | 107F (9/7/1954)<br>Nashville | -8F (1/4/1918)<br>Nashville    | 6.85" (9/30/1924)<br>Rocky Mount      | 18" (3/3/1980)<br>Nashville      |
| Edgecombe County***   | 107F (7/18/1942)<br>Tarboro  | -8F (1/21/1985)<br>Rocky Mount | 9.5" (10/25/1872)<br>Tarboro          | 15" (3/3/1927)<br>Tarboro        |
| Data Source: State Climate Office of North Carolina<br>(* Data from 10/1/1916-7/9/2014)<br>(** Data from 1/5/1904-2014)<br>(***) Data from 1/1/1870-9/7/2014) |                              |                                |                                       |                                  |

There have been severe climatic events throughout the seasons in this region that can cause substantial difficulties and even endanger human life. The occasional extreme temperature, precipitation, and snowfall events demonstrate that the region can be exposed to more than average climatic variations of heat and humidity in the summer and below freezing low temperatures in the winter. These events include hazardous and traumatic weather events in the form of severe winter storms, heavy rain storms and hurricanes with related flooding events, tornadoes, and incidents of drought. These serious natural hazards are discussed in Section IV of this plan.

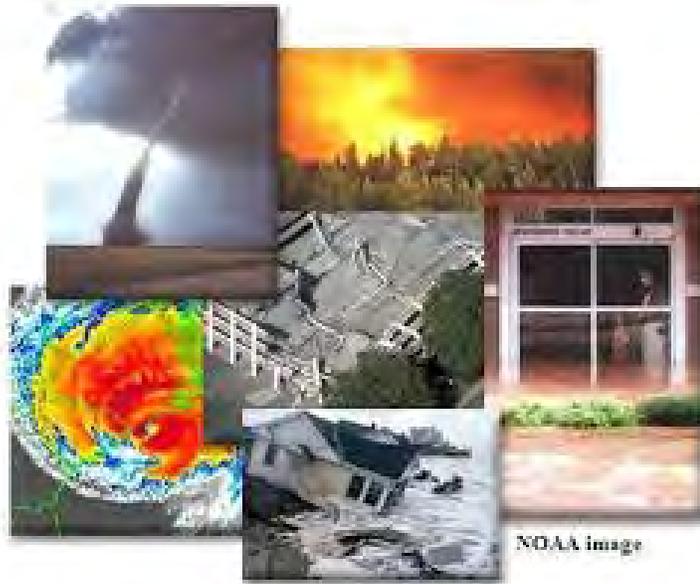
Longer term climate variations also have the potential to impact the region. Subsection 2.3 discusses climate change and its potential impact on weather patterns and related conditions within the region.

**2.3 POTENTIAL CLIMATE CHANGE IMPACT AND HAZARD MITIGATION**

The Southeast’s climate, which includes our region in NC, is influenced by many factors, including latitude, topography, and proximity to the Atlantic Ocean and the Gulf of Mexico. In general, temperatures decrease farther north and in the Appalachian Mountains, and precipitation decreases the further one is removed from the Gulf and Atlantic coasts. The region’s climate also varies considerably over seasons, years, and decades, largely because of natural cycles, such as the El Niño -Southern Oscillation (periodic changes in ocean surface temperatures in the Tropical Pacific Ocean) or differences in atmospheric pressure over key areas of the globe. As a result of these global weather cycles, the occurrences of hurricanes, tornadoes, droughts, flooding, freezing winters, and ice storms, that contribute to climate and weather disasters in the region can be altered (increased or decreased). The disastrous storms of the last few years in the Atlantic, such as Hurricane Sandy that destroyed much of the coast of New

Jersey and created billion dollar losses are indicators of the types of disasters that local and global climate conditions can cause.

It is widely believed by scientists, including climatologists that Climate Change may be contributing to some of our worst natural disasters, such as tornadoes and hurricanes. During the last century across the Southeast average annual temperatures have fluctuated between warm and cool periods, with warm peaks occurring during the 1930s and 1940s, followed by a cool period in the 1960s and 1970s. Since 1970, temperatures have risen by an



average of 2°F, including higher average temperatures during summer months. The number of days above 95°F and nights above 75°F has also increased, while the number of extremely cold days has decreased. Over the past 50 years the number of major tornadoes has increased, but this may be the result of better detection and reporting instead of a trend. Compared to early records of hurricanes dating back to the mid-1880s, since the 1980s the total number of Category 4 and 5 hurricanes in the Atlantic basin has substantially increased. This activity can be attributed to both natural events and possibly Climate Change.<sup>7</sup>

According to the report on Climate Change Impacts in the United States published by the US Global Change Research Program in 2014, temperatures across the Southeast and Caribbean are expected to increase during this century, with short-term fluctuations due to natural climate variability.<sup>8</sup> As a result, climate conditions could include significant increases in the number of hot days (95°F or above) and decreases in freezing events for this region. Projected increases to the year 2100 are in the range of 4°F to 8°F.<sup>9</sup>

<sup>7</sup> See: <http://nca2014.globalchange.gov/report/regions/southeast>

<sup>8</sup> See: <http://nca2014.globalchange.gov/report/regions/southeast> (download of Climate Change Impacts in the US, Chapter 17, P. 399)

<sup>9</sup> See: Same

Because the Southeastern U.S. is located in the transition zone between projected wetter conditions to the north and drier conditions in the southwest, projections of future precipitation conditions are not as reliable as temperature projections. Caribbean area projection models show future decreases in precipitation, with only a few areas showing increases. This pattern will likely be spread across the entire region, and coupled with warming projections, tropical storms are expected to be fewer in number globally, but stronger in force, such as a continued increase in Category 4 and 5 storms.<sup>10</sup> However, as has been observed during the last century, extreme precipitation at various times has occurred and may continue to occur. The negative effects of increasing temperatures and changing atmospheric patterns may also affect the number of lightning strikes in the Southeast, which could pose an additional danger for those outside during such events, and could increase the potential for wildfires.

Changes in land use and land cover are more rapid in the Southeast than most other areas of the country and often interact with and serve to amplify the effects of climate change on regional ecosystems. The Southeast has a disproportionate number of the fastest-growing metropolitan areas in the country and important economic sectors located in low-lying coastal areas. These areas are particularly vulnerable to some of the expected impacts of climate change. The most severe and widespread impacts could be associated with sea level rise and changes in temperature and precipitation, which ultimately affect water availability.

According to the report on Climate Change Impacts in the United States, global sea level rise over the past century averaged approximately eight inches, a rate that is expected to accelerate through the end of this millennium. Because of the extensive development that has occurred along the southeastern coast line, portions of low areas in close proximity to the ocean are highly vulnerable to sea level rise. To address rise on the coast of NC, for example, the "North Carolina Department of Transportation is raising the roadbed of U.S. Highway 64 across the Albemarle-Pamlico Peninsula by four feet, which includes 18 inches to allow for higher future sea levels".<sup>11</sup> Not only does rise in sea level increase pressure on public utilities by contaminating potential freshwater supplies with saltwater, such problems are amplified when there is less rain and thus less runoff to replenish streams. Also, during heavy rain events from hurricanes or other severe storms, the hazard of increased inland flooding can occur.

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<sup>10</sup> See: Same

<sup>11</sup> See: <http://nca2014.globalchange.gov/report/regions/southeast> (download of Climate Change Impacts in the US, Chapter 17, P. 400)

Sea level rise can have impacts far beyond the area directly affected. For example, sea level rise can impair the capacity of stormwater drainage systems to ultimately empty into the ocean due to receding waters exceeding drainage infrastructure heights. Drainage problems that are already experienced in various inland locations near the coast could be further impacted during heavy rains. Structures and infrastructure in low areas are increasingly prone to flooding during tropical storms. As a migration of affected residents from impaired areas occurs, the social and infrastructural capacity of surrounding areas may be stressed.

Less than 100 miles from the Atlantic Ocean, the three-county area included in the [Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan](#) is subject to heavy rain events and hurricanes that sweep up the coastline. A recent extreme example in our region was Hurricane Floyd in 1999 that resulted in a massive flooding event for the entire eastern NC area. This single event tested the quality of hazard mitigation planning, challenged the public and all emergency response systems, and required years of recovery efforts still ongoing today.

As a region approximately 100 miles from the coast, sea level rise may not be an immediate condition with which to be concerned. However, with a sea rise projection of 1-4 feet by 2100, adaptive options may be required in future Hazard Mitigation Plans for the area. Sea level rise is a climatic condition that must be monitored and projected. If certain conditions worsen, for example if increased saltwater intrusion that reduces the availability of fresh surface and groundwater for crop irrigation and human consumption expands, then extensive collaborative efforts among many governmental and other organizations will be required. Time will tell if our region must adapt to Climate Change.

## **2.4 SURFACE WATERS**

Within the three-county planning area there are numerous streams, tributaries and major waterways that flow into the major waterways of the Neuse River and Tar River, all of which are prone to flooding. The river basins within the three-county Upper Coastal Plain area include the Tar-Pamlico River Basin (Nash, Wilson, and Edgecombe counties) and Neuse River Basin (Wilson County). These 6.7 square miles of waterways create extensive floodplains that traverse all three counties participating in this Plan, as well as surrounding counties.

These water ways provide public water resources for the major municipalities in the region. The Tar River provides water for Rocky Mount and Tarboro, and tributaries to the Neuse River for the City of Wilson. These areas account for 1,424 total square miles: 374 square miles in Wilson County of which 3 square miles are water ways, 543 square miles in Nash County of which 2.4 square miles are water ways, and 507 square

miles in Edgecombe County of which 1.3 square miles are water ways.<sup>12</sup> The hazard of flooding is discussed in more detail in Section V: Risk Assessment.

The following table displays the number of dams and reservoirs scattered throughout the three-county area. Additional information on dams, including conditions, is included in Section V: Risk Assessment.

**Table 2.3**

| <b>AREA DAMS AND RESERVOIRS</b>   |             |                   |
|---|-------------|-------------------|
| <b>Counties</b>   | <b>Dams</b> | <b>Reservoirs</b> |
| <b>Nash</b>   | 27          | 29                |
| <b>Wilson</b>   | 15          | 18                |
| <b>Edgecombe</b>  | 7           | 7                 |
| <b>Total</b>  | 49          | 54                |
| <b>Data Source:</b><br>See: <a href="http://northcarolina.hometownlocator.com/">http://northcarolina.hometownlocator.com/</a> |             |                   |

## **2.5 POPULATION**

Of the three participating counties, Nash County has the largest population with an estimated 2013 population of 95,093, followed by Wilson County with 82,350, and Edgecombe County with 55,574. The populations of the area's 25 municipalities vary greatly. The City of Rocky Mount, located in both Nash and Edgecombe counties, has the largest population with 56,954 residents. The City of Wilson, located in Wilson County, is the next largest municipality with a population of 49,628. The Town of Tarboro is the largest municipality in Edgecombe County with a population of 11,348. Some of the smaller municipalities include Leggett in Edgecombe County with an estimated 2013 population of 60, Sims in Wilson County with a population of 283, and Momeyer in Nash County with a population of 223. However, all of these municipalities have governing boards and carryout responsibilities and public services relative with their respective sizes, tax bases and subsequent resources.

The table below displays the population counts and estimate for each county, each municipality, and the total population counts and estimate for all three counties combined.

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<sup>12</sup> Nash, Wilson, and Edgecombe County areas as described in Wikipedia, the Free Encyclopedia - (See: [http://en.wikipedia.org/wiki/Main\\_Page](http://en.wikipedia.org/wiki/Main_Page))

**Table 2.4**

| <b>PARTICIPATING COUNTY AND MUNICIPALITY POPULATIONS</b> |                                 |                               |                                |                              |                                    |
|--|---------------------------------|-------------------------------|--------------------------------|------------------------------|------------------------------------|
| <b>County</b>  | <b>1990 Total Population***</b> | <b>2000 Total Population*</b> | <b>2010 Total Population**</b> | <b>% Change (2000 -2010)</b> | <b>Estimated 2013 Population**</b> |
| <b>Wilson County</b>                                     | <b>66,061</b>                   | <b>73,811</b>                 | <b>81,234</b>                  | <b>10.06%</b>                | <b>82,350</b>                      |
| City of Wilson   | 36,930                          | 44,405                        | 49,164                         | 10.72%                       | 49,628                             |
| Black Creek  | 615                             | 714                           | 769                            | 7.70%                        | 766                                |
| Elm City   | 1,624                           | 1,165                         | 1,298                          | 11.42%                       | 1,353                              |
| Lucama   | 933                             | 847                           | 1,108                          | 30.81%                       | 1,130                              |
| Saratoga   | 342                             | 379                           | 408                            | 7.65%                        | 410                                |
| Sims   | 124                             | 128                           | 282                            | 120.31%                      | 283                                |
| Stantonsburg   | 782                             | 726                           | 784                            | 7.99%                        | 788                                |
| <b>Nash County</b>                                       | <b>76,677</b>                   | <b>87,385</b>                 | <b>95,840</b>                  | <b>9.68%</b>                 | <b>95,093</b>                      |
| Rocky Mount  | 48,997                          | 55,620                        | 57,477                         | 3.34%                        | 56,954                             |
| Bailey   | 553                             | 670                           | 569                            | -15.07%                      | 566                                |
| Castalia   | 261                             | 340                           | 268                            | -21.18%                      | 262                                |
| Dortches   | 840                             | 809                           | 935                            | 15.57%                       | 937                                |
| Middlesex  | 730                             | 838                           | 822                            | -1.91%                       | 818                                |
| Momeyer  | NA                              | 291                           | 224                            | -23.02%                      | 223                                |
| Nashville  | 3617                            | 4,417                         | 5,352                          | 21.17%                       | 5,482                              |
| Red Oak  | 280                             | 2,723                         | 3,430                          | 25.96%                       | 3,443                              |
| Sharpsburg#  | 1,536                           | 2,431                         | 2,024                          | -16.74%                      | 2,014                              |
| Spring Hope  | 1221                            | 1,261                         | 1,320                          | 4.68%                        | 1,324                              |
| <b>Edgecombe County</b>                                  | <b>56,692</b>                   | <b>55,606</b>                 | <b>56,552</b>                  | <b>1.70%</b>                 | <b>55,574</b>                      |

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|              |                |                |                |              |                |
|--------------|----------------|----------------|----------------|--------------|----------------|
| Tarboro      | 11,037         | 11,138         | 11,415         | 2.49%        | 11,348         |
| Conetoe      | 270            | 365            | 294            | -19.45%      | 287            |
| Leggett      | 103            | 77             | 60             | -22.08%      | 60             |
| Macclesfield | 486            | 458            | 471            | 2.84%        | 465            |
| Pinetops     | 1,521          | 1,419          | 1,374          | -3.17%       | 1,358          |
| Princeville  | 1,676          | 940            | 2,082          | 121.49%      | 2,046          |
| Spring Hope  | 1221           | 1,261          | 1,320          | 4.68%        | 1,324          |
| Speed        | 91             | 70             | 80             | 14.29%       | 80             |
| Whitakers    | 860            | 799            | 744            | -6.88%       | 737            |
| <b>Total</b> | <b>199,430</b> | <b>216,802</b> | <b>233,626</b> | <b>7.76%</b> | <b>233,017</b> |

NOTES: # Sharpsburg is in all three counties; ###Rocky Mount is in Nash and Edgecombe Counties; ### Whitakers is in two counties (Nash and Edgecombe). County population totals account for these communities.

**Data Sources:**

\* See: <http://northcarolina.hometownlocator.com/nc/>

\*\* 2010 and estimated 2013 Population See:

[http://factfinder2.census.gov/faces/nav/jsf/pages/community\\_facts.xhtml#none](http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml#none)

\*\*\* For 1990 Population See: <http://censtats.census.gov/cgi-bin/pl94/pl94data.pl>

## **2.6 TRANSPORTATION SERVICES**

Transportation corridors, including highways and rail service, link areas together. These facilities provide access routes for business and personal travel, freight delivery, and a variety of other purposes. It is important that highways are available as part of the evacuation system to quickly allow citizens in areas preparing to be impacted by a natural hazard, such as a hurricane, to move to safer areas, and for emergency and public service vehicles to have ingress to and egress from areas after they have been impacted by a disaster.

Major arterial highways in the three-county area include I-95, I-795, US 64 Bypass, and US 264 Bypass, each providing four-lane controlled access. I-95 is the major north/south corridor that links the northern United States with the eastern US and is heavily traveled. I-795 provides an alternate controlled-access highway heading south from Wilson. US 64 Bypass and US 264 Bypass provide four-lane controlled access in

an east/west direction from western NC to eastern NC. US 64 bisects Nash and Edgecombe counties from east to west, and I-95 bisects all five counties of the UCPCOG region from south to north. US 264 provides access from Raleigh through Wilson to Greenville and beyond. In addition, principal state routes, including NC 97, NC 231, NC 58, NC 581, NC 43, NC 48, NC 258 and NC 4, serve the inner three-county area and beyond. The map at the end of Section 1 on page 10 displays the major highways through the three-county area.

Public bus transportation services, including fixed route and intra-city routes, are available through private carriers as well as public transportation systems in the larger municipalities in the region. In addition, rural or on-call transit services are available on a limited basis through county operations. Lastly, the school systems for all three counties provide busing operations for students.



Various railroad lines owned by companies operate in or serve portions of the three-county area. CSX Transportation has a major rail line which traverses Nash and Wilson counties as well as the entire State in a north-south direction. The CSX rail line constitutes the Nash County/Edgecombe County boundary and also has a major freight terminal located in Rocky Mount. This railroad line also traverses Wilson County along the main freight line that passes through Elm City, Wilson, and Black Creek. As of 2012, the Gulf & Ohio Railway owned the Nash County Railroad and operates about 20 miles of rail service from Rocky Mount westward to Spring Hope. This railroad also serves the Wilson area with a line from Raleigh to Washington, NC. In 1982 the Norfolk Southern Railroad acquired the Southern Railway owned Carolina and Northwestern Railway that operated a rail line in the southern portion of Nash County connecting Middlesex and Bailey with points east and west of the county. The Norfolk Southern Railway also operates in Wilson County. Passenger service is also available for Wilson and Nash counties over the main CSX line via Amtrak, which maintains stations in the cities of Rocky Mount and Wilson. A CSX railroad spur line connects Tarboro in Edgecombe County and locations in eastern North Carolina with the major CSX line near Rocky Mount in Nash County.

Major air transportation services are primarily provided for the three-county area by the Rocky Mount-Wilson Airport, which is located in the southeastern portion of Nash County adjacent to NC 97, near the Wilson County line. This airport includes a fixed-

base operation that provides services to approximately 65 private airplanes, many of which are corporate aircraft. Although no commercial flights currently utilize the facility, the airport provides a hub for corporate travelers to and from the area and has facilities to service larger passenger planes or other aircraft needed during times of emergency.

## **2.7 INCORPORATION OF EXISTING PLANS AND REPORTS**

The following reports, plans and reference documents were utilized to prepare this section as referenced throughout the section:

1. USDA, Soil Conservation Service, Soil Survey of Nash County, North Carolina, 1983:  
[http://www.nrcs.usda.gov/Internet/FSE\\_MANUSCRIPTS/north\\_carolina/nashNC1989/text.pdf](http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/north_carolina/nashNC1989/text.pdf)
2. USDA, Soil Conservation Service, Soil Survey of Wilson County, North Carolina, 1980:  
[http://www.nrcs.usda.gov/Internet/FSE\\_MANUSCRIPTS/north\\_carolina/wilsonNC1983/text.pdf](http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/north_carolina/wilsonNC1983/text.pdf)
3. USDA, Soil Conservation Service, Soil Survey of Edgecombe County
4. Speer, Alexander J., The Sims Pluton, Nash and Wilson Counties, North Carolina, Bulletin 97, 1997: <http://digital.ncdcr.gov/cdm/ref/collection/p16062coll9/id/13550>
5. Wheeler, Russell L., Known or Suggested Quaternary Tectonic Faulting, Central and Eastern United States - New and Updated Assessments for 2005, US Department of the Interior and US Geological Survey, 2005:  
<http://www.wjla.com/articles/2013/08/virginia-earthquake-2011-two-years-later-scars-and-memories-linger-93082.html#ixzz3lJrnznnq>
6. Taylor, Kenneth B., Earthquake History of North Carolina, NC Geological Survey, Division of Land Resources, 2014 (Power Point Presentation by Dr. Kenneth B. Taylor, State Geologist:  
[http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=50cb8f9b-b1ac-4421-a136-616697bb64b1&groupId=38334](http://portal.ncdenr.org/c/document_library/get_file?uuid=50cb8f9b-b1ac-4421-a136-616697bb64b1&groupId=38334))
7. For climate and precipitation conditions in the area data for each major city was obtained from <http://www.city-data.com> and utilized to provide summary data the three-county area
8. The State Climate Office of North Carolina (<http://www.nc-climate.ncsu.edu/>) was utilized to identify weather extremes for specific counties: [http://www.nc-climate.ncsu.edu/climate/nc\\_extremes.php](http://www.nc-climate.ncsu.edu/climate/nc_extremes.php)
9. US Global Change Research Program, GlobalChange.Gov, National Climate Assessment, The Impact of Climate Change on the US, 2014:  
<http://nca2014.globalchange.gov/report/regions/southeast> for impact information on the Southeastern US
10. Square miles of area and waterways for Nash, Wilson, and Edgecombe counties as described in Wikipedia, the Free Encyclopedia:  
[http://en.wikipedia.org/wiki/Main\\_Page](http://en.wikipedia.org/wiki/Main_Page)
11. Listing of total number of dams and reservoirs in each county:

- <http://northcarolina.hometownlocator.com/>
12. Data Source for year 2000 population:  
<http://northcarolina.hometownlocator.com/nc/>;  
For 2010 and estimated 2013 population see:  
[http://factfinder2.census.gov/faces/nav/jsf/pages/community\\_facts.xhtml#none](http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml#none);  
For 1990 Population see: <http://censtats.census.gov/cgi-bin/pl94/pl94data.pl>
13. Data sources for **Physically Vulnerable Populations In The Three County Area:**  
Tarboro: <http://www.city-data.com/city/Tarboro-North-Carolina.html>  
Rocky Mount: <http://www.city-data.com/city/Rocky-Mount-North-Carolina.html>  
Wilson City: <http://www.city-data.com/city/Wilson-North-Carolina.html>  
Wilson County: [http://www.city-data.com/county/Wilson\\_County-NC.html](http://www.city-data.com/county/Wilson_County-NC.html)  
Nash County: [http://www.city-data.com/county/Nash\\_County-NC.html](http://www.city-data.com/county/Nash_County-NC.html)  
Edgecombe County: [http://www.city-data.com/county/Edgecombe\\_County-NC.html](http://www.city-data.com/county/Edgecombe_County-NC.html)
14. Data sources for **CULTURALLY AND ECONOMICALLY VULNERABLE POPULATIONS:**  
2010 US Census; 2010 American Community Survey; 2012 US Census- Selected Economic Characteristics; 2008-2012 American Community Survey; 2013 American Community Survey (1-Year Estimate); 2010 US Census - Demographic Profile
15. Data sources for **PHYSICAL VULNERABILITIES (RESIDENTIAL STRUCTUES) IN THE THREE COUNTY AREA:**  
For Wilson County see: [http://www.city-data.com/county/Wilson\\_County-NC.html](http://www.city-data.com/county/Wilson_County-NC.html)  
For Nash County see: [http://www.city-data.com/county/Nash\\_County-NC.html](http://www.city-data.com/county/Nash_County-NC.html)  
For Edgecombe County see: [http://www.city-data.com/county/Edgecombe\\_County-NC.html](http://www.city-data.com/county/Edgecombe_County-NC.html)
16. Capacity of vulnerable to be resilient: UNC Institute for the Environment, **Disaster Plans: Challenges and Choices to Build the Resiliency of Vulnerable Populations**, 2008, p. 24 ([http://www.ie.unc.edu/cscd/pdf/Plan\\_assessment.pdf](http://www.ie.unc.edu/cscd/pdf/Plan_assessment.pdf))
17. Information about various transportation corridors as well as geography and topography within the three county area obtained from the land development plans prepared for each county:  
Edgecombe County Land Development Plan 2007-2017:  
([http://www.edgecombecountync.gov/client\\_resources/planning/edgecombe%20co%202008%20ldp.pdf](http://www.edgecombecountync.gov/client_resources/planning/edgecombe%20co%202008%20ldp.pdf))  
Wilson County 2025 Comprehensive Plan:  
(<http://www.wilson-co.com/DocumentCenter/View/428>)  
Nash County Land Development Plan:  
(<http://www.co.nash.nc.us/DocumentCenter/View/839>)

## SECTION 3: PLANNING PROCESS

### 3.1 BACKGROUND

The North Carolina counties of Nash, Edgecombe and Wilson, and all 25 incorporated municipalities located therein, have collaborated to develop and adopt this regional hazard mitigation plan.

Previously, each of the three counties participating in this regional hazard mitigation plan adopted multi-jurisdictional plans that were set to expire on the following schedule:  
Nash County on 5/10/2016;  
Edgecombe County on 8/12/2016;  
Wilson County on 9/15/2015.

On 2/1/2012 the UCPCOG contacted Nash County about the possibility of a grant to fund a regional Hazard Mitigation Plan. An announcement had also been distributed on the manager's list-serve earlier that day. Following a consultation with NCDDEM and discussions with the Wilson and Edgecombe County managers, the Nash County manager and assistant manager decided to proceed with the process. On 2/23/2012 Nash County submitted a letter of interest to NCDDEM for a grant to fund a regional plan for the 28 local governments in Nash, Edgecombe, and Wilson counties. On 3/27/2012, NCDDEM asked Nash County to submit a grant application package. In April and May of 2012, each of the 28 local governments passed a resolution signed by chief elected officials agreeing to participate in a regional hazard mitigation plan. On 5/7/2012 the Nash County Board of Commissioners, in a public meeting, authorized submission of the grant application, approved a resolution designating the county manager and finance officer as primary and secondary agents, and approved the Designated Agents Form. (See Appendix C.1 for the Agenda Item and Resolution.)



This Plan supports a statewide regional hazard mitigation planning initiative in North Carolina. Participants have collaborated to update and combine three county multi-jurisdictional hazard mitigation plans into this one regional plan.

Grants totaling \$70,000 (\$52,500 FEMA and \$17,500 DEM) support this regional hazard mitigation plan – per a letter from FEMA to DEM dated 9/25/2012 and a letter from the NC

Department of Public Safety Department of Emergency Management (DEM) dated 12/17/2012. The notification from DEM was mailed 1/3/2013 and per Nash County was received 1/8/2013. DEM and Nash County, the lead county and sub-grantee respectively, entered into a Grant Agreement (signed by DEM 12/12/12 & 1/17/13, by Nash County 1/8/13, and 1/15/13 by the DEM Controller – making the effective Period of Agreement the date of the last signature on 1/17/13). This was sent by Memo from DEM to Nash County 1/23/2013 and received by Nash County 1/25/2013.

### **3.2 SUBCONTRACT TO COUNCIL OF GOVERNMENTS**

On 2/4/2013 Nash County (lead county/sub-grantee) awarded a subcontract to the Upper Coastal Plain Council of Governments (UCPCOG) to prepare the regional hazard mitigation plan with consensus from all 28 local governments and as presented in the grant application. A copy of the subcontract was submitted to DEM. On 3/1/2013, Nash County submitted a Procurement Letter to DEM, of which a draft had been approved by DEM by email 2/26/13.

This Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan has been primarily authored by the Upper Coastal Plain Council of Governments, with input from representatives of all 28 local governments.

### **3.3 PARTICIPATING LOCAL GOVERNMENTS**

This regional hazard mitigation plan includes the three counties of Nash, Edgecombe and Wilson in the upper coastal plain region of North Carolina. It also includes the following 25 municipalities: Bailey, Black Creek, Castalia, Conetoe, Dortches, Elm City, Leggett, Lucama, Macclesfield, Middlesex, Momeyer, Nashville, Pinetops, Princeville, Red Oak, Rocky Mount, Saratoga, Sharpsburg, Sims, Speed, Spring Hope, Stantonsburg, Tarboro, Whitakers, and Wilson.

### **3.4 MEETING FEDERAL AND STATE REGULATIONS**

The Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan was developed in accordance with current rules and regulations governing local hazard mitigation plans, including: (1) NCGS Chapter 166A: North Carolina Emergency Management Act, as amended by Senate Bill 300: An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response and Recovery Commission (2001); (2) the Robert T. Stafford Disaster Relief and Assistance Act, as amended by the Disaster Mitigation Act of 2000 (Public Law 106-390, October 30, 2000); and (3) Code of Federal Regulations Title 44 – Emergency Management and Assistance 201.6 Local Mitigation Plans (44 CFR 201.6).

### **3.5 PROGRESS REPORTS**

Beginning in January 2013, progress reports were prepared by the UCPCOG, and then reviewed, edited, and submitted by Nash County to NC DEM. Progress Reports are available to all participating local governments upon request and can be delivered through email, mail or the DropBox file sharing system utilized during the planning process.

The next page contains a list of all of the Progress Reports with reporting period dates through the grant termination date on or before 9/25/2015, per the Grant Agreement. Additionally, close-out report forms provided by NCDDEM will be completed no later than 45 days after termination of the grant.

- Progress Report 1 1/17-2/28/2013
- Progress Report 2 3/1-31/2013
- Progress Report 3 4/1-30/2013
- Progress Report 4 5/1-31/2013
- Progress Report 5 6/1-30/2013
- Progress Report 6 7/1-31/2013
- Progress Report 7 8/1-31/2013
- Progress Report 8 9/1-30/2013
- Progress Report 9 10/1-31/2013
- Progress Report 10 11/1-30/2013
- Progress Report 11 12/1-31/2013
- Progress Report 12 1/1-31/2014
- Progress Report 13 2/2-28/2014
- Progress Report 14 3/1-31 2014
- Progress Report 15 4/1-30/2014
- Progress Report 16 5/1-31/2014
- Progress Report 17 6/1-30/2014

| North Carolina Division of Emergency Management<br>Hazard Mitigation Assistance<br>Monthly Progress Report |  |
|--|--|
| Progress Report Period:  | 06/01/2013 – 06/30/2013  |
| Project Title:   | Nash-Edgecombe-Wilson Counties Regional Hazard Mitigation Plan |
| Project ID#:   | HMGP 4019-0007   |
| Sub-grantee:   | Nash County  |
| Address:   | 120 W. Washington St., Nashville, NC 27856                     |
| County:  | Nash   |
| Contact Person:  | Patsy King McGhee  |
| Title:   | Assistant to the County Manager                                |
| Phone #(s):  | 252-462-2434   |
| Total Project Obligation:  | \$70,000.00 (FEMA 75% \$52,500.00/DEM 25% \$17,500)            |
| Project Approval Date:   | September 25, 2012   |
| Period of Performance:   | September 25, 2015   |
| Anticipated Completion Date:   |  |

On 7/31/2014 NCDDEM notified Nash County of a revised Progress Report form, to support requests of the NC Office of State Management and Budget regarding estimated anticipated project costs in the next 30 days and budget spent to date.

- Progress Report 18 7/1-31/2014
- Progress Report 19 8/1-31/2014
- Progress Report 20 9/1-30/2014
- Progress Report 21 10/1-31/2014

On 11/10/2014 NCDDEM requested reports delivered on the following schedule:

- Progress Report 22 11/1-21/2014
- Progress Report 23 11/21-12/5/2014
- Progress Report 24 12/6-12/2014
- Progress Report 25 12/13-19/2014

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|                    |                     |
|--------------------|---------------------|
| Progress Report 26 | 12/20/2014-1/2/2015 |
| Progress Report 27 | 1/2-9/2015          |
| Progress Report 28 | 1/9-16/2015         |
| Progress Report 29 | 1/16-23/2015        |
| Progress Report 30 | 1/23-30/2015        |
| Progress Report 31 | 1/30/2015 -2/6/2015 |
| Progress Report 32 | 2/7-28/2015         |
| Progress Report 33 | 3/1-31/2015         |
| Progress Report 34 | 4/1-30/2015         |
| Progress Report 35 | 5/1-31/2015         |
| Progress Report 36 | 6/1-30/2015         |
| Progress Report 37 | 7/1-31/2015         |
| Progress Report 38 | 8/1-31/2015         |
| Progress Report 39 | 9/1-25/2015         |

| North Carolina Division of Emergency Management<br>Hazard Mitigation Grant Program<br>Progress Report   |   |                     |   |  |  |   |  |  |   |  |  |
|---|---|---------------------|---|--|--|---|--|--|---|--|--|
| Progress Report Period:   | 11/21/2014 - 12/5/2014  |                     |   |  |  |   |  |  |   |  |  |
| Project Title:  | Nash-Edgecombe-Wilson Counties<br>Regional Hazard Mitigation Plan |                     |   |  |  |   |  |  |   |  |  |
| Project ID#:  | HMGP 4019-0007  |                     |   |  |  |   |  |  |   |  |  |
| Sub-grantee:  | Nash County   |                     |   |  |  |   |  |  |   |  |  |
| Address:  | 120 W. Washington St., Nashville, NC 27856                        |                     |   |  |  |   |  |  |   |  |  |
| County:   | Nash  |                     |   |  |  |   |  |  |   |  |  |
| Contact Person:   | Patsy King McChes   |                     |   |  |  |   |  |  |   |  |  |
| Title:  | Assistant to the County Manager                                   |                     |   |  |  |   |  |  |   |  |  |
| Phone #(s):   | 252-482-2434  |                     |   |  |  |   |  |  |   |  |  |
| Total Project Cost:   | \$70,000.00 (FEMA 75% \$52,500.00/DEM 25% \$17,500)               |                     |   |  |  |   |  |  |   |  |  |
| Budget Spent To-date:   | \$28,763.17   |                     |   |  |  |   |  |  |   |  |  |
| Anticipated funding needs-next 30 days:   | \$10,000  |                     |   |  |  |   |  |  |   |  |  |
| Anticipated cost overrun/under run:   | \$0   |                     |   |  |  |   |  |  |   |  |  |
| Date of Project Approval: September 25, 2012 Project Start Date: February 4, 2013<br>Anticipated completion date: September 25, 2015  |   |                     |   |  |  |   |  |  |   |  |  |
| Summary of progress on project for this report period: Please see attachment.   |   |                     |   |  |  |   |  |  |   |  |  |
| Problems encountered or other comments:<br>Stop Work Order (DEM) 2/26/2013 - 4/17/2013.   |   |                     |   |  |  |   |  |  |   |  |  |
| Status: <small>(Please check pertinent information.) (Double click on box to change default value.)</small>   |   |                     |   |  |  |   |  |  |   |  |  |
| <table border="0"><thead><tr><th>Project Status</th><th>Project Cost Status</th></tr></thead><tbody><tr><td>(1) <input checked="" type="checkbox"/> Project on schedule</td><td>(1) <input checked="" type="checkbox"/> Cost unchanged</td></tr><tr><td>(2) <input type="checkbox"/> Project completed</td><td>(2) <input type="checkbox"/> Cost overrun</td></tr><tr><td>(3) <input type="checkbox"/> Project delayed</td><td>(3) <input type="checkbox"/> Cost underrun</td></tr><tr><td>(4) <input type="checkbox"/> Project canceled</td><td></td></tr></tbody></table> | Project Status  | Project Cost Status | (1) <input checked="" type="checkbox"/> Project on schedule | (1) <input checked="" type="checkbox"/> Cost unchanged | (2) <input type="checkbox"/> Project completed | (2) <input type="checkbox"/> Cost overrun | (3) <input type="checkbox"/> Project delayed | (3) <input type="checkbox"/> Cost underrun | (4) <input type="checkbox"/> Project canceled |  |  |
| Project Status  | Project Cost Status   |                     |   |  |  |   |  |  |   |  |  |
| (1) <input checked="" type="checkbox"/> Project on schedule   | (1) <input checked="" type="checkbox"/> Cost unchanged            |                     |   |  |  |   |  |  |   |  |  |
| (2) <input type="checkbox"/> Project completed  | (2) <input type="checkbox"/> Cost overrun                         |                     |   |  |  |   |  |  |   |  |  |
| (3) <input type="checkbox"/> Project delayed  | (3) <input type="checkbox"/> Cost underrun                        |                     |   |  |  |   |  |  |   |  |  |
| (4) <input type="checkbox"/> Project canceled   |   |                     |   |  |  |   |  |  |   |  |  |

**3.6 LOCAL ADOPTION**

This regional hazard mitigation plan was adopted by local governments in Nash, Edgecombe and Wilson Counties, NC, starting in August of 2015 and completed in September, 2015 following regulatory compliance review and conditional approval by the NC Department of Public Safety Division of Emergency Management (DEM) and Federal Emergency Management Agency Region IV (FEMA).

See Appendix A for copies of the 28 Resolutions of Adoption and a calendar showing when each resolution was adopted.

The regional plan was adopted under the authority and police powers granted to counties and municipalities in the NC General Statutes (NCGS), Chapter 153A and 160A.

This plan will remain in effect until it is required to be updated in five years.

**3.7 PREVIOUS HAZARD MITIGATION PLANS**

Nash, Edgecombe, and Wilson counties have each had two previous multi-jurisdictional hazard mitigation plans. These county-wide plans included their municipalities therein, except on occasions when the City of Rocky Mount and City of Wilson created separate single-jurisdiction plans. Some were prepared by local government staff and some by consultants.

As noted in the beginning of this section, each of the three counties participating in this regional hazard mitigation plan had previously adopted multi-jurisdictional plans that were set to expire on the schedule noted at the beginning of this section. It is

understood by the county and municipal participants that this new plan will expire five years from the first local government's adoption of the plan.

### **3.8 RESOURCES**

Numerous resources were utilized in the preparation of this plan. These included both written and verbal consultation from federal, state, and local officials as well as citizens.

Early in the planning process, the UCPCOG obtained paper copies from each of the three counties of their previously adopted county-level Hazard Mitigation Plans. Regional plans were also obtained and utilized including the Pee Dee Lumber Regional Hazard Mitigation Plan - 2013, Toe River Regional Hazard Mitigation Plan - 2011, Cleveland Gaston Lincoln Regional Hazard Mitigation Plan 2014, and Draft Martin-Tyrell-Washington Regional Hazard Mitigation Plan – 2011.

On 2/14/2013, at a Project Implementation Team Meeting, DEM provided Nash County and UCPCOG with a CD that included (1) 2008 “Local Mitigation Planning Handbook”; (2) the FEMA Local Mitigation Plan Review Guide (October 1, 2011); the State Plan; previous county plans; and various required forms. The 2008 “Local Mitigation Planning Handbook” as revised in format and guidance by FEMA during this planning process.

On 4/2/2013, NCDDEM sent the new FEMA “Local Mitigation Planning Handbook” and on 4/18/2013 confirmed this should be used as the primary source. The new handbook was published March 1, 2013 and the UCPCOG began using this as the primary compliance guidance document.

According to FEMA's website, *“The Local Mitigation Planning Handbook (Handbook) is the official guide for local governments to develop, update and implement local mitigation plans. While the requirements under §201.6 have not changed, the Handbook provides guidance to local governments on developing or updating hazard mitigation plans to meet the requirements under the Code of Federal Regulations (CFR) Title 44 – Emergency Management and Assistance §201.6, Local Mitigation Plans for FEMA approval and eligibility to apply for FEMA Hazard Mitigation Assistance grant programs. It also offers practical approaches, tools, worksheets and local mitigation planning examples for how communities can engage in effective planning to reduce long-term risk from natural hazards and disasters. The Handbook complements and liberally references the Local Mitigation Plan Review Guide (October 1, 2011), which is the official guidance for Federal and State officials responsible for reviewing local mitigation plans in a fair and consistent manner.”* - <https://www.fema.gov/media-library/assets/documents/31598>

During the planning process, those preparing the regional hazard mitigation plan also used [www.fema.gov/multi-hazard-mitigation-planning](http://www.fema.gov/multi-hazard-mitigation-planning) as a resource.

On 5/13/2013, NCDDEM sent four new FEMA mitigation planning publications for use as resources: (1) “Local Mitigation Plan Review Guide (10/1/2011); (2) “Integrating Hazard Mitigation Into Local Planning” (March 1, 2013); “Local Mitigation Planning Handbook (March 2013); and, (3) “Mitigation Ideas” (January 2013). The Upper Coastal Plain Council of Governments (UCPCOG) and Nash County (lead county/sub-grantee) made the planning process’s committee members, identified and defined in the next section, aware of these resources at various points in the process – including at their first meeting and at a meeting and conference call regarding mitigation ideas.

“Integrating Hazard Mitigation Into Local Planning” is a publication that highlights case studies and tools for community officials providing practical guidance on how to incorporate risk reduction strategies into existing local plans, policies, codes, and programs that guide community development or redevelopment patterns. It includes recommended steps and tools to assist with local integration efforts, along with ideas for overcoming possible impediments, and presents a series of case studies to demonstrate successful integration in practice. The document also includes several pull-out fact sheets to provide succinct guidance on specific integration topics. This resource is useful for those who are engaged in local planning, primarily city/county planners and emergency managers who are involved with hazard mitigation planning and implementation.

“Mitigation Ideas” provides a range of potential mitigation actions for reducing the risk to natural hazards and disasters. Ideas for mitigation actions are presented for the following natural hazards: drought, earthquake, erosion, extreme temperatures, flood, hail, landslide, lightning, sea level rise, severe wind, severe winter weather, storm surge, subsidence, tornado, tsunami and wildfire – a number of which we do experience in the upper coastal plain area of North Carolina.

Throughout the process, numerous sources of data were used including information from the Spatial Hazard Events and Losses Database for the United States (SHELDUS) from University of South Carolina (while it was still available free of charge), National Climatic Data Center, National Oceanic and Atmospheric Administration (NOAA), National Weather Service, State Climate Office of NC, and others. When requested, NCDDEM staff advised on the sources used for the purposes of this plan. Sources are cited throughout the Plan.

### **3.9 PLANNING TEAM MEMBERS**

The full planning team consisted of members from each county and municipality and was formally known as the Nash-Edgecombe-Wilson Mitigation Advisory Committee (NEW MAC). They are informally and commonly referenced locally and in the plan as the “NEW Big MAC” or simply the “Big MAC”.

Additionally, a subset of this team served as an expert and specialist sub-group consisting of core Mitigation Advisory Committee members that met as needed to work on various specific issues within the plan and process. This core team was generally referred to as the “NEW Little MAC” or the “Little MAC” and consisted of an Emergency Services Director/Coordinator, Deputy Fire Marshal, Assistant to the County Manager, Planning Director, Deputy Emergency Management Coordinator, and others as identified in Table 3.1 on the next pages.



An “implementation team” consisting of the NC Department of Emergency Management (DEM), Nash County as the lead county/sub-grantee, and the Upper Coastal Plain Council of Governments (UCPCOG) as the subcontractor, was also formed.

Table 3.1 lists the participants in the NEW Big MAC with primary contacts denoted in bold and Little MAC members underlined. The table includes the jurisdiction, participant’s name, and position or title.

**Table 3.1**

| <b>Nash-Edgecombe-Wilson Mitigation Advisory Committee (NEW Big MAC)</b> |                     |  |
|--|---------------------|--|
| <b>Jurisdiction Name</b>   | <b>Contact Name</b> | <b>Position/Title</b>  |
| Bailey, NC   | <b>Becky Smith</b>  | Town Clerk / Zoning Administrator  |
| Black Creek, NC  | <b>Greg Gates</b>   | Superintendent of Public Works & Utilities                                 |
| Castalia, NC   | Angie Elliott       | Town Clerk   |
| Castalia, NC   | <b>James Alston</b> | Mayor Pro Tem<br><b>Retired Railroad Foreman</b>                           |
| Conetoe, NC  | <b>Linda Ingram</b> | Mayor  |
| Dortches, NC   | <b>Gerald Batts</b> | Town Administrator / Floodplain Administrator                              |
| Edgecombe County, NC   | <u>Butch Beach</u>  | Emergency Services Director / Planning Director / Floodplain Administrator |

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|                      |                                     |   |
|----------------------|-------------------------------------|---|
| Edgecombe County, NC | <b>Mark Rogerson</b>                | Deputy Fire Marshal   |
| Edgecombe County, NC | Katina Braswell                     | Planner I   |
| Elm City, NC         | <b>Jonathan Russell</b>             | Town Administrator / Floodplain Administrator   |
| Leggett, NC          | Gary Skelton                        | Mayor<br><b>Computer Analyst</b>  |
| Leggett, NC          | Tommy Anderson                      | Town Clerk  |
| Lucama, NC           | <b>Amanda Carroll</b>               | Zoning Administrator  |
| Lucama, NC           | Dolan Atkinson                      | Mayor<br><b>Retired Sales and Trucking</b>  |
| Macclesfield, NC     | <b>Cynthia Buck</b>                 | Town Clerk  |
| Middlesex, NC        | <b>Luther "Lu Harvey" Lewis, Jr</b> | Mayor / Town Administrator / Floodplain Administrator<br><b>Prior Insurance Agent</b> |
| Momeyer, NC          | <b>Ronnie Pace</b>                  | Mayor Pro Tem<br><b>Retired School Teacher</b>  |
| Nash County, NC      | <b>Patsy McGhee</b>                 | Assistant to the County Manager   |
| Nash County, NC      | <b>Nancy Nixon</b>                  | Planning Director   |
| Nash County, NC      | Adam Tyson                          | Planner / Floodplain Administrator  |
| Nash County, NC      | Tommy Jones                         | Planner   |
| Nash County, NC      | <b>Brent Fisher</b>                 | Deputy Emergency Management Coordinator   |
| Nash County, NC      | <u>Scott Rogers</u>                 | Assistant Director, Emergency Services  |
| Nashville, NC        | <b>Brian Hassell</b>                | Planning Director / Floodplain Administrator  |
| Nashville, NC        | Tina Price                          | Planner I / Code Enforcement  |
| Pinetops, NC         | <b>Gregory Bethea</b>               | Town Administrator  |
| Pinetops, NC         | Brenda Harrell                      | Asst Town Administrator   |
| Princeville, NC      | <b>Byron Ellis</b>                  | Town Manager/ Floodplain Administrator  |
| Red Oak, NC          | Alfred Wester                       | Mayor<br><b>Retired Railroad Employee</b>   |
| Red Oak, NC          | <b>Barbara High Tyre</b>            | Councilmember / Planning Board<br><b>Pastor &amp; School Counselor</b>                |
| Rocky Mount, NC      | <b>JoSeth Bocook</b>                | Senior Planner  |
| Saratoga, NC         | <b>Thomas "Tommy" Hawkins</b>       | Mayor<br><b>Retired Coach &amp; School Teacher</b>                                    |
| Sharpsburg, NC       | <b>Tracy Sullivan</b>               | Town Clerk  |
| Sharpsburg, NC       | Randy Weaver                        | Mayor / Retired Law Enforcement Officer   |
| Sharpsburg, NC       | Robert Smith                        | PW Director   |
| Sharpsburg, NC       | Brian Sullivan                      | Asst PW Director  |
| Sims, NC             | <b>Dana Hewett</b>                  | Mayor / Town Administrator<br><b>College Student</b>                                  |
| Speed, NC            | <b>Wilbert Harrison</b>             | Mayor<br><b>Retired Broadband Technician</b>  |
| Spring Hope, NC      | <b>John Holpe</b>                   | Town Manager  |

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|   |                             |   |
|---|-----------------------------|---|
| Stantonsburg, NC  | <b>Gary Davis</b>           | Town Manager  |
| Tarboro, NC   | <b>Josh Edmondson</b>       | Planning Director / Floodplain Administrator          |
| Whitakers, NC   | <b>Gwen Parker</b>          | Town Administrator / Floodplain Administrator         |
| Wilson County, NC   | <u><b>Gordon Deno</b></u>   | Emergency Management Director                         |
| Wilson County, NC   | <u><b>Mark Johnson</b></u>  | Planning Director                                     |
| Wilson County, NC   | <u>Dwayne Jones</u>         | Planner I / Floodplain Administrator                  |
| Wilson, NC  | <u><b>Kathy Garner</b></u>  | Senior Planner  |
| Wilson, NC  | <u><b>Janet Holland</b></u> | Land Development Manager                              |
| Wilson, NC  | Daryl Norris                | Stormwater Env. Specialist / Floodplain Administrator |
| Wilson, NC  | Josh Jurius                 | Planner   |
| Note: <b>Bold name</b> denotes Primary Contact for each jurisdiction<br><b>Bold</b> position/title denotes private sector representative<br><u>Underline</u> denotes Core Team Members – NEW Little MAC |                             |   |

The Upper Coastal Plain Council of Governments (UCPCOG), after receiving the sub-contract from Nash County, assigned this project to the Planning and Development Services Department. Specific duties and obligations required to complete the project were delegated to the Land Use / Environmental Planner who is certified both as a Floodplain Manager (CFM) and through the American Institute of Certified Planners (AICP).

After sub-contracting with the UCPCOG, the implementation team worked together to seek members for the NEW Big MAC. NC DEM recommended the advisory committee contain local emergency management and floodplain administrators/managers. (Information regarding local government floodplain managers in the 3-county area was primarily obtained from all local governments attending the NEW Little MAC Meeting 5/28/2013 and the NEW Big MAC Meeting 6/25/2013.

Representatives were sought from each county and municipality in this plan. This began in February of 2013 through email and phone solicitations requesting local governments designate a representative. Where consideration could be given, members were selected based on the need for diverse representation from various but appropriate local government departments and positions, as well as their overall experience in current and past job roles and responsibilities. In smaller municipalities, Town Administrators and Clerks were often the best choice, if not the full extent, of the local government paid staff.

Local elected officials were also solicited from throughout the region. As leading community and public service volunteers, these elected officials involved embody and

represent citizens, businesses, churches, and non-profits within jurisdictions. Taken as a whole, they are long-time residents of the region and their communities, active in volunteerism, and have continual contact with their constituents, making them an extremely important resource for this plan and process.

The roles and responsibilities of the Big MAC and Little MAC were to provide general and specific guidance to the Implementation Team during the drafting of the plan. This included assistance with outreach and taking input from the general public as the process progressed, assisting in providing needed data and technical information, assisting with previous plan information updates for this plan, and helping to ensure a quality plan that will be adopted by all the participating governments near the end of the process.

The groups and meetings were administered and facilitated primarily by the UCPCOG and Nash County utilizing common tools including agendas, relevant resources, presentations, and training where appropriate. Decisions were made through consensus building, facilitated negotiation, and when needed, through simple majority vote. The committees allowed proxies for meetings. Neither committee chose to appoint a chair or select any formal protocol, like Roberts Rule of Order, for their process.

### **3.10 MEETINGS**

**GRANT APPLICATION:** In meetings throughout April and May of 2012, each of the 28 local governments passed a resolution signed by chief elected officials agreeing to participate in a regional hazard mitigation plan. On **5/7/2012** the Nash County Board of Commissioners, in a public meeting, authorized submission of the grant application, approved a resolution designating the county manager and finance officer as primary and secondary agents, and approved the Designated Agents Form. (See Appendix C.1 for the Agenda Item and Resolution.)

**GRANT SUB-CONTRACT:** As previously explained in detail in 3.1 Background above, grants totaling \$70,000, were issued to support the creation of the regional hazard mitigation plan. On **2/4/2013** the Nash County Board of Commissioners, in a public meeting, approved a Grant Project Ordinance and Awarded a Contract to the Upper Coastal Plain Council of Governments to coordinate and prepare the regional plan. (See Appendix C.2 for the Agenda Item and Grant Project Ordinance.)

**DESIGNATION OF APPLICANT'S AGENT:** On 5/7/2012 the Nash County Board of Commissioners, in a public meeting, approved a resolution designating the county manager and finance officer as primary and secondary agents, and approved the

Designated Agents Form. Additionally, on 2/3/14 the Nash County Board of Commissioners, in a public meeting, updated the Designated Agents form to show the new county manager (hired 1/1/14) as the new primary agent, replacing the former manager. On **12/1/2014** the Nash County Board of Commissioners, in a public meeting, updated the Designated Agents form again to show the new Finance Officer as the new secondary agent, replacing the former finance officer who retired 9/30. (See Appendix C.3 for the Agenda Item and Resolution.)

On **2/14/2013** DEM conducted an initial Project Implementation Team Meeting with Nash County and UCPCOG. DEM provided everyone with a copy of the 2010 county plans (3), the state plan (2010), FEMA guidance (2008), a crosswalk, and grant administration materials.

On **2/25/2014**, DEM met with Nash County and UCPCOG for a progress update and to discuss integrating the Nash-Edgecombe-Wilson and Halifax-Northampton grants, timelines, and plans as the process moved forward. While some work was begun at this five county level, it was later removed due to the Halifax-Northampton grant not being awarded prior to 2015, this integration did not occur for this plan.

Additional implementation team meetings for coordination between DEM, Nash County, and the UCPCOG were held on the following dates as the final draft of the plan was prepared for review by the NEW Big MAC: 10/2/2014, 11/10/2014, 11/20/2014, 12/2/2014, 12/10/2014, and 1/7/2014.

CORE MITIGATION ACTION COMMITTEE (NEW Little MAC): Nash County obtained most commitments from Big MAC participants in January-May 2013 to serve on a working group, the Nash-Edgecombe-Wilson Mitigation Action Committee Core Team (NEW Little MAC). Identification of members occurred through input from the implementation team, email solicitations, and phone calls.

Soon after most of Little MAC participants volunteered to serve, the County notified Big MAC, which includes members of Little MAC, of the Stop Work Order that became effective 2/26-4/17/2013 (Section 3.11 below contains additional details on the Stop Work Order).

The NEW Little/Core MAC held its first meeting **5/28/2013** at Nash County. Invitations were sent by email, and phone calls. Fifteen people attended representing Nash County, Edgecombe County, Wilson County, the City of Wilson, the City of Rocky Mount, the Town of Tarboro, the UCPCOG and DEM. There was an agenda and notes were taken and emailed to all NEW MAC committee members. The UCPCOG and

Nash County led discussion about the: project background, timeline, grant requirements, responsibilities of the core team and full committee, the three current county plans, and future meetings. The State shared information about changes since the last plans were adopted and recommendations for this plan. See Appendix C for a copy of the meeting agenda (see C.4) and sign-in sheet (see C.5).

The NEW Little/Core MAC met a second time on **9/26/2014** in the Town of Whitakers Meeting Room to: finalize the definition of, work on the list for, and decide on the table format for Regional and County/Municipal Critical Facilities. Also invited were planners and emergency management personnel from nearby Halifax and Northampton counties in preparation of their expected inclusion in this regional hazard mitigation planning initiative. It was decided that the 3 counties would prepare county-wide GIS maps and larger municipalities indicated an interest in doing the same. It was also suggested that a NEW Big MAC meeting be held in October to review hazard mitigation strategies and actions as well as the project schedule. Invitations to this meeting were sent by email, and phone calls were conducted as needed and it was scheduled in November. There was an agenda for the meeting and notes were taken and later emailed to all NEW MAC committee members. Before and after this meeting, there were numerous required emails and phone calls to the 28 local governments to get required information on critical facilities. A partial phone log, agenda and sign-in sheet are contained in the Appendices, as follows: phone log in Appendix E, agenda in Appendix C.6, sign-in sheet in Appendix C.7.

In July 2014, the UCPCOG met with the City of Wilson twice and Wilson County once. The City's Land Development and Stormwater personnel were present. The meetings focused on updates to the plan's progress and CRS requirements.

FULL MITIGATION ACTION COMMITTEE (NEW Big MAC): Most commitments were obtained in January-May 2013 to serve on a larger coalition group representing all 28 local governments involved in and covered by this plan. They are referred to as the Nash-Edgecombe-Wilson Big Mitigation Action Committee (NEW Big MAC). This included the Core Team as listed in Table 3.1 above.

There were a few delays in representatives from three of the region's smaller municipalities. In January 2014, the town board appointed the mayor to represent Princeville. In October 2014, the towns of Leggett and Speed appointed representatives to the NEW Big MAC.

The NEW Big MAC held its first meeting **6/25/2013** at the Booker T. Washington Theatre in Rocky Mount inside Edgecombe County and 20 members attended.

Invitations were sent by email, and phone calls were made as needed. There was an agenda and, afterwards, notes were emailed to all NEW MAC committee members. The City of Rocky Mount gave the welcome. The UCPCOG and Nash County facilitated discussion about the project similar to the NEW Little MAC meeting held on 9/26/2014. The State shared information about changes since the last plans were adopted and recommendations for this plan. The UCPCOG presented NEW Big MAC with a draft outline of the Hazard Mitigation Plan. It was discussed and then accepted by consensus. Appendix C contains the meeting agenda (see C.8) and sign-in sheet (see C.9a & b).



The UCPCOG also asked local governments at the 6/25/2013 NEW Big MAC Meeting to review the Action Plan submitted with their last previously adopted county plan and to determine the status of planned actions. The UCPCOG then worked through emails, phone calls, and individual visits with all 28 local governments to assess their progress on those actions so they could be reported accurately in the NEW Regional Hazard Mitigation Plan.

To aid in the progress of the plan, the Implementation Team organized a NEW Big MAC meeting on **10/21/2014** at Nash County Administrative Offices. The purpose was to review Mitigation Strategies and Actions with representatives from the local governments. Invitations were sent by email, and follow-up phone calls as needed. There was an agenda and a PowerPoint presentation by NCDDEM. Thirty-three people from twenty-one local governments attended this meeting (including UCPCOG and NCDDEM staff). Of the twenty-one local governments, all three counties and eighteen municipalities were represented.



Those in attendance were provided a paper copy of the PowerPoint presented by DEM, as well as a copy of their past (2010) mitigation actions, which they were again instructed to update and return to the UCPCOG. Afterwards, a mitigation actions template (developed by the UCPCOG), mitigation ideas, and the NCDEM PowerPoint presentation were emailed to members of the NEW Big MAC. In addition, after the meeting, DEM, the UCPCOG and Nash County met with representatives from some of the municipalities regarding areas of interest concerning mitigation actions and the process. The attendance sheet (list of participants) is included as Appendix C.10.

On **11/18/2014**, the Implementation Team of UCPCOG, DEM, and Nash County hosted a **make-up conference call on Mitigation Strategies** for those unable to attend the 10/21/2014 meeting. Nash County scheduled and arranged a call-in number for participants. Preparation included specialized outreach to the seven local governments who did not participate in the 10/21/14 Mitigation Strategies Meeting at Nash County. Organization included direct emails from both the UCPCOG staff and their Executive Director as well as Nash County explaining and encouraging DEM's stated mandatory participation. Beforehand, each of the seven local governments were provided with paper copies and email versions of the PowerPoint to be presented. Each of the seven local governments was provided with copies of their past mitigation actions, which they were instructed to update. All remaining municipalities participated - Black Creek, Conetoe, Dortches, Macclesfield, Pinetops, Sims, and Spring Hope. (See Appendix C.11)

The NEW Big MAC held a meeting **1/16/2015** at Nash County Commissioners Meeting Room. The purpose was to review the background and history of the project, view as a group the sections of the draft N.E.W. Regional Hazard Mitigation Plan that had been available via a DropBox web based file sharing tool, discuss remaining needs from local governments and NEW Big MAC members, and recommend its approval subject to specified revisions.

UCPCOG and Nash County noted that the Draft Plan was to be submitted to NCDEM for review and comment on 2/2/2015. The NEW BIG MAC determined by consensus that they would allow participants until 1/23/2015 to review and submit additional suggested edits and comments on the plan including data or information filling in remaining gaps primarily associated with mitigation actions. The UCPCOG would then incorporate final edits to the document and submit a copy to the Nash County Manager on 1/28/2015 prior to electronic submission to NCDEM.

The NEW Big MAC members present also discussed in detail how recommendations for maintaining the plan. Those details are outlined in Section 7, Plan Maintenance. Additionally, members participated in an informal “sticky dot” vote for the Plans Cover.

Invitations to this meeting were sent by email. There was an agenda and, afterwards, notes were emailed to all NEW MAC committee members with an explanation in the email of the group’s decisions and expectations regarding final input. The agenda, sign-in sheet, and meeting minutes are included in Appendix C (C.12, C.13, and C.14).

**INDIVIDUAL MEETINGS WITH PARTICIPATING GOVERNMENTS:** Throughout the process, numerous individual meetings were held between the UCPCOG and members of the NEW Big MAC and their designees to assist in understanding guidelines and plan requirements, reviewing and updating local data and previous plans for this plan, and determining appropriate goals, capabilities, action items, and other elements contained herein.

Due to the size of the region and in the interest of time and efficiency, the majority of the individual meetings were conducted by phone. As an example, many municipalities were guided through worksheets and consultations over the phone for Community Capabilities and Critical Facility assessments as well as Hazard Mitigation Actions. For these three key components (Community Capabilities, Critical Facilities, and Hazard Mitigation Actions), the result of the phone consultations was 100% participation by the local government stakeholders. Phone logs for many of these particular meetings have been included in Appendices D, E, and F.

**CONFERENCE CALL WITH REGIONAL EMERGENCY MANAGEMENT STAFF:**

On **8/14/2014**, UCPCOG staff set up a conference call with emergency management representatives from the three counties in this plan, as well as a representative from Halifax County, in order to get their input on a definition and the mapping of critical facilities. During the conference call, the participants suggested that a comprehensive listing of types of potential critical facilities (hospitals, law enforcement, etc) be prepared, which the UCPCOG drafted immediately after the call. The consensus of the conference call participants was that the list of critical facility types be reviewed by the Mitigation Advisory Committee to decide what facilities should be included in the plan and to help establish the top tier facilities to be shown on a regional map. As a result, a meeting of the Little MAC was held on September 26<sup>th</sup>.

### **3.11 PUBLIC INVOLVEMENT**

#### **PUBLIC MEETINGS:**

- On **11/20/2014**, a Public Input Meeting regarding the Hazard Mitigation Plan was held at the Town Hall in Sharpsburg – which is centrally located in the three counties included in this plan. Email invitations were sent to all 3 counties (managers, planners, clerks and emergency managers), all 25 municipalities (mayors, managers, administrators, clerks, planners, water and sewer managers, municipal power directors, and public works directors), NEW Big MAC representatives, Big MAC members, Upper Coastal Plain Board members, chambers of commerce (4), newspapers (4), public school systems (3), community colleges (3), NCDOT, Northampton and Halifax Counties, and Duke Energy.

A flyer was developed to publicize the event. An electronic copy of the flyer was included with the email invitations. In addition, most clerks posted the flyers where their municipal meeting notices are posted. The counties, UCPCOG and some municipalities posted the notice and/or flyer on their web sites. Nash County posted the flyer in its elevators and the offices of the county manager, emergency management, parks and recreation, planning, public utilities, and employee break-room. The UCPCOG posted the flyer on its public bulletin space visible on Nash Street, which is a main artery in downtown Wilson. The City of Wilson posted notices to its web page, public cable channel, physical notice boards, and sent emails to vested departments.

The UCPCOG distributed an Agenda, Sign-In Sheet, and Questionnaire to attendees who came to the meeting - Appendix C. The Town of Sharpsburg Commissioner, Raymond Moore Jr. provided opening remarks including a welcome. Nash County provided a history and the timeline for the project. The UCPCOG conducted a PowerPoint presentation, showed a draft of the regional critical facilities map of the region, distributed the questions, and answered questions from the participants. Those attending completed a Public Input Questionnaire. Eleven (11) people attended this meeting in response to the thorough advertising in the weeks beforehand.

- Short Presentations about the N.E.W. HMP were made to the UCPCOG Board of Directors at their public meetings on 1/20/2015 and 3/17/2015 in Rocky Mount, NC. This was conducted by the Planning and Development Services Director.
- An additional required Public Meeting was held in \_\_\_\_\_ on June/July \_\_\_\_\_ 2015 in order to present the FEMA approved plan to the public prior to local

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government adoptions. This follows regulatory compliance review and conditional approval by the NC Department of Public Safety Division of Emergency Management (DEM) and Federal Emergency Management Agency Region IV (FEMA). At this meeting a copy of the plan was presented for viewing by those in attendance, and it was announced where any resident of the three-county planning area could view the plan after the meeting. Locations for viewing the N.E.W. Regional Hazard Mitigation Plan 2015-2020 included \_\_\_\_\_.

- The UCPCOG also offered to make a short presentation to each of the twenty-eight (28) local governments prior to their adoption of the N.E.W. Regional Hazard Mitigation Plan 2015-2020 at their local government board of elected officials meeting. \_\_\_\_\_ meetings were held at the following locations/dates: *[update this after meetings are held—ex. City of Rocky Mount/7-\_\_-2015, \_\_\_\_\_]*. As the portion of these meetings when the N.E.W. Regional HM Plan is adopted by the local governments is required by NC Law to be open to the public, these meetings were also considered to be public meetings. See Appendix A for copies of the 28 Resolutions of Adoption. See Appendix A for a calendar showing when each resolution was adopted.

NEIGHBORING COMMUNITIES: On 1/22/2015, UCPCOG informed County Managers in the nine (9) counties surrounding this three county planning area of the development of the draft N.E.W. Regional Hazard Mitigation Plan 2015-2020 and the opportunity for their review and/or comments on the plan. These included the Counties of Franklin, Greene, Halifax, Johnston, Martin, Pitt, Wake, Warren, Wayne. Copies of the emails sent to these counties are included in Appendix C.

Additionally, as previously discussed, both Halifax and Northampton Counties in the UCPCOG region were invited to participate in both NEW Big and Little MAC meetings once it was known that NCDEM was interested in expanding the planning area to include five counties. Representatives from these two counties did participate in some meetings in the central portion of the project when consideration was being given to the plan expanding to five counties. Participation ceased after the realization that a new grant and contract would not arrive in time to finish merging the data and processes.

PUBLIC INFORMATION: In July 2015, a press release were submitted regarding the Hazard Mitigation Plan to four (4) local newspapers, the Rocky Mount Telegram, Wilson Daily Times, Spring Hope Enterprise, and Nashville Graphic, along with the below-mentioned proposed schedule for Resolutions of Adoption by the 28 local governments.

The UCPCOG developed a Public Input Questionnaire, Appendix C, which it debuted at the 11/20/2014 Public Input Meeting. Afterward, the UCPCOG distributed the questionnaire to the NEW Big MAC local governments and asked that it be made available at public locations and to collect them from the public for relay to the UCPCOG.

The questionnaire asked three questions and sought three additional inputs. Within the questionnaire there were a total of 21 data points. The first question was a ranking of 11 identified natural hazards of significance. The second question was regarding the individual's family preparedness for natural disasters listed in question 1. The third question asked for a ranking of activities that will most increase their ability to prepare for and respond to disasters. Additional data points included comments and concerns, question from the respondent, county where the respondent resides, and contact information (optional).

Six responses were received; three were anonymous. While this is a statistically insignificant response for the size of the region, the data was nonetheless used in considering mitigation actions and strategies.

After the submission of the draft N.E.W Regional Hazard Mitigation Plan 2015-2020 to the NCDEM but prior to adoption of the final plan, a copy of the plan was made available for public review on the UCPCOG and Nash County web sites. This version of the plan was edited for homeland security and public safety purposes and therefore certain pieces of sensitive information were excluded.

### **3.12 COMMUNICATION TOOLS AND RECORDS**

DROPBOX: To aid participating local governments with the plan preparation and review process, the UCPCOG set up a web "cloud" based folder and file sharing system through a DropBox account in November 2014. Invitations with instructions on joining the system were sent and review and editing instructions and protocols were created and provided. For approximately seventy-five days prior to the final draft of the N.E.W Regional Hazard Mitigation Plan 2015-2020 being submitted to DEM for initial review, local governments, DEM and stakeholders had the opportunity to review the latest files on the project. Each had the opportunity to live edit or download all documents, alter them, and upload them again for review by the group.

All 28 local governments were given free access to the DropBox. The UCPCOG worked to ensure contacts were aware of the tool and assisted those local governments who had challenges. Included in the DropBox were well organized instructions and folders containing clearly labeled documents in Microsoft Office 2003 (to help ensure

compatibility). Documents included prior hazard mitigation plans, state and federal resource materials and aids previously described in this section, maps, templates and forms to assist participants with Capability Assessments and Hazard Mitigation Action items, contact lists, meeting materials, and each section of the draft N.E.W Hazard Mitigation Plan.

The DropBox was backed up by the UCPCOG staff regularly and all relevant materials, including email communications, resources, electronic and scanned documents, early draft materials, fiscal records, internal notes/records, and more have been kept in the UCPCOG server.

In addition to phone logs, meeting agendas, meeting notes, data sources, and other electronic and paper files previously mentioned and sited throughout this report, email records of all essential communications between UCPCOG and the partners, NCDEM, federal representatives, and others involved in this project have been kept and backed up by the UCPCOG.

STOP WORK ORDER: A Stop Work Order was issued by DEM 2/26/2013 (email from DEM) due to complications with the federal-state agreement. The Stop Work Order was lifted by NCDEM 4/17/2013 through an email from DEM whereby authorization was given to resume work.

### **3.13 SPECIFIC TOPICS AND SECTIONS IN THE PLAN**

#### **SPECIFIC TOPIC – FLOOD RISK:**

The **National Flood Insurance Program** (NFIP) is a program created by the Congress of the United States in 1968 through the National Flood Insurance Act of 1968 (P.L. 90-448). The program enables property owners in participating communities to purchase insurance protection from the government against losses from flooding. This insurance is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.



According FEMA's [website](#) as of 1/26/2015 all but one (the Town of Bailey) of the twenty-eight jurisdictions participating in this plan are also participating in the NFIP. The first jurisdictions to join the program were the Town of Tarboro, the City of Rocky Mount, and Nash County in 1978. The most recent jurisdictions to join the NFIP include the

towns of Sims and Spring Hope, both of which joined in 2013. There are a couple of local communities (the towns of Castalia and Momeyer) that are participating in the NFIP, although they do not have any 100-year floodplains within their jurisdictions. Even though they don't have any 100-year floodplains (also known as Special Flood Hazard Areas) they are subject to localized flooding events and therefore should be commended for making flood insurance available to their residents. The 27 NFIP communities in the planning area are also identified in Table 4.5 in Section 4 (Assessment of Community Capabilities) of this plan.

Participation in the NFIP is based on an agreement between local communities and the federal government and states that if a community will adopt and enforce a floodplain management ordinance to reduce future flood risks to new construction in Special Flood Hazard Areas (SFHA), the federal government will make flood insurance available within the community as a financial protection against flood losses. The SFHAs and other risk premium zones applicable to each participating community are depicted on Flood Insurance Rate Maps (FIRMs).

The National Flood Insurance Reform Act of 1994 codified the Community Rating System (CRS) (an incentive program that encourages communities to exceed the minimal federal requirements for development within floodplains) within the NFIP. The program was further amended by the Flood Insurance Reform Act of 2004, with the goal of reducing "losses to properties for which repetitive flood insurance claim payments have been made."

In January 2014, the United States Senate passed the Homeowner Flood Insurance Affordability Act of 2014 (S. 1926; 113th Congress). That bill would delay the increases in flood insurance premiums that were part of the Biggert–Waters Flood Insurance Reform Act of 2012. The reforms from that law were meant to require flood insurance premiums to actually reflect the real risk of flooding, which led to an increase in premiums. The National Flood Insurance Program is currently \$24 billion in debt and taxpayers are slated to pay for any additional payouts until that situation is resolved.

Biggert Waters Flood Insurance Reform Act of 2012 is a concern to anyone with flood insurance. Therefore, as changes occurred with the legislation, the Upper Coastal Plain UCPCOG sent email notifications to managers, administrators, clerks, and floodplain administrators for all local governments in the three counties in this plan and two additional counties in their designated region. For example, on May 10, 2013, the UCPCOG sent an email updating the counties and municipalities that BW-12 calls on FEMA to update the National Flood Insurance Program (NFIP) to change rates to reflect true flood risk, making the program more financially stable. The UCPCOG attached two

documents, BW12 Fact Sheet Section 205-207 revised 4-17-2013 and BW-12 Clarifications & Revisions 5-5-13, and a link to [www.fema.gov/national-flood-insurance-program/flood-insurance-reform-act-2012](http://www.fema.gov/national-flood-insurance-program/flood-insurance-reform-act-2012).

On 11/6/2014 the UCPCOG began attending regularly scheduled meetings on Wednesdays at 9 a.m. with City of Wilson staff involved in Hazard Mitigation and CRS. The City and Wilson County have the first expiration of their HMP and CRS and therefore coordinated closely with the UCPCOG to ensure optimization of compliance issues and on-time delivery of product. Nash County attended on 11/12/2014. In December 2014, the City of Wilson formally decided to work further to maximize its CRS points by preparing an individual Flood Mitigation Plan, Program for Public Information, and Repetitive Loss Area Analysis for the City.

On 11/7/2014 DEM provided Nash County with an Outline of §512 of the CRS Coordinators Manual, available at <http://crsresources.org>, and asked that it be provided to the UCPCOG. Nash County and UCPCOG worked with DEM to set a meeting with Verisk Insurance Services Office (ISO) officials for the four Community Rating System (CRS) communities (Rocky Mount, Wilson, Tarboro and Nashville) of the region to help us understand guidelines and rules, the CRS scoring system, issues surrounding timing and more. The meeting was held 12/2/14; 19 attended (including the City of Wilson, the City of Rocky Mount, the Town of Tarboro by proxy, the Town of Nashville, DEM, , NC Emergency Management, the NC NFIP Coordinator, ISO and the UCPCOG).

Participants reviewed “CRS 2013 Section 500”. The next cycle for Wilson (class 6) and Tarboro (class 7) is 2015, and the next cycle for Rocky Mount (class 6) is 2017, and the cycle for Nashville (class 8) is 2018.

Strategies were discussed on how to comply with and receive point credit for each section of CRS and processes for achieving extra points in the process. State officials indicated at the meeting they will be providing workshops beginning in January 2015 to prepare local governments and regions regarding the new CRS requirements as related to Hazard Mitigation.

**SPECIFIC PLAN SECTION – INTRODUCTION TO HAZARD MITIGATION PLANNING**  
Methods used for preparing this section included research and review of materials for approximately 12 months. Authoring and editing of the section occurred from 10/14 – 1/15. An initial draft of this section of the plan was presented to Nash County and DEM by UCPCOG on 11/10/14. On 12/4/2014 the UCPCOG posted the early draft to the DropBox and the N.E.W MAC stakeholders and DEM were advised of its availability and encouraged to review and make suggested edits. Materials in this section were updated

regularly based on internal reviews and local government stakeholder input until its submission to DEM in February of 2015.

#### SPECIFIC PLAN SECTION – DESCRIPTION OF PLANNING AREA

Methods used for preparing this section included research and review of materials for approximately 7 months. Authoring and editing of the section occurred from 10/2014 – 1/2015. An initial draft of this section of the plan was presented to Nash County and DEM by UCPCOG on 11/10/14. On 12/8/2014 the UCPCOG posted the early draft to the DropBox and the N.E.W MAC stakeholders and DEM were advised of its availability and encouraged to review and make suggested edits. Materials in this section were updated regularly based on internal reviews and local government stakeholder input until its submission to DEM in February of 2015.

#### SPECIFIC PLAN SECTION – PLANNING PROCESS

Methods used for collecting this information included documenting this plan's process from its beginning through completion. It included review of materials, emails, and phone calls, as well as input from various stakeholders. Authoring and editing of the section occurred from 12/2014 – 1/2015. On 1/5/2015 the UCPCOG completed an initial draft of this section and posted it to the DropBox for review by stakeholders. Materials in this section were updated regularly based on internal reviews and local government stakeholder input until its submission to DEM in February of 2015.

#### SPECIFIC PLAN SECTION – COMMUNITY CAPABILITIES

Methods used for preparing this section included research and review of materials, plus numerous emails, phone calls, and individual visits with the 28 local governments over approximately 10 months. Authoring and editing of this section occurred from 10/2014 – 1/2015. An initial draft of this section of the plan was presented to Nash County and DEM by UCPCOG on 11/10/14. On 12/7/2014 the UCPCOG posted the early draft to the DropBox and the N.E.W MAC stakeholders and DEM were notified of its availability and encouraged to review and make suggested edits. UCPCOG staff also continued to work diligently with local governments to complete missing data portions in this section. The end result was that information was obtained from 100% of the 28 local governments participating. Materials in this section were updated regularly based on internal reviews and local government stakeholder input until its submission to DEM in February of 2015.

#### SPECIFIC PLAN SECTION – RISK ASSESSMENT –

##### Subsection: HAZARD IDENTIFICATION

Methods used for preparing this section included research and review of materials, plus numerous emails, phone calls, and visits with the 28 local governments over

approximately 18 months. The initial review of materials for this section began around July of 2013. Authoring and editing of this section occurred from 10/2013 – 1/2015. An initial draft of this section of the plan was presented to Nash County and DEM by UCPCOG on 11/10/14. On 12/8/2014 the UCPCOG posted an early draft to the DropBox and the N.E.W MAC stakeholders and DEM were notified of its availability and encouraged to review and make suggested edits. UCPCOG staff continued to work diligently with local governments to complete missing data portions in this section. Materials in this section were updated regularly based on internal reviews and local government stakeholder input until its submission to DEM in February of 2015.

#### Subsection: IDENTIFICATION OF COMMUNITY ASSETS (including Critical Facilities)

Methods used for preparing this section included research and review of materials, plus numerous emails, phone calls, and visits with the 28 local governments over approximately 18 months. The collection of initial materials for this section began around July of 2013. Authoring and editing of this section occurred primarily from 10/2014 – 1/2015. An initial draft of this subsection of the plan was presented to Nash County and DEM by UCPCOG on 11/10/14. On 12/8/2014 the UCPCOG posted an early draft to the DropBox and the N.E.W MAC stakeholders and DEM were notified of its availability and encouraged to review and make suggested edits. UCPCOG staff continued to work diligently with local governments to complete missing data portions in this section. Materials in this section were updated regularly based on internal reviews and local government stakeholder input until its submission to DEM in February of 2015. Regarding the Critical Facilities component of this subsection, the collection and compilation of material for this section began in August of 2014. UCPCOG staff worked primarily with the county GIS and EM staff to finalize the county lists. The City of Wilson GIS and Planning staff members were instrumental in creating early draft maps, which helped to guide a uniform format for the region. The UCPCOG prepared draft critical facilities lists for each municipality for their review and approval to be incorporated into the regional and county-level maps. The UCPCOG GIS prepared the regionally significant critical facilities map and each county GIS prepared their county critical facilities maps. Throughout the process, the UCPCOG staff continued to work with local governments to complete missing data portions. The end result was that information was obtained from 100% of the 28 local government stakeholders.

#### SPECIFIC PLAN SECTION – MITIGATION STRATEGIES

Methods used for preparing this section included research and review of materials, plus numerous emails, phone calls, and visits with the 28 local governments over approximately 6 months and included the revision of Hazard Mitigation Goals and Actions. Authoring and editing of this section primarily occurred from 10/2014 – 1/2015. An initial draft of this section of the plan was presented to Nash County and DEM by

UCPCOG on 11/10/2014. On 11/26/2014 the UCPCOG posted an early draft to the DropBox and the N.E.W MAC stakeholders and DEM were notified of its availability and encouraged to review and make suggested edits. UCPCOG staff continued to work diligently with local governments to complete missing data portions in this section. The end result was that local information was obtained from 100% of the 28 local governments that participated in the planning effort. Materials in this section were updated regularly based on internal reviews and local government stakeholder input until its submission to DEM in February of 2015.

#### SPECIFIC PLAN SECTION – PLAN MAINTENANCE

Authoring and editing of the section occurred from 10/2014 – 1/2015. An initial draft of this section of the plan was presented to Nash County and DEM by UCPCOG on 11/10/2014. On 12/4/2014 the UCPCOG posted the early draft to the DropBox and the N.E.W MAC stakeholders and DEM were advised of its availability and encouraged to review and make suggested edits. Materials in this section were updated based on internal reviews and local government stakeholder input until its submission to DEM in February of 2015.

#### SPECIFIC PLAN SECTION – APPENDICES

Methods used for collecting this information included research, review of materials, emails, phone calls, and individual visits with the 28 local governments over the contract period for this project. An initial draft of the definitions for the plan was presented to Nash County and DEM by the UCPCOG on 11/10/2014. On the same day the UCPCOG began posting draft materials for this section to the DropBox. It includes adoption resolutions, definitions, maps, documentation regarding meetings, phone logs, etc.



## **SECTION 4: ASSESSMENT OF COMMUNITY CAPABILITIES**

### **4.1 INTRODUCTION**

This section is a detailed assessment of the capabilities of all the participating jurisdictions in the Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan (Plan). This assessment of local governmental units primarily addresses their capabilities and/or potential to mitigate impacts resulting from natural hazards that have been identified in Section V of this plan. Specifically this assessment includes an examination of the following local government capabilities:

1. Administrative and Technical Capabilities (Institutional and technical, Including Staffing, Programs, Special Functions and Organization): In the administration capabilities subsection below the various jurisdictional departments that have direct and indirect, but important, responsibilities for hazard mitigation activities are reviewed and assessed. The assessment of technical capabilities of the three counties and all jurisdictions follows and provides review of the resources within these jurisdictions to address hazard mitigation needs and their ability to cope with natural disasters, as well as identify their resource related capabilities to employ technical equipment and software programs to enhance mitigation activities.
2. Planning and Regulatory Capabilities (Policies, Programs and Ordinances): The planning and regulatory capabilities subsection is an assessment and evaluation of existing plans, policies, initiatives and ordinances that are relevant in assisting communities in decreasing local vulnerability to natural hazards. For example, a flood prevention ordinance and related programs are critical elements of mitigation; but in addition, hazard mitigation initiatives can and must be integrated into other activities. These various activities, relevant for hazard mitigation efforts, are listed and expanded upon in this review.
3. Financial (Fiscal) Capabilities: Assessing financial capabilities involves an examination of the counties as well as the jurisdictions regarding their use of local operating budgets and capital improvement program funds that are essential to help mitigate the effects or impacts of hazards.
4. Educational and Outreach Capabilities: The educational and outreach capabilities subsection includes a review of the educational assets and outreach opportunities within the counties and jurisdictions for increased hazard mitigation awareness and related critical information delivery before, during, and after natural hazard events.
5. Legal and Political Capabilities: The legal and political capabilities subsection provides a description of the legal authorities available to and employed by local

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governments, as well as the local political will and commitment to implement hazard mitigation activities. This commitment also involves the willingness and commitment of key governmental staff to ensure hazard mitigation is an ongoing top priority in order to integrate hazard mitigation planning and activities into all aspects of governmental functions and services.

In order to plan, develop, and implement mitigation projects, policies, and programs, the capabilities of the three counties and the jurisdictions are significantly influenced by the abilities and resources provided by staffing and by provision of services and programs for mitigation purposes. For example, administrative capabilities can be evaluated by



determining if there are adequate personnel resources to plan and implement hazard mitigation activities.

Public participation through mitigation planning committee activities is also essential. Committed professional administration, along with active efforts to implement various mitigation activities, influences the overall effectiveness of integrating hazard mitigation initiatives into all areas of

governmental activities and services. Finally, the influence of county boards and town councils regarding the overall success of hazard mitigation efforts is essential in order to ensure that mitigation planning and implementation are high priority policy directives within each of the various jurisdictions.

Technical capability usually relates to the level of knowledge and technical expertise of particular government workers, especially regarding specific mitigation activities that require special skills. For example, the application and use of geographic information systems (GIS) to analyze and assess community hazard vulnerability is becoming more important in hazard mitigation activities, but also requires specialized skills.

Through the identification of available staff and personnel resources, as well as technical capabilities of existing programs or services, this assessment of community capabilities will provide insight as to the level of resources availability for successful hazard mitigation planning, development, and implementation within the various jurisdictions. This information also provides insight to help identify potential opportunities for establishing or enhancing specific mitigation policies, programs, activities, or projects. Potential or existing gaps, shortfalls, or weaknesses within

existing government activities, resources, or services that could pose problems and exacerbate community vulnerabilities can also be identified by this assessment.

This assessment will also highlight the positive capabilities that are in place or proposed that address mitigation efforts at the county and municipality levels that should continue to be supported and enhanced where possible. This capabilities assessment also serves as a foundation for designing an effective hazard mitigation strategy, including development of realistic goals and objectives for each jurisdiction to pursue under this plan, as well as promotion of goals and objectives that are achievable with regards to local conditions and capabilities.

In developing this capabilities assessment for each jurisdiction, existing hazard mitigation plans for each jurisdiction were utilized and referenced. In addition, a FEMA community assessment worksheet was completed by each municipality and county that enabled all jurisdictions to assess their capabilities and resources.

Although the capabilities differ among all the jurisdictions in this plan, perhaps North Carolina's 2010 Hazard Mitigation Plan Update as well as the state's 2013 Hazard Mitigation Plan Update best expressed a reality when emergency management operations seem the most capable, knowledgeable, or expert in addressing hazards.

*"Our expertise in analyzing and addressing well known and well understood hazards are not license to stop investigating other potential hazards. It is incumbent upon those who have the knowledge and expertise to remain vigilant and to communicate concerns and issues ... We must strive to ensure that our elected officials remain aware of mitigation challenges and opportunities..."<sup>1</sup>*

All governmental jurisdictions must possess the flexibility to always be ready for the unexpected in dealing with natural disasters and related hazardous conditions. Meaningful actions that worked well under one set of hazardous circumstances may become overly taxed or useless when dealing with others. As a result, new or substantially detrimental hazard conditions, such as the 100 and 500-year floods resulting from the 1999 Hurricane Floyd flooding event, can catch many off guard. Prior to Hurricane Floyd, even with available floodplain maps, few people really believed that such a large flooding event could occur this far inland. Few if any communities were able to effectively respond to this flood's initial devastation and life threatening hazard.

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<sup>1</sup> North Carolina State Hazard Mitigation Plan Update, Capability Assessment, October 2010, P. 11. This statement was also reinforced in the NC 2013 Hazard Mitigation Plan (see: page 11, Appendix B, NC Hazard Mitigation Plan Update 2013 (<https://www.nccrimecontrol.org/Index2.cfm?a=000003,000010,001623,000177,002107>))

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As reported in CFS Press regarding community preparedness and Hurricane Floyd, the severity of the flooding was not anticipated.<sup>2</sup>

*"There was a curious atmosphere of unreality throughout the entire incident. In spite of extensive meteorological warnings, emergency managers at all levels seemed unable to grasp or accept the extent of the disaster. Every new area flooded seemed to come as a surprise. In strong contrast to the massive evacuations on the coast, there were virtually none inland. The first warning most residents had was when water started coming into their houses".*

The last portion of this section includes recommendations based upon review and assessment of the various capabilities of the counties and municipalities for hazard mitigation. These recommendations not only provide insight as to potential options and strategies to help improve hazard mitigation initiatives and activities, but also can be utilized by the counties and jurisdictions to help shape current and future hazard mitigation goals and action steps.

In preparing this section, a variety of local and state documents, reports and articles were utilized. These and many other additional resource listings are included in various footnotes throughout this section.

1. Nash County Multi-Jurisdictional Hazard Mitigation Plan, Appendix C Capacity, Update 2010
2. Wilson County Multi-Jurisdictional Hazard Mitigation Plan, Appendix C Community Capacity-Update 2009, including all jurisdictions within the county (Black Creek, Elm City, Lucama, Saratoga, Sims, Stantonsburg and City of Wilson)
3. Edgecombe County Hazard Mitigation Plan, Capability Assessment, 2010, including all municipalities in the county (Conetoe, Leggett, Macclesfield, Pinetops, Princeville, Rocky Mount, Sharpsburg, Speed, and Tarboro)
4. Web Sites devoted to each of the Counties (See:<http://www.wilson-co.com/>; <http://www.co.nash.nc.us/>; and <http://www.edgecombecountync.gov/>)
5. National Cooperative Highway Research Program Transit Cooperative Research Program, Research Results Digest, September 2009, NCHRP #333 and TCRP #90
6. Centers for Disease Control and Prevention, March 2011, Public Health Preparedness Capabilities
7. S&ME, 2013, Edgecombe County Solid Waste Management Plan, Edgecombe County, NC: (See: [http://www.edgecombecountync.gov/client\\_resources/landfill/final%20edgecombe%20county%202012%20solid%20waste%20management%20plan.pdf](http://www.edgecombecountync.gov/client_resources/landfill/final%20edgecombe%20county%202012%20solid%20waste%20management%20plan.pdf) )

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<sup>2</sup> Ray, Slim, Overwhelmed: North Carolina's response to Hurricane Floyd, CFS Press, Asheville, NC (See: <http://www.cfspress.com/overwhelmedbyfloyd.htm>)

8. Garrett & Moore, 2012, [Nash County Solid Waste Management Plan - Three Year Update](#) (See: <http://www.co.nash.nc.us/DocumentCenter/View/264>)
9. Schwab, James C., Editor, [Hazard Mitigation: Integrating Best Practices into Planning](#), APA Planning Advisory Services, #560, 2010, p. 1 (See: [http://www.fema.gov/media-library-data/20130726-1739-25045-4373/pas\\_560\\_final.pdf](http://www.fema.gov/media-library-data/20130726-1739-25045-4373/pas_560_final.pdf))
10. [Nash County Emergency Operations Plan](#), 2013, (See: <http://www.co.nash.nc.us/DocumentCenter/View/726>); [Edgecombe County Emergency Management Operations Plan](#), 2005, (See: <http://www.edgecombecountync.gov/eopmain/eplan/webver/fcmainpage.htm>); and [Wilson County Emergency Operations Plan](#), 2012, (See: <https://www.wilson-co.com/DocumentCenter/Home/View/6692>)
11. Sheldon, Michael and Charles Tyer, ca. 1998, [Benchmarking and Municipal Reserve Funds: Theory Versus Practice](#) ( See: [http://www.ipspr.sc.edu/publication/Municipal\\_Reserves.htm](http://www.ipspr.sc.edu/publication/Municipal_Reserves.htm))

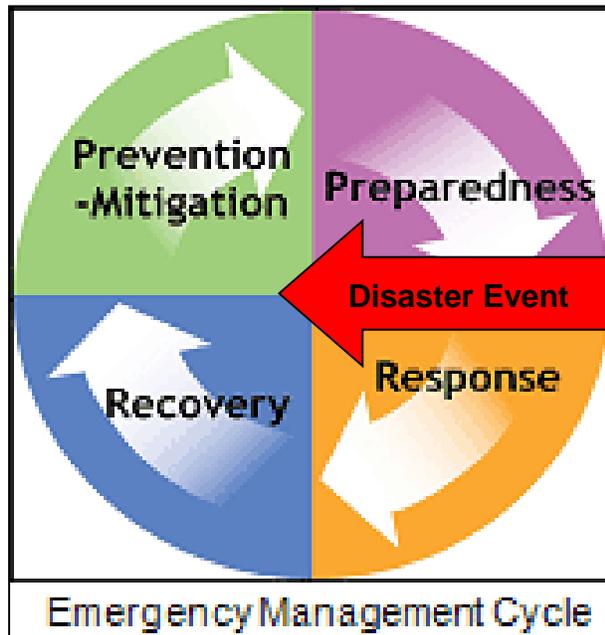
In addition, a capabilities worksheet questionnaire was submitted to all jurisdictions in the three-county region by the Upper Coastal Plain Council of Governments in order to develop updated profiles on the capabilities of all jurisdictions. A copy of the questionnaire is included in the Appendix D. Information from the responses submitted in the completed questionnaires by the various jurisdictions are included in tables in this section. In addition, an UCPCOG internal report regarding governmental activities in the region that highlights current planning operations, ordinance development and needs, water/sewer infrastructure, flood prevention programs, and other related issues for each jurisdiction in the region was utilized.



#### **4.2 MITIGATION PLANNING AND IMPLEMENTATION REQUIREMENTS**

Planning for hazard mitigation and implementing activities to address hazards require knowledge and an applied holistic approach to addressing a "*Disaster Cycle*". This cycle can be described by the emergency management cycle diagram on the next page. All these elements of the cycle must be balanced in an holistic systems approach to

address a disaster, as illustrated by the "disaster event" arrow in the diagram. A balanced, holistic approach promotes risk reduction, not by responding or mitigating in an isolated one approach manner, but instead by efficiently utilizing limited resources to apply all the approaches in the cycle in order to reduce the loss of life and property, as



well as speed post-disaster response and recovery. As the National Cooperative Highway Research Program indicates, "this approach prevents losses by mitigating risk whenever possible, by planning for continuity of operations, and by preparing for response and recovery efforts before disasters occur in a manner that recognizes that resources for risk reduction activities are limited."<sup>3</sup> According to the research program quoted above, these elements are defined as follows:<sup>4</sup>

*Preparedness refers to activities, programs, and systems developed in advance of a disaster designed to build*

*and enhance capabilities of individuals, businesses, communities, and governments at the state and federal levels to support the response to and recovery from future disasters.*

*Response begins as soon as a disaster event occurs. Response is the provision of search and rescue services, medical services, and access control as well as repairing and restoring communication and data systems during a crisis. A coordinated response plan can help reduce casualties and damage as well as decrease recovery time.*

*Recovery operations provide for basic needs and restoration of the community. There are two components in the recovery phase. During the first phase, infrastructure is examined, and repairs carried out to restore water, power, communication, and other utilities. The second phase includes returning to normal functions and addressing future disasters.*

*Mitigation (or loss reduction) is the act of reducing or eliminating future loss of life and property and injuries resulting from hazards through short and long-term activities. Mitigation strategies may range in scope and size. But no matter the size, effective mitigation activities can reduce vulnerability and exposure to risk from disasters.*

<sup>3</sup> National Cooperative Highway Research Program - Transit Cooperative Research Program, [Research Results Digest](#), September 2009, NCHRP #333 and TCRP #90(See: [http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp\\_rrd\\_333.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rrd_333.pdf))

<sup>4</sup> Same, p. 4

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In general, hazard mitigation planning must not only be *Preparation* before an event, but also *Response* during an event, as well as *Recovery* after the event and *Mitigation* activities to ensure that future events result in less impact on infrastructure, development, public interests and/or less loss of life and property. As a fundamental requirement in addressing hazard mitigation and utilizing these four elements of hazard mitigation planning, results of a hazard mitigation plan and its recommendations should be integrated into other governmental initiatives, in order to enhance a community's resilience to natural disasters.

The degree to which a community or county is successful in addressing this "*Disaster Cycle*" is directly related to the resources available. Even the type of government can play a role in the success of addressing this cycle. For example, where there is professional management involved in overseeing community or county operations there is greater opportunity for success, because there is day-to-day oversight of scarce resources and utilizing limited funding for optimum results. Also, the priority that local elected officials place on hazard mitigation is essential in insuring that hazard mitigation activities and actions remain in the forefront of governmental policies, plans, programs, activities and/or services. With elected governing boards setting policy and professional management insuring that the policies set by the governing boards are implemented, hazard mitigation can become an integral and essential part of governmental actions.

Edgecombe, Nash and Wilson Counties all have similar governmental operations that support this type of effective policy implementation. All three counties have a governing board with a board-manager form of government, and an elected county board of commissioners is the primary decision making or policy making political body for the counties. Also, in each county a county manager, employed by the board, serves as the chief executive for the county, and along with other county staff carry out day-to-day administrative and management operational activities. Edgecombe County has fewer staff than Nash and Wilson Counties, so organizational capability may be somewhat less than the larger counties; however, basic functions and service delivery responsibilities are similar across all three counties.

Operational management by staff with policy making by elected boards highly promotes the establishment of hazard mitigation policies that originate with the elected boards, administration or operational management that develops and implements these policies into hazard mitigation requirements and strategies that are integrated throughout the governmental programs, activities, and services. Information in the next subsections highlights the relevancy of the various resource capabilities and operations within the three counties and their municipalities to successfully initiate hazard mitigation planning and implementation.

#### **4.3 ADMINISTRATIVE AND TECHNICAL CAPABILITIES**

##### **4.3.1 GOVERNING BOARDS, SERVICE DEPARTMENTS, FUNCTIONS AND AGENCIES**

For the purpose of this plan, relevant administrative and technical resources include the following essential service departments, functions or agencies and their relevancy for hazard mitigation activities:

- ✓ **Governing Boards** (council, town board, commissioners, town management, etc.):  
These authorities adopt ordinances or policies through council or board actions that impact hazard mitigation capabilities. Based upon these policies, county or town management boards can ensure that resources and personnel are marshaled or coordinated for maximum hazard mitigation efforts.
- ✓ **Capabilities of Planning/Inspections** (planning board, planning department, inspections programs):  
These departments provide specific front line work in developing ordinances and related program services, as well as implementing services to ensure effective hazard mitigation preplanning, predevelopment, and construction or site activities to help minimize hazards impacts.
- ✓ **Technical Services** (geographic information system (GIS) mapping):  
This function provides the highly technical capabilities of GIS to allow all departments and service providers access to (online) maps for improved emergency response and assessment.
- ✓ **Emergency Services** (fire, police, medical, communication, etc.):  
These services are fundamental and primary support functions in times of natural disasters and have lead roles and protocols to guide processes.
- ✓ **Health Services** (public/private health services):  
Public health services, as well as private health providers, are critical in times of disasters, offering not only care facilities that need to be protected or perhaps even evacuated, but also available to serve the needs of various population groups during and following a disaster.
- ✓ **Public Utilities** (water and sewer services):  
Providing adequate public water supply is critical during times of natural disasters. Sewer facilities also need to be protected and provide a critical infrastructure required in urban or developed areas.

From an administrative governing perspective, all three counties in the Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan have a board-manager form of government, as discussed above, and each participating county has a seven member elected board of county commissioners that:

- ✓ Represents and serves the citizens of the county;
- ✓ Adopts policies or ordinances;

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- ✓ Approves budgets, authorizes, and allocates limited resources;
- ✓ Performs other critical functions as the governing bodies of the various counties.

In addition, all three counties have departments that are responsible for various governmental functions or services. For the most part, these departments are similar across all counties.

Each of the three counties with their seven-member boards of commissioners has the overall responsibility of serving the people and improving the quality of life within these counties. A county manager hired by the boards of commissioners in each county acts on the behalf of these boards, manages county finances and oversees the overall operations of the various county departments and their services. The number of county departments or functions range from 30 in Nash County to 27 in Wilson County, and 14 in Edgecombe County. These departments or functions in the various counties carry out day-to-day administrative activities and services.

**County or Town Board of Commissioners:** The county or town board of commissioners or town council for the various jurisdictions have an obligation to ensure that hazard mitigation is a top priority in order to help protect the citizens within their jurisdictions. County or town boards are responsible for the approval or adoption of policies, budgets, and ordinances that assist in hazard mitigation. By adopting plans, ordinances, and policies that contain hazard mitigation opportunities, county or town boards ensure that hazard mitigation is integrated and institutionalized.

As boards or councils elected by the citizens, they can provide direct contact for citizens before, during, and after emergencies to address public needs and concerns. A direct channel with leadership is often critical in times of public need to help ensure calm and safety for the citizenry.

**County/City/Town Manager:** A county or town manager should provide general overall management and coordination of resources in order to ensure services are optimized and the public is informed and protected, both during hazardous events as well as during preparation and recovery activities. The manager has an important responsibility to coordinate with other governments to seek and provide appropriate mutual aid. This includes various federal, state, and other public agencies, as well as private organizations.

**Emergency Management and Emergency Medical Services:** Emergency management and emergency medical services, as well as emergency communications and other emergency services like fire and police (described below) are all essential in hazard mitigation efforts. The emergency management functions in all three counties

are responsible for technical and working aspects of planning/preparedness, response, recovery, and mitigation for both natural and man-made disasters. It is important that county and municipal staff with emergency management duties and responsibilities in the region be knowledgeable about each others capacities and capabilities.

For example, emergency medical services vary by county. In Nash County personnel in emergency medical services possess the knowledge and skills to perform medical assessments and treatments at various disaster events that meet or exceed the urban search and rescue (USR) requirements set forth by the Federal Emergency Management Agency. In Edgecombe County, emergency medical services provide coordination between various outside agencies. Wilson County's emergency medical services provide emergency paramedic level care and transportation services.

**Fire Protection Services:** In the counties, direct fire protection is provided through volunteer fire districts or departments. Volunteers from throughout the county offer their services and train for emergency events within their jurisdictions. They often raise additional funds over and above funds available through county volunteer fire department taxes within the various districts, to assist in providing equipment and services. Within the larger municipal jurisdictions, fire departments are part of the governmental staff. Through stations spaced throughout a community and containing adequate firefighting equipment, fire protection and other related services, such as fire investigation, code violation enforcement, and public education on fire safety, are provided.

These volunteers and departments are valuable in assisting in the overall planning efforts for the various phases of the "*Disaster Cycle*". Given their community presence they can provide public information and education regarding hazard mitigation efforts and foster opportunities to help build relationships and inform the public about natural hazards and their risks, as well as provide the public with local strategies to help mitigate these risks.

**Sheriff and Police Departments:** Sheriff departments are the primary county law enforcement agencies within the three counties. They also provide civil functions such as operating jail facilities, executing related court activities, and guiding public control measures. The sheriff departments within each of the three counties also provide protection for most of the smaller communities or jurisdictions. The larger communities, including the City of Wilson, Tarboro, and Rocky Mount, maintain separate police departments. There is coordination and assistance between the county sheriff departments and police departments within the various counties and jurisdictions.

Sheriff or police departments are the front line departments in maintaining law and order during times of natural disasters. These departments are also valuable in assisting in the overall planning efforts for the various phases of the "*Disaster Cycle*". With the public presence of the sheriff and police departments during natural disasters, public safety can be enhanced. For example, the concerted and combined efforts by all these departments can help maintain law and order during times of disasters. Their presence in the community can also provide opportunities to help assist the public with applicable safety measures before and possibly even during a natural hazard.

**Planning and Zoning Boards:** These boards provide recommendations or input to the various county or town governing boards with regard to a variety of planning and zoning related activities including general development of areas, site plans, zoning proposals and more. These boards have the opportunity and obligation to influence development with due consideration for hazard mitigation; for example, insuring a development is planned to help mitigate potential flooding hazards.

**Planning Departments:** Planning departments and/or planning directors can provide the expertise and capacity to initiate, manage, and execute hazard mitigation planning and implementation efforts. These can include creation of plans, reports, and ordinance standards. For example, flood insurance ordinance standards are typically enforced by planning departments through their zoning enforcement capabilities. Planning departments have the responsibility to initiate plans, standards and regulations that incorporate appropriate hazard mitigation planning and implementation that can become institutionalized upon adoption by county boards and town councils.

**Inspections Departments:** Inspections departments have the responsibility to ensure all buildings and developments meet current standards for protection against a variety of hazards including damaging winds, snow weight, flooding, and other hazards that can be addressed through building standards. Specific building code standards are prepared and set forth in law by the State of North Carolina. Each inspection program in every jurisdiction in the state is required to follow these NC State Building Code standards and any additional standard created within the municipalities.

**Geographic Information System (GIS) Mapping:** Hazard mitigation activities require numerous critical spatial decisions involving geographic locations and related data. GIS is an extremely valuable tool for emergency management, because it directly benefits and enhances the integration of "real-time" mapping technology. It supports spatial geographic analysis, analytical spatial modeling, and related decision making for hazard mitigation activities. This includes preparation as well as response activities.

**Health Departments:** Threats to public health are always present and being prepared to prevent, respond to, and rapidly recover from public health crisis is critical in order to protect the public health.<sup>5</sup> The Centers for Disease Control and Prevention (CDC) has identified six areas where public health capabilities need to be utilized in order to assist in times of natural disaster emergencies:<sup>6</sup>

- Bio-surveillance (testing and epidemiological investigation)
- Community resilience (community preparedness and recovery)
- Countermeasures and mitigation (medical dispensing, medical material distribution, non-pharmaceutical interventions, safety and health issues)
- Incident management (assistance with emergency operations coordination)
- Information management (distribution of public information and information sharing)
- Surge management (mass care, volunteer management, fatality management)

The CDC provide these national standards for all local health departments to utilize as a planning resource that public health preparedness staff can use to compare and assess their jurisdictional preparedness. These standards also help local health departments better plan their preparedness priorities and activity needs for their agencies during natural disasters.<sup>7</sup>

In light of this need for community preparedness and the involvement of the public health sector in disaster planning and hazard mitigation, Nash County has used their county health department to identify the needs of various populations in the county. As a result, a coordinated effort to recognize, identify, and track the functional needs of various populations within the county has been developed between Nash County's Public Health Department as the lead agency and Nash County's Emergency Management Services, and the Aging Department.

**Medical Services:** Aside from the services provided by the county public health departments, medical services in the three-county area are primarily provided by private practice physicians with clinics and medical offices, and by the three major hospitals: Nash General Hospital located in Rocky Mount, Wilson Medical Center located in the City of Wilson, and Vidant (Heritage) Edgecombe Hospital located in Tarboro. By law hospitals are required to plan for disasters and delivery services in case of emergencies. Where appropriate, emergency management personnel in the three counties should assist or be partners in this process.

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<sup>5</sup> Centers for Disease Control and Prevention, March 2011, [Public Health Preparedness Capabilities](http://www.cdc.gov/phpr/capabilities/DSLRCapabilities_July.pdf) (See: [http://www.cdc.gov/phpr/capabilities/DSLRCapabilities\\_July.pdf](http://www.cdc.gov/phpr/capabilities/DSLRCapabilities_July.pdf))

<sup>6</sup> Same, p. 2

<sup>7</sup> Centers for Disease Control and Prevention, March 2011, [Public Health Preparedness Capabilities](http://www.cdc.gov/phpr/capabilities/DSLRCapabilities_July.pdf), p. 6 (See: [http://www.cdc.gov/phpr/capabilities/DSLRCapabilities\\_July.pdf](http://www.cdc.gov/phpr/capabilities/DSLRCapabilities_July.pdf))

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A variety of nursing home facilities are in the larger communities including:

- Britthaven, The Fountain, Golden Living, and Tarboro Nursing Center all in Tarboro (Edgecombe County);
- Autumn Care and Universal Healthcare in Nashville (Nash County);
- Kindred transitional Care and Rehabilitation, South Village Nursing Center, Nash Rehabilitation and Nursing in Rocky Mount (Nash County); and,
- Avante, Brian Center Health and Rehabilitation, and Wilson Pines Nursing and Rehabilitation in the City of Wilson (Wilson County).

Also, as recommended by the US Department of Health and Human Services' Office of Inspector General and as appropriate for local emergency operations, continual communication, collaboration, and partnership efforts between local emergency management personnel, nursing homes, and major clinics are encouraged. This is in order to review and ensure facility emergency plans are adequate and sufficient for the protection and safety of all patients during natural disaster events.<sup>8</sup>

**Utilities/Public Works Departments (Water, Sewer, Electrical or Roads):** Public utility facilities are critical for any community's welfare and well being. These facilities must remain functional or be rapidly restored during or following disasters in order to help ensure safety and well being of the population. As a fundamental backbone for the entire population, these services are clearly a priority for mitigation protection measures and prompt restoration response. All three counties are involved in providing utilities including water services. Various jurisdictions within the three-county area provide water services, sewer services, electrical distribution, and/or maintain municipal roads within corporate limits.

**Solid Waste:** All of the three counties in this Plan have a variety of landfills, collection centers, compost sites, and transfer station locations. Some municipalities also have collection centers, solid waste sites, including compost and yard waste sites. Until recently, the State of North Carolina mandated in NC General Statute 130-309.09A(a) and (b) that each jurisdiction prepare a study or plan regarding local solid waste and disposal capacity and adequacy. As a result solid waste management plans have been prepared by the counties and include the municipal data on systems and quantities. The solid waste management plans for all three counties have been reviewed and contain information related to emergency/disaster debris management.<sup>9</sup>

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<sup>8</sup> Department of Health and Human Services, 2006, Nursing Home Emergency Preparedness and Response During Recent Hurricanes (See: <http://oig.hhs.gov/oei/reports/oei-06-06-00020.pdf>)

<sup>9</sup> Edgecombe County Solid Waste Management Plan: (See [http://www.edgecombecountync.gov/client\\_resources/landfill/final%20edgecombe%20county%202012%20solid%20waste%20management%20plan.pdf](http://www.edgecombecountync.gov/client_resources/landfill/final%20edgecombe%20county%202012%20solid%20waste%20management%20plan.pdf)); Nash County Solid Waste Management Plan (See: <http://www.co.nash.nc.us/DocumentCenter/View/264>); verification of Wilson County Solid Waste Management Plan by phone conversation with Solid Wasted Management Office.

#### **4.3.2 COUNTY GOVERNMENT FUNCTIONS AND RESOURCES**

Governmental functions, departments, and staff members most relevant in the development or implementation of hazard mitigation activities and/or assisting in addressing the "*Disaster Cycle*" within the three counties are displayed in the following Table 4.1. This table provides a summary overview of the various functions and departments discussed in the previous section.

For the purposes of this plan, relevant resources include the public administrative, technical, and essential service departments, functions or agencies. Specific make-up or organization, as well as availability of certain functions, differ among the various jurisdictions. In some cases the services provided by the County, such as Inspections or sheriff operations, are utilized in the smaller jurisdictions and these service provider arrangements are noted in the table. Comments and recommendations regarding the information in the tables as it relates to relevancy in hazard mitigation initiatives and activities follow each table.



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**Table 4.1**

| <b>RELEVANT DEPARTMENTS OR STAFF FOR HAZARD MITIGATION ACTIVITIES IN NASH, WILSON, AND EDGECOMBE COUNTIES*</b>   |                                     |                                     |  |   |
|--|-------------------------------------|-------------------------------------|--|---|
| <b>Department or Agency</b>  | <b>Nash County</b>                  | <b>Wilson County</b>                | <b>Edgecombe County</b>                    | <b>General Description or Function</b>  |
| 1. County Board of Commissioners   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>        | Serve citizens, adopt ordinances, approve policies and budgets, and possess authority to govern   |
| 2. County Manager  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>        | Oversee/manage daily operations; marshal and coordinate resources   |
| 3. Planning Board  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>        | Advise County Board of Commissioners on planning, land use, and related ordinances and development related interests                                |
| 4. Planning Dept./Planner  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>        | Develop long range plans, issue of zoning permits, review site plans, development and implement ordinance requirements                              |
| 5. Inspections Dept.   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>        | Issue/review all building permits and inspect construction activities   |
| 6. Civil Engineer  | <input checked="" type="checkbox"/> | (7)                                 | (7)  | Provide engineering for public works infrastructure   |
| 7. Flood Plain Administrator   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>        | Provide continuous flood plain enforcement and other related duties   |
| 8. Grant Writing   | <input checked="" type="checkbox"/> | <b>X</b>                            | <input checked="" type="checkbox"/>        | Grant writing include researching and developing grant projects and applications  |
| 9. GIS Mapping/Coordinator   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/><br>(1) | Develop, maintain and implement digital mapping services - map hazard areas and provide EM with visual analysis of mapped data                      |
| 10. Emergency Management   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>        | Coordinate/carry out emergency management activities  |
| 11. Mitigation Planning Committee prior to this plan   | <input checked="" type="checkbox"/> | <b>X</b>                            | <b>X</b>                                   | Public involvement in hazard mitigation through a hazard mitigation planning committee  |
| 12. Fire Protection Services (2)   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>        | Provide fire protection, educate, investigate   |
| 13. Emergency Services Dept  | <input checked="" type="checkbox"/> | <b>X</b>                            | <b>X</b>                                   | All counties have Fire Marshalls, Emergency Communications and Emergency Management, but only Nash County has a department with all these functions |
| 14. Emergency Medical Services   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | (5)  | Provide emergency medical services throughout county  |
| 15. Emergency Communication  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>        | An Emergency Communication Center in each County provides emergency communications through 911 services   |
| 16. Sheriff Dept.(3)   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>        | Law enforcement and other Civil duties  |
| 17. Health Dept.   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>        | Public health care  |
| 18. Medical Services   | (6)                                 | (6)                                 | (6)  | Medical services are provided by private practitioners and at three major hospitals in Rocky Mount, Tarboro and the City of Wilson                  |
| 19. Utilities Dept. (Water and/or Sewer) (4)   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>        | Pubic water or sewer systems  |
| 20. Public Works Dir. or Dept.   | <b>X</b>                            | <b>X</b>                            | <b>X</b>                                   | Streets and related infrastructure (not a typical county function)  |
| 21. Solid Waste  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>        | Solid waste disposal sites  |
| <p><b>NOTES: Symbol Key:</b> <input checked="" type="checkbox"/>=Function or Staff / Department present; <b>X</b> = Function or Staff/ Department not present; <b>NR</b> = Unknown, no response</p> <p>(1) Edgecombe County uses a proprietary GIS format (Understanding Systems) or UCPCOG GIS mapping services</p> <p>(2) Voluntary Fire Services are provided in the three counties and also serve jurisdictions except Rocky Mount and Nashville, City of Wilson and Tarboro. These jurisdictions have their own fire department services; A Fire Marshall is hired by the Counties to coordinate services; Fire Departments from the large Towns assists in the county areas as needed</p> <p>(3) County Sheriff Departments provide primary services to the Counties as well many of the towns in the County except the larger towns, such as Rocky Mount, Tarboro, or the City of Wilson, as well as a few other smaller towns that have their own police departments.</p> <p>(4) Separate Water Departments serve portions of each county</p> <p>(5) Coordinates medical service needs, including provide dispatch for ambulances and transport of victims</p> <p>(6) Medical Services are typically provided by private care givers (Doctors and medical clinics) or at the major hospitals including Nash General Hospital in Nash County (located in Rocky Mount) , Wilson Medical Center in Wilson County (located in Wilson), and Vidant Edgecombe Hospital in Edgecombe County (located in Tarboro)</p> <p>(7) Civil engineering services obtained on contract basis</p> <p>* <b>Sources:</b> 2010 hazard mitigation plans for Wilson, Nash and Edgecombe Counties; 2005 Edgecombe County Emergency Plan; 2014 UCPCOG Survey of counties and all jurisdictions</p> |                                     |                                     |  |   |

From the information in the above table all three counties appear to be well managed and have necessary governmental service providers in place that offer sufficient capabilities to effectively provide hazard mitigation initiatives. For example, emergency communication and emergency management operations are part of county government functions, and both are critical in hazard mitigation activities. All the counties have a board-manager form of government that provides effective administrative and policy making functions. The planning departments, floodplain administration and inspection departments within each county also provide vital capabilities in hazard mitigation activities. The GIS mapping capabilities in each county and emergency response functions of the various county sheriffs' departments add to the capabilities of the counties to address hazard mitigation initiatives as well as response.

A weak area related to data in the above table for hazard mitigation capabilities appears to be related to public involvement or participation in hazard mitigation activities, in that only Nash County has an on-going Hazard Mitigation Planning Committee. Such a committee can function as a public involvement element in hazard mitigation efforts, providing an essential forum for public participation including opportunities for dissemination of vital information to the public.

#### **4.3.3 MUNICIPAL GOVERNMENT FUNCTIONS AND RESOURCES**

Municipalities within the three-county region also have relevant operational resources for hazard mitigation activities. Tables 4.2, 4.3, and 4.4 display these resources. For the purposes of this plan, relevant resources include the same important public administrative, technical and essential service departments, functions or agencies as displayed in the county table, although specific make-up or organization, as well as availability of certain functions differ among the various municipalities, primarily as a result of size. In some cases the services provided by the county, such as inspections or sheriff operations, are utilized in the smaller jurisdictions and these service provider arrangements are also noted in the table. Each table contains explanation notes and data sources for information in the tables.

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**Table 4.2**

| <b>RELEVANT DEPARTMENTS OR STAFF FOR HAZARD MITIGATION ACTIVITIES IN JURISDICTIONS WITHIN NASH COUNTY</b> |                                  |               |                 |                 |                  |                |                  |                |                    |                   |   |
|---|----------------------------------|---------------|-----------------|-----------------|------------------|----------------|------------------|----------------|--------------------|-------------------|---|
| <b>Department or Agency</b>   | <b>Nash County Jurisdictions</b> |               |                 |                 |                  |                |                  |                |                    |                   | <b>General Functions</b>  |
|   | <b>Rocky Mount#</b>              | <b>Bailey</b> | <b>Castalia</b> | <b>Dortches</b> | <b>Middlesex</b> | <b>Momeyer</b> | <b>Nashville</b> | <b>Red Oak</b> | <b>Spring Hope</b> | <b>Whitakers#</b> |   |
| 1. Town Board or Council  | ☑                                | ☑             | ☑               | ☑               | ☑                | ☑              | ☑                | ☑              | ☑                  | ☑                 | Adopts Policies & Ordinances; approves budgets                        |
| 2. Town Manager   | ☑                                | (3)           | (3)             | ☑               | ☑                | (3)            | ☑                | (3)            | ☑                  | ☑                 | Marshalls resources   |
| 3. Planning Board   | ☑                                | ☑             | ☑               | ☑               | ☑                | ☑              | ☑                | ☑              | ☑                  | ☑                 | Advised Board or Council  |
| 4. Planning Dept. or Director/Planner   | ☑                                | X             | X               | X               | X                | X              | ☑                | X              | X                  | X                 | Performs planning functions; Also, small communities rely upon UCPCOG |
| 5. Inspections Dept.  | ☑                                | (4)           | (4)             | (4)             | (4)              | (4)            | (4)              | (4)            | (4)                | (4)               | Performs building inspections   |
| 6. Civil Engineer   | ☑                                | X             | X               | NR              | ☑                | X              | X                | X              | X                  | X                 |   |
| 7. Grant Writing  | ☑                                | X             | X               | NR              | ☑                | X              | ☑                | (11)           | X                  | NR                |   |
| 8. Floodplain Administrator   | ☑                                | X             | ☑               | ☑               | ☑                | ☑              | ☑                | X              | (9)                | ☑                 | Provide continuous flood plain enforcement and other related duties   |
| 9. GIS Mapping/Coordinator (10)   | ☑                                | X             | X               | X               | X                | X              | ☑                | X              | X                  | X                 | Digital Mapping   |
| 10. Emergency Manager   | ☑                                | X             | X               | X               | X                | X              | ☑                | X              | X                  | X                 | Provide emergency management & personnel                              |
| 11. Mitigation Planning Committee Prior to 3 county plan  | ☑                                | X             | X               | NR              | X                | X              | X                | X              | X                  | NR                |   |
| 12. Fire Services   | ☑                                | (5)           | (5)             | (5)             | (5)              | (5)            | (5)              | (5)            | (5)                | (5)               | Fire protection   |
| 13. Emergency Services Dept   | ☑                                | (6)           | (6)             | (6)             | (6)              | (6)            | (6)              | (6)            | (6)                | (6)               | Emergency Management  |
| 14. Emergency Medical Services  | (1)                              | (6)           | (6)             | (6)             | (6)              | (6)            | (6)              | (6)            | (6)                | (6)               | Addresses medical emergencies   |
| 15. Emergency Communication   | (6)                              | (6)           | (6)             | (6)             | (6)              | (6)            | (6)              | (6)            | (6)                | (6)               | 911 capabilities  |
| 16. County Sheriff Dept.  | ☑                                | ☑             | ☑               | ☑               | ☑                | ☑              | ☑                | ☑              | ☑                  | ☑                 | Civil and county protection services                                  |
| 17. Police Department   | ☑                                | ☑             | X               | X               | X                | X              | ☑                | X              | ☑                  | ☑                 | Local Police protection services                                      |
| 18. Health Dept. (1)  | (1)                              | (1)           | (1)             | (1)             | (1)              | (1)            | (1)              | (1)            | (1)                | (1)               | Public Health services  |
| 19. Medical Services  | (2)                              | X             | X               | X               | (2)              | X              | (2)              | X              | (2)                | X                 | Primarily private practices   |
| 20. Utilities Dept (Water and/or Sewer) and/or Public Works Dir. or Dept. (7)                             | ☑                                | ☑             | ☑               | X               | ☑                | X              | ☑                | X              | X                  | X                 | Electrical Utilities & water/sewer services and/or public streets     |
| 21. Solid Waste Collection  | ☑                                | (8)           | (8)             | ☑               | ☑                | (8)            | ☑                | (8)            | (8)                | (8)               | Garbage collection (Solid Waste Land field provided by County)        |

**NOTES: (Symbol Key: ☑=Function provided or Staff/Department present; X = Function or Staff/Department not present; NR = Unknown or no answer/response; Numbers in parentheses refer to notes below for information)**  
 (1) Health Department is Nash County Health Department located in Nashville and serves the entire county; (2) Medical services consist of Nash General Hospital in Rock Mount and various private practice doctors and clinics in the selected communities; (3) Manager's role performed by Town Clerk (4) Inspections conducted by County Building Inspectors; (5) Fire services provided by Volunteer Fire Departments; (6) 911 Emergency services provided by County - Various local services linked in to 911 service; (7) County water and sewer serve major portions of the County; (8) Solid Waste disposal by County/most towns contract collection services; (9) County provides Flood Plain Administration; (10) Some communities indicate that the County provides GIS Services; (11) Grant writing provided by Upper Coastal Plain Council of Governments  
**ADDITIONAL NOTES: # = Partly in both Nash County and Edgecombe County**

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**Table 4.3**

| <b>RELEVANT DEPARTMENTS OR STAFF FOR HAZARD MITIGATION ACTIVITIES IN JURISDICTIONS IN WILSON COUNTY</b> |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |   |
|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---|
| <b>Department or Agency</b>   | <b>Wilson County Jurisdictions</b>  |                                     |                                     |                                     |                                     |                                     |                                     |                                     | <b>General Functions</b>  |
|   | <b>City of Wilson</b>               | <b>Elm City</b>                     | <b>Lucama</b>                       | <b>Black Creek</b>                  | <b>Saratoga</b>                     | <b>Stantonsburg</b>                 | <b>Sims</b>                         | <b>Sharpsburg#</b>                  |   |
| 1. Town Board or Council  | <input checked="" type="checkbox"/> | Serves citizens, adopts ordinances, approves budgets, and authority to governs                    |
| 2. Town Manager   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | (9)                                 | <input checked="" type="checkbox"/> | (9)                                 | <input checked="" type="checkbox"/> | Oversees/manages daily operations   |
| 3. Planning Board   | <input checked="" type="checkbox"/> | Advises Town Board on planning, land use, and related ordinances, development and other interests |
| 4. Planning Dept. or Director/Planner   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | X (11)                              | Develops long range plans, issues of zoning permits, reviews site plans,                          |
| 5. Inspections Dept.  | <input checked="" type="checkbox"/> | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                 | Issues/reviews all building permits and inspects construction activities                          |
| 6. Civil Engineer   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | Small Towns contract with Engineering Firm for Civil Engineering Services                         |
| 7. Floodplain Administrator   | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | X                                   | (12)                                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Provide continuous flood plain enforcement and other related duties                               |
| 8. Grant Writing  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | X                                   | X                                   | (11)                                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |   |
| 9. GIS Mapping/Coordinator  | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | For Digital Mapping all small communities rely upon the County or UCPCOG                          |
| 10. Emergency Manager   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | (12)                                | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Primarily rely on County function (In some communities the Mayor also serves this function)       |
| 11. Mitigation Planning Committee   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   |   |
| 12. Fire Services   | <input checked="" type="checkbox"/> | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 | Volunteer fire department in County area  |
| 13. Emergency Services Dept (6)   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | Primarily County function   |
| 14. Emergency Medical Services  | (10)                                | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   |   |
| 15. Emergency Communication (6)   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | All emergency departments/operations connected with 911, a county function                        |
| 16. County Sheriff Dept.  | NR                                  | (6)                                 | NR                                  | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 | Civil and county protection services  |
| 17. Police  | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X                                   | X                                   | Local Police protection services  |
| 18. Health Dept. (1)  | (2)                                 | (2)                                 | (2)                                 | (2)                                 | (2)                                 | (2)                                 | (2)                                 | (2)                                 | Public health services  |
| 19. Medical Services  | (2)                                 | (2)                                 | X                                   | X                                   | X                                   | (2)                                 | X                                   | X                                   |   |
| 20. Utilities Dept (Water and/or Sewer) and/or Public Works Dir. or Dept. (7)                           | <input checked="" type="checkbox"/> | Electrical Utilities & water/sewer services and/or public streets                                 |
| 21. Solid Waste Collection (8)  | <input checked="" type="checkbox"/> | NR                                  | NR                                  | NR                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | NR                                  | (8)                                 | Garbage collection (Solid Waste Land field provided by County)                                    |

**NOTES: (Symbol Key: =Function provided or Staff/Department present; X = Function or Staff/Department not present; NR = Unknown or no response; Numbers in parentheses refer to notes below for information)**  
 (1) Health Department is Wilson County Health Department located in the City of Wilson and serves the entire county; (2) Medical services consist of Wilson Medical Center and various private practice doctors and clinics; (3) Manager's role performed by Town Clerk; (4) Inspections conducted by County Building Inspectors; (5) Fire services provided by Volunteer Fire Departments; (6) County Sheriff Department provides protection; Emergency Services and 911 provided by County - Various local services linked in to 911 service and City of Wilson provides backup services; (7) County water serves major portions of the County; (8) Solid Waste disposal collection by contracted services; (9) The Mayor serves as chief administrative officer (manager); (10) Fire department provides emergency medical care; (11) contracts with UCPCOG for Planning/Grant Services; (12) Rely upon the County  
**ADDITIONAL NOTES: # = Partly in Nash County, Wilson County, and Edgecombe County**

**Table 4.4**

| <b>RELEVANT DEPARTMENTS OR STAFF FOR HAZARD MITIGATION ACTIVITIES IN JURISDICTIONS WITHIN EDGECOMBE COUNTY</b> |                                       |                                     |                                     |                                     |                                     |                                     |                                     |  |
|--|---------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--|
| <b>Department or Agency</b>  | <b>Edgecombe County Jurisdictions</b> |                                     |                                     |                                     |                                     |                                     |                                     | <b>General Functions</b>   |
|  | <b>Tarboro</b>                        | <b>Conetoe</b>                      | <b>Leggett</b>                      | <b>Macclesfield</b>                 | <b>Pinetops</b>                     | <b>Speed</b>                        | <b>Princeville</b>                  |  |
| 1. Town Board or Council   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| 2. Town Manager  | <input checked="" type="checkbox"/>   | (3)                                 | (3)                                 | (3)                                 | <input checked="" type="checkbox"/> | (3)                                 | <input checked="" type="checkbox"/> |  |
| 3. Planning Board  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | X                                   | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| 4. Planning Dept. or Director/Planner  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| 5. Inspections Dept.   | <input checked="" type="checkbox"/>   | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                 |  |
| 6. Civil Engineer  | X                                     | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | Engineering services are contracted out  |
| 7. Grant Writing   | <input checked="" type="checkbox"/>   | X                                   | X                                   | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   |  |
| 8. Floodplain Administrator  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X                                   | <input checked="" type="checkbox"/> | Provide continuous floodplain enforcement and other related duties; Some communities rely upon County to administer floodplain regulations |
| 9. GIS Mapping   | <input checked="" type="checkbox"/>   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | Small communities rely upon County   |
| 10. Emergency Manager  | (6)                                   | X                                   | (6)                                 | X                                   | X                                   | X                                   | X                                   | Small communities rely upon County   |
| 11. Mitigation Planning Committee  | <input checked="" type="checkbox"/>   | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X                                   |  |
| 12. Fire Services (5)  | <input checked="" type="checkbox"/>   | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 |  |
| 13. Emergency Services Dept  | (6)                                   | X                                   | (6)                                 | X                                   | X                                   | X                                   | X                                   |  |
| 14. Emergency Medical Services   | X                                     | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   |  |
| 15. Emergency Communication (6)  | (6)                                   | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 |  |
| 16. County Sheriff Dept.   | (6)                                   | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 | Civil and county protection services   |
| 17. Police   | <input checked="" type="checkbox"/>   |                                     |                                     |                                     | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | Local Police protection services   |
| 18. Health Dept.   | (1)                                   | (1)                                 | (1)                                 | (1)                                 | (1)                                 | (1)                                 | (1)                                 |  |
| 19. Medical Services   | (2)                                   | (2)                                 | (2)                                 | (2)                                 | (2)                                 | (2)                                 | (2)                                 |  |
| 20. Utilities Dept (Water and/or Sewer) and/or Public Works Dir. or Dept. (7)                                  | <input checked="" type="checkbox"/>   | NR                                  | NR                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | NR                                  | <input checked="" type="checkbox"/> |  |
| 21. Solid Waste Collection   | <input checked="" type="checkbox"/>   | (8)                                 | (8)                                 | (8)                                 | (8)                                 | (8)                                 | (8)                                 |  |

**NOTES: (Symbol Key: =Function provided or Staff/Department present; X = Function or Staff/Department not present; NR = Unknown or no response; Numbers in parentheses refer to notes below for information)**  
**(1)** Health Department is Edgecombe County Health Department located in Tarboro in Edgecombe County and serves the entire county; **(2)** Medical services consist of Vidant Edgecombe Hospital in Tarboro and various private practice doctors and clinics located there; **(3)** Manager's role performed by Town Clerk or Mayor; **(4)** Inspections conducted by County Building Inspectors; **(5)** Except for Tarboro, fire services provided by Volunteer Fire Departments; **(6)** County Sheriff Department provides protection; Emergency Services and 911 provided by County - Various local services linked in to 911 service; **(7)** Public Works and Public Utilities not usually in small communities; **(8)** Except for Tarboro that provides waste collection, all other Towns use contracted services to provide solid waste disposal collection

From the information in the above tables the various jurisdictions in all three counties appear to be well managed and most have necessary governmental service providers or functions in place or rely upon the county so as to have essential capabilities to effectively provide hazard mitigation initiatives. For example, all the jurisdictions have elected boards, and some have managers. Where managers are not present, the mayors along with town clerks function in administrative roles.

Although the larger cities including Rocky Mount, the City of Wilson, and Tarboro, have more resources and governmental service providers or functions than other towns, a few smaller towns have floodplain administrators and emergency management staff. All smaller municipalities rely upon the counties for certain critical services which may include police protection, inspections, GIS mapping and/or overall emergency management.

As with the counties, a weakness in hazard mitigation capabilities function for the various jurisdictions appears to be related to public involvement. Very few communities have on-going hazard mitigation planning committees. Increasing mitigation capacity in the entire three-county area should include public participation, and a meaning approach to achieving this is the establishment of hazard mitigation planning committees at the local and county levels throughout the entire three-county area. Such committees can function as a public involvement mechanism in hazard mitigation efforts, providing an essential forum at the local level for ongoing public participation including dissemination of vital information to and from the community.

[As an integral part of this plan establishment of on-going hazard mitigation planning committees in all the communities assisted by the various county emergency management personnel is recommended.](#) These committees should meet regularly, perhaps on a quarterly or even yearly basis at which time discussion of accomplishments regarding hazard mitigation action steps, potential actions, mitigation needs, and/or opportunities can be discussed. Involvement and participation of the public should be promoted in the implementation of mitigation initiatives for the community or area.

#### **4.4 PLANNING AND REGULATORY CAPABILITIES**

##### **4.4.1 PARTICIPATION IN THE NATIONAL FLOOD INSURANCE PROGRAM**

The following table displays all the counties and municipalities, lists the status of participation of each in the NFIP, and indicates the presence of a Flood Damage Prevention Ordinance. In addition, specific flood claims are listed along with total claim amounts between January 1, 1978 and September 30, 2014 for each jurisdiction.

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Although only four communities are participating in the Community Rating System (CRS), these communities and ratings are listed in this table.

**Table 4.5**

| <b>RELEVANT NATIONAL FLOOD INSURANCE PROGRAM PARTICIPATION, RELATED FLOOD ORDINANCE, INSURANCE CLAIMS AND CRS PARTICIPATION</b> |  |  |                                    |                          |                               |                              |                    |                                    |  |                   |
|---|--|--|------------------------------------|--------------------------|-------------------------------|------------------------------|--------------------|------------------------------------|--|-------------------|
| <b>Jurisdiction</b>   | <b>NFIP Policies, Flood Prevention Ordinances, Claims, and CRS Participation</b> |  |                                    |                          |                               |                              |                    |                                    |  |                   |
|   | <b>NFIP Participation</b>  | <b>Flood Damage Ordinance</b>              | <b>Current Effective FIRM Date</b> | <b>Initial FIRM Date</b> | <b>NFIP Policies In Force</b> | <b>\$ Insurance In Force</b> | <b># of Claims</b> | <b>\$ Claim Payments 1978-2014</b> | <b>Community Rating System (CRS) Entry</b> | <b>CRS Rating</b> |
| <b>Nash County</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 7/7/14                             | 06/01/78                 | 126                           | \$30,564,700                 | 52                 | \$2,476,014                        |  |                   |
| <b>Rocky Mount#</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 6/18/13                            | 05/01/78                 | 983                           | \$223,452,200                | 684                | \$31,481,761                       | 10/01/92                                   | 6                 |
| <b>Bailey</b>   | (2)  | <input checked="" type="checkbox"/>        | No SFHA                            | NA                       | NA                            |                              | 0                  | \$0                                |  |                   |
| <b>Castalia</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | No SFHA                            | 11/03/04                 | NA                            |                              | 0                  | \$0                                |  |                   |
| <b>Dortches</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 7/03/07                            | 11/03/04                 | 2                             | \$630,000                    | 0                  | \$0                                |  |                   |
| <b>Middlesex</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 7/7/14                             | 01/20/82                 | NA                            |                              | 0                  | \$0                                |  |                   |
| <b>Momeyer</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | No SFHA                            | 11/03/14                 | NA                            |                              | 0                  | \$0                                |  |                   |
| <b>Nashville</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 6/18/13                            | 01/17/86                 | 39                            | \$9,127,400                  | 23                 | \$1,074,097                        | 10/01/94                                   | 8                 |
| <b>Red Oak</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 6/18/13                            | 01/20/82                 | 9                             | \$2,261,600                  | 1                  | \$678                              |  |                   |
| <b>Spring Hope</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 6/18/13                            | 11/03/04                 | NA                            |                              | 0                  | \$0                                |  |                   |
| <b>Whitakers##</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 6/18/13                            | 04/15/80                 | NA                            |                              | 0                  | \$0                                |  |                   |
| <b>Subtotal</b>   |  |  |                                    |                          | 1159                          | <b>\$266,035,900</b>         | 760                | <b>\$35,031,872</b>                |  |                   |
| <b>Wilson County (3)</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 07/07/14                           | 01/06/83                 | 84                            | \$20,170,300                 | 41                 | \$907,899                          |  |                   |
| <b>City of Wilson</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 04/16/13                           | 07/19/82                 | 520                           | \$113,900,200                | 286                | \$5,313,654                        | 10/01/91                                   | 6                 |
| <b>Elm City</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 12/02/05                           | 11/03/04                 | 2                             | \$208,000                    | 0                  | \$0                                |  |                   |
| <b>Lucama</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 04/16/13                           | 11/03/04                 | 7                             | \$700,000                    | 0                  | \$0                                |  |                   |
| <b>Black Creek</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 04/16/13                           | 11/03/04                 | 2                             | \$126,000                    | 0                  | \$0                                |  |                   |
| <b>Saratoga</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | No SFHA                            | 11/03/04                 | NA                            |                              | 0                  | \$0                                |  |                   |
| <b>Stantonsburg</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 04/16/13                           | 09/01/89                 | 2                             | \$700,000                    | 1                  | \$35,445                           |  |                   |
| <b>Sims</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/><br>(4) | 04/16/13                           | 11/03/04                 | NA                            |                              | 0                  | \$0                                |  |                   |
| <b>Sharpsburg#</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 6/18/13                            | 11/03/04                 | 13                            | \$3,150,000                  | 6                  | \$109,333                          |  |                   |
| <b>Subtotal</b>   |  |  |                                    |                          | 630                           | <b>\$138,954,500</b>         | 334                | <b>\$6,366,331</b>                 |  |                   |
| <b>Edgecombe County</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 7/07/14                            | 08/03/81                 | 129                           | \$23,290,600                 | 59                 | \$1,723,529                        |  |                   |
| <b>Tarboro</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 09/19/07                           | 01/05/78                 | 256                           | \$54,284,600                 | 47                 | \$1,723,529                        | 10/01/06                                   | 7                 |
| <b>Conetoe</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 09/19/07                           | 11/03/04                 | 5                             | \$941,500                    | 0                  | 0                                  |  |                   |
| <b>Leggett</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 09/19/07                           | 12/20/99                 | 4                             | \$599,500                    | 1                  | \$518                              |  |                   |
| <b>Macclesfield</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 09/19/07                           | 03/18/80                 | 1                             | \$350,000                    | 0                  | 0                                  |  |                   |
| <b>Pinetops</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 09/19/07                           | 03/28/80                 | 2                             | \$1,149,600                  | 21                 | \$682,518                          |  |                   |
| <b>Speed</b>  | <input checked="" type="checkbox"/>  | (1)  | 09/19/07                           | 07/02/87                 | 13                            | \$1,852,900                  | 2                  | \$5,150                            |  |                   |
| <b>Princeville</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>        | 09/19/07                           | 04/15/80                 | 168                           | \$34,064,100                 | 8                  | \$264,658                          |  |                   |
| <b>Subtotal</b>   |  |  |                                    |                          | 578                           | <b>\$116,532,800</b>         | 138                | <b>\$4,399,902</b>                 |  |                   |

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|  |  |  |  |  |       |               |       |              |  |  |
|--|--|--|--|--|-------|---------------|-------|--------------|--|--|
| <b>Total</b>   |  |  |  |  | 2,367 | \$521,523,200 | 1,232 | \$45,798,105 |  |  |
| <p><b>The Data Sources and other information pertaining to the above table entitled, <u>Relevant National Flood Prevention Program Participation, Related Flood Ordinance, Insurance Claims And Community Rating System Participation</u> are as follows:</b></p> <p><b><u>Definitions</u></b></p> <p><b>FIRM</b>= Flood Insurance Rate Map<br/> <b>No SFHA</b>= No Special Flood Hazard Area (All Zone X (formerly Zones B &amp; C))<br/> <b>Symbol Key:</b> <input checked="" type="checkbox"/> = Participation in Flood Ordinance Requirements</p> <p><b><u>Data Sources</u></b></p> <ol style="list-style-type: none"> <li>Local government ordinances, land development plans, flood prevention status, and other related information in recent UCPCOG Governmental Information Survey</li> <li>Communities participating in National Flood Program (Effective Flood Plain Map &amp; FIRM Dates): <a href="https://w and ww.fema.gov/cis/NC.html">https://w and ww.fema.gov/cis/NC.html</a></li> <li>Current CRS status- 2014: <a href="http://www.fema.gov/media-library-data/1408050845935-ee33e56e81c3aa3f26e569ff6b248fa7/19_crs_508_oct2014.pdf">http://www.fema.gov/media-library-data/1408050845935-ee33e56e81c3aa3f26e569ff6b248fa7/19_crs_508_oct2014.pdf</a></li> <li>Flood Insurance Claim Losses &amp; Payments (1978-2014): <a href="http://bsa.nfipstat.fema.gov/reports/1040.htm">http://bsa.nfipstat.fema.gov/reports/1040.htm</a></li> </ol> <p><b><u>Notes</u></b></p> <ol style="list-style-type: none"> <li>County enforces floodplain ordinance.</li> <li>Community is not participating in the NFIP as of the adoption of this Hazard Mitigation Plan.</li> <li>Wilson County adopted new floodplain maps on April 16, 2013</li> <li>Town of Sims adopted its first Flood Damage Prevention Ordinance in 2013.</li> </ol> |  |  |  |  |       |               |       |              |  |  |

As is displayed in the previous table, all three counties in this plan participate in the National Flood Insurance Program (NFIP). In addition, all three counties in the plan have adopted and enforce flood damage prevention ordinances, and have a designated floodplain administrator on their staff. All the municipalities have identified Flood Insurance Rate Maps (FIRMs) and have adopted Flood Hazard Prevention Ordinances. Regarding the floodplain management programs of each of the 25 municipalities included in this plan, as shown in Tables 4.2 through 4.4, 15 have a designed floodplain administrator on their staff, who is responsible for administering and enforcing their floodplain regulations. Two of these municipalities also have an agreement with the Upper Coastal Plain COG to assist them with their zoning/subdivision administration, which could include providing assistance with floodplain management issues, and one other one also relies on the county staff for assistance. Of the remaining 10 municipalities, six do not have a designed floodplain administrator, but rely on other staff and/or the county to administer their floodplain regulations. Three others indicated that they are completely dependent on the county staff (planning/inspections) to administer their floodplain regulations. The last municipality, the Town of Bailey in Nash County, indicated that they do not have a floodplain administrator, but they do have an adopted Flood Hazard Prevention Ordinance, and they are not a participant in the National Flood Insurance Program (NFIP). Because the town has no special flood hazard areas (otherwise known as regulatory floodplains) within their town limits and their extraterritorial jurisdiction (ETJ), they have decided that participation in the NFIP is

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not a priority at the current time. Because they are not participating in the NFIP, flood insurance is not available anywhere within their planning jurisdiction.

Flood insurance is available in the remainder of the three-county planning area. Within this three-county area there are 2,367 flood insurance policies in effect, compared to 135,866 in all of North Carolina. Within the state there is \$32,604,851,900 of flood insurance in force, compared to \$521,523,200 in this plan's three-county area. Compared to the state, the three counties have less than 2% of the insurance policies and less than 1% of the fiscal amount of insurance in force. Of the total amount of insurance coverage in the three counties, Nash County has the largest proportion at 51%, Wilson County at 27%, and Edgecombe County at 22%. Nash County also had the highest number of claims at 62% compared to 27% for Wilson County and 11% for Edgecombe County. The largest quantity of claim payments was also in Nash County at 77% compared to 14% in Wilson County and 10% in Edgecombe County. In Nash County as well as the other two counties, the larger towns including Rocky Mount, Nashville, Tarboro, and the City of Wilson accounted for the higher claim amounts.

#### **4.4.2 PLANS, ORDINANCES AND RELATED INITIATIVES**

One of the primary goals of planning has always been the enhancement of the quality of life in our communities and most planners practice their profession with this intention. There can be nothing more important and essential to quality of life than ensuring personal safety, and all quality characteristics of communities, including buildings, improvements, culture, and inhabitants, are substantially jeopardized when communities and personal safety are at risk on a broad scale as a result of natural hazards.<sup>10</sup>

The ability of a community or county to guide and manage development and growth as well as implement policies or actions to help mitigate natural hazards is dependent upon the adoption and application of various plans, policies, and/or management related initiatives. This includes comprehensive plans, zoning and subdivision ordinances, and capital budgeting for infrastructure improvements that incorporate actions, initiatives, or policies that address hazard mitigation.

Although there are variations in capabilities among the jurisdictions within the three-county area in this plan (primarily related to size, resources available and extent of development), the availability and utilization of these planning initiatives represent significant opportunities to impact the overall development of the community or county.



The American Planning Association PAS Report #560, entitled, Hazard Mitigation: Integrating Best Practices into Planning provides a basis for developing appropriate opportunities to consider integrating hazard mitigation into various governmental functions or activities.<sup>11</sup> Of particular interest is for communities to build "resilience" into how natural hazards are addressed so that,

*"Instead of repeated damage and continual demands for federal disaster assistance, resilient communities proactively protect themselves against hazards, build self-sufficiency and become more sustainable. Resilience is the capacity to absorb severe shock and return to a desired state following a disaster. It involves*

<sup>10</sup> Schwab, James C., Editor, Hazard Mitigation: Integrating Best Practices into Planning, APA Planning Advisory Services, #560, 2010, p. 1 (SEE: [http://www.fema.gov/media-library-data/20130726-1739-25045-4373/pas\\_560\\_final.pdf](http://www.fema.gov/media-library-data/20130726-1739-25045-4373/pas_560_final.pdf))

<sup>11</sup> Schwab, James C., Editor, Hazard Mitigation: Integrating Best Practices into Planning, APA Planning Advisory Services, #560, 2010 SEE: [http://www.fema.gov/media-library-data/20130726-1739-25045-4373/pas\\_560\\_final.pdf](http://www.fema.gov/media-library-data/20130726-1739-25045-4373/pas_560_final.pdf)

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*technical, organizational, social and economic dimensions. It is fostered not only by government, but also by individual, organization and business actions.”<sup>12</sup>*

If a local government is involved with the various hazard mitigation plans or management operations, these plans and efforts must incorporate "resilience" by insuring that the community, in preparing for disasters, continues to go beyond the basic prescriptive hazard mitigation ingredients. The various hazard mitigation planning and implementation activities, including the flood hazard boundary maps, flood hazard insurance rate maps (FIRMs), CRS incentive program, flood mitigation assistance, and repetitive loss programs are important. Just as important is the promotion of increased hazard mitigation efforts to help ensure resilience. One way to achieve this is through multi-hazard mitigation and multi-jurisdictional planning efforts. The efforts to develop this three-county Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan exemplify this and the State of North Carolina encourages hazard mitigation planning at the multi-jurisdictional level.

For maximum effectiveness this plan cannot be a stand-alone plan or document. Without linkage to other plans and documents, a hazard mitigation plan remains without legal status for guiding development or influencing local decision making. According to James Schwab in the APA Advisory Services Report #560, linking a hazard mitigation plan with comprehensive land use, solid waste management, and other governmental documents has numerous benefits, including:<sup>13</sup>

- Improved pre-disaster and post-disaster decision making at each level;
- Formation of partnerships between decision makers, planners and emergency managers at each level;
- Expansion of external funding opportunities for state and local governments;
- Facilitation of the post-disaster return to normalcy for states and communities; and
- Resolution of locally sensitive issues with community-based rather than externally imposed solutions.

Below is a listing of various governmental activities, policies, planning actions or efforts that are fertile for the incorporation of hazard mitigation initiatives and opportunities. A brief explanation is provided for the various ways these policies or actions can be integrated with hazard mitigation initiatives. Following this description of various governmental initiatives are tables about the use of these and other initiatives by jurisdictions within the three-county region.

**Comprehensive or Land Development Planning:** Land use planning enables consideration and evaluation of various goals in a community directed to overall

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<sup>12</sup> Same as footnote 11, except p. 16

<sup>13</sup> Same as footnote 11

community improvement, as well as hazard mitigation. A comprehensive plan element may identify hazard prone areas where certain types of development should be limited or prohibited. For example, a community redevelopment component of a comprehensive plan may include goals and strategies that will help eliminate inappropriate and unsafe development in hazard areas, such as floodplains. Such plans can set forth action steps or strategies for communities to consider when opportunities arise to reduce density in or promote relocation from flood hazard areas. For example, the flooding of properties during Hurricane Floyd and the following federal buyout program allowed for the purchase of many properties.

A comprehensive plan can also recognize the benefit and suitability of flood prone area for open space considerations. It may include an environmental element that sets forth areas of a community consisting of streams that are best left in a natural condition, further protecting areas that may also be subject to periodic flooding from these streams.

Most importantly, a comprehensive plan also provides goals and policies as well as a community vision that can assist in development of zoning standards. Molding these zoning standards to implement various hazard mitigation related elements in a comprehensive plan ensures that hazard mitigation initiatives have legal status and are valid community efforts to guide development to create resilience. Lastly an historic preservation element in a comprehensive plan may identify valuable cultural resources that need to be protected from floods or other natural hazards.

**Emergency Operations Planning:** Emergency management not only requires active consideration regarding the four elements of hazard mitigation (*Preparation, Response, Recovery and Mitigation*) and the preparation of plans that set forth these hazard mitigation planning elements, but also emergency management must include information sharing and education, especially for the general population.



All three counties that are participating in this plan have emergency operations plans.<sup>14</sup> Although these documents were approved at different times they all stress the four major elements of hazard mitigation planning as set forth above. In addition, these plans also include coordination with and provision of

<sup>14</sup> See Nash County Emergency Operations Plan, 2013 (<http://www.co.nash.nc.us/DocumentCenter/View/726>); Edgecombe County Emergency Management Operations Plan, 2005: (<http://www.edgecombecountync.gov/eopmain/eplan/webver/fcmainpage.htm>); and Wilson County Emergency Operations Plan, 2012 (<https://www.wilson-co.com/DocumentCenter/Home/View/6692>)

resources for the jurisdictions within the counties as needed, setting forth that all local jurisdictions must be responsible for development and maintaining their own emergency response and preparedness procedures in coordination and integration with the emergency management operations within each county. As set forth in the Wilson County Emergency Management Plan and also similarly reflected in the other county plans:<sup>15</sup>

*The County Manager and County Emergency Management Coordinator will coordinate county resources. The Mayor or his designee will coordinate and control the resources of the municipality... Should local government resources prove to be inadequate during emergency operations, requests for assistance will be made to other jurisdictions, higher levels of government, and/or other agencies in accordance with existing mutual aid agreements and understandings. Requests for state or federal resources must be made through the Wilson County Emergency Management Coordinator to the Central Branch Office of the Division of Emergency Management and forwarded to the State EOC.*

Also similar in all plans is the need to communicate to the public to provide "official public information and rumor control", and both the Wilson and Nash County Emergency Operations Plan sets forth that the "County's Public Information Officer will utilize all available media outlets for the dissemination of emergency information to the public."<sup>16</sup> Edgecombe County also addresses public communication, but establishes the Edgecombe County Manager as responsible to disseminate emergency information to the public.<sup>17</sup>

**Disaster Recovery Planning:** The emergency management operations plan for each of the three counties addresses disaster recovery planning by establishing specific responsibilities within each county's plan under the section on Recovery.<sup>18</sup> However, each plan indicates that many times this effort will overwhelm the jurisdiction and assistance from State and Federal Government will be needed. The Wilson plan even states that all recovery activities will be coordinated under the guidance of the NC Division of Emergency Management and the Federal Emergency Management Agency. Another aspect of disaster recovery planning is a continuation of operations plan that

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<sup>15</sup> [Wilson County Emergency Operations Plan](https://www.wilson-co.com/DocumentCenter/Home/View/6692), Basic Plan, 2012, P. 4 (See: <https://www.wilson-co.com/DocumentCenter/Home/View/6692>)

<sup>16</sup> [Nash County Emergency Operations Plan](http://www.co.nash.nc.us/DocumentCenter/View/726), Basic Plan, 2013, Sections on Situation and Assumptions and Concept of Operations (See: <http://www.co.nash.nc.us/DocumentCenter/View/726>)

<sup>17</sup> See: [Edgecombe County Emergency Plan](http://www.edgecombecountync.gov/eopmain/eplan/webver/basic.htm#concept%20of%20operation), 2005: ([http://www.edgecombecountync.gov/eopmain/eplan/webver/basic.htm#concept of operation](http://www.edgecombecountync.gov/eopmain/eplan/webver/basic.htm#concept%20of%20operation))

<sup>18</sup> See: [Nash County Emergency Operations Plan](http://www.co.nash.nc.us/DocumentCenter/View/726), 2013 (<http://www.co.nash.nc.us/DocumentCenter/View/726>); [Edgecombe County Emergency Management Operations Plan](http://www.edgecombecountync.gov/eopmain/eplan/webver/fcmainpage.htm), 2005: (<http://www.edgecombecountync.gov/eopmain/eplan/webver/fcmainpage.htm>); and [Wilson County Emergency Operations Plan](https://www.wilson-co.com/DocumentCenter/Home/View/6692), 2012 (<https://www.wilson-co.com/DocumentCenter/Home/View/6692>)

sets forth strategies and actions needed in order to keep vital facilities or services ongoing when disaster strikes.

**Hazard Warning Systems:** Not unlike the tornado warning systems in the Midwest, hazard warning systems, such as reverse 911 capabilities or outdoor warning signals in the event of severe natural hazardous conditions, including storms or tornados, offer the opportunity to inform the public of pending hazards to allow more time for residents to find safe and secure locations until the severe conditions pass. Coupled with early warning systems is the creation of and access to hazard data and/or information, as well as hazard analysis capabilities.

There are various warning systems utilized in this region, including, for example, Volunteer Fire Station sirens used by the smaller communities, as well as call out systems, high speed "Code Red" warning alert notifications through the Emergency Communication Network, and contracted reverse 911 phone alerts. Nash County provides Code Red notification enrollment through the Sheriff Departments website. The other counties also offer direct emergency warning by phone messages. However, not all communities or county residents participate in these warning systems or have separate phone alert system capabilities.

**Capital Improvement Planning:** All three counties utilize the opportunity to develop capital needs planning and budgeting through the development of capital improvement plans. Nash County even addresses hazards through its capital improvement planning efforts. In March 2013, the County produced the [Nash County Capital Improvement and Drought Management Plan](#), and this plan included all the jurisdictions within the County.<sup>19</sup> This capital improvement plan, prepared by the Wooten Company, was conceived as a planning tool to assist the county with future water distribution and wastewater collection, as well as help support grant and loan applications and determine the feasibility of assuming control of various municipal water systems and extending water services within the county.

**Transportation Plans:** A transportation plan can be useful in identifying improvements to the road system in



<sup>19</sup> Nash County, NC, 2013, [Nash County Capital Improvements and Drought Management Plan](http://www.co.nash.nc.us/DocumentCenter/View/483) (See: <http://www.co.nash.nc.us/DocumentCenter/View/483>)  
(See: <http://www.co.nash.nc.us/DocumentCenter/View/483>)

order to consider elevation of specific sections above flood levels, particularly portions vulnerable to excessive flooding or bridges and routes that are critical for evacuation purposes.

**Floodplain Management:** Floodplain management in the form of flood proofing structures or elevating first floors and/or disallowing development within designated floodways is standard practice in the three counties and the jurisdictions within the counties (See Table 4.5 above).

Recognition of these floodplain hazard areas as resources that can meet beneficial public needs should also be explored. One example is consideration for public open space acquisitions, greenways and undeveloped linear parks along flood way area that can serve the public recreation needs and interests.



**Open Space and Recreation Management/Planning:** By simply acquiring open space in flood prone areas through easements or purchases can be beneficial in preventing flood damages. Such easements or land purchases, if used for open space, will ensure that development will be limited to recreational or open space-related considerations, including walking or biking trails and preservation of natural areas.

**Natural Resource (Environmental) Protection Planning:** Preserving natural areas typically benefits floodplain management, because many critical environmental areas, such as wetlands, and low forest areas are adjacent to or within floodplain areas. Preserving wetlands not only serves to protect natural areas, but also ensures that areas set aside as open space can function as flood retention areas to help reduce the severity of flooding in developed areas.

**Economic Development Planning:** Economic planning, especially economic recovery, is one of the most critical goals of hazard mitigation, because without such recovery communities lose jobs, tax revenues, and financial resources critical in maintaining local government capabilities and rebuilding of facilities and infrastructure.

**Zoning Ordinance:** A zoning ordinance regulates the distribution and intensities of various land uses within an area, jurisdiction or county. In the State of North Carolina zoning should be in accord with a comprehensive plan, and State statutory

requirements set forth that any zoning changes need to also include review by a planning board regarding consistency with a comprehensive plan. A zoning ordinance may also contain the flood insurance regulatory standards to protect structures and residents from flooding.

**Subdivision Ordinance:** A subdivision ordinance regulates the transference and division of land parcels within an area, jurisdiction, or county. Such an ordinance can also include provisions or requirements for open space and other public facilities. Standards can also include protection for natural areas and development restrictions within hazardous areas.

**Unified Development Ordinance:** A unified development ordinance is a comprehensive compilation of all ordinances that address development and land use within an area, jurisdiction or county. Such an ordinance may contain zoning and floodplain standards, open space standards and subdivision requirements. Other standards and regulations related to development and land uses may also be included.

**Site & Development Review:** Site plan and development review provides opportunity for a community to assess a proposed development and if appropriate require amendments to a development plan. At a site plan review phase problems can be identified and plans modified to resolve these problems. Various hazardous or environmental conditions, including flood plain boundaries or wetland features can be flagged. Plans can also be corrected, if needed, in order to address specific requirements or remove planned structures or activities from severe conditions or protected environmental areas.

**Building Code:** Although the building code is state regulated and local inspectors apply this code throughout NC, adherence to the standards in this code ensures new structures will be build to current state standards that address hazardous conditions, including wind damage, hurricanes protection and excessive roof loads, such as snow.

**Fire Code:** The counties and larger jurisdictions have fire marshals that enforce the N.C. Fire Prevention Code. This code sets forth minimum state mandated fire-safety standards that apply to all occupancies in North Carolina (with the exception of one and two family dwellings). This fire prevention code is uniformly enforced in all areas, and it applies to both new and existing buildings, as well as hazardous wastes and chemical safety.

**NFIP:** NFIP stands for the National Flood Insurance Program. This program sets forth universal national standards and requirements for protection of properties within flood

prone areas within a jurisdiction or country. As stated in an overview of the National Flood Insurance Program: <sup>20</sup>

*“Since standard homeowners insurance doesn't cover flooding, it's important to have protection from the floods associated with hurricanes, tropical storms, heavy rains and other conditions that impact the U.S. In 1968, Congress created the National Flood Insurance Program (NFIP) to help provide a means for property owners to financially protect themselves. The NFIP offers flood insurance to homeowners, renters, and business owners if their community participates in the NFIP. Participating communities agree to adopt and enforce ordinances that meet or exceed FEMA requirements to reduce the risk of flooding.”*

**Community Rating System (CRS):** CRS is a voluntary incentive program that recognizes and encourages floodplain management activities that exceed the minimum NFIP requirements in order to:

1. Reduce flood damage to insurable property;
2. Strengthen and support the insurance aspects of the NFIP, and
3. Encourage a comprehensive approach to floodplain management.



Flood insurance premium rates for a community are discounted to reflect the reduced flood risk resulting from the community actions meeting the above goals. In CRS communities lower ratings mean lower insurance premiums. Currently there are four jurisdictions in the three-county area with CRS ratings:

**Table 4.6**

| CRS COMMUNITIES IN THREE-COUNTY AREA |                      |            |
|--------------------------------------|----------------------|------------|
| Jurisdiction                         | Date Entered Program | CRA Rating |
| City of Wilson (Wilson County)       | 10/01/91             | 6          |
| Rocky Mount (Nash County)            | 10/01/92             | 6          |
| Tarboro (Edgecombe County)           | 10/01/06             | 7          |
| Nashville (Nash County)              | 10/01/91             | 8          |

(See Table 4.5 on page 62 for information on all communities and CRS ratings.)

**Hazus:** "Hazus" is a nationally applicable standardized methodology through FEMA that contains computer program models for estimating potential losses from various natural hazards, including earthquakes, floods and hurricanes. This methodology uses

<sup>20</sup> National Flood Insurance Program, "FloodSmart" (See: [https://www.floodsmart.gov/floodsmart/pages/about/nfip\\_overview.jsp](https://www.floodsmart.gov/floodsmart/pages/about/nfip_overview.jsp))

Geographic Information Systems (GIS) technology to estimate physical, economic and social impacts of disasters. The program graphically illustrates the limits of identified high-risk locations due to earthquake, hurricane and floods. With this program users can visualize the spatial relationships between populations and other more permanently fixed geographic assets or resources for the specific hazard being modeled. This program is valuable in pre-disaster planning process, but can also be utilized for mitigation, recovery, and response visualize the spatial relationships between populations and other more permanently fixed geographic assets or resources for the specific hazard being modeled. This program is valuable in pre-disaster planning process, but can also be utilized for mitigation, recovery, and response.

#### **4.4.3 ASSESSMENT OF LOCAL PLANS, ORDINANCES AND RELATED INITIATIVES**

The following tables (Table 4.7, Table 4.8 and Table 4.9) provide assessments of various planning-related activities, ordinances, initiatives within the three-county area. This assessment is specifically designed to provide a general overview of key planning, management and regulatory initiatives, as well as related programs or policies that are currently utilized by communities within the three-county area, or are under evaluation, or need to be utilized by the counties and municipalities. By utilizing these initiatives communities within this three-county area can provide successful and comprehensive hazard mitigation planning. Most importantly, these activities are also considered effective hazard mitigation initiatives to help reduce losses as a result of natural disasters. This information can help identify opportunities to address existing weaknesses regarding lack of specific initiatives. In addition, this information allows consideration of opportunities to integrate hazard mitigation initiatives into existing planning mechanisms, where appropriate and supported by local communities. The data for this table was obtained from previous hazard mitigation plans, responses by local governments to a recent Upper Coastal Plain Council of Governments (UCPCOG) Capabilities Worksheet, as well as an internal UCPCOG documentation that identifies major planning related activities within the region.

**Table 4.7**

| <b>RELEVANT MANAGEMENT AND PLANNING POLICIES OR INITIATIVES THAT CAN BE INTEGRATED WITH HAZARD MITIGATION INITIATIVES</b> |                                     |   |                                     |   |                                     |                                     |                                     |                                     |                                     |                                     |  |  |
|---|-------------------------------------|---|-------------------------------------|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--|--|
| <b>Activity, Policy or Initiative</b>   | <b>Nash County Jurisdictions</b>    |   |                                     |   |                                     |                                     |                                     |                                     |                                     |                                     |  | <b>General Description or Additional Information</b>   |
|   | <b>Nash County</b>                  | <b>Rocky Mount#</b>                     | <b>Bailey</b>                       | <b>Castalia</b>                         | <b>Dortches</b>                     | <b>Middlesex</b>                    | <b>Momeyer</b>                      | <b>Nashville</b>                    | <b>Red Oak</b>                      | <b>Spring Hope</b>                  | <b>Whitakers##</b>                       |  |
| 1. Hazard Mitigation Plan   | <input checked="" type="checkbox"/> | (3)                                     | (2)                                 | (2)                                     | (2)                                 | (2)                                 | (2)                                 | (2)                                 | (2)                                 | (2)                                 | (2)                                      | 2010 plan was a County multi jurisdictional plan for Nash County and its municipalities  |
| 2. Comprehensive or Land Development Plan   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> (1) | <input checked="" type="checkbox"/>      | Most communities have a comprehensive plan, but some are very dated.   |
| 3. Transportation Plan  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>     | X                                   | X                                       | NR                                  | X                                   | X                                   | <input checked="" type="checkbox"/> | X                                   | (11)                                | NR                                       |  |
| 4. Floodplain Ordinance Management  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>     | (9)                                 | <input checked="" type="checkbox"/>     | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/>      | All jurisdictions except Bailey have flood prevention ordinances   |
| 5. Land Acquisition for Open Space and Recreation   | X                                   | <input checked="" type="checkbox"/>     | X                                   | <input checked="" type="checkbox"/>     | NR                                  | <input checked="" type="checkbox"/> | X                                   | X                                   | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> (13) |  |
| 6. Storm Water Management Plan  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>     | X                                   | X                                       | NR                                  | X                                   | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   | <input checked="" type="checkbox"/>      |  |
| 7. Other Natural Hazard Ordinance   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>     | X                                   | X                                       | NR                                  | X                                   | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/>      |  |
| 8. Open Space and/or Recreation Plan.   | <input checked="" type="checkbox"/> | NR                                      | X                                   | NR                                      | NR                                  | NR                                  | NR                                  | NR                                  | NR                                  | NR                                  | NR                                       | Regional plan prepared   |
| 9. Natural Resource Protection Plan.  | NR                                  | NR                                      | NR                                  | NR                                      | NR                                  | NR                                  | NR                                  | NR                                  | NR                                  | NR                                  | NR                                       |  |
| 10. Emergency Operations Plan or local plan   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> (7) | X                                   | NR                                      | NR                                  | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | (12)                                | X                                   | NR                                       | The <u>Nash County Emergency Operations Plan</u> (2013 Amendment) covers all county departments/functions and is reviewed annually |
| 11. Hazard data and/or Information  | X                                   | <input checked="" type="checkbox"/>     | X                                   | X                                       | NR                                  | X                                   | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   | NR                                       |  |
| 12. "Hazus" Analysis  | X                                   | X                                       | X                                   | X                                       | NR                                  | X                                   | X                                   | X                                   | X                                   | X                                   | NR                                       |  |
| 13. Maintenance Program to reduce risk (tree trimming; drainage system cleaning, etc.)                                    | X                                   | <input checked="" type="checkbox"/>     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>     | NR                                  | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>      |  |
| 14. Mutual aid agreement  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>     | <input checked="" type="checkbox"/> | X                                       | NR                                  | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>      |  |
| 15. Evacuation Plan   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> (7) | NR                                  | NR                                      | NR                                  | NR                                  | NR                                  | NR                                  | NR                                  | X                                   | NR                                       | Nash County is covered by the <u>Nash County Emergency Operations Plan</u>   |
| 16. Disaster Recovery Plan  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> (7) | NR                                  | NR                                      | NR                                  | NR                                  | NR                                  | NR                                  | NR                                  | X                                   | NR                                       | <u>Nash County Emergency Operations Plan</u> addresses recovery of county functions  |
| 17. Hazard Warning Systems (reverse 911, outdoor signals, etc.)   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>     | X                                   | <input checked="" type="checkbox"/>     | NR                                  | X                                   | <input checked="" type="checkbox"/>      | Nash County provides reverse 911 "Code Red" capabilities   |
| 18. Community Wildfire Protection Plan  | <input checked="" type="checkbox"/> | X                                       | X                                   | X                                       | NR                                  | <input checked="" type="checkbox"/> | X                                   | NR                                  | X                                   | X                                   | NR                                       | See NC Forestry Service & NC "Firewise" Community (12)   |
| 19. Capital Improvement Plan/Funding  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>     | <input checked="" type="checkbox"/> | X                                       | NR                                  | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>      | Helps reevaluate/prioritize annual budget capital items and can include mitigation activities                                      |

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|  |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |   |
|--|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---|
| 20. Economic Development Activity                        | <input checked="" type="checkbox"/> | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                 | Attracting and retaining industries is the responsibility of the Carolina Gate Partnership, a public-private recruitment agency for Nash and Edgecombe Counties |
| 21. Economic Development Plan                            | X                                   | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | NR                                  | X                                   |                                     | <input checked="" type="checkbox"/> | X                                   | X                                   | NR                                  |   |
| 22. Zoning Ordinance                                     | <input checked="" type="checkbox"/> |   |
| 23. Subdivision Ordinance                                | <input checked="" type="checkbox"/> |   |
| 24. Unified Development Ordinance                        | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   |   |
| 25. Site & Development Review                            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | (8)                                 | X                                   | NR                                  | <input checked="" type="checkbox"/> | (8)                                 | County provides site plan review for small towns  |
| 26. Building Code & Inspectors (5)                       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 |   |
| 27. Building Code Effectiveness Grading Schedule (Score) | NR                                  |   |
| 28. Fire Code Enforcement                                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 | The county fire marshal and the Rocky Mount Fire Department provide fire code enforcement   |
| 29. Fire Dept. ISO Rating                                | (10)                                | 2                                   | NR                                  | NR                                  | NR                                  | 5                                   | NR                                  | 4                                   | 6                                   | NR                                  | NR                                  |   |
| 30. Local Emergency Operations Plan                      |                                     | <input checked="" type="checkbox"/> | X                                   |                                     | NR                                  | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | (12)                                | X                                   | NR                                  |   |
| 31. Continuation of Operations Plan                      | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | NR                                  | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | X                                   | X                                   | NR                                  | This plan ensures the continuation of services during disasters for the continued function of government.   |
| 32. NFIP   | <input checked="" type="checkbox"/> | All jurisdictions with identified flood insurance rate maps participate in the National Flood Insurance Program   |
| 33. CRS  | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X                                   | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   |   |

**Notes**

**Symbol Key:**  = Activity, Policy or Initiative provided; **X** = Activity, Policy or Initiative not provided; **NR** = No Response, Information Not Available or Unknown; **Numbers in parentheses** refer to notes below:  
**(1)** Pending; **(2)** 2010 Nash County Hazard Mitigation Plan covered all jurisdictions (except Rocky Mount); **(3)** Hazard mitigation plan covered in the 2010 Edgecombe County Hazard Mitigation Plan; **(4)** Economic Development and related industrial recruitment is addressed by the Carolina Gateway Partnership; **(5)** The Building Code is the State Building Code, and except for Rocky Mount, Nash County provides inspection services for the other jurisdictions; **(6)** Nash County provides a County Fire Marshall that assists all the Volunteer Fire Departments within the County; **(7)** Like Nash County, the City has established an emergency operations plan as a guide for managing disasters the community may experience and general and vital information in the plan is posted on their Fire Department's website (See: <http://www.rockymountnc.gov/fire/emergency.html>); **(8)** Site plan review handled by Nash County Inspection Program; **(9)** No Flood Plain areas (Flood Insurance Rate Maps) delineated for Jurisdiction, but Flood Ordinance adopted in 2004; **(10)** As of this date, out of the fifteen fire departments in Nash County, twelve departments have been inspected and their Insurance Classification Ratings lowered, thus saving property owners money on their homeowners insurance; **(11)** Adopted County Transportation Plan; **(12)** See: <http://www.ncfirewise.org/> including homeowner wildfire assessment review sheet and suggested "Firewise" landscaping; **(13)** Dedication of Open Space required in new subdivisions; (12) Relies on County Hazard Mitigation Plan

**Table 4.8**

| <b>RELEVANT MANAGEMENT AND PLANNING POLICIES OR INITIATIVES THAT CAN BE INTEGRATED WITH HAZARD MITIGATION INITIATIVES</b> |                                     |   |                                     |                                     |                                     |                                     |                                     |                                     |                                     |   |
|---|-------------------------------------|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---|
| <b>Activity, Policy or Initiative</b>   | <b>Wilson County Jurisdictions</b>  |   |                                     |                                     |                                     |                                     |                                     |                                     |                                     | <b>General Description or Additional Information</b>  |
|   | <b>Wilson County</b>                | <b>City of Wilson</b>                       | <b>Elm City</b>                     | <b>Lucama</b>                       | <b>Black Creek</b>                  | <b>Saratoga</b>                     | <b>Stantonsburg</b>                 | <b>Sims</b>                         | <b>Sharpsburg#</b>                  |   |
| 1. Hazard Mitigation Plan   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 2010 Wilson County Hazard Mitigation Multi-Jurisdiction Plan  |
| 2. Comprehensive or Land Development Plan   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>         | <input checked="" type="checkbox"/> | X                                   | X                                   | (14)                                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | X                                   |   |
| 3. Transportation Plan  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 2012 DOT Comprehensive Transportation Plan prepared for County & Municipalities                     |
| 4. Floodplain Ordinance/Management  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |   |
| 5. Land Acquisition for Open Space and Recreation   | X                                   | <input checked="" type="checkbox"/>         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   | <input checked="" type="checkbox"/> |   |
| 6. Storm Water Management Plan  | X                                   | <input checked="" type="checkbox"/>         | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   |   |
| 7. Other Natural Hazard Ordinance   | X                                   | <input checked="" type="checkbox"/>         | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X                                   | X                                   |   |
| 8. Open Space and/or Recreation Plan.   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |   |
| 9. Natural Resource Protection Plan.  | NR                                  | NR  | NR                                  | NR                                  | NR                                  | NR                                  | X                                   | NR                                  | NR                                  |   |
| 10. Emergency Operations Plan (See #30 for local plan)  | (2)                                 | NR  | <input checked="" type="checkbox"/> | NR                                  | NR                                  | <input checked="" type="checkbox"/> | NR                                  | NR                                  | NR                                  | See footnote #(2)   |
| 11. Hazard data and/or Information  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>         | X                                   | X                                   | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   | <input checked="" type="checkbox"/> |   |
| 12. "Hazus" Analysis  | X                                   | X   | X                                   | X                                   | X                                   | X                                   | X                                   | (15)                                | X                                   |   |
| 13. Maintenance Program to reduce risk (tree trimming; drainage system cleaning, etc.)                                    | X                                   | <input checked="" type="checkbox"/>         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |   |
| 14. Mutual aid agreement  | <input checked="" type="checkbox"/> | X   | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> |   |
| 15. Evacuation Plan (2,3)   | NR                                  | NR  | NR                                  | NR                                  | NR                                  | <input checked="" type="checkbox"/> | NR                                  | NR                                  | NR                                  |   |
| 16. Disaster Recovery Plan (3)  | NR                                  | NR  | NR                                  | NR                                  | NR                                  | NR                                  | NR                                  | NR                                  | NR                                  |   |
| 17. Hazard Warning Systems (reverse 911, outdoor signals, etc.)   | NR                                  | <input checked="" type="checkbox"/><br>(13) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | (11) warning systems include reverse 911 and/or siren signals-many communities rely only upon siren |
| 18. Community Wildfire Protection Plan  | NR                                  | X   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | Also see NC Forestry Service & NC "Firewise" Community (12)   |
| 19. Capital Improvement Plan/Funding  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |   |
| 20. Economic Development Activity   | (4)                                 | (4)   | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                 |   |
| 21. Economic Development Plan   | <input checked="" type="checkbox"/> | X   | X                                   | X                                   | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   |   |
| 22. Zoning Ordinance  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>         | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |   |

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|  |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
|--|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--|
| 23. Subdivision Ordinance                                | <input checked="" type="checkbox"/> |  |
| 24. Unified Development Ordinance                        | NR                                  | <input checked="" type="checkbox"/> | NR                                  | NR                                  | X                                   | X                                   | <input checked="" type="checkbox"/> | X                                   | NR                                  |  |
| 25. Site & Development Review                            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | X                                   | X                                   | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| 26. Building Code & Inspectors (5)                       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 |  |
| 27. Building Code Effectiveness Grading Schedule (Score) | 4                                   | 4                                   | NR                                  |  |
| 28. Fire Code Enforcement                                | (6)                                 | <input checked="" type="checkbox"/> | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 |  |
| 29. Fire Dept. ISO Rating                                | NR                                  | 2                                   | 6                                   | NR                                  | NR                                  | 7/9 (16)                            | NR                                  | 7                                   | 7                                   |  |
| 30. Local Emergency Operations Plan (2,3)                | NR                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | NR                                  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| 31. Continuation of Operations Plan                      | NR                                  | X                                   | X                                   | X                                   | X                                   | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   |  |
| 32. NFIP   | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| 33. CRS  | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   |  |

**Notes**

**Symbol Key:**  = Activity, Policy or Initiative provided; **X** = Activity, Policy or Initiative not provided; **NR** = No Response, Information Not Available or Unknown; **Numbers in parentheses** refer to notes below

- (1) Pending
- (2) 2012 Wilson County Emergency Operations Plan also addressed other jurisdictions (but not in detail)
- (3) Hazard Mitigation Plan covered in the multi-jurisdiction 2010 Wilson County Hazard Mitigation Plan (all jurisdictions except City of Wilson were addressed in this plan)
- (4) Economic Development and related industrial recruitment is addressed by the Wilson Industrial Improvement Council
- (5) The Building Code is the State Building Code, and except for the City of Wilson, Wilson County provides inspection services for the other jurisdictions
- (6) Volunteer Fire Departments provide services to the County and small jurisdictions (the City of Wilson has its own Fire Department); Wilson County provides a County Fire Marshall that assists all the Volunteer Fire Departments within the County
- (7) Like Wilson County, the City has established an Emergency Operations Plan as a guide for managing disasters the community may experience and general and vital information in the plan is posted on their Fire Department's website (See: <http://www.rockymountnc.gov/fire/emergency.html>)
- (8) Site plan review handled by Nash County Inspection Program
- (9) No Flood Plain areas (Flood Insurance Rate Maps) delineated for Jurisdiction , but Flood Ordinance adopted in 2004
- (10) As of this date, out of the fifteen fire departments in Nash County, twelve departments have been inspected and their Insurance Classification Ratings lowered, thus saving property owners money on their homeowners insurance
- (11) Warning systems include reverse 911 and siren signals
- (12) See: <http://www.ncfirewise.org/> including homeowner wildfire assessment review sheet and suggested "Firewise" landscaping
- (13) City of Wilson uses "Connect City, an automated calling system through geographic delineation
- (14) Rely on County Land Development Plan
- (15) FEMA modeled floodplain areas for the town
- (16) Fire Rating in town is 7 and out of town 9 (Volunteer Station is located at the Town Limits.

**Table 4.9**

| <b>RELEVANT MANAGEMENT AND PLANNING POLICIES OR INITIATIVES THAT CAN BE INTEGRATED WITH HAZARD MITIGATION INITIATIVES</b> |  |                                     |  |                                     |                                     |                                     |                                     |  |   |
|---|--|-------------------------------------|--|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--|---|
| <b>Activity, Policy or Initiative</b>   | <b>Edgecombe County Jurisdictions</b>    |                                     |  |                                     |                                     |                                     |                                     |  | <b>General Description or Additional Information</b>        |
|   | <b>Edgecombe County</b>                  | <b>Tarboro</b>                      | <b>Princeville</b>                       | <b>Pinetops</b>                     | <b>Conetoe</b>                      | <b>Leggett</b>                      | <b>Macclesfield</b>                 | <b>Speed</b>                             |   |
| 1. Hazard Mitigation Plan (2)   | <input checked="" type="checkbox"/>      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>      |   |
| 2. Comprehensive or Land Development Plan   | <input checked="" type="checkbox"/>      | <input checked="" type="checkbox"/> | X  | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X  |   |
| 3. Transportation Plan  | <input checked="" type="checkbox"/>      | <input checked="" type="checkbox"/> | X  | X                                   | X                                   | X                                   | X                                   | X  |   |
| 4. Floodplain Ordinance/ Management   | <input checked="" type="checkbox"/>      | <input checked="" type="checkbox"/> | X  | X (15)                              | <input checked="" type="checkbox"/> | X (15)                              | X                                   | <input checked="" type="checkbox"/>      |   |
| 5. Land Acquisition for Open Space/Recreation   | <input checked="" type="checkbox"/>      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>      | X                                   | X                                   | X                                   | X                                   | <input checked="" type="checkbox"/>      |   |
| 6. Storm Water Management Plan  | <input checked="" type="checkbox"/>      | <input checked="" type="checkbox"/> | X  | X                                   | X                                   | X                                   | <input checked="" type="checkbox"/> | X  |   |
| 7. Other Natural Hazard Ordinance   | <input checked="" type="checkbox"/>      | <input checked="" type="checkbox"/> | X  | X                                   | X                                   | X                                   | X                                   | X  |   |
| 8. Open Space and Recreation Plan.  | NR                                       | <input checked="" type="checkbox"/> | NR                                       | NR                                  | <input checked="" type="checkbox"/> | X                                   | NR                                  | NR                                       |   |
| 9. Natural Resource Protection Plan.  | NR                                       | NR                                  | NR                                       | NR                                  | NR                                  | NR                                  | NR                                  | NR                                       |   |
| 10. Emergency Operations Plan or local plan (1)   | <input checked="" type="checkbox"/>      | <input checked="" type="checkbox"/> | (1)                                      | (1)                                 | (1)                                 | (1)                                 | (1)                                 | (1)                                      |   |
| 11. Hazard data and/or Information  | <input checked="" type="checkbox"/>      | <input checked="" type="checkbox"/> | X  | X                                   | X                                   | X                                   | X                                   | <input checked="" type="checkbox"/>      |   |
| 12. "Hazus" Analysis  | <input checked="" type="checkbox"/> (14) | X                                   | X  | X                                   | X                                   | X                                   | X                                   | X  |   |
| 13. Maintenance Program to reduce risk (tree trimming; drainage system cleaning, etc.)                                    | <input checked="" type="checkbox"/>      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>      | <input checked="" type="checkbox"/> | X                                   | X                                   | <input checked="" type="checkbox"/> | X  |   |
| 14. Mutual aid agreement  | <input checked="" type="checkbox"/>      | <input checked="" type="checkbox"/> | NR                                       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>      |   |
| 15. Evacuation Plan   | (1)                                      | (1)                                 | (1)                                      | (1)                                 | (1)                                 | (1)                                 | (1)                                 | (1)                                      |   |
| 16. Disaster Recovery Plan  | <input checked="" type="checkbox"/> (1)  | <input checked="" type="checkbox"/> | (1)                                      | (1)                                 | (1)                                 | (1)                                 | (1)                                 | (1)                                      |   |
| 17. Hazard Warning Systems- reverse 911, outdoor signals, etc.)   | <input checked="" type="checkbox"/>      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> (13) | <input checked="" type="checkbox"/> | X (13)                              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> (13) | Warning systems also include siren                          |
| 18. Community Wildfire Protection Plan  | X  | X                                   | X  | X                                   | X                                   | X                                   | X                                   | X  | Also see NC Forestry Service & NC "Firewise" Community (12) |
| 19. Current Capital Improvement Plan  | X  | <input checked="" type="checkbox"/> | X  | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X  |   |
| 20. Economic Development Activity   | (4)                                      | (4)                                 | (4)                                      | (4)                                 | (4)                                 | (4)                                 | (4)                                 | (4)                                      |   |
| 21. Economic Development Plan   | X  | <input checked="" type="checkbox"/> | X  | X                                   | X                                   | X                                   | X                                   | X  |   |

N.E.W. REGIONAL HAZARD MITIGATION PLAN 2015-2020

|  |   |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
|--|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--|
| 22. Zoning Ordinance                                     | <input checked="" type="checkbox"/>     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |  |
| 23. Subdivision Ordinance                                | <input checked="" type="checkbox"/>     | <input checked="" type="checkbox"/> | X                                   | X                                   | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   |  |
| 24. Unified Development Ordinance                        | <input checked="" type="checkbox"/>     | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X                                   | X                                   | <input checked="" type="checkbox"/> |  |
| 25. Site & Development Review                            | <input checked="" type="checkbox"/>     | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X                                   | X                                   | <input checked="" type="checkbox"/> |  |
| 26. Building Code & Inspectors                           | <input checked="" type="checkbox"/>     | <input checked="" type="checkbox"/> | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 | (5)                                 |  |
| 27. Building Code Effectiveness Grading Schedule (Score) | NR                                      | 4                                   | NR                                  | NR                                  | NR                                  | NR                                  | NR                                  | NR                                  |  |
| 28. Fire Code Enforcement                                | <input checked="" type="checkbox"/>     | <input checked="" type="checkbox"/> | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 | (6)                                 |  |
| 29. Fire Dept. ISO Rating                                | NA                                      | 4                                   | 6                                   | 6                                   | 6                                   | NR                                  | NR                                  | 9                                   |  |
| 30. Local Emergency Operations Plan                      | <input checked="" type="checkbox"/>     | <input checked="" type="checkbox"/> | (1)                                 | (1)                                 | (1)                                 | (1)                                 | (1)                                 | (1)                                 |  |
| 31. Continuation of Operations Plan                      | <input checked="" type="checkbox"/> (1) | <input checked="" type="checkbox"/> | (1)                                 | (1)                                 | (1)                                 | (1)                                 | (1)                                 | (1)                                 |  |
| 32. NFIP Maps  | <input checked="" type="checkbox"/>     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | NR                                  | (11)                                | X                                   | <input checked="" type="checkbox"/> |  |
| 33. CRS  | X                                       | <input checked="" type="checkbox"/> | X                                   | X                                   | X                                   | X                                   | X                                   | X                                   |  |

**Notes**

**Symbol Key:**  = Activity, Policy or Initiative provided; **X** = Activity, Policy or Initiative not provided; **NR** = No Response, Information Not Available or Unknown; **Numbers in parentheses** refer to notes below

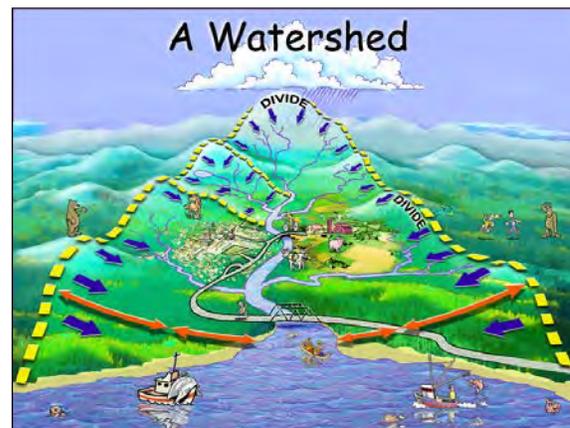
- (1) The Edgecombe County Emergency Operations Plan is on the Web and covers all jurisdictions(See: <http://www.edgecombecountync.gov/eopmain/EPlan/Webver/FCMainPage.htm>)
- (2) Hazard Mitigation Plan covered all jurisdictions in the 2010 Edgecombe County Hazard Mitigation Plan
- (3) Hazard Mitigation Plan covered in the 2010 Edgecombe County Hazard Mitigation Plan
- (4) Economic Development and related industrial recruitment is addressed by the Carolina Gateway Partnership
- (5) The Building Code is the State Building Code, and except for Rocky Mount and Tarboro, Edgecombe County provides inspection services for the other jurisdictions
- (6) Edgecombe County provides a County Fire Marshall that assists with Fire Code Inspections and all the Volunteer Fire Departments within the County
- (7) Like Edgecombe County, the City has established an Emergency Operations Plan as a guide for managing disasters the community may experience and general and vital information in the plan is posted on their Fire Department's website (See: <http://www.rockymountnc.gov/fire/emergency.html>)
- (8) Site plan review handled by Nash County Inspection Program
- (9) No Flood Plain areas (Flood Insurance Rate Maps) delineated for Jurisdiction , but Flood Ordinance adopted in 2004
- (10) As of this date, out of the fifteen fire departments in Nash County, twelve departments have been inspected and their Insurance Classification Ratings lowered, thus saving property owners money on their homeowners insurance
- (11) Waiting on Flood Plain Maps to be sent by FEMA
- (12) See: <http://www.ncfirewise.org/> including homeowner wildfire assessment review sheet and suggested "Firewise" landscaping
- (13) County provides Warning system (Code Red system)
- (14) Provided by Western Carolina University - Emergency and Disaster Program
- (15) Rely upon the County for Flood Ordinance Enforcement

## N.E.W. REGIONAL HAZARD MITIGATION PLAN 2015-2020

In addition to the above ordinances and initiatives, all three counties have areas designated as watersheds, and protection ordinances have been adopted by the counties and municipalities as required by State law. In the early 1990s, the North Carolina General Assembly passed legislation requiring local governments to adopt regulations designed to promote the public health, safety, and general welfare by protecting certain areas designated by the State as public water supply watersheds. These ordinances and regulations also assist in flood prevention damage by limiting the density and types of development allowed within the watershed areas. The three counties in this plan adopted separate independent watershed protection ordinances in the 1990s consistent with this State law.

In addition to limiting density and restriction types of uses, watershed protection also provide a variety of other environmental benefits including:<sup>21</sup>

- ✓ Protection for portions of designated public water supply watersheds which lie closest to existing and proposed public water supply sources from activities which could degrade water quality in those water supply sources
- ✓ Reduction of the volume of nutrients and other chemicals, which could enter the water supply, by reducing the amount of runoff which any given development will generate;
- ✓ Minimizing land disturbance to reduce the amount of sediment washing into streams and lakes and to enhance the infiltration of runoff into soil, thus alleviating the sedimentation of water supply sources which reduces their storage capacity, shortens their useful life, and makes them less able to withstand drought;
- ✓ Reduction of the probability of the release of harmful chemicals into water supply sources, either through natural catastrophe or human error; and
- ✓ Providing natural and engineered methods for managing the stormwater which flushes contaminants off of impervious surfaces in the watershed areas and which may reach water supply sources unless controlled.



In Edgecombe County, pre-existing development is not subject to the requirements of the ordinance, but expansions or new development must meet the requirements. Also in this county there are two designated watershed areas, the watershed critical area and the watershed protection area. Regulations for the watershed critical area as well as watershed protection area are set forth in the Edgecombe County Unified Development

<sup>21</sup> Watershed Protection Purpose, 1-4, Nash County Unified Development Ordinance, 1999 (see: <http://www.co.nash.nc.us/DocumentCenter/View/39>)

Ordinance. The watershed critical area refers to an area within one half mile upstream from a public water supply intake site, and the watershed protection area refers to an area that is located within ten miles upstream of a water supply intake site. Within Edgecombe County the watershed areas are along the Tar River. A pre-existing lot owned by an individual prior to the effective date of the ordinance is allowed to be developed for single family residential purposes. However, all development within the designated watershed areas are limited in regards to density and types of uses. The Edgecombe County Planning Board serves as the Edgecombe County Watershed Review Board.

Wilson County has four designated watershed protection areas, and the boundaries of all these watersheds are delineated on the county watershed map. The Toisnot WS-III Protected Area, Contentnea WS-IV Critical Area, Contentnea WS-IV Protected Area, and Public Water Supply Watershed Area (Buckhorn Reservoir) all have low density requirements as well as regulations regarding allowable land uses. A higher density development options is available provided engineered stormwater controls are in place. Such stormwater controls must be a wet detention-type system for primary treatment unless alternative stormwater management measures are approved. In addition, a vegetative buffer is required around all developments with width varying in accord with the types of density requested.

Four watershed areas have also been adopted for Nash County and encompass the Tar/Pamlico River Basin area in the county. Like Wilson County, lower and higher density options are provided, as long as suitable engineered stormwater facilities are part of any higher density development. Like other stormwater protection areas in the other two counties, allowable densities and types of land uses are regulated.

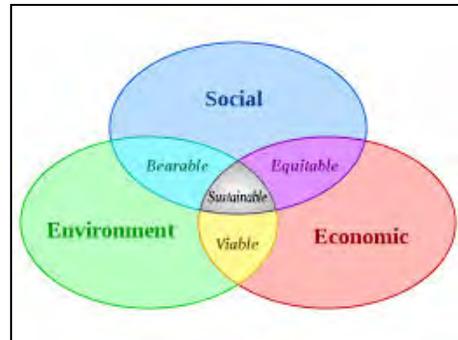
#### **4.4.4 RECOMMENDATIONS TO LOCAL GOVERNMENTS BASED UPON THE PREVIOUS ASSESSMENT OF THEIR PLANS, ORDINANCES, AND RELATED INITIATIVES**

The various jurisdictions and counties in this plan have a variety of activities, policies and initiatives that can and already do assist in the integration of hazard mitigation planning and implementation throughout the area. For example, most all jurisdictions have maintenance programs that assist in reducing risk (tree trimming, drainage system cleaning, etc.), and most jurisdictions enforced floodplain ordinance requirements. Most jurisdictions have mutual aid agreements and warning systems from simple sirens to more sophisticated calling systems are in place. All jurisdictions have also been included in their county's previous hazard mitigation plans.

However, there are a number of functions or activities and other governmental initiatives that remain unfulfilled or not accomplished that should be pursued to more fully

integrate hazard mitigation activities into government initiatives to help improve the overall county's hazard mitigation efforts. Listed below are these areas and opportunities for integration of hazard mitigation initiatives.

**Comprehensive Plan:** Many of the Wilson County and Edgecombe County jurisdictions do not have a comprehensive plan. These type plans offer opportunities to create goals and a vision for the development of a community. Such plans include important elements that help shape the future of a community, including protection of vital natural resources and planning for the physical shape and land use distribution within the community. A comprehensive plan can promote avoidance and mitigating of hazardous conditions. In addition, a comprehensive plan can help protect natural environmental resources that support hazard mitigation by promoting the conservation of forests and wetlands that help reduce flooding.



**Subdivision Ordinance:** Many communities, particularly in Edgecombe County, do not have subdivision ordinances. Subdivision ordinances are critical in facilitating orderly division of property and public infrastructure improvements when development occurs or is proposed. Adopting subdivision ordinances also ensures that all communities have a tool in place to promote orderly growth and development. These ordinances can also ensure that land division and development of property sensitively considers natural hazards and the environment.

**Availability of Hazard Data:** As communities prepare for hazardous conditions and strive to mitigate hazards, hazard data is very important and essential. Such data ensures that hazard mitigation activities and initiatives are planned and implemented in response to real dangers. Hazard data also provided communities with accurate information about hazardous conditions and potential mitigation opportunities. Also, sharing hazard data with hazard mitigation advisory committees, as well as the entire population of a community, is also essential. By providing this data to the community, residents are not only informed about hazards, but can also be better prepared for a natural hazardous condition.

**Capital Improvement Programs:** Capital improvement programs are another critical element in hazard mitigation planning. However, only the larger communities and most jurisdictions in Nash and Wilson Counties utilize this budgeting and planning approach to help fund major capital items. Such capital items include major investments that can help protect a community's infrastructure and facilities during hazardous conditions. For

example, many communities are without storm water improvement plans, and a capital improvement program can help budget and plan for the funding such studies, as well as facility investment costs, that could assist communities in improving storm water runoff or drainage problems.

**Local Emergency/Evacuation/Disaster Recovery Plan:** Although the counties have hazard emergency plans and many of the communities rely upon their county's emergency plan, evacuation planning, as well as disaster recovery planning for each of the various jurisdictions, may not be adequately or sufficiently addressed at the local level. The towns and smaller communities need to ensure that their needs regarding disaster recovery, evacuation, and continuation of operations are adequately covered in their county's plan. Jurisdictions within the counties can also prepare necessary plans for themselves with the assistance of the county emergency management services. For example, many of the communities in all three counties lack a continuation of operations plan. If not adequately addressed by the county, the various jurisdictions should prepare their own plans to help in the recovery stage of hazard mitigation.

**National Flood Insurance Program (NFIP):** Because the Town of Bailey is not participating in the NFIP, flood insurance is not available for any structures within their planning jurisdiction. In order to make flood insurance available to anyone in their jurisdiction who may desire to purchase it, it is recommended that the Town of Bailey give serious consideration to joining the NFIP.

**Wildfire Preparation:** Although wildfires are not as prevalent in the three counties in this plan as in eastern North Carolina or in other states, being prepared for wildfires is important. A community can be awarded a "Firewise" Certificate from the National Fire Protection Association by undertaking specific activities. Working on and achieving such a certificate helps ensure that a community is best prepared to deal with such a hazard. Of note is that only a very few of the jurisdictions in this Plan consider themselves prepared for wildfires, and these are located in Nash County.

**Economic Development Plan:** Many of the jurisdictions within this plan's three-county area do not have an economic development plan. An economic development plan can help guide the overall economic improvement of an area through policies and actions strategies. In addition, such plans could contain strategies that address economic recovery in the event of various conditions, including natural hazards that could result in damage to the local economy and/or employment base. Since full recovery from a major natural disaster may be dependent upon the resilience of a local economy to withstand an impact from a devastating natural hazardous event, an economic

development recovery plan should be part of any economic development planning effort. Such a recovery plan should include:<sup>22</sup>

- Methodology to assist companies prepare vulnerability assessments (both structural and cyber);
- A planning model for continuity of operations and business continuity plan for various sized organizations;
- Specific exercises and drills to undertake in order to improve company resilience,
- Discussion of supply chain vulnerabilities;
- Options to consider for cost-effective backup, redundant systems and remote data storage;
- Strategies for continuity of operations workshop(s) for small and medium-sized organizations that include discussion of recovery methodology planning models, review of interdependencies and opportunities for linkages;
- Model templates for conducting in-house exercises that include interdependencies discussions and participation in external exercises with other organizations;
- Model template for preparing continuity of business or operations plans; and,
- Strategies for companies or businesses to utilize to incorporate interdependencies, including business and customer supply chains, into existing preparedness plans

Once an economic development recovery plan is developed, the economic development leaders within the various jurisdictions could assist in integrating such planning into the mainstream business and industrial community by assisting companies and major employers to:

- Create templates that companies can use to identify critical suppliers, products, and materials;
- Devise methods by which organizations can identify risks and analysis of gaps;
- Develop management strategy to ensure the availability of and access to critical equipment, materials, components, and products, including those from off-shore sources;
- Develop contingency plans for commercial organizations addressing supply chain disruptions;
- Create a benchmark standard based on risk and gap analysis for “lean” security and resilience that could be employed by other organizations in the supply chain system;
- Share information on confidentiality issues and/or legal constraints on collaboration with other supply chain organizations and on ways to address these issues to foster necessary cooperation;
- Establish means to educate key suppliers on interdependencies and help companies conduct on-site “total system” assessments that include particular focus on critical

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<sup>22</sup> The Infrastructure Security Partnership (TISP), 2006, [Regional Disaster Resilience: A Guide For Developing An Action Plan](#) (See: [http://tisp.org/tisp/file/rdr\\_guide\[1\].pdf](http://tisp.org/tisp/file/rdr_guide[1].pdf))

services (water, energy, etc.) and establish priorities for risk reduction and overall security;

- Establish processes and tools to identify and assess supply chain vulnerabilities/interdependencies and disruption impacts;
- Develop risk assessment and decision support systems to determine optimal mitigation measures; and/or,
- Establish a model process to facilitate continuous improvement through benchmarking and various economic valuation models.

**Public Involvement:** Lastly, the involvement of the public in hazard mitigation planning should be improved in most of the jurisdictions. The residents of a community are its best resources. Maintaining an on-going hazard mitigation advisory committee enables a community or jurisdiction and its emergency management services to tap this resource. Relevant hazard mitigation proposals and related opportunities can be shared with such working committees. In addition, the leadership of these committees can be instrumental in helping to support important initiatives that could assist the community to become better prepared to address hazards. Lastly, an on-going hazard mitigation advisory committee can help a community implement important hazard mitigation activities, including local emergency plan related activities.

Prior to natural hazardous events and in order to better prepare for such events, public information and education strategies that enable the general public and the media to receive necessary, accurate, and coordinated timely information without inciting panic is crucial. Public involvement through organized activities, such as an hazard mitigation advisory committee meetings throughout the region, allows the inclusion of media into timely discussions about pending events. More importantly, the meetings of hazard mitigation advisory committees allow private sector leaders to be involved and enable key stakeholders, community leaders and other interested parties on such committees to achieve a comfort level in helping the community prepare for and deal with such a variety of natural hazards and the emergencies they generate.

#### **4.5 FINANCIAL CAPABILITIES - FISCAL ORDINANCES AND OTHER FINANCE-RELATED INITIATIVES**

The ability of a local jurisdiction to take action regarding new services, as well as implementation of policies or projects, is invariably linked to the amount of funds available for such purposes. Obviously outside grants are a great assistance in this regards. Locally based revenue and financial capabilities are even more important. For example, an initial grant might provide initial capital to begin a program or new service, but continuation of these activities may depend entirely upon a local government's continued funding. Although the costs associated with mitigation activities and implementation requirements vary widely, and in many cases are tied directly to staff

and related costs associated with the creation and continuation of particular services. However, in other cases, capital expenses are involved, such as the acquisition of structures in flood prone areas or purchase of special emergency equipment.

Communities with capital improvement plans and related budgetary funding have an opportunity to include hazard mitigation activities in budgetary considerations and plan as well as budget for hazard mitigation activities and implementation.

Various terms utilized in the following table (Table 4.10) in this subsection are as follows:

**Capital Improvement Funding:** Budgetary planning for expensive capital items, such as large pieces of equipments, building or trucks, can be accomplished through the use of capital improvement funding strategies. A capital improvement plan serves as a budgetary funding strategy or planning guide for these type large capital items.

**Authority to levy taxes:** Counties and cities in NC have the authority to levy taxes and set tax rates. Revenues from these taxes can be used for a variety of activities and services , including Hazard Mitigation.

**Fees for Water/Sewer/Gas/Electricity:** Counties and cities that provide water and sewer services or other enterprise services are authorized to set fees and rates to help maintain the systems.

**Impact Fees for new development:** Impact fees (or capacity fees) are charged on new development to pay for the construction or expansion of various off-site capital infrastructure or utility improvements required to serve the proposed development. Besides being difficult to administer, there is questionable authority in this state for imposing such fees. But some communities have sought and been granted special legislature to allow for impact fees to be charges. Local governments interested in this approach should consult with attorneys before imposing such fees.

**General Obligation, Revenue Bonds or Tax Bonds:** Counties or cites are authorized to fund various capital projects through bond proceeds. General obligation bonds are backed by the tax power of the community, and are generally utilized for projects that benefit the entire community, such as land acquisition and related recreation facilities. Revenue bonds are backed by the revenues generated by a particular enterprise or facility. Tax bonds refer to funds generated for a specific program or project through the sell of tax-free governmental bonds that are repaid by the revenues of a specific program or service.

**CDBG Program:** The Community Development Block Grant (CDBG) program is a federally funded program with funds delivered through the State in the form of grants for various prescribed improvements that benefit low and moderate income families.

**Federal or State Funds:** These funds are available through federal and/or state funding sources and provide funding for a variety of services, programs or activities, including construction projects.

The following table (Table 4.10) highlights relevant funding options described above for hazard mitigation activities and details the various jurisdictions use of or access to them for hazard mitigation. For example, although all jurisdictions have the authority to plan and budget for capital projects through capital improvement funding and fund activities or services through tax levy funds, some of the jurisdictions prefer not to use these resources for hazard mitigation activities. Although most jurisdictions charge fees for water and sewer that can assist with hazard mitigation, few jurisdictions consider impact fees for hazard mitigation. Most jurisdictions do not use storm water fees to help pay for improvements to storm water facilities. In addition, most jurisdictions appear to prefer not to incur general obligation bond debt for hazard mitigation activities. Funding hazard mitigation projects through private activities is also not preferred by most jurisdictions. Also, State and Federal funds as well as CDBG funds have not been pursued or accessed for hazard mitigation activities or facilities by most jurisdictions.

On the other hand, the larger jurisdictions and some of the smaller ones are active in seeking or using various funding options to use as resources for hazard mitigation. Among the jurisdictions, Rocky Mount, Nashville, Spring Hope in Nash County, the City of Wilson, Stantonsburg, and Sharpsburg in Wilson County, as well as Tarboro in Edgecombe County report that they have access to or are eligible for or use these resources for hazard mitigation purposes. Among the counties, only Nash County reported they were eligible for most of these resources.

Table 4.10

| RELEVANT FINANCIAL RESOURCES FOR HAZARD MITIGATION* |   |                                     |                                       |                                     |                                     |  |                                       |                                     |                                     |                                     |       |  |
|---|---|-------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|--|---------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------|--|
| Jurisdiction  | Access To, Eligibility To, Or Use Of Selected Funding Resources For Hazard Mitigation |                                     |                                       |                                     |                                     |  |                                       |                                     |                                     |                                     |       |  |
|   | Capital Improvement Funding   | Authority to Levy Taxes             | Fees for Water/Sewer/ Gas/Electricity | Impact Fees for new development     | Storm water fees                    | Incur debt through General Obligation bonds or tax bonds | Incur Debt through private activities | CDBG Program                        | Federal Funds                       | State Funds                         | Other |  |
| Nash County   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | X                                   | X                                   | <input checked="" type="checkbox"/>                      | X                                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |       |  |
| Rocky Mount#  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                      | NR                                    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |       |  |
| Bailey  | <input checked="" type="checkbox"/>   | (1)                                 | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | X                                   | X  | X                                     | X                                   | X                                   | X                                   |       |  |
| Castalia  | X   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | X                                   | X                                   | X  | X                                     | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |       |  |
| Dortches  | NR  | NR                                  | NR                                    | NR                                  | NR                                  | NR   | NR                                    | NR                                  | NR                                  | NR                                  |       |  |
| Middlesex   | X   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | X                                   | X  | X                                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |       |  |
| Momeyer   | X   | <input checked="" type="checkbox"/> | X                                     | X                                   | X                                   | X  | X                                     | X                                   | X                                   | X                                   |       |  |
| Nashville   | <input checked="" type="checkbox"/>   | (1)                                 | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | X  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | NR                                  | NR                                  |       |  |
| Red Oak   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | X                                   | X  | X                                     | X                                   | X                                   | <input checked="" type="checkbox"/> |       |  |
| Spring Hope   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | X                                   | X                                   | <input checked="" type="checkbox"/>                      | X                                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |       |  |
| Whitakers##   | NR  | NR                                  | NR                                    | <input checked="" type="checkbox"/> | NR                                  | NR   | NR                                    | NR                                  | NR                                  | NR                                  |       |  |
| Wilson County                                       | X   | X                                   | <input checked="" type="checkbox"/>   | X                                   | X                                   | X  | X                                     | <input checked="" type="checkbox"/> | X                                   | X                                   |       |  |
| City of Wilson                                      | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | X                                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                      | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |       |  |
| Elm City  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/>                      | X                                     | X                                   | X                                   | X                                   |       |  |
| Lucama  | <input checked="" type="checkbox"/>   | X                                   | <input checked="" type="checkbox"/>   | X                                   | X                                   | X  | X                                     | <input checked="" type="checkbox"/> | X                                   | <input checked="" type="checkbox"/> |       |  |
| Black Creek   | X   | X                                   | <input checked="" type="checkbox"/>   | X                                   | X                                   | X  | <input checked="" type="checkbox"/>   | X                                   | X                                   | X                                   |       |  |
| Saratoga  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                      | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |       |  |
| Stantonsburg  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | X                                   | X                                   | <input checked="" type="checkbox"/>                      | X                                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |       |  |
| Sims  | <input checked="" type="checkbox"/>   |                                     | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | X                                   | X  | <input checked="" type="checkbox"/>   | X                                   | X                                   | X                                   | (6)   |  |
| Sharpsburg#   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                      | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | (5)   |  |
| Edgecombe County                                    | NR  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | X                                   | <input checked="" type="checkbox"/> | X  | X                                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |       |  |
| Tarboro   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                      | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |       |  |
| Conetoe   | X   | <input checked="" type="checkbox"/> | (3)                                   | X                                   | X                                   | X  | X                                     | X                                   | X                                   | X                                   |       |  |
| Leggett   | X   | <input checked="" type="checkbox"/> | X                                     | X                                   | X                                   | X  | X                                     | X                                   | X                                   | X                                   | (2)   |  |
| Macclesfield  | X   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                      | X                                     | X                                   | X                                   | X                                   |       |  |
| Pinetops  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | X                                   | X                                   | <input checked="" type="checkbox"/>                      | <input checked="" type="checkbox"/>   | X                                   | X                                   | X                                   |       |  |
| Speed   | X   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>   | X                                   | X                                   | X  | X                                     | X                                   | X                                   | <input checked="" type="checkbox"/> |       |  |
| Princeville   | X   | X                                   | <input checked="" type="checkbox"/>   | X                                   | X                                   | X  | X                                     | X                                   | X                                   | X                                   | (4)   |  |

**Data Sources**  
 \* Local Government Capacity Assessment Worksheet 4.1 Questionnaire prepared by Upper Coastal Plains Council of Governments and responded to by the various jurisdictions

**Notes:**  
 = Financial Resource accessible or Community is eligible; X = Financial Resource not accessible or Community is not eligible; NR = No Response;  
**Additional Notes and Other:** (1) Requires political decision by Governing Board; (2) Edgecombe County used grant to install sewer lines; (3) Private sewer/water service; (4) Received USDA Loans for radio reads for meters and create senior center; (5) For many of the resources listed uncertain about being used in the past or if they can be used to fund mitigation activities; (6) emergency well has radium in it and is unusable

Funding for hazard mitigation should come from a variety of resources, including local funding, and jurisdictions must be prepared to consider hazard mitigation a high enough priority to warrant funding considerations.

Another way of evaluating financial capabilities is to review the financial or fiscal condition of the various counties and jurisdictions. Municipal and county governments must provide a wide range of basic services upon which the various communities depend, including police or sheriff and fire protection, streets and sidewalks improvements, water and sewer systems, libraries and parks, schools and a variety of other services. The ability of cities to provide this wide range of services rests on their financial decisions and available financial resources. Citizens, governmental workers and elected officials all have a vested interest regarding government expenditures and revenues, because expenditures and revenues involve taxes. Ensuring that citizens are appropriately protected and as safe as possible from hazards is a governmental expenditure that citizens should find to be rational and reasonable.

Another aspect of governmental funding involves the general fund balance, and maintaining a healthy balance helps ensure that governments are financially solvent and properly managed. To ensure governmental financial solvency, the State of North Carolina even requires that all governments maintain at least 8% in fund balance. Some financial authorities argue that upwards of 25% should be maintained in reserves or fund balance.<sup>23</sup> A fund balance is also essential, because it allows for the purchase of high cost equipment or construction of facilities that are needed for public services. The fund balance also provides a contingency fund that enables governments to respond to unanticipated events or emergencies, such as conditions resulting from natural hazards. For example, a natural hazard emergency could require employee overtime expenses that have not been budgeted, but could be paid for from fund balance.

The following table displays the most recent financial data regarding fund balance for the counties and jurisdictions in this plan. Although some of the fund balance percentages are extremely high for the smaller communities, the actual dollar amounts are less than \$100,000 to \$200,000. Fund balances range up to well over \$1,000,000 for larger communities or counties. In general and with few exceptions, the fund balance percentages are far less in the larger communities than the smaller ones, but their actual dollar amount may be much greater. Also, budgetary discipline by all communities has been consistently conservative, and governing boards as well as staff

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<sup>23</sup> Sheldon, Michael and Charles Tyer, ca. 1998, Benchmarking and Municipal Reserve Funds: Theory Versus Practice ( See: [http://www.ipspr.sc.edu/publication/Municipal\\_Reserves.htm](http://www.ipspr.sc.edu/publication/Municipal_Reserves.htm))

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management have maintained high fund balances, insuring that the communities and counties in this plan are adequately positioned to address reasonable expenditures required due to unexpected natural hazard events.

**Table 4.11**

| <b>AVAILABLE FUND BALANCE EXPRESSED AS A PERCENTAGE OF THE NET EXPENDITURES BY YEAR<sup>24</sup></b>  |                                    |                                    |                                    |                                    |
|---|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| <b>Location</b>   | <b>2013 Available Fund Balance</b> | <b>2012 Available Fund Balance</b> | <b>2011 Available Fund Balance</b> | <b>2010 Available Fund Balance</b> |
| <b>Nash County</b>  | 34.40%                             | 31.57%                             | 29.87%                             | 28.09%                             |
| Rocky Mount#  | 35.07%                             | 21.57%                             | 21.76%                             | 29.30%                             |
| Bailey  | 59.06%                             | 57.56%                             | 56.85%                             | 87.79%                             |
| Castalia  | 194.95%                            | 202.65%                            | NA                                 | 133.52%                            |
| Dortches  | 2,327.66%                          | 2,011.95%                          | 1,097.55%                          | ,2012.68%                          |
| Middlesex   | 75.40%                             | 114.22%                            | 110.92%                            | 130.46%                            |
| Momeyer   | 356.63%                            | 328.77%                            | 343.67%                            | 320.45%                            |
| Nashville   | 93.21%                             | 100.36%                            | 105.64%                            | 101.97%                            |
| Red Oak   | 1,521.26%                          | 1,364.80%                          | 170.71%                            | 3,267.54%                          |
| Spring Hope   | 46.30%                             | 31.61%                             | 15.75%                             | 19.21%                             |
| Whitakers##   | 88.44%                             | 89.02%                             | 58.48%                             | 110.75%                            |
| <b>Wilson County</b>  | 35.81%                             | 35.60%                             | 30.38%                             | 22.08%                             |
| City of Wilson  | 33.26%                             | 29.51%                             | 28.96%                             | 25.96%                             |
| Black Creek   | 96.74%                             | 112.07%                            | 90.40%                             | 97.98%                             |
| Elm City  | 58.14%                             | 57.49%                             | 28.26%                             | 149.76%                            |
| Lucama  | 357.92%                            | 370.22%                            | 312.53%                            | 260.33%                            |
| Saratoga  | 342.74%                            | 252.65%                            | 287.18%                            | 240.67%                            |
| Sims  | 435.22%                            | 335.84%                            | 363.33%                            | 287.57%                            |
| Sharpsburg#   | 34.26%                             | 36.72%                             | 35.83%                             | 19.61%                             |
| Stantonsburg  | 31.35%                             | 43.31%                             | 71.11%                             | 90.19%                             |
| <b>Edgecombe County</b>   | 20.45%                             | 19.15%                             | 23.72%                             | 25.31%                             |
| Tarboro   | 54.33%                             | 34.97%                             | 27.74%                             | 23.18%                             |
| Conetoe   | 313.43%                            | 376.16%                            | 180.57%                            | 239.44%                            |
| Leggett   | 429.06%                            | 453.34%                            | 412.18%                            | 356.89%                            |
| Macclesfield  | 46.77%                             | 51.33%                             | 78.62%                             | 77.69%                             |
| Pinetops  | 42.30%                             | 52.23%                             | 27.88%                             | 66.76%                             |
| Princeville   | 75.72%                             | 66.20%                             | 63.36%                             | 66.79%                             |
| Speed   | 40.91%                             | 77.02%                             | 57.45%                             | 49.51%                             |
| <b>Data Source:</b>   |                                    |                                    |                                    |                                    |
| North Carolina County and Municipal Financial Information (See: <a href="https://www.nctreasurer.com/slq/lfm/financial-analysis/Pages/Analysis-by-Population.aspx">https://www.nctreasurer.com/slq/lfm/financial-analysis/Pages/Analysis-by-Population.aspx</a> ) |                                    |                                    |                                    |                                    |

<sup>24</sup> North Carolina and Municipal Financial Information (See: <https://www.nctreasurer.com/slq/lfm/financial-analysis/Pages/Analysis-by-Population.aspx>)

All communities in the Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan can and should also work in an intergovernmental partnership to help ensure that where hazard mitigation activities benefit multiple jurisdictions or all jurisdictions, the costs can be shared. For example, this partnership effort would be particularly important in the distribution of public information or purchase of special equipment that can benefit all jurisdictions. A regional approach is also suggested for such a partnership effort, such that all communities, both large and small, benefit.

#### **4.6 EDUCATIONAL AND OUTREACH CAPABILITIES: ASSETS AND OPPORTUNITIES**

Educational and outreach capabilities within the three counties in this plan vary, depending upon the rural or urban nature of the county areas. Major suppliers of cable and internet are in the three-county area including for example, Suddenlink Communications, Time Warner Cable, Direct TV in Nash County, CenturyLink, Greenlight and Time Warner in Wilson County, and Suddenlink, Verizon, Centurylink, and Time Warner in Edgecombe County. These cable broadcast and internet providers allow access to emergency information, such as pending storms as well as internet capabilities to allow local residents to gain additional information about critical hazardous conditions in the area. In addition, cable news and regional weather broadcasts provide round-the-clock coverage during intense storm events.

The following table provides a summary of the various education and outreach programs or methods employed already in use by local jurisdictions that are relevant for implementing hazard mitigation activities and communicating hazard related information. Educational or outreach programs and/or methods that could and should be used to implement mitigation activities and communicate hazard-related information include:

- Local citizen groups or non-profit organizations that are focused on environmental protection, emergency preparedness, access and functional needs populations, etc.
- Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)
- Natural disaster or safety related school programs
- "StormReady" certification (certification by National Weather Service that a community has achieved recognition by strengthening local safety and severe weather response programs through advanced planning, education and awareness)
- "Firewise Communities" is a network of communities recognized by the National Fire Protection Association to empower residents and neighbors to work together in order to reduce their wildfire risk
- Public-private partnership initiatives addressing disaster-related issues.

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Although some jurisdictions, including Nash County, Rocky Mount, Red Oak, Edgecombe County and Tarboro are applying all or many of the above resource options, most jurisdictions only carry out a few and some not at all. Utilizing these various outreach and educational resources not only ensures that relevant hazard mitigation information and opportunities to improve safety during hazards are being transmitted or delivered to the public, but such delivery is effective and productive as the jurisdictions help their citizens through these resource outreach options to become more empowered to strengthen local safety and work together to reduce risks.

**Table 4.12**

| <b>EDUCATION AND OUTREACH RESOURCES FOR HAZARD MITIGATION</b> |  |   |  |                                     |                                      |   |       |
|---|--|---|--|-------------------------------------|--------------------------------------|---|-------|
| <b>Jurisdiction</b>   | <b>Education and outreach programs and methods already in place that can be used to implement mitigation activities and communicate hazard-related information</b> |   |  |                                     |                                      |   |       |
|   | Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.        | Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education) | Natural disaster or safety related school programs | "StormReady" certification          | "Firewise" Communities certification | Public-private partnership initiatives addressing disaster-related issues | Other |
| <b>Nash County</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>  | X   |       |
| <b>Rocky Mount#</b>   | X  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>                | <input checked="" type="checkbox"/> | X                                    | X   |       |
| <b>Bailey</b>   | X  | X   | X  | X                                   | X                                    | X   |       |
| <b>Castalia</b>   | X (1)  | X   | X  | X                                   | X                                    | X   |       |
| <b>Dortches</b>   | NR   | NR  | NR   | NR                                  | NR                                   | NR  |       |
| <b>Middlesex</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>   | X  | X                                   | X                                    | X   |       |
| <b>Momeyer</b>  | <input checked="" type="checkbox"/>  | X   | X  | X                                   | X                                    | X   |       |
| <b>Nashville</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>   | NR   | NR                                  | NR                                   | <input checked="" type="checkbox"/>                                       |       |
| <b>Red Oak</b>  | <input checked="" type="checkbox"/> (2)  | <input checked="" type="checkbox"/> (3)   | <input checked="" type="checkbox"/> (3)            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>                                       |       |
| <b>Spring Hope</b>  | X  | X   | X  | X                                   | X                                    | X   |       |
| <b>Whitakers##</b>  | NR   | NR  | NR   | NR                                  | NR                                   | NR  |       |
| <b>Wilson County</b>  | NR   | NR  | NR   | NR                                  | NR                                   | NR  |       |
| <b>City of Wilson</b>   | X  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>                | X                                   | X                                    | X   |       |
| <b>Elm City</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>                | X                                   | X                                    | X   |       |
| <b>Lucama</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>   | X  | X                                   | X                                    | X   |       |
| <b>Black Creek</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>                | X                                   | X                                    | X   |       |
| <b>Saratoga</b>   | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>   | NR   | NR                                  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>                                       |       |
| <b>Stantonsburg</b>   | X  | X   | X  | X                                   | X                                    | X   |       |
| <b>Sims</b>   | X  | <input checked="" type="checkbox"/>   | X  | X                                   | X                                    | X   |       |
| <b>Sharpsburg#</b>  | X  | X   | X  | X                                   | X                                    | X   |       |
| <b>Edgecombe County</b>                                       | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>                | <input checked="" type="checkbox"/> | X                                    | <input checked="" type="checkbox"/>                                       |       |
| <b>Tarboro</b>  | <input checked="" type="checkbox"/>  | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>                | X                                   | X                                    | X   |       |
| <b>Conetoe</b>  | X  | X   | X  | X                                   | X                                    | X   |       |
| <b>Leggett</b>  | X  | X   | X  | X                                   | X                                    | X   |       |

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|  |          |                                     |          |          |          |          |  |
|--|----------|-------------------------------------|----------|----------|----------|----------|--|
| <b>Macclesfield</b>  | <b>X</b> | <b>X</b>                            | <b>X</b> | <b>X</b> | <b>X</b> | <b>X</b> |  |
| <b>Pinetops</b>  | <b>X</b> | <input checked="" type="checkbox"/> | <b>X</b> | <b>X</b> | <b>X</b> | <b>X</b> |  |
| <b>Speed</b>   | <b>X</b> | <input checked="" type="checkbox"/> | <b>X</b> | <b>X</b> | <b>X</b> | <b>X</b> |  |
| <b>Princeville</b>   | <b>X</b> | <b>X</b>                            | <b>X</b> | <b>X</b> | <b>X</b> | <b>X</b> |  |
| <p><b>Symbol Key:</b> NR = Don't Know/Not Available/Unknown/No Response; <input checked="" type="checkbox"/> = Activity or Initiative provided; <b>X</b> = Activity or Initiative <u>not</u> provided; Numbers in parentheses refer to notes below</p> <p><b>Data Source:</b><br/>Responses by the three counties and municipalities to the <u>Local Government Capacity Assessment Questionnaire</u>, Upper Coastal Plain Council of Governments, 2014</p> <p><b>Notes:</b><br/>(1) Starting a "Facebook" page to focus on environment; (2) Sierra Club; (3) Administered by Volunteer Fire Department and Nash County Emergency Management</p> |          |                                     |          |          |          |          |  |

Most impressive are the capabilities of some local governmental websites. For example, the Fire Department for the City of Rocky Mount provides an emergency management web site that assists residents in preparing for severe storms, such as hurricanes.<sup>25</sup> This site also offers links to access other organizations or agencies that provide emergency management resources. The Wilson County Emergency Management web site is part of the Wilson County web site and also provides valuable access links to hurricane information resources, as well as displays their complete emergency operations plan. Valuable information to assist residents to remain safe during severe, hazardous conditions is provided as part of this site.<sup>26</sup> The Nash County Emergency Management web site provides linkage to a variety of valuable emergency related information for residents.<sup>27</sup> For example, the FEMA's publication entitled, "Are You Ready?", a report that provides an in-depth guide to citizen preparedness in times of natural disasters is linked to from this county web site.<sup>28</sup> The Nash County web site also allows viewers to review the county's emergency operations plan. The Edgecombe County Emergency Management web site provides their emergency operations plan, but it is more for guidance of government operations than specific assistance for the general public.<sup>29</sup>

The opportunity to expand emergency management information and assist local residents to better understand and prepare for natural hazards is of paramount importance. As more communities within the three-county area provide dedicated web sites, this additional access to information provides another valuable method to help keep residents informed.

This plan must also be available for review and comment by the public, not only in its preparation, but also once approved by FEMA and implemented throughout the three-

<sup>25</sup> See: <http://www.rockymountnc.gov/fire/emergency.html>

<sup>26</sup> See: <http://www.wilson-co.com/252/Emergency-Management>

<sup>27</sup> See: <http://www.co.nash.nc.us/index.aspx?nid=149>

<sup>28</sup> See: <http://www.co.nash.nc.us/DocumentCenter/View/23>

<sup>29</sup> See: <http://www.edgecombecountync.gov/eservices/info.aspx>

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county area. In order to maximize exposure and opportunity for review and comment by the public the following strategies are recommended:

1. Provide hard copies of the plan to all public libraries within the three-county area and provide notification through water bills, electric bills and/or newspaper articles that the information is available at these libraries as well as on line through the various emergency management agencies that operate in the three-county area;
2. Ensure that all emergency management agencies within the three counties have the plan or relevant portions of it posted on their web sites for download or review (where practical and reasonably accomplished, such web site access portals could also include response capabilities to allow viewers to comment on the plan) ;
3. Provide a link on the Upper Coastal Plain Council of Governments (UCPCOG) web site to the full plan for download or review and possibly an access portal to obtain responses and comments on the plan;
4. Within two years of FEMA approval, all jurisdictions and counties should be encouraged by the UCPCOG through the various emergency management offices and governing boards to hold public information meetings on the progress on achieving the various action steps or strategies set forth in the plan for a community or county holding the meeting. In addition such meeting can be utilized to seek input from the public on hazard mitigation issues, including suggested activities, improvements or modifications to a community or county's preparation, response, mitigation or recovery phases of the "*disaster cycle*".
5. Through UCPCOG initiative or county initiative, the emergency management agencies and other related hazard mitigation interests or partners should be assembled at each county level on an annual basis to discuss the application of the plan in the various communities and counties, as well as potential consideration for future planning and improvements or additions for the various phases of the "*disaster cycle*" that can be implemented by the various communities or counties. Progress on completing the various action steps or strategies set forth in the plan will also be discussed.
6. The assembled emergency management agencies and other partners are also encouraged to identify appropriate lead agency or staffing assignments and/or identify agencies or staffing for unassigned action steps in the plan to ensure that there is accountability for the implementation for the action steps or strategies.
7. All communities in the Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan should continue to work together in an intergovernmental regional partnership to help in regards to hazard mitigation planning and implementation.
8. A partnership among all jurisdictions that participated in this plan can also work together in cooperative ventures in hazard mitigation planning and implementation in order to share costs such that where hazard mitigation activities benefit all counties and municipalities, the costs can be shared. For example, this partnership effort

would be particularly important in the distribution of public information or purchase of special equipment that can benefit all jurisdictions. A regional partnership approach to continued hazard mitigation planning is also suggested such that all communities both large and small benefit.

9. Each jurisdiction should establish (or continue) a citizen hazard mitigation advisory committee to meet at least yearly and review progress on goals and actions steps proposed by and for their particular jurisdictions. Such committees can then make recommendations to the local jurisdictions to assist in furthering implementation efforts. Selected members from the various hazard mitigation advisory committees should also be invited to attend the county meeting of emergency management agencies and personnel set forth in strategy number 5 above.

#### **4.7 LEGAL AND POLITICAL CAPABILITIES: LEGAL AUTHORITY AND LOCAL POLITICAL WILL TO IMPLEMENT HAZARD MITIGATION INITIATIVES**

Without a governing board's political sanction and management staff commitment, implementation of hazard mitigation throughout each government, agency, department of organization remains prescriptive and not totally accountable. From a political perspective the governing boards of a community or county have the opportunity and obligation to set policy and ensure that hazard mitigation is a top priority for their organization. Without such policy priority, hazard mitigation could remain a non-prioritized concern dropping lower in the list of concerns or issues until the next hazardous event. Like the situation with Hurricane Floyd when emergency management did not fully grasp the reality of the danger until houses were flooding throughout eastern North Carolina, waiting until the next disaster is not prudent or wise.

Each agency, department or other participating partner covered by this plan must also be responsible for implementing specific hazard mitigation actions or strategy as set forth in the plan. Identified responsible parties should not only be identified for every proposed action step listed in this mitigation action plan, but also ultimately such assignments should be reviewed to ensure that a specific "lead" agency or appropriate staff member is committed and accountable for an action. Where there is assigned responsibilities with monitoring activities there is accountability and increased likelihood of subsequent implementation and successful hazard mitigation activities.

The annual meetings of all the emergency management agencies and other hazard mitigation partners at the county level will provide opportunities to access progress and review implementation success. In addition, these meetings can be used as opportunities to explore additional funding sources and regional partnerships in the implementation of specific hazard mitigation programs, activities, or services. The annual meetings of the emergency management agencies can also assist in keeping hazard mitigation at the forefront of governmental activities and services, by providing a

forum to discuss how all departments can be encouraged and reinforced to consider appropriately integrating hazard mitigation opportunities into all their various work efforts that produce governmental programs, plans, services, ordinances or activities. The meetings can be utilized to not only bring in department heads and managers from the local communities and counties, but also bring in experts or governmental leaders from other areas to discuss successful integration approaches. Most importantly, by inviting selected members of the various local hazard mitigation advisory committees, opportunities for public participation can be increased and expanded.

Without question the local governing boards and their governmental lead staff have the legal authority and meaningful purpose to not only serve the public, but to also ensure that public is able to be as safe as possible. Prioritizing the importance of hazard mitigation and implementing actions to bring about greater protection opportunities for the public as a result of integration of hazard mitigation into various aspects of governments services, programs and activities certainly meets this purpose.

In order for hazard mitigation initiatives and planning activities to be fully integrated into all aspects of county and community governments, the elected officials of the three counties as well as all the jurisdictions within the three counties must recognize and be in agreement that implementation of this [Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan](#) is a necessary step to help minimize damages from natural hazards. The boards and councils of all jurisdictions must support the need for hazard mitigation to help reduce future loss of life and property. By approving this plan all boards and councils of all the jurisdictions not only endorse and support appropriate hazard mitigation activities for their jurisdictions, but also agree that efforts to integrate hazard mitigation into all aspects of governmental functions and activities as outlined in this plan are important and a high priority. Also, by approving this plan, all participating governments not only acknowledge the limited resources (both monetarily and physical) that impact implementation and integration of mitigation efforts, but more importantly commit to insuring hazard mitigation is considered a top priority in available funding opportunities and use of resources, including in-house efforts, regarding the integration and implementation of appropriate hazard mitigation initiatives into all relevant governmental activities and functions. Also, by approving this plan the counties and local municipalities support public participation and involvement, and recognize that one way of encouraging this involvement is with the establishment of local hazard mitigation advisory committees.

#### **4.8 RECOMMENDATIONS**

As a result of the information provided in this entire section and recommendations provided in the various subsections above, all recommendations are summarized as follows. These recommendations offer assistance for local jurisdictions to develop and

implement appropriate goals and strategies for hazard mitigation activities, including planning and implementation.

1. Provide hard copies of this plan to all main public libraries within the three-county area and provide notification through water bills, electric bills and/or newspaper articles that the information is available at these libraries as well as on line through the various emergency management agencies that operate in the three-county area;
2. Ensure that all emergency management agencies within the three counties have this plan and it is posted on their web sites for download or review and where practical and reasonably accomplished such web site access portals these sites should also include response capabilities to allow viewers to comment on the plan;
3. Provide a link on the Upper Coastal Plain Council of Governments (UCPCOG) web site to the full plan for download or review, as well as possible responses;
4. Establish a "Survey Monkey" survey instrument to allow all residents in the three-county area or other interested parties to comment on the plan and offer suggestions for improvement. For maximum effectiveness and coverage this survey effort should be a regional approach, perhaps sponsored by the UCPCOG.
5. Within two years of FEMA approval, all jurisdictions and counties will be encouraged by the UCPCOG through the various emergency management offices with sanctions by the governing boards to hold public information meetings at the county level on the progress on achieving the various action steps or strategies set forth in the plan for a communities and/or county holding the meeting, as well as seek input from the public on hazard mitigation issues, including suggested activities, improvements or modifications to a community or county's preparation, response, mitigation or recovery phases of the "*disaster cycle*". Selected members from local hazard mitigation advisory committees should also be invited to attend such county level meetings.
6. Through UCPCOG initiative the emergency management agencies and other related hazard mitigation interests or partners should be assembled on an annual basis at the county level to discuss the application of the plan in the various communities and counties. Such meetings can also be used to discuss potential consideration for future planning and improvements or additions for the various phases of the "*disaster cycle*" that can be implemented by the various communities or counties. Progress on completing the various action steps or strategies set forth in the plan can also be discussed. Selected members of the local hazard mitigation advisory committees should be invited to this meeting to enhance public participation. The annual meetings of the emergency management agencies can be utilized to keep hazard mitigation at the forefront of governmental activities and services. Such annual meetings provide a forum to discuss how all jurisdictions and departments in the various governments can be encouraged and reinforced to consider appropriately integration of hazard mitigation opportunities into all appropriate work

efforts that produce governmental programs, services, policies, initiatives, ordinances or activities. Such meetings can also be utilized to meet with all department heads and managers from the local communities and counties as well as bring in experts or governmental leaders from other areas to discuss successful integration approaches. Inviting elected officials to this meeting would also be helpful to educate and inform them about various opportunities to integrate hazard mitigation considerations into all governmental activities and services.

7. The assembled emergency management agencies and other partners (including selected members from the various hazard mitigation advisory committees) are also encouraged to identify appropriate lead agency or staffing assignments and/or identify agencies or staffing for unassigned action steps in the plan to ensure that there is accountability for the implementation for all action steps or strategies.
8. All communities in the [Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan](#) should continue to work together in an intergovernmental regional partnership at least at a county level for hazard mitigation planning and implementation. A partnership among all jurisdictions that participated in this plan can also form cooperative ventures in order to share costs for services or initiatives that benefit hazard mitigation for all counties and municipalities. A partnership effort would be particularly important in the distribution of public information or purchase of special equipment that can benefit all jurisdictions. A regional partnership approach at least at the county level for continued hazard mitigation planning is also suggested, such that all communities both large and small benefit.
9. Each county and all jurisdictions should prepare an economic development recovery plan. Since full recovery from a major natural disaster may be dependent upon the resilience of a local economy to withstand an impact from a devastating natural hazardous event, an economic development recovery plan should be part of any economic development planning effort. Although such planning efforts can be accomplished at a regional level, all local jurisdictions must be included, and appropriate plans and specific implementation activities developed for each jurisdiction. A regional approach at least at the county level could also be utilized to help communities carry out economic development recovery planning and implementation.
10. Outreach activities to provide information to the public regarding hazard mitigation should be pursued at a regional and local level. Various education and outreach programs or methods employed already by local jurisdictions that are relevant for implementing hazard mitigation activities and communicating hazard related information should continue. Educational or outreach programs and/or methods that could be expanded and utilized to implement mitigation activities and communicate hazard-related information include:
  - Establishment of local citizen groups or non-profit organizations that are focused on environmental protection, emergency preparedness, access and functional

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- needs populations, etc.
- Establishment of public education or information programs (e.g., responsible water use, fire safety, household preparedness, environmental education) and making available and disseminating relevant information
  - Carrying out natural disaster or safety related school programs
  - Obtaining "StormReady" certification by the National Weather Service demonstrating that a community has achieved recognition by strengthening local safety and severe weather response programs through advanced planning, education and awareness
  - Being certified as "Firewise" communities and belong to a network of communities recognized by the national fire protection program to have empowered residents and neighbors to work together to reduce their wildfire risk
  - Promoting public-private partnership initiatives addressing disaster-related issues
  - Establishment of citizen involvement and participation through hazard mitigation advisory committees in all jurisdictions for a proactive public participation initiative for hazard mitigation planning and implementation (see #5 and #6 above and #13 below)
11. The annual meetings of all the emergency management agencies and other hazard mitigation partners should also be utilized to provide opportunities to access progress and review implementation success. In addition, these meeting should also be used as opportunities to explore additional funding sources and regional partnerships in the implementation of specific hazard mitigation programs, activities, or services within the various jurisdictions.
12. Local governing boards and their governmental lead staff should be encouraged to prioritize hazard mitigation as very important. All boards and lead staff in the various jurisdictions should continually be encouraged through the work of the meetings of the emergency management agencies to implement actions to bring about greater protection opportunities for the public and fully integrate hazard mitigation into various aspects of governments services, programs and activities.
13. An official hazard mitigation advisory committee should be established (or continued) in each county and municipality and be guided by county or jurisdictional emergency management personnel as well as others in the governmental agencies. Such a committee can be very valuable in obtaining public involvement in all aspects of hazard mitigation activities and can also assist in disseminating information to the public. Various stake holders including major employers, business or industries, health care providers and organizations that represent non-English speaking residents, as well as major facilities that house sheltered residents, should be at the table and be involved in hazard mitigation discussions. Some communities already have an on-going advisory committee, but these should be reviewed to ensure that various groups and, organizations, and employers are represented. Although these committees do not have to meet every month, emergency managers and others in

government who are involved with hazard mitigation should promote the meeting of these committees at least on a yearly schedule in order to be included in review of hazard mitigation goals, strategies and action steps and assist with implementation and completion of such action steps where appropriate. Selected members of the various hazard mitigation advisory committees should also meet periodically with the emergency management group from all jurisdictions and discuss current progress on various hazard mitigation activities, needs and actions. A regional approach is suggested for this type effort, at least at the county level.

14. Hazard mitigation initiatives and activities must be constantly communicated to the public. The above mentioned hazard advisory committee is an excellent approach to communication with the public, but there are also many other ways that will reach more people in a short period of time. For example, the following strategies could be considered:

- Utilize the hazard mitigation advisory committee to develop additional strategies and ways to more effectively communicate with the public
- Consider postings updated hazard mitigation information about hazards and mitigation approaches on a community's website on a regular basis;
- Develop an on-going "blog" that residents can respond to and provide information;
- Make presentations about hazard mitigation activities to the community at large, including clubs and organizations;
- Conduct period public forums on hazard mitigation to review status of local accomplishments and additional work to be done, as well as receive input from the public;
- Develop periodic press releases to the media regarding hazard mitigation efforts and accomplishments;
- Provide direct mailings (e.g., newsletters, brochures or information in water bills) of vital information regarding local hazard mitigation initiatives, safety measures for the public and other related activities;
- Ensure that valuable information about reduction of risks and safety measures also reach the most vulnerable populations, including non-English speaking persons, institutions, medical/nursing facilities, and other locations with vulnerable populations;
- Poll residents through a survey instrument (such as "Survey Monkey") to receive input on various hazard mitigation topics of interests or concern that would benefit from public input;
- Involve local schools and colleges to educate students about hazard mitigation initiatives and best ways students and schools can respond, as well as establish ongoing interaction between these organizations and emergency management personnel;

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- Provide leadership and ongoing training for communities leaders to be able to assist in times of natural disasters; and
- Make available this plan and all other appropriate hazard mitigation plan information by placement in libraries and other locations visited by the public, as well as on the official governmental web sites within the three-county area.

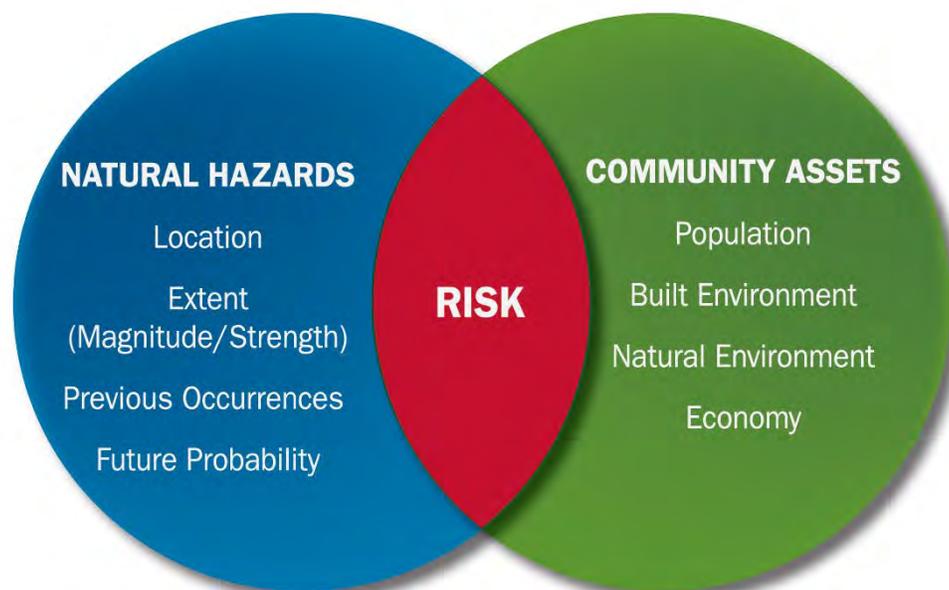
## SECTION 5: RISK ASSESSMENT

### 5.1 INTRODUCTION

For the purpose of hazard mitigation planning, risk is the potential for damage, loss, or other impacts created by the interaction of natural hazards with community assets. Natural hazards, like floods and tornadoes, are processes or events that occur in nature that are a source of harm or difficulty. These hazards can be meteorological (weather related), environmental (wildfires, for example), geological (earthquakes or landslides, for example), or a combination of two or more types (example: wildfire started by lightning). Community assets are people, property, and systems that have value to the community. When natural hazards and community assets come into contact with each other, damages and/or losses can easily result. When a natural hazard is more than an inconvenience and results in negative impacts on human health, including but not limited to death, the natural hazard has also become a health hazard.

See Figure 5-1 for an illustration of risk resulting from interactions between natural hazards and community assets. Where there is a small overlap, the risk is lower, whereas when there is a larger overlap, the risk increases.

**Figure 5-1: Community Risk from Natural Hazards**



Note: Modified from U.S. Geological Survey and Oregon Partnership for Disaster Resilience Models.

Source: FEMA Local Mitigation Planning Handbook, March 2013

A risk assessment is a product or process that collects information on hazards and community assets, and assigns values to risks for the purpose of informing priorities, comparing courses of action, and informing decision making. The purpose of a risk assessment is to determine the potential impacts of natural hazards to the people, economy, and built/natural environments of the community. The risk assessment provides the foundation for the rest of the mitigation planning process, which is focused on identifying and prioritizing actions to reduce risks from natural hazards. The risk assessment can also be used to establish emergency preparedness and response priorities, to enhance land use and comprehensive planning, and to inform decision making by elected officials, local government employees, businesses, and other organizations in the community.

## **5.2: HAZARD IDENTIFICATION**

This section of the plan, will first identify and describe the natural hazards that could potentially impact the three counties and twenty-five municipalities that are included. Those hazards will then be evaluated according to the federal requirements for a conducting a risk assessment and based on information in the NC State Hazard Mitigation Plan, the disaster declaration history of the area, weather-related events from online resources, local knowledge and resources, and other appropriate sources. The evaluation of the hazards will be used to classify each hazard as either highly likely, likely, possible, or unlikely to occur within the planning area and each jurisdiction.

In the 2010 NC State Hazard Mitigation Plan, there are 49 identified natural hazards. Those 49 hazards were divided into two categories and ten hazard groups for ease of organization, interpretation and reference. The two categories are “Greater” Hazards and “Lesser” Hazards; each of which contains five hazard groups. The Greater Hazards are those identified as having the most potential impact on the State of North Carolina in the past and in the future. The Lesser Hazards are hazards of significant concern, but they have not had as large of an impact on the entire state in the past, or in the anticipated future. The Greater Hazard groups include: Floods, Earthquakes, Hurricanes/Coastal Hazards, Wildfires and Severe Winter Weather. The Lesser Hazard groups include: Dam Failure, Infectious Disease, Geological, Tornado/Severe Thunderstorm, and Drought. Table 5-1 lists all of the hazards included in the Greater Hazards category. Table 5-2 lists all of hazards included in the Lesser Hazards category.

**Table 5.1: Listing of Identified Greater Natural Hazards by Group Designation**

| <b>GREATER HAZARDS CATEGORY—LISTING OF IDENTIFIED HAZARDS BY GROUP</b> |                                   |                                     |
|--|-----------------------------------|-------------------------------------|
| <b>Floods</b>  | <b>Earthquakes</b>                | <b>Wildfires</b>                    |
| Floods   | Earthquakes                       | Wildfires                           |
| <b>Hurricanes and Coastal Hazards</b>                                  |                                   | <b>Severe Winter Weather</b>        |
| Hurricanes   | Nor'easters                       | Severe Winter Weather               |
| Hurricane—Storm Surge  | Nor'easters—Storm Surge           | Severe Winter Weather—Freezing Rain |
| Hurricane—High Wind  | Nor'easters—High Wind             | Severe Winter Weather—Snowstorms    |
| Hurricane—Torrential Rain  | Nor'easters—Severe Winter Weather | Severe Winter Weather—Blizzards     |
| Hurricane—Tornadoes  | Tsunami                           | Severe Winter Weather—Wind Chill    |
| Rip Current  | Coastal Erosion                   | Extreme Cold                        |

**Table 5.2: Listing of Identified Lesser Natural Hazards by Group Designation**

| <b>LESSER HAZARDS CATEGORY—LISTING OF IDENTIFIED HAZARDS BY GROUP</b> |                      |                           |                           |                                       |
|---|----------------------|---------------------------|---------------------------|---------------------------------------|
| <b>Dam Failure</b>  | <b>Drought</b>       | <b>Infectious Disease</b> | <b>Geological</b>         | <b>Tornado/Severe Thunderstorm</b>    |
| Dam Failure   | Drought              | Human Contact             | Debris Flow/<br>Landslide | Severe Thunderstorm                   |
|   | Drought—Agricultural | Animal Contact            | Subsidence                | Severe Thunderstorm—Hailstorm         |
|   | Drought—Hydrologic   | Foodborne                 | Acidic Soil               | Severe Thunderstorm—Torrential Rain   |
|   | Heat Wave            | Waterborne                | Geochemical-related       | Severe Thunderstorm—Thunderstorm Wind |
|   |                      | Human Respiratory         | Mine Collapse             | Severe Thunderstorm—Lightning         |
|   |                      | Animal Respiratory        | Sinkholes                 | Tornado                               |
|   |                      | Vectorborne               | Expansive Soil            | Tornado—Waterspout                    |
|   |                      |                           |                           | High Wind                             |
|   |                      |                           |                           | Fog                                   |

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Because these NC State Hazard Mitigation Plan hazards were included based on their potential impact on the state as a whole, it would not be appropriate to assume that they would have a significant impact in the Nash, Edgecombe, and Wilson County area. Fortunately, the State plan also evaluated most of the hazards at the county level, and assigned a vulnerability score to each county for each of the hazards. Table 5-3 shows the vulnerability scores for each hazard and hazard group for each of the three counties included in this plan. The vulnerability scores varied based on the particular hazard, but for the majority of the hazards, fell in a range of 0 to 625, with 0 being the lowest potential hazard and 625 being the highest.

**Table 5.3: Vulnerability Scores by County for each Hazard in the 2010 NC Hazard Mitigation Plan**

| <b><u>Natural Hazards in NC 2010 HM Plan (see Appendix A, section 2)</u></b> | <b><u>Vulnerability Score Range</u></b> <sup>1</sup> | <b><u>Edgecombe County</u></b> | <b><u>Nash County</u></b> | <b><u>Wilson County</u></b> |
|--|--|--------------------------------|---------------------------|-----------------------------|
| Floods<br>(flooding composite scores)  | 4-20<br>0-9  | 13-16<br>8                     | 13-16<br>5                | 13-16<br>6                  |
| Earthquakes  | 0-9  | 2                              | 0                         | 0                           |
| Wildfire<br>(wildfire group hazards scores)                                  | 0-625<br>15-625                                      | 300<br>226-300                 | 300<br>226-300            | 150<br>121-150              |
| Hurricanes   | 0-625  | 375                            | 375                       | 375                         |
| Hurricanes--Storm Surge  | 0-625  | 0                              | 0                         | 0                           |
| Hurricanes--High Wind  | 0-625  | 90                             | 90                        | 90                          |
| Hurricanes--Torrential Rain  | 0-625  | 300                            | 300                       | 300                         |
| Hurricanes--Tornadoes  | 0-625  | 30                             | 30                        | 30                          |
| Rip Current  | 0-625  | 0                              | 0                         | 0                           |
| Nor'easters  | 0-625  | 180                            | 180                       | 180                         |
| Nor'easters--Storm Surge   | 0-625  | 0                              | 0                         | 0                           |
| Nor'easters--High Wind   | 0-625  | 40                             | 40                        | 40                          |
| Nor'easters--Severe Winter Weather   | 0-625  | 135                            | 135                       | 135                         |
| Tsunami  | 0-625  | 0                              | 0                         | 0                           |
| Coastal Erosion<br>(hurricane/coastal group hazards scores)                  | 0-625<br>15-625                                      | 0<br>80-120                    | 0<br>80-120               | 0<br>80-120                 |
| Severe Winter Weather  | 0-625  | 240                            | 240                       | 240                         |
| Severe Winter Weather--Freezing Rain   | 0-625  | 240                            | 240                       | 240                         |
| Severe Winter Weather--Snowstorms  | 0-625  | 80                             | 80                        | 80                          |
| Severe Winter Weather--Blizzards   | 0-625  | 30                             | 30                        | 30                          |
| Severe Winter Weather--Wind Chill  | 0-625  | 10                             | 10                        | 10                          |
| Extreme Cold<br>(severe winter group hazards scores)                         | 0-625<br>15-625                                      | 5<br>81-120                    | 5<br>81-120               | 5<br>81-120                 |

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| <b>Table 5.3 continued</b>                 | <b><u>Vulnerability Score Range</u></b> <sup>1</sup> | <b>Edgecombe County</b> | <b>Nash County</b> | <b>Wilson County</b> |
|--|--|-------------------------|--------------------|----------------------|
| Dam Failure<br>(dam failure hazard group ) | 15-300<br>0-625                                      | 15<br>0-15              | 15<br>0-15         | 80<br>16-80          |
| Drought<br>(drought hazard group)          | 0-625<br>0-625                                       | 240<br>151-225          | 240<br>151-225     | 240<br>151-225       |
| Drought—Agricultural                       | 0-625  | 240                     | 240                | 240                  |
| Drought—Hydrologic                         | 0-625  | 180                     | 180                | 180                  |
| Heat Wave                                  | 0-625  | 80                      | 80                 | 80                   |
| Infectious Disease-Human Contact           | n/a  | n/a                     | n/a                | n/a                  |
| Infectious Disease-Animal Contact          | n/a  | n/a                     | n/a                | n/a                  |
| Infectious Disease-Foodborne               | n/a  | n/a                     | n/a                | n/a                  |
| Infectious Disease-Waterborne              | n/a  | n/a                     | n/a                | n/a                  |
| Infectious Disease-Human Respiratory       | n/a  | n/a                     | n/a                | n/a                  |
| Infectious Disease-Animal Respiratory      | n/a  | n/a                     | n/a                | n/a                  |
| Infectious Disease-Vectorborne             | n/a  | n/a                     | n/a                | n/a                  |
| Geological-Debris Flow/Landslide           | 0-625  | 0                       | 0                  | 0                    |
| Geological-Subsidence                      | 0-625  | 150                     | 150                | 250                  |
| Geological-Acidic Soil                     | 0-625  | 20                      | 20                 | 375                  |
| Geological-Geochemical Related             | 0-625  | 90                      | 90                 | 90                   |
| Geological-Mine Collapse                   | 0-625  | 0                       | 0                  | 0                    |
| Geological-Sinkholes                       | 0-625  | 0                       | 0                  | 240                  |
| Geological-Expansive Soil                  | 0-625  | 120                     | 120                | 120                  |
| Severe Thunderstorm                        | 0-625  | 300                     | 300                | 300                  |
| Severe Thunderstorm–Hailstorm              | 0-625  | 225                     | 225                | 225                  |
| Severe Thunderstorm–Torrential Rain        | 0-625  | 240                     | 240                | 240                  |
| Severe Thunderstorm–Thunderstorm Wind      | 0-625  | 225                     | 225                | 225                  |
| Severe Thunderstorm–Lightning              | 0-625  | 150                     | 150                | 200                  |
| Tornado                                    | 0-625  | 100                     | 100                | 100                  |
| Tornado-Waterspout                         | 0-625  | 0                       | 0                  | 0                    |
| High Wind                                  | 0-625  | 15                      | 15                 | 15                   |
| Fog  | 0-625  | 75                      | 75                 | 75                   |

Notes: <sup>1</sup> -higher scores indicate a greater potential hazard

Based on the fact that a “0” vulnerability score is the lowest score possible, which indicates that there is a very, very low if not non-existent probability of the hazard occurring, it was decided that the eight hazards that were assigned a “0” vulnerability score in all three of the counties should not be included in this plan. Those hazards include Hurricanes--Storm Surge, Rip Current, Nor'easters--Storm Surge, Tsunami, Coastal Erosion, Tornado-Waterspout, Geological-Debris Flow/Landslide, and Geological-Mine Collapse. The first six of these hazards are directly associated with the ocean and are much more likely to occur at or near the coast; the last two are much more likely to occur in either the NC Mountain region (Geological-Debris

Flow/Landslide) or Piedmont (Geological-Mine Collapse). (As a note of clarification, Hurricanes, Nor'easters, Tornadoes, and Geological hazards were not completely omitted, only the specific aspects that would occur at and/or near the coast (Storm Surge and Waterspouts) or in the mountains/piedmont (Debris Flow/Landslide and Mine Collapse) were omitted).

There were two hazards that were assigned a "0" vulnerability score in some but not all of the three counties; those hazards include Earthquakes and Geological-Sinkholes. The 2 counties with a "0" score for earthquakes (Nash, Wilson) received this score because sufficient earthquake data was not available for their county. But because there was 1 county (Edgecombe) that the State assigned a vulnerability score, and all three previous county-based hazard mitigation plans (Edgecombe, Nash, Wilson) included the hazard of earthquakes in their plans, it was decided that earthquakes should not be omitted from the plan.

Regarding Geological-Sinkholes, because this hazard received a significant number of points (240 of 625 possible) in Wilson County, it was decided that this hazard should at least be included for Wilson County.

There was one hazard group in the State Plan that did not receive vulnerability scores – Infectious Disease. Because these hazards are only briefly mentioned in the State plan and they were not mentioned in any of the previous county-based hazard mitigation plans, it was decided that this hazard did not warrant further evaluation in this plan.

Of the remaining thirty-two hazards in the State Hazard Mitigation Plan, it was decided - based on an evaluation of the vulnerability scores for the counties in this plan, the treatment of these hazards in the previous county-based hazard mitigation plans, and for ease of further analysis, that those hazards would be combined/modified into 10 hazards, in **bold** as follows, (the State Plan hazards that were combined are shown in brackets []): 1) **Flood** [Hurricanes-Torrential Rain, Severe Thunderstorm-Torrential Rain], 2) **Wildfire/Forest Fire**, 3) **Hurricane and Extratropical Storm (Nor'easter)** [Hurricanes-High Wind, Nor'easters, Nor'easters-High Wind, High Wind], 4) **Severe Winter Weather** [Nor'easters-Severe Winter Weather; Severe Winter Weather-Freezing Rain, Snowstorms, Blizzards, Wind Chill; Extreme Cold], 5) **Dam/Levee Failure**, 6) **Drought/Heat Wave** [Drought-Agricultural, Hydrologic; Heat Wave], 7) **Geological** [Geological-Subsidence, Acidic Soil, Geochemical Related, Expansive Soil], 8) **Thunderstorm** [Severe Thunderstorm; Severe Thunderstorm-Hailstorm, Thunderstorm Wind, & Lightning], 9) **Tornado** [High Wind], and 10) **Fog**. When these 10 hazards are combined with the previous two hazards that are to be included in the

plan, the result is that 11 hazards will be evaluated in further detail, and Geological-Sinkholes will be combined with the Geological hazard.

The 11 hazards (in alphabetical order) are as follows:

- **Dam/Levee Failure**
- **Drought/Heat Waves**
- **Earthquakes**
- **Floods**
- **Fog**
- **Geological**
- **Hurricanes and Extratropical Storms (Nor'easters)**
- **Severe Winter Weather**
- **Thunderstorms (Hail, Lightning, Thunderstorm Wind)**
- **Tornadoes**
- **Wildfires/Forest Fires**

In order to assess the risk of these 11 hazards, there are certain federal requirements that have to be met. As applied to the hazard identification portion of the plan, there are two risk assessment requirements that have to be included.

1) "A description of the type, location and extent of all natural hazards that can affect the jurisdiction", and

2) "Information on previous occurrences of hazard events and on the probability of future hazard events" (44 CFR Part 201 .6(c)(2)(i). Therefore, the assessments of each of the 11 hazards that follow will address the type of hazard, the location and extent of the hazard, previous occurrences, and the probability of future hazard events.

The "Type" of hazard is a description of the hazard itself (ex. Flood, Tornado, etc), and may include a categorization of the hazard as being meteorological (weather related, such as fog or severe winter weather), environmental (floods or wildfires, for example), or geological (an example being earthquakes or sinkholes).

The "Location" is the geographic areas within the planning area that are affected by the hazard, such as a floodplain. The location could be the entire planning area.

The “Extent” is the strength or magnitude of the hazard, which depending on the hazard will typically be measured in one of the following ways:

- The value on an established scientific scale or measurement system, such as EF2 on the Enhanced Fujita Scale for tornadoes or 5.5 on the Richter Scale for earthquakes.
- Other measures of magnitude, such as water depth or Wind speed.
- The speed of onset. For example, hurricanes have longer warning times, giving people and governments more time to prepare and evacuate, while earthquakes occur without warning.
- The duration of hazard events. For most hazards, the longer the duration of an event, the greater the extent. Flooding that peaks and retreats in a matter of hours is typically less damaging than flooding of the same depth that remains in place for days.

Describing the extent of a hazard is not the same as describing its potential impacts on a community. *Extent* defines the characteristics of the hazard regardless of the people and property it affects, while *impact* refers to the effect of a hazard on the people and property in the community. The potential impacts of the various hazards will be addressed in subsection 5.4 “Analysis & Summary of Risks & Vulnerabilities”.

“Previous occurrences” are the history of each hazard by the events that have been recorded in the planning area. Compiling and evaluating this information can help estimate the likelihood of future events and predict potential impacts. The first step in reviewing previous occurrences in our region was to consider the Presidential declarations of major disasters that have been issued. Table 5-4 below lists the disaster declarations from 1968 through October 2013. During this period there were 13 major disaster declarations in the planning area. The types of events that resulted in these declarations, included 5 severe storms (thunderstorms), 4 hurricanes, 4 tornadoes, and 4 winter/ice storms or blizzards. The months in which these disasters took place included January (2 times), February (2 times), March (2 times), April (once), August (once), September (3 times), and December (2 times). The counties that were impacted included Edgecombe (9 times), Nash (11 times), and Wilson (9 times). This information indicates that during the period of 1968 through 2013 that the major types of disasters occurred at nearly the same rate, during all four seasons of the year, and nearly equally in all three counties.

**Table 5.4: Presidential Disaster Declarations in the Upper Coastal Plain Region (1968 – October 2013)**

| Disaster Number | Date          | Description                           | Edge-combe County | Nash County | Wilson County |
|-----------------|---------------|---------------------------------------|-------------------|-------------|---------------|
| 4019            | 2011 Aug 31   | Hurricane Irene                       | x                 | x           | x             |
| 1969            | 2011 April 19 | Severe Storms, Tornadoes, Flooding    |                   |             | x             |
| 1490            | 2003 Sept 18  | Hurricane Isabel                      | x                 | x           | x             |
| 1448            | 2002 Dec 12   | Severe Ice Storm                      | x                 | x           | x             |
| 1312            | 2000 Jan 31   | Winter Storm                          | x                 | x           | x             |
| 1292            | 1999 Sept 16  | Hurricane Floyd & Irene               | x                 | x           | x             |
| 1211            | 1998 March 22 | Severe Storms, Tornadoes and Flooding | x                 | x           |               |
| 1134            | 1996 Sept 06  | Hurricane Fran                        | x                 | x           | x             |
| 1103            | 1996 Feb 23   | Storms/Flooding                       |                   |             |               |
| 1087            | 1996 Jan 13   | Blizzard                              | x                 | x           | x             |
| 818             | 1988 Dec 02   | Severe Storms, Tornadoes              |                   | x           |               |
| 699             | 1984 March 30 | Severe Storms, Tornadoes              |                   | x           |               |
| 234             | 1968 Feb 10   | Severe Ice Storm                      | x                 | x           | x             |

Source: FEMA (<http://www.fema.gov/disasters>)

The “Probability of future hazard events” is the last element that is required to be included in a risk assessment; it is the likelihood of the hazard occurring sometime in the future. For some hazards, the probability may vary within the jurisdiction (such as flooding or dam/levee failure), whereas for other hazards the probability may be the same throughout (such as hurricanes or thunderstorms). Some hazards (ex. Hurricanes) are most likely during a specific time of year, but others (ex. flooding) can occur at any time.

In this plan, the probability of each hazard was defined using statistical probabilities/historical frequencies and/or general rankings. Statistical probabilities often refer to events of a specific size or strength. For example, the likelihood of a flood event of a given size is defined by the percent chance in a single year, such as the one-percent annual chance of flood, also known as a 100-year flood. The general rankings used in this plan are “highly likely” - defined as having a near 100 % probability in the next year, “likely” - having between a 10% and 100% probability within the next year, “possible” – having between a 1% and 10% probability within the next year, and “unlikely” – having less than a 1% probability within the next year.

### 5.2.1 Dam/Levee Failure



Flooding across spill way at Buckhorn Dam in Wilson County, September 17, 1999



Princeville Levee in Edgecombe County  
Source: Edgecombe Planter

**Introduction:** Dams are structures/barriers built for the purpose of storing or diverting water from rivers or streams (not including under/aboveground storage tanks), wastewater or liquid borne materials for any of several reasons, including flood control, human or livestock water supply, irrigation, energy generation, recreation, or pollution control. Many dams are simultaneously used for several of these functions. \*<sup>1</sup>

Levees are structures/embankments (typically constructed of earth) built to prevent the flooding of adjacent land. Dams and levees can pose risks to communities if not designed, operated, and maintained properly.

Early in the 20<sup>th</sup> century, it was recognized that some form of regulation was needed after a number of dams failed due to lack of proper engineering and maintenance. Federal agencies--such as the Corps of Engineers and the Department of Interior, Bureau of Reclamation—built many dams during the early part of the twentieth century and established safety standards during this time. It was not until a string of significant dam failures in the 1970s that awareness was raised to a new level among the states and the federal government. As a result, the National Dam Safety Program Act, enacted by Congress in 1996 and reauthorized in 2006, was established to improve dam safety at the federal level. The US Army Corps of Engineers continues to be responsible for dams under federal jurisdiction (such as the Falls Lake Reservoir), and for hydroelectric dams (Lake Gaston Dam) or cooling water dams for power plants. In North Carolina, the Dam Safety Law was enacted by the General Assembly in 1967 to provide for the certification and inspection of dams in the interest of public health, safety, and welfare, and to reduce the risk of failure of dams; to prevent injuries to persons, damage to downstream property and loss of reservoir storage; and to ensure maintenance of minimum stream flows of adequate quantity and quality below dams. The NC Dam Safety Program carries out these functions.

Dams may be classified according to the type of construction material used, the methods used in construction, the slope or cross-section of the dam, the way the dam resists the forces of the water pressure behind it, the means used for controlling seepage and, occasionally, according to the purpose of the dam.\*<sup>1</sup>

The materials used for construction of dams include earth, rock, tailings from mining or milling, concrete, masonry, steel, timber, miscellaneous materials (such as plastic or rubber) and any combination of these materials. The most common type of dam in use today is an embankment dam, which is constructed from natural soil or rock, or waste materials obtained from mining or milling operations. Another less common type of dam is a concrete dam.\*<sup>1</sup>

Ownership makes dams a unique part of the national infrastructure. While most infrastructure facilities (roads, bridges, sewer systems, etc) are owned by public entities, the majority of dams in the US are privately owned. A dam's owner is solely responsible for the safety and liability of the dam and for financing its upkeep, upgrade and repair.\*<sup>1</sup>

Many different types of people and entities own and operate dams:

- About 58 percent are privately owned.
- Local governments own about 16 percent.
- State agencies own about 4 percent.
- The federal government, public utilities and undetermined interests own smaller numbers of dams.

**Type of hazard:** Like all main-made structures, dams and levees deteriorate over time. In the event of a dam or levee failure, the energy of the water released is capable of causing considerable property damage and the loss of life, especially when development is located downstream from the dam or behind the levee. According to a 2010 presentation by the Assistant State Dam Safety Engineer for NC, the failure of large dams doesn't kill the most people, the failure of smaller dams does. This presentation further stated that 86% of the fatalities from dam failures resulted from dams between 20 and 49 feet in height.

Even very small dams can pose a hazard to human life. "Low-head" or "run of the river" (submerged) dams can trap anyone (unfortunate enough to be carried over the dam) in a hydraulic roller, which is formed just downstream of the dam. These dams can be difficult to see, especially from the upstream side. Hundreds of people have been killed at low head dams, but because of their small height (typically 12 feet or less) few states regulate them.

Dam and Levee failures do not fit neatly into any of the three hazard categories (meteorological, environmental, geological), but may completely or partially result from those hazards or a combination thereof (for example, a hurricane could cause a flood, which puts extra stress on a dam/levee, which contributes to its failure.)

It is commonly recognized that many dam and levee failures have resulted from an inability to safely pass flood flows. Overtopping of a dam is often a precursor of dam failure. National statistics show that overtopping due to inadequate spillway design, debris blockage of spillways, or settlement of the dam crest account for approximately 34% of all U.S. dam failures. Foundation defects, including settlement and slope instability, cause about 30% of all dam failures. Another 20% of U.S. dam failures have been caused by piping (internal erosion caused by seepage). Seepage often occurs around hydraulic structures, such as pipes and spillways; through animal burrows; around roots of woody vegetation; and through cracks in dams, dam appurtenances, and dam foundations. Other causes of dam failures include structural failure of the materials used in dam construction and inadequate maintenance.\*

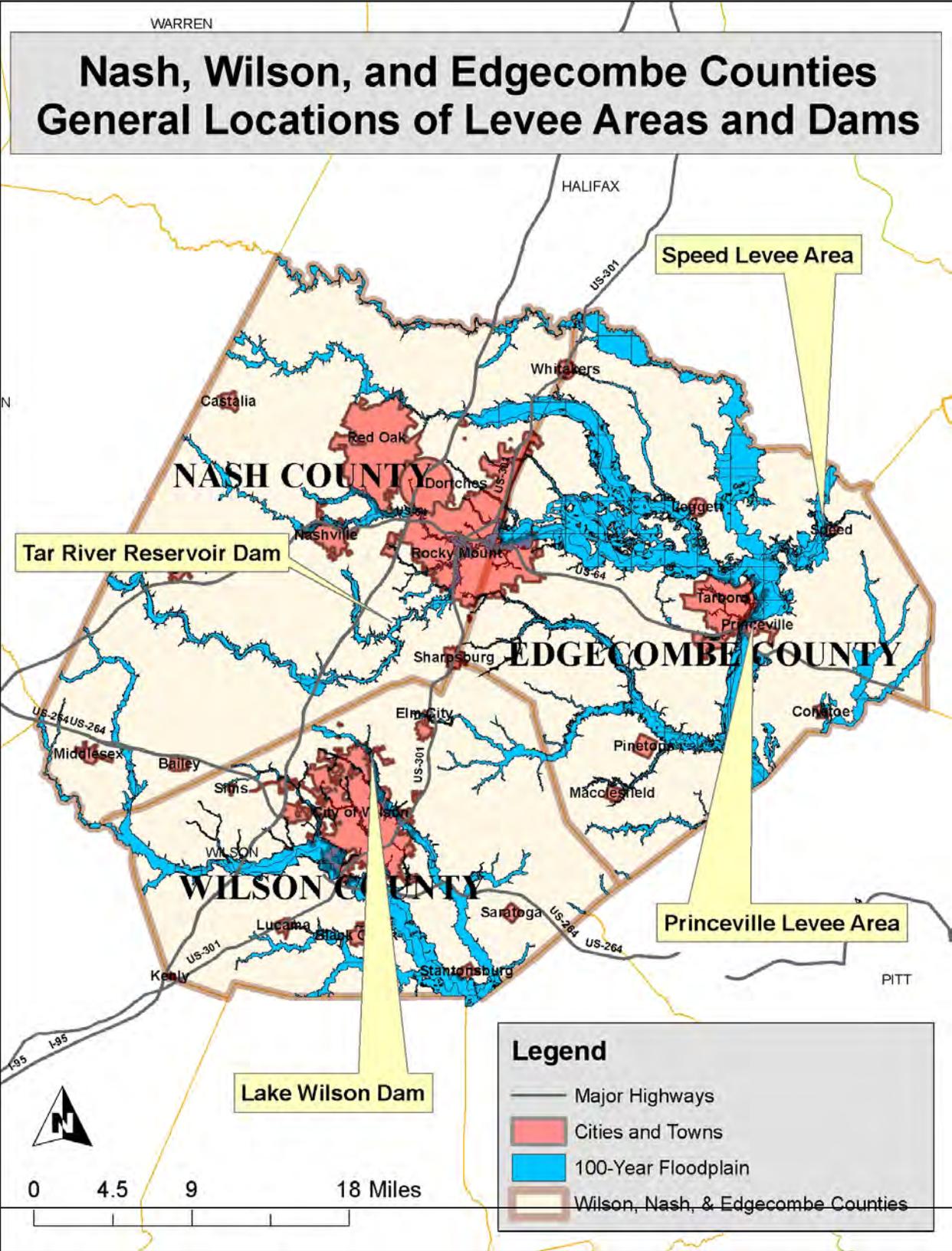
**Location:** According to the NC Dams Program (within the NC Division of Energy, Mineral and Land Resources), there are a total of 143 inventoried dams with the Upper Coastal Plain region. Of those, five were classified as having a high potential hazard, thirty-six as an intermediate potential hazard, and the remaining 102 as having a low hazard potential. See Table 5-7: Dam Hazards Classifications for a description of these three hazards classifications, as well as the quantitative guidelines used to distinguish between the three classes of dams.

Within the current three-county planning area, there were two dams with a high potential hazard. Table 5-5: High Hazard Dams in the Planning Area lists these two high hazard dams along with more detailed information, such as the river/stream on which they are located, the nearest city, the year they were constructed, the structural height and maximum impoundment of the dam, and whether an Emergency Action Plan has been prepared for the dam. According to the US Army Corps of Engineers (USACE) National Levee Database, there are two significant levees in the region, one along the northwest side of Princeville and another surrounding the Town of Speed. Both of these levees were initially constructed by the USACE and later turned over to a local government sponsor to operate and maintain them. Additional information on these levees is indicated in Table 5-6. The National Levee Database currently contains the majority of levees within the USACE program, and it is the most comprehensive listing of levees in the country, but it does not contain every levee in the United States; as a result, there may be other levees in the region that are not included in this plan.

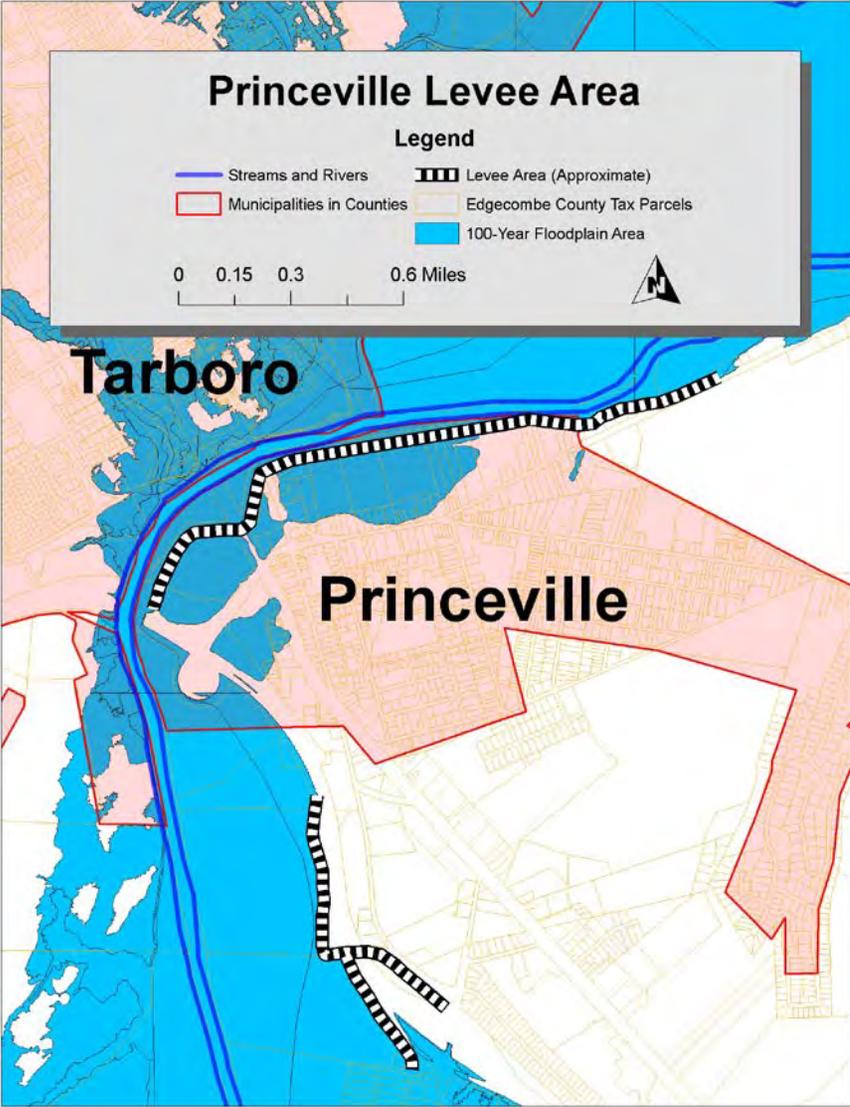
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Map 5-1 shows the approximate locations of the two major levees and two high hazard dams in the region. Map 5-2 is a closer view of the two levees and Map 5-3 is a closer view of the two dams.

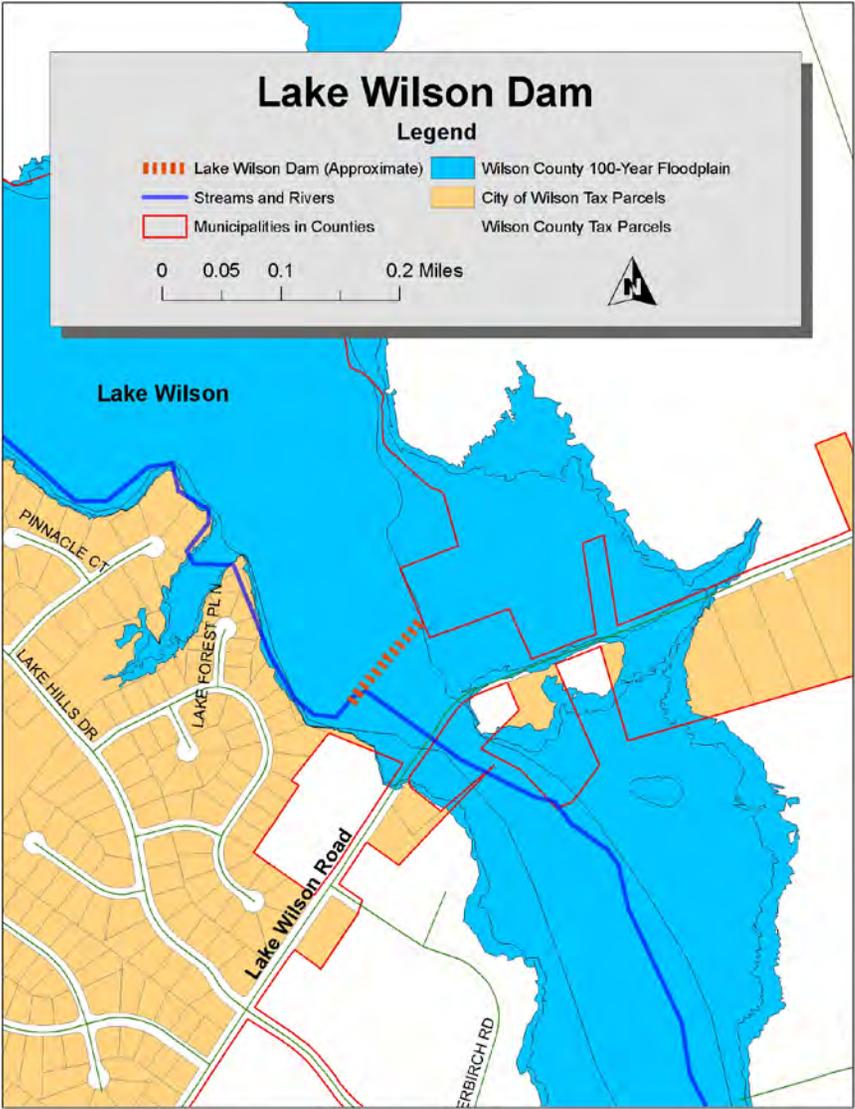
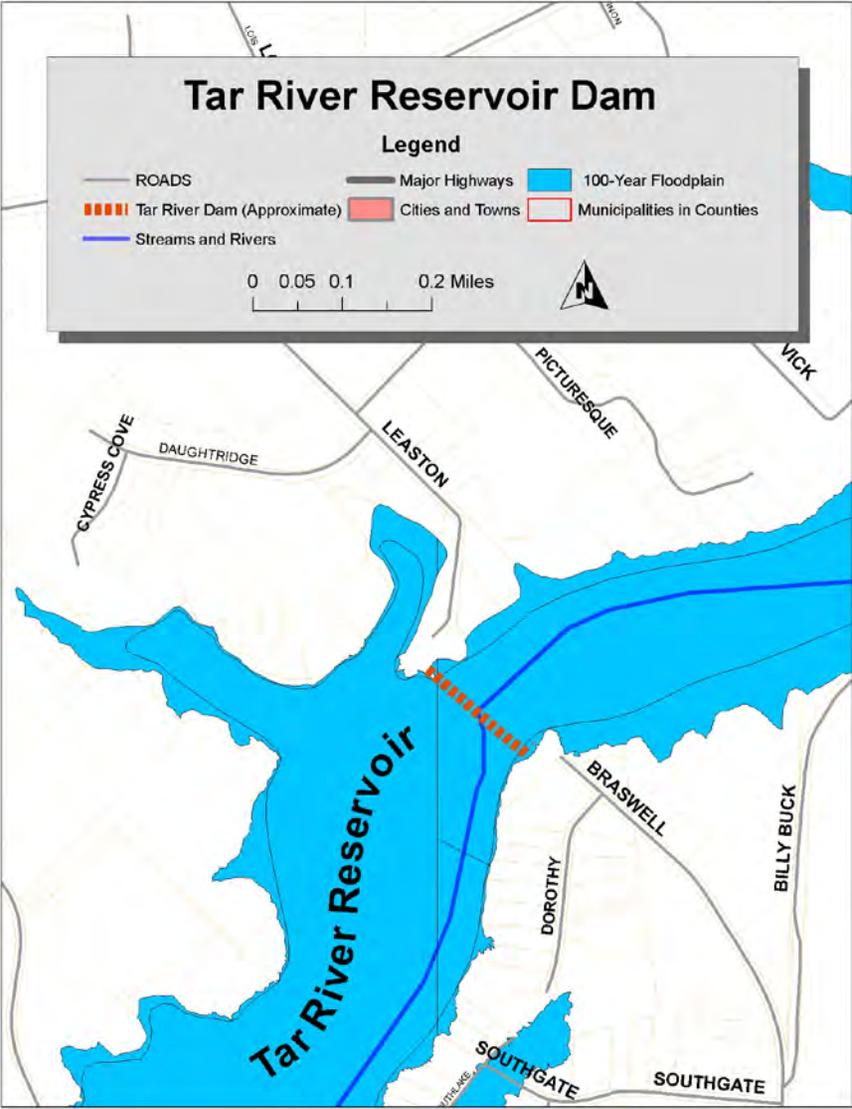
**Map 5-1: Major Levees and High Hazard Dams in the Planning Area**



Map 5-2:



Map 5-3:



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**Table 5.5: High Hazard Dams in the Planning Area**

| Dam Name                | River/Stream <sup>1</sup> | Nearest City (Distance in miles) | Year Constructed | Owner Type | Structural Height (feet) <sup>2</sup> | Maximum Impoundment Capacity (ac-ft) <sup>3</sup> | Condition Assessment | EAP (Y/N, Year) <sup>4</sup> |
|-------------------------|---------------------------|----------------------------------|------------------|------------|---------------------------------------|---|----------------------|------------------------------|
| Nash County             |                           |                                  |                  |            |                                       |   |                      |                              |
| Tar River Reservoir Dam | Tar River                 | Rocky Mount (2.0)                | 1971             | Local Govt | 35.0                                  | 13440   | Satisfactory         | Y, 2004                      |
| Wilson County           |                           |                                  |                  |            |                                       |   |                      |                              |
| Lake Wilson             | Toisnot Swamp             | Wilson (3.0)                     | 1960             | Local Govt | 19.7                                  | 998   | Satisfactory         | N, n/a                       |

Notes: <sup>1</sup> If the dam is located off-stream of an unnamed stream/tributary, the associated river name is followed with “-OS”;

<sup>2</sup> The structural height of the dam is measured (to the nearest tenth of a foot) from the highest point on the crest (top) of the dam to the lowest point on the downstream toe of the dam;

<sup>3</sup> Measured (to the nearest acre-foot) at the highest point on the crest (top) of the dam

<sup>4</sup> EAP is an abbreviation for Emergency Action Plan, (Y=yes, N=no, NR=not required; n/a=not applicable)

Source: North Carolina Dam Inventory, NC Division of Energy, Mineral and Land Resources

**Table 5.6: USACE Program Levees in the Upper Coastal Plain Region**

| Location            | System Name      | Sponsor   | Year(s) of Construction | Length (miles) | Inspection Date | Inspection Rating    | Leveed Area Acreage | Potential Hazard         |
|---------------------|------------------|---|-------------------------|----------------|-----------------|----------------------|---------------------|--------------------------|
| Edgecombe County    |                  |   |                         |                |                 |                      |                     |                          |
| Town of Princeville | Princeville Dike | Princeville Flood Reduction Dike (Edgecombe County) | 1936 to 1938            | 3.01           | 12-Apr-2010     | Minimally Acceptable | 818.59              | Zone AE (100-year flood) |
| Town of Speed       | Deep Creek FCP   | Deep Creek Flood Reduction Dike (Town of Speed)     | 1982 to 1983            | 1.41           | 13-Apr-2010     | Minimally Acceptable | 143.38              | Zone AE (100-year flood) |

Source: National Levee Database, US Army Corps of Engineers

**Extent:** Regarding the potential impacts from a dam failure, the greater the amount of water impounded behind the dam and the higher the dam structure, the greater the potential impact. The area most impacted by a dam or levee failure would be those areas immediately downstream of a dam or on the protected side of a levee. For dams the impact would likely be confined to the dam breach inundation zone, which is typically much larger than the one percent annual chance (100-year) floodplain.

The North Carolina Dam Safety Program classifies dams into one of three categories (low, intermediate, and high), as shown in Table 5-7: Dam Hazards Classifications. The high hazard designation does not indicate the inherent stability or instability of a dam but instead measures the potential threat posed to downstream populations in the event of a dam failure. As this table indicates, for high hazard dams the loss of one or more human lives is likely if the dam fails; significant economic damage would also be likely. Intermediate hazard dams would be characterized as having a possible loss of human life and likely significant property or environmental destruction. Low hazard dams would likely result in lesser damages.

**Table 5.7: Dam Hazards Classifications**

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

NOTE: Cost of dam repair and loss of services should be included in economic loss estimate if the dam is a publicly owned utility, such as a municipal water supply dam

Source: NC Dam Safety Program; NC Division of Energy, Mineral and Land Resources

**Previous occurrences:** “Hundreds of dam failures have occurred throughout U.S. history. These failures have caused immense property and environmental damages and have taken thousands of lives. As the nation’s dams age and population increases, the potential for deadly dam failures grows.”\* In North Carolina between the years of 1869 and 2009, there were six documented major dam failures, which resulted in six known fatalities, according to the Association of Dam Safety Officials website. It was also reported following Hurricane Floyd that there were 36 dam failures in the State (including

14 high hazard dams), but the NC Dam Safety Program staff would not comment on those reports.

In our region there have been no documented dam failures according to the Association of State Dam Safety Officials website, although the levee in Princeville was overtopped at a couple of low points in September of 1999, as a result of floodwaters from Hurricane Floyd, which resulted in an almost complete destruction of the town. Thankfully, there were no fatalities from the Princeville flooding.

**Probability of future events:** Given the fact that there have been no documented dam failures in the five county region since records have been kept, and only one case of a levee being bypassed by floodwaters, the probability of any dam or levee failure occurring in the region during any single year has been classified as “**unlikely**” – having a less than one percent annual chance. If such an event were to take place the impact would be fairly localized in the area immediately downstream of the dam failure or behind the failed levee, unless the failure was associated with another more extensive hazard event (for example a flood).

**5.2.2 Drought/Heat Waves**



Rocky Mount Reservoir, Summer 2007

**Drought Introduction:** Drought refers to an extended period of deficient rainfall (usually for a season or longer) as compared to the statistical average (mean) that has been established for a region. \*1 (see the notes at the end of this section) As shown in Table 5-8: Definitions of Drought, there are four basic definitions or ways of measuring drought - meteorological, agricultural, hydrological, and socioeconomic. Normally, meteorological measurements are the first indicators of drought, followed by agricultural, and finally by hydrological and socioeconomic indicators. The first three approaches deal with ways to measure drought as a physical phenomenon; the last deals with drought in terms of supply and demand, tracking the effects of water shortfall as it ripples through socioeconomic systems.

**Table 5.8: Definitions of Drought**

| <b>Drought Types</b>  | <b>Descriptions</b>  |
|-----------------------|--|
| <b>Meteorological</b> | Defined usually on the basis of the degree of dryness (in comparison to some “normal” or average amount) and the duration of the dry period; must be considered as region specific since the atmospheric conditions that result in deficiencies of precipitation are highly variable from region to region |
| <b>Agricultural</b>   | Occurs when there isn’t enough soil moisture to meet the needs of a particular crop at a particular time, which leads to destroyed or underdeveloped crops with greatly depleted yields  |
| <b>Hydrological</b>   | Defined by surface and subsurface water supply deficiencies based on stream flow, lake/reservoir, and ground water levels; the frequency and severity is often defined on a watershed or river basin scale   |
| <b>Socioeconomic</b>  | Occurs when the demand for an economic good exceeds supply as a result of a weather-related shortfall in water supply  |

Source: National Drought Mitigation Center & NC State Hazard Mitigation Plan

Drought is a normal, recurrent feature of climate, although many erroneously consider it a rare and random event. \*1 It occurs in virtually all climatic zones, but its characteristics vary significantly from one region to another. Drought is a temporary aberration; it differs

from aridity, which is restricted to low rainfall regions and is a permanent feature of climate.

Drought should be considered relative to some long-term average condition of balance between precipitation and evapotranspiration (i.e., evaporation + transpiration by plants) in a particular area. It is also related to the timing, i.e., principal season of occurrence, delays in the start of the rainy season, occurrence of rains in relation to principal crop growth stages, and the ability of the soil to absorb the rains. Other climatic factors such as high temperature, high Wind, and low relative humidity are often associated with it in many regions of the world and can significantly aggravate its severity. Because it develops slowly, it is often not recognized until it reaches a severe level.

**Heat Wave Introduction:** A heat wave is an extended period of extreme heat, and is often accompanied by high humidity. \*<sup>1</sup> Typically a heat wave lasts two or more days.\*<sup>2</sup> The Weather Channel uses the following criteria for a heat wave: a minimum of ten states with 90 degree plus (Fahrenheit scale) temperatures and the temperatures must be at least five degrees above normal in parts of that area for at least two days or more. The US Environmental Protection



Agency uses a more general term “excessive heat event” instead of heat wave. They define an excessive heat event as “summertime weather that is substantially hotter and/or more humid than average for a location at that time of year.” This rationale is based on the idea that the impact of heat on human health is related to how hot it feels and when the heat occurs. For example, a 100 degree (F) day with 50% humidity and no cloud cover in early June in Chicago, would likely have a greater negative impact on human health than the same event in San Antonio, Texas in middle August. An actual example of this phenomenon took place during the summer of 2003, when “Western Europe experienced excessive heat event conditions of unprecedented severity.” In Paris, France, for example, high temperatures in June only averaged in the low 80s, but this was about 10 degrees higher than normal. In July the high temperatures varied from the upper 60s to the upper 90s, and in August the high temperatures became even more extreme when they averaged over 100 degrees for roughly two weeks, which was around 25 degrees above normal. The result of these excessive heat event conditions was roughly 15,000 heat-related deaths in France alone. \*<sup>3</sup>

**Types of hazards:** Based on the introductory information for droughts and heat waves, both of these hazards have meteorological and environmental aspects. Because a

drought typically occurs over a period of several months and a heat wave typically lasts over a week or more, whereas meteorology relates to current, single day weather conditions, both droughts and heat waves can be classified as beginning as meteorological hazards and over time becoming environmental hazards. In a full blown drought or heat wave the ongoing atmospheric conditions result in negative impacts on the land, water, and the creatures (humans, animals, and plants) that live there, but they typically have little impact on the built environment.

**Location:** Both droughts and heat waves typically have a regional impact - droughts because they are tied to medium-term precipitation deficits that do not tend to significantly vary from one community to the next, and heat waves because they are tied to extended summertime temperature extremes, which are typically associated with a stagnant area of high pressure that settles over a large/multi-state area. For these reasons, there is basically an equal chance of a drought or heat wave occurring within any portion of the five-county area, which is consistent with the long term data compiled in the Palmer Drought Severity Index (see Map 5-4).

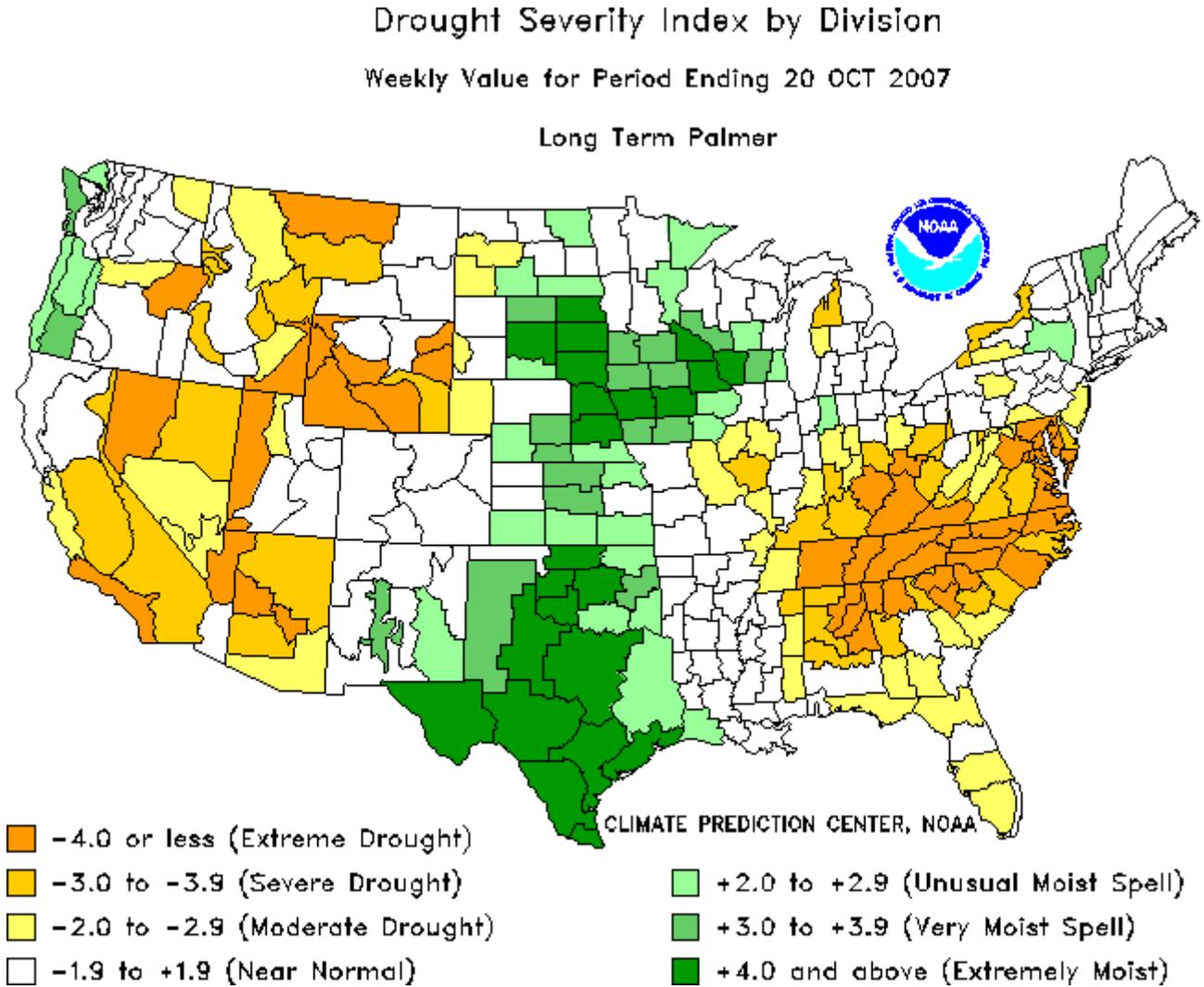
**Extent of Droughts:** The Palmer Drought Severity Index (PDSI) was developed in the 1960s and uses temperature and rainfall data to determine dryness and wetness. It has become the semi-official drought index. The Palmer Index is an important climatological tool that is most effective in determining long term drought—a matter of several months—but it is not as good with short-term forecasts (a matter of weeks). The Palmer can also be “used to help delineate disaster areas and indicate the availability of irrigation water supplies, reservoir levels, range conditions, amount of stock water, and potential intensity of forest fires.” As shown in the table below, the Palmer Index uses a 0 as normal, and drought is shown in terms of minus numbers; for example, minus 2 is moderate drought, minus 3 is severe drought, and minus 4 or less is extreme drought. “Conversely, a +4 or greater value represents extremely wet conditions.” From these values, seven categories of wet and dry conditions are delineated. The advantage of the Palmer Index is that it is standardized to local climate, so it can be applied to any part of the country to demonstrate relative drought or rainfall conditions. \*<sup>2</sup> A disadvantage can be that its data is averaged based on each of the 350 climatic divisions (in the US and Puerto Rico). This can present a problem when the conditions in one part of a climatic division are very different from another part; for example, if a third of a division is having severe drought conditions and another third is having a very moist spell, the division as a whole could be shown as having near normal conditions.

**Table 5.9: Palmer Drought Severity Index**

|              |                                    |
|--------------|------------------------------------|
| Orange       | -4.0 or less (Extreme Drought)     |
| Yellow       | -3.0 to -3.9 (Severe Drought)      |
| Light Yellow | -2.0 to -2.9 (Moderate Drought)    |
| White        | -1.9 to +1.9 (Near Normal)         |
| Light Green  | +2.0 to +2.9 (Unusual Moist Spell) |
| Medium Green | +3.0 to +3.9 (Very Moist Spell)    |
| Dark Green   | +4.0 or above (Extremely Moist)    |

The following Map 5-4 is an example of the Palmer Index being applied to the 350 climatic divisions in the US. This map illustrates a period of extreme drought that occurred in North Carolina (and in the East Central US) in 2007 and into 2008.

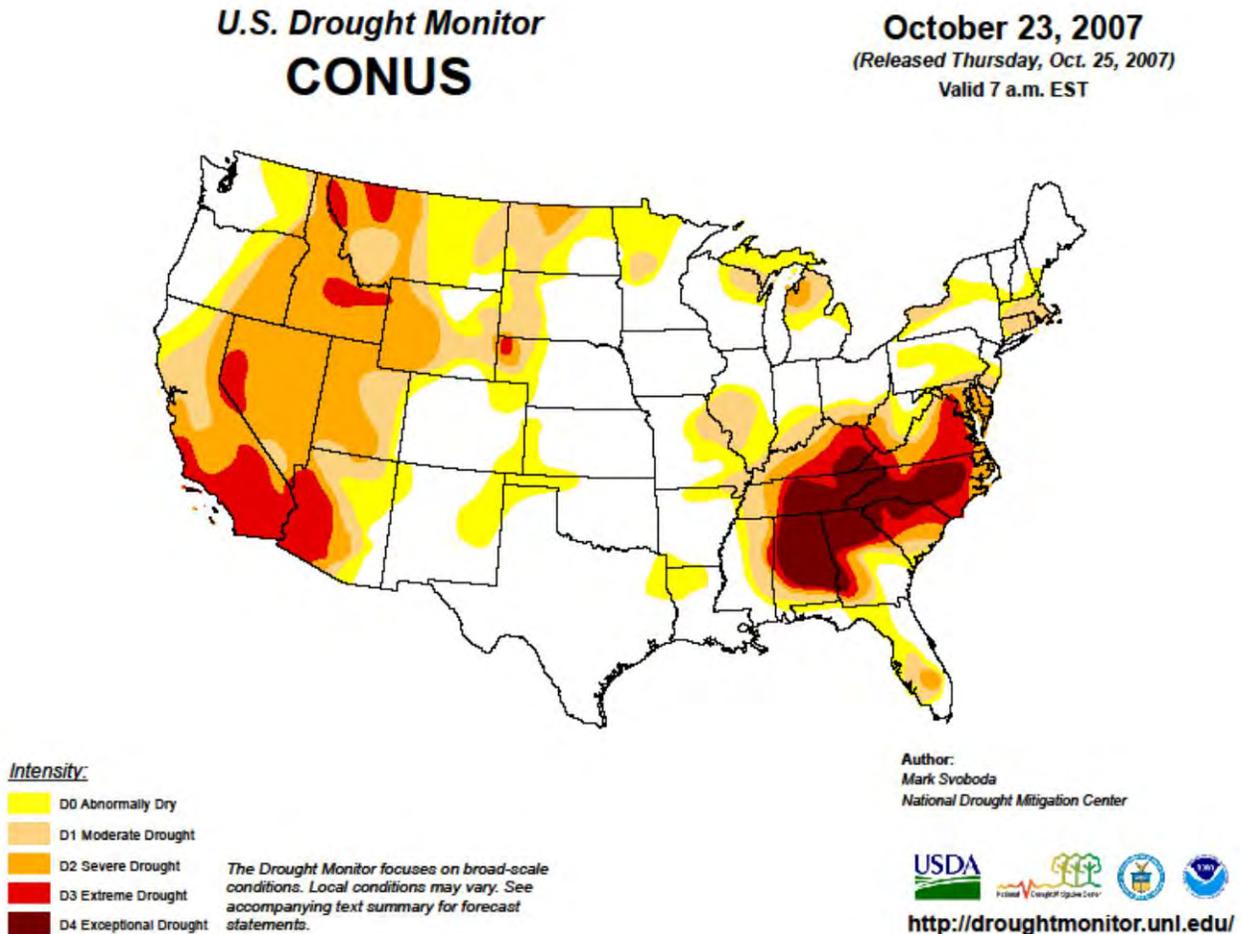
**Map 5-4: Palmer Drought Severity Index for the US on 20 October 2007**



Another more recent tool for measuring drought intensity, is the US Drought Monitor, which was established in 1999. The US Drought Monitor “is a weekly map of drought conditions that is produced jointly by the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln.” The Drought Monitor map “is based on measurements of climatic, hydrologic and soil conditions as well as reported impacts and observations from more than 350 contributors around the country. Eleven climatologists from the partner organizations take turns serving as the lead author each week.” \*3 A Drought Monitor map for the same week in October 2007 as the previous Palmer map is shown below. By comparing these two maps one can see that there are similarities and differences between the two methods. For example, the Drought Monitor

(DM) only indicates drought conditions, whereas the Palmer Index (PI) also includes moist (wet) conditions. The DM has five levels of dryness (from Abnormally Dry to Exceptional Drought) as illustrated in the map below, whereas the PI only has three levels of dryness (Moderate Drought to Extreme Drought).

**Map 5-5: US Drought Monitor for the Continental US on 23 October 2007**



**Extent of Heat Waves:** The reason that heat waves are a significant hazard, is that “when people are exposed to extreme heat, they can suffer from potentially deadly heat-related illnesses such as heat exhaustion and heat stroke.” \*4

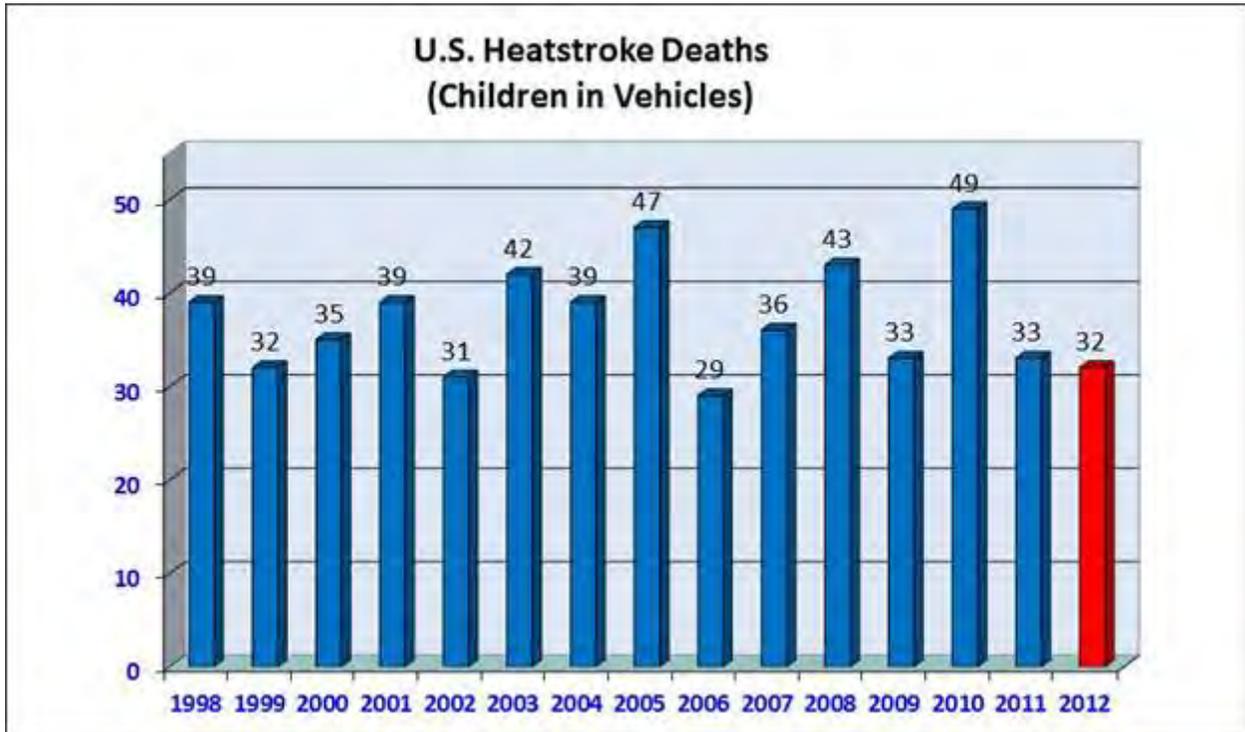
Heat kills by taxing the human body beyond its abilities. “Maintaining a consistent internal body temperature, generally 98.6°F, is essential to normal physical functioning (American Medical Association Council on Scientific Affairs, 1997). Extreme heat conditions stress the body’s ability to maintain this ideal internal temperature. If individuals fail or are unable to take steps to remain cool and begin to experience increasing internal

temperatures, they increase their risk of experiencing a range of potential adverse health outcomes.” \*3

Extreme heat conditions can increase the number of deaths and nonfatal outcomes in vulnerable populations, including older people, the very young, the homeless, and people with cognitive and physical impairments (NOAA, 1995; American Medical Association Council on Scientific Affairs, 1997). There are a number of methods for estimating the public health threat and impact of excessive heat conditions, the most conservative of which counts only cases in which exposure to excessive heat is reported on a death certificate as a primary or contributing factor. Using this approach, it was estimated that extreme heat from weather conditions is, on average, responsible annually for **182** deaths in the United States (CDC, 2002). \*3

The US Environmental Protection Agency (EPA) has estimated that in a normal year, about **175** Americans succumb to the demands of summer heat. This number typically includes around 38 children in the US who die as a result of being left in a parked vehicle, as indicated in Figure 5-2. Untold numbers of pets also die this way. Studies reported by General Motors and San Francisco State University have shown that the temperature inside a parked vehicle can rapidly rise to a dangerous level for children, pets and even adults. The effects can be more severe on children because their bodies warm at a faster rate than adults. This dangerous heating inside vehicles can occur even on a relatively mild day. Leaving the Windows slightly open does not significantly decrease the heating rate.

**Figure 5-2: US Heatstroke Deaths of Children in Vehicles**



Source: San Francisco State University via the National Weather Service Office of Climate, Water, and Weather Services website

In North Carolina, there are at least two reports of heat-related fatalities. An article in the American Journal of Public Health identified 161 such fatalities in the state from January 1, 1977 to December 31, 2001. (This would be an average of 6.4 deaths per year during the 25-year period.) Their research concluded that “annual fatality rates increased with increases in average summer temperature and with the number of days per year at 90°F or higher.” Their study also showed that “of the occupational heat-related fatalities (n=40), 45% occurred among farm laborers, many of whom died unnoticed and without medical attention.” \*5 In the second report, it claimed that between 1998 and 2011, 19 children died in vehicles from heatstroke. The highest numbers of these deaths were noted as occurring in July and August. \*6

In spite of the reality that “most heat-related deaths are preventable through outreach and intervention,” among all natural hazards, heat is recognized as being the first or second leading weather-related killer in the United States, ahead of lightning, hurricanes, tornadoes, floods, and earthquakes. Depending on the source and/or reporting period, only the Cold of winter can cause more deaths in the US than heat-related deaths. \*4&5

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In the 40-year period from 1936 through 1975, the National Weather Service (NWS) reports that nearly 20,000 people were killed in the United States by the effects of heat and solar radiation; this breaks down to an average of nearly 500 per year. In the disastrous heat wave of 1980, more than 1,250 people died. Over the 31-year period between 1979 and 2009, the US Centers for Disease Control and Prevention (CDC) reported that over 7,000 Americans died as a direct result of exposure to heat; this would be equivalent to more than 225 people per year. The difference between the NWS and CDC figures highlights the inherent difficulty of determining the actual numbers of heat-related deaths.

Regardless of whether the annual death rate in the US due to extreme heat is 175 or 500, these figures represent the direct casualties. “No one can know how many more deaths are advanced by heat wave weather-how many diseased or aging hearts surrender that under better conditions would have continued functioning.” \*7

In order to provide a more accurate measure of how hot it really feels, based on the combined impact of the actual air temperature and relative humidity, the National Weather Service developed a “heat index”, which is shown in Table 5-10. For example, if the temperature of the air is 90 degrees and the relative humidity is 50%, the heat index – how hot it really feels – is 95 degrees, whereas at the same temperature with a relative humidity of 90%, the heat index is 122 degrees. “The National Weather Service will initiate alert procedures when the Heat Index is expected to exceed 105°-110°F (depending on local climate) for at least 2 consecutive days.”

It is important to understand that since “heat index values were devised for shady, light Wind conditions, **exposure to full sunshine can increase heat index values by up to 15°F.**” Also, strong Winds, when combined with very hot, dry air, can significantly increase the heat index values.

The colors in this table indicate the levels of care (caution, extreme caution, danger, extreme danger) that should be taken by persons carrying out strenuous activities or having prolonged exposure to varying levels of heat. The orange and red shaded zones (a heat index above 105 degrees) indicate “a level that may cause increasingly severe heat disorders with continued exposure or physical activity.” \*4

**Table 5.10: National Weather Service Heat Index**

|                       |     | Temperature (°F) |    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------------------|-----|------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                       |     | 80               | 82 | 84  | 86  | 88  | 90  | 92  | 94  | 96  | 98  | 100 | 102 | 104 | 106 | 108 | 110 |
| Relative Humidity (%) | 40  | 80               | 81 | 83  | 85  | 88  | 91  | 94  | 97  | 101 | 105 | 109 | 114 | 119 | 124 | 130 | 136 |
|                       | 45  | 80               | 82 | 84  | 87  | 89  | 93  | 96  | 100 | 104 | 109 | 114 | 119 | 124 | 130 | 137 |     |
|                       | 50  | 81               | 83 | 85  | 88  | 91  | 95  | 99  | 103 | 108 | 113 | 118 | 124 | 131 | 137 |     |     |
|                       | 55  | 81               | 84 | 86  | 89  | 93  | 97  | 101 | 106 | 112 | 117 | 124 | 130 | 137 |     |     |     |
|                       | 60  | 82               | 84 | 88  | 91  | 95  | 100 | 105 | 110 | 116 | 123 | 129 | 137 |     |     |     |     |
|                       | 65  | 82               | 85 | 89  | 93  | 98  | 103 | 108 | 114 | 121 | 128 | 136 |     |     |     |     |     |
|                       | 70  | 83               | 86 | 90  | 95  | 100 | 105 | 112 | 119 | 126 | 134 |     |     |     |     |     |     |
|                       | 75  | 84               | 88 | 92  | 97  | 103 | 109 | 116 | 124 | 132 |     |     |     |     |     |     |     |
|                       | 80  | 84               | 89 | 94  | 100 | 106 | 113 | 121 | 129 |     |     |     |     |     |     |     |     |
|                       | 85  | 85               | 90 | 96  | 102 | 110 | 117 | 126 | 135 |     |     |     |     |     |     |     |     |
|                       | 90  | 86               | 91 | 98  | 105 | 113 | 122 | 131 |     |     |     |     |     |     |     |     |     |
|                       | 95  | 86               | 93 | 100 | 108 | 117 | 127 |     |     |     |     |     |     |     |     |     |     |
|                       | 100 | 87               | 95 | 103 | 112 | 121 | 132 |     |     |     |     |     |     |     |     |     |     |

**Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity**

■ Caution    
 ■ Extreme Caution    
 ■ Danger    
 ■ Extreme Danger

Source: NOAA, National Weather Service Office of Climate, Water, and Weather Services

The following Table 5-11 was developed to illustrate the relationship between the Heat Index and specific heat related disorders, particularly for people in higher risk groups.

**Table 5.11: Relationship between the Heat Index & Heat Disorders  
(for People in Higher Risk Groups <sup>1</sup>)**

| Associated Level of Caution/Danger | Heat Index Values | Possible Heat Disorder <sup>1</sup>  |
|------------------------------------|-------------------|--|
| Caution                            | 80° - 90°F        | Fatigue possible with prolonged exposure and/or physical activity.   |
| Extreme Caution                    | 90° - 105°F       | Sunstroke, heat cramps and heat exhaustion possible with prolonged exposure and/or physical activity.                          |
| Danger                             | 105° – 130°F      | Sunstroke, heat cramps, and heat exhaustion likely, and heat stroke possible with prolonged exposure and/or physical activity. |
| Extreme Danger                     | 130°F or greater  | Heat stroke/sunstroke highly likely with continued exposure.   |

Source: NOAA, National Weather Service Office of Climate, Water, and Weather Services

**Previous Drought occurrences:** Based on data obtained from the NC Division of Water Resources, Drought Monitoring program, the following Table 5-12 was developed, which shows the drought conditions that existed in each of the five counties in the Upper Coastal Plain region for the years 2000 through 2013. This information is based on US Drought Monitor data, which was previously discussed in the “Extent of Droughts” subsection. Table 5-12 shows that the worst recent drought year in the region was in 2008, when all five counties experienced exceptional drought conditions sometime during the year, and some level of drought (moderate to exceptional) for 46 or 47 weeks during the 52 weeks of the year. The second most intense year for drought conditions in the region was 2007, when four of the five counties experienced exceptional drought conditions sometime during the year, and some level of drought (moderate to exceptional) for 36 to 46 weeks during the year. Table 5-12 also reveals that during this 14 year period, having moderate or greater drought conditions sometime during each year was more common than not, and that there were only four years (2000, 2003, 2004, & 2013) in which there were no drought conditions recorded. In order to summarize and further clarify this information, a second table (Table 5-13) was developed.

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**Table 5.12: Drought Conditions for Recent Years in the Upper Coastal Plain Region (2000-2013)**

| Year | Highest Drought Level (# of weeks any drought conditions recorded) |                  |                  |                    |                  |
|------|--|------------------|------------------|--------------------|------------------|
|      | Edgecombe County   | Halifax County   | Nash County      | Northampton County | Wilson County    |
| 2000 | Dry (3)  | Dry (4)          | Dry (7)          | Dry (4)            | Dry (4)          |
| 2001 | Severe (29)  | Severe (30)      | Severe (29)      | Severe (31)        | Severe (29)      |
| 2002 | Extreme (45)   | Extreme (45)     | Extreme (45)     | Extreme (45)       | Extreme (45)     |
| 2003 | Normal (0)   | Normal (0)       | Normal (0)       | Normal (0)         | Normal (0)       |
| 2004 | Dry (2)  | Normal (0)       | Dry (2)          | Normal (0)         | Dry (2)          |
| 2005 | Dry (12)   | Moderate (18)    | Moderate (16)    | Moderate (12)      | Dry (15)         |
| 2006 | Moderate (11)  | Severe (23)      | Severe (22)      | Moderate (19)      | Moderate (22)    |
| 2007 | Exceptional (40)   | Exceptional (36) | Exceptional (40) | Extreme (36)       | Exceptional (46) |
| 2008 | Exceptional (47)   | Exceptional (47) | Exceptional (47) | Exceptional (46)   | Exceptional (47) |
| 2009 | Moderate (32)  | Moderate (32)    | Moderate (33)    | Moderate (35)      | Moderate (26)    |
| 2010 | Moderate (23)  | Severe (23)      | Severe (23)      | Severe (19)        | Moderate (23)    |
| 2011 | Severe (34)  | Severe (36)      | Severe (36)      | Moderate (32)      | Severe (36)      |
| 2012 | Moderate (25)  | Moderate (27)    | Moderate (28)    | Moderate (27)      | Moderate (30)    |
| 2013 | Dry (20)   | Dry (16)         | Dry (25)         | Dry (16)           | Dry (25)         |

Notes: Weekly data for each county is available from the Drought Monitor History at <http://www.ncwater.org>  
 Source: Drought Monitor History, NC Division of Water Resources

Table 5-13 shows the number of years during the 14 year period in which moderate or greater drought conditions were recorded in each county, as well as the percentage of those years in which there were drought conditions. Table 5-13 further shows the total number of weeks during the 14 years in which moderate or greater drought conditions were recorded in each county, as well as the percentage of those weeks in which there were drought conditions. Based on this information, during this period there was a 71% chance that one would experience a moderate or greater drought sometime during each year within the region as a whole. When looking at the number of weeks in which moderate or greater drought conditions were present, the data showed such conditions were present an average of nearly 25 percent of the time throughout the combined five-county region. Another way of looking at this data, is that during approximately 75 percent of the time, drought conditions were not present. During the non-drought periods, the conditions could have been classified as dry or normal (which would also include wet periods).

**Table 5.13: Summary of Drought Events for Recent Years in the Upper Coastal Plain Region (2000-2013)**

| Area                             | Moderate or Greater Drought           |                         |                     |                                 |
|----------------------------------|---------------------------------------|-------------------------|---------------------|---------------------------------|
|                                  | # of Years (any portion of each year) | Percentage (%) of Years | Number (#) of Weeks | Percentage (%) of Times (weeks) |
| Edgecombe County                 | 9 of 14                               | 64.3%                   | 180                 | 25.2%                           |
| Halifax County                   | 10 of 14                              | 71.4%                   | 188                 | 26.3%                           |
| Nash County                      | 10 of 14                              | 71.4%                   | 188                 | 26.3%                           |
| Northampton County               | 10 of 14                              | 71.4%                   | 161                 | 22.5%                           |
| Wilson County                    | 9 of 14                               | 64.3%                   | 172                 | 24.1%                           |
| UCPCOG Region (combined/average) | 10 of 14                              | 71.4%                   | 177.8               | 24.9%                           |

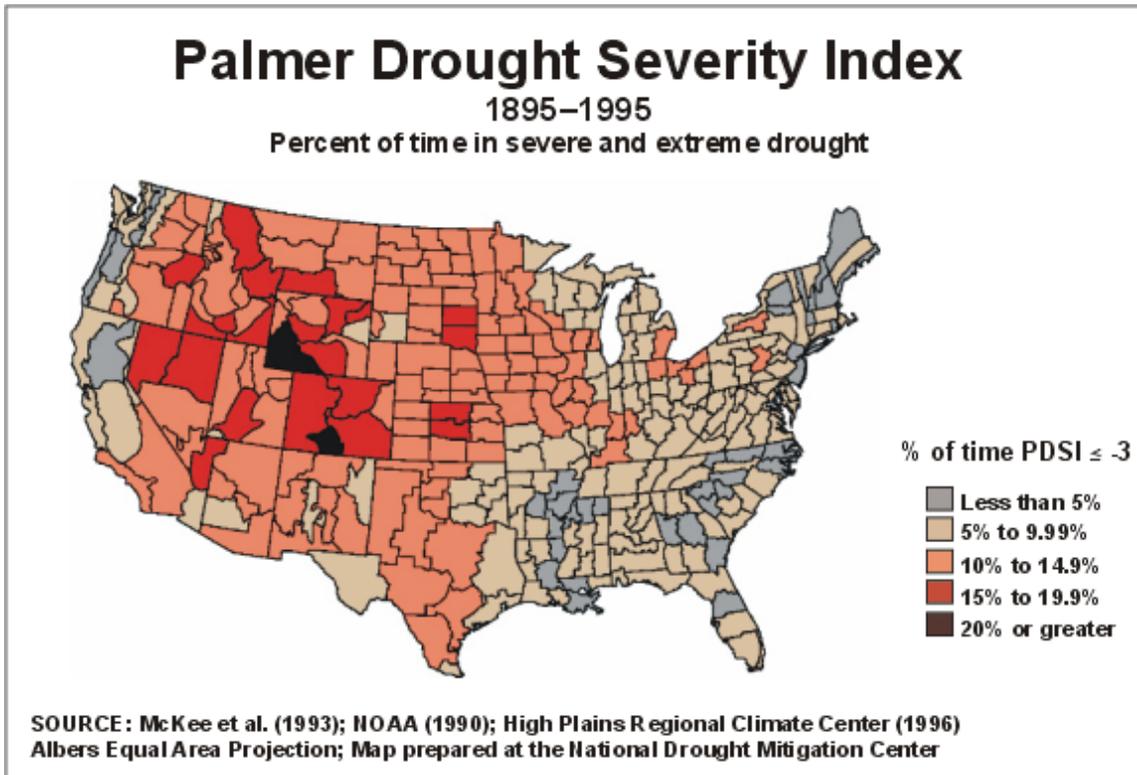
In order to get a better feel for the frequency of Extreme or greater drought events (the ones that typically would have major impacts on all segments of a community), another Table 5-14 was developed.

**Table 5.14: Summary of Extreme Drought Events for Recent Years in the Three-County Planning Area Region (2000-2013)**

| Area                             | Extreme or Greater Drought            |                         |
|----------------------------------|---------------------------------------|-------------------------|
|                                  | # of Years (any portion of each year) | Percentage (%) of Years |
| Edgecombe County                 | 3 of 14                               | 21.4%                   |
| Nash County                      | 3 of 14                               | 21.4%                   |
| Wilson County                    | 3 of 14                               | 21.4%                   |
| UCPCOG Region (combined/average) | 3 of 14                               | 21.4%                   |

Historic drought data can also be presented based on the Palmer Index, as shown on the following map.

Map 5-6: Palmer Historical Index of Severe and Extreme Droughts



The Palmer Index map indicates that during the 100-year period from 1895 to 1995 severe or extreme droughts ( $\leq$  -3) occurred less than 5 percent of the time within all of the counties within the planning area (see the gray shaded areas in northeastern North Carolina). It should be noted though, that the Palmer Index does not indicate the likelihood of such drought conditions occurring on an annual basis.

**Previous Heat Wave occurrences:** The highest reported single day temperature in the planning area, according to State Climate Office of North Carolina records from September 1948 through February 2014, was **107 degrees (F)**, which occurred on three different dates (1942, 1952, & 1954) in Nashville, Tarboro, and Wilson. There have been numerous recordings of high temperatures of over 100 degrees in the region in each of the three counties.

Based on data obtained from the National Climatic Data Center (NCDC) and the Spatial Hazard Events and Losses Database for the United States (SHELDUS), there have been six recorded heat waves/excessive heat events in our region between 1960 and 2013. Those events are as follows:

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- July 12-24, 1983 – Little detailed information is available for this heat wave, except that this event impacted all 100 counties in NC and resulted in six fatalities (the locations of the fatalities were not indicated)
- August 1-31, 1983 – Little detailed information is available for this event, except that this drought-heat wave impacted all 100 counties in NC and resulted in 1 fatality (the location of the fatality was not indicated); it appeared to be a continuation of the previous event, as only 7 days separated the 2 events
- July 1-31, 1986 – This drought-heat wave impacted all 100 counties in NC and resulted in an estimated \$2.5 million in crop damages (1986 dollars) in our region and 7 statewide fatalities (the locations of the fatalities were not indicated)
- July 1-31, 1987 – This heat wave impacted all 100 counties in NC and resulted in an estimated \$25,000 in crop damages (1986 dollars) in our region; fortunately there were no reported fatalities
- August 2, 1999 – This single day of excessive heat, which was only recorded in Nash County, was not eventful for its heat values (it was not among the top five hottest days for August 2<sup>nd</sup> in Nashville and the temperature was less than 98 degrees), but it did result in one fatality, the only known heat-related fatality in our region
- July 21-23, 2011 – Excessive heat and humidity occurred across ten counties in northeast North Carolina during this period. Within our region, only Northampton County was included. High temperatures ranged from 96 to 103 degrees during the afternoons, with heat index values ranging from 110 to 119.

Because the records of the State Climate Office show that there have been numerous high temperature events in our region that have exceeded the six identified heat waves/excessive heat events listed above, it is almost certain that the actual number of heat waves/excessive heat events that have taken place in our region is much greater than reported. This would be especially true prior to 1983 (the first identified heat wave based on National Climatic Data Center data).

**Probability of future events:** Based on the historical (previous occurrences) data included in this plan for droughts –9 to 10 occurrences over a 14 year period, which is roughly a 67% annual chance -- the probability of a **moderate or greater drought** occurring sometime during the next year or any year thereafter has been given a rating of “**likely**” – meaning there is between a 10% and 100% probability. Within this “likely” rating, the chance of a moderate drought would obviously be much greater than an extreme drought (which is backed up by the data obtained for the region). The overall

“likely” determination was based on the Drought Monitor data, because it was possible to be evaluated on an annual basis, whereas the Palmer Index data is on a weekly basis. Based on the historical (previous occurrences) data included in this plan for heat waves (at least six events over a 54 year period, which is an 11% annual chance), the probability of a **heat wave** occurring during the next year or any year thereafter has been given a rating of “**likely**” – meaning there is between a 10% and 100% probability. Based on the conclusions of the NC Hazard Mitigation Plan and the data available for the region, although both drought and heat waves were given a “likely” rating, there appears to be a significantly greater chance of a drought occurring than a heat wave.

### 5.2.3 Earthquakes



August 23, 2011 Earthquake damages in NC: Office books fell off the shelf in RTP; Crack in pavement  
Source of photos: WRAL online

**Introduction/Type of hazard:** “An earthquake is ground shaking caused by a sudden movement of rock in the Earth’s crust. Such movements occur along faults, which are thin zones of crushed rock separating blocks of crust.” (The Earth’s crust is divided into large blocks, called plates that continually move over, under, alongside, or apart from one another atop the partly molten outer layer of the Earth’s core.)

Over time, stress builds up along faults “as blocks of crust attempt to move but are held in place by friction. When the pressure to move becomes stronger than the friction holding them together, adjoining blocks of crust can suddenly slip, rupturing the fault”. “The energy released creates vibrations called seismic waves that radiate up through the crust to the Earth’s surface, causing” and creating an earthquake.

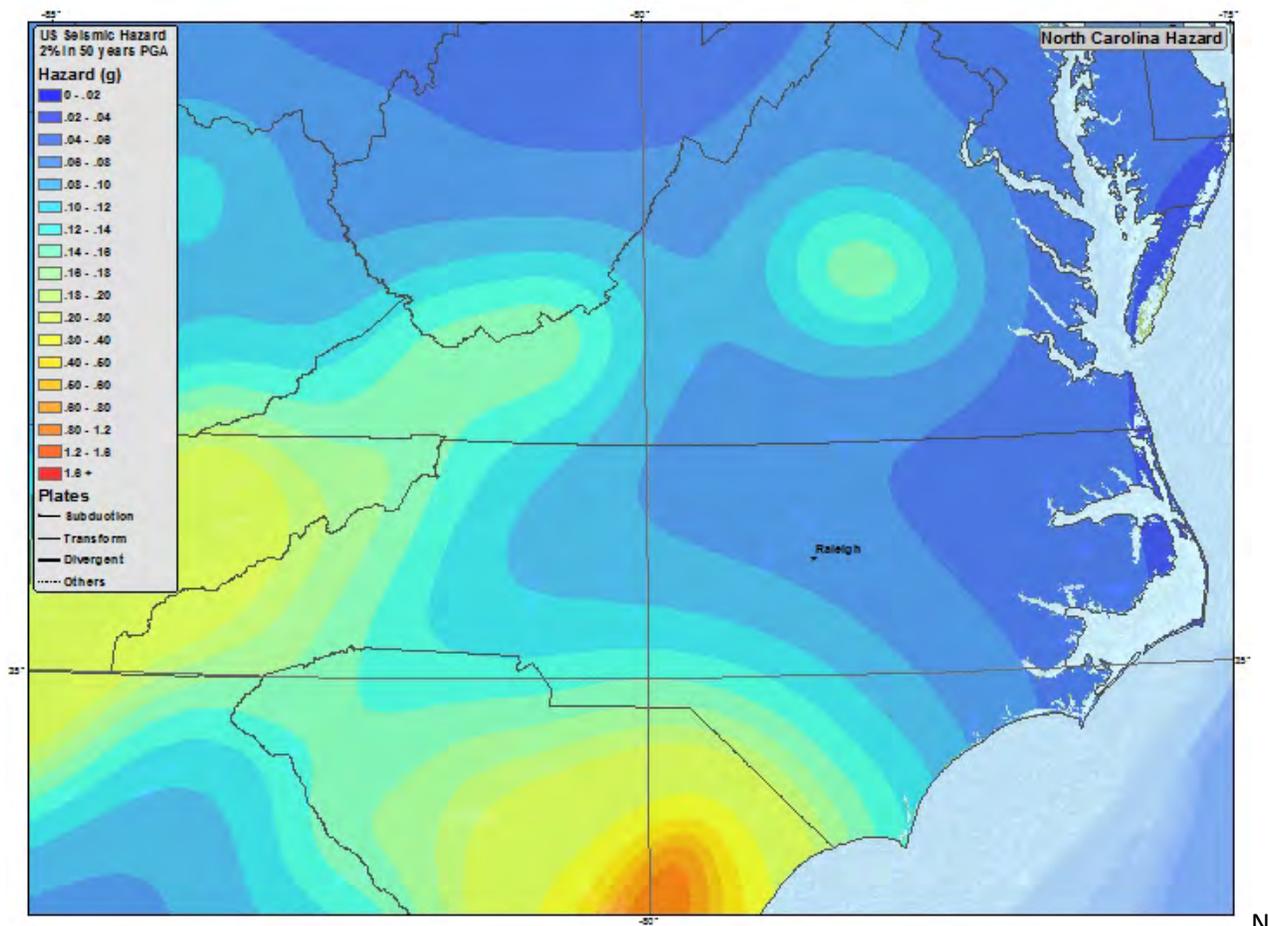
For these reasons, an earthquake is classified as a geological hazard.

(Source: <http://www.fema.gov/earthquake/why-earthquakes-occur>)

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Earthquakes that have been felt in North Carolina in the recorded past have, for the most part, originated in the active Charleston (South Carolina) and Eastern Tennessee Seismic Zones. The Charleston Seismic Zone is part of a crescent of moderate seismic activity risk that extends from Charleston, SC, northwestward into eastern Tennessee, where it meets the Eastern Tennessee Seismic Zone. A secondary seismic zone, which has actually played a greater role in the earthquake history of the planning area, is located in central Virginia. The Virginia Seismic Zone, while far less active than the other two zones, is much closer to our area, and thus has had a greater impact. See the following Map 5-7 for an illustration of the 3 seismic zones that can impact the counties included in this plan.

**Map 5-7: North Carolina Seismic Hazard Map**



ote: the orange colored areas have a greater potential seismic hazard, whereas the darker blue colored areas have a lower potential seismic hazard

Source: [http://earthquake.usgs.gov/earthquakes/states/north\\_carolina/hazards.php](http://earthquake.usgs.gov/earthquakes/states/north_carolina/hazards.php)

**Extent:** 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 (USGS).

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. Roman Numeral I corresponds to imperceptible (instrumental effects), IV corresponds to moderate (felt by people), and XII for catastrophic (total destruction). It does not have a mathematical basis; instead it is an arbitrary ranking based on observed effects. The **lower** numbers of the intensity scale generally deal with the manner in which the earthquake is felt by people. The **higher** numbers of the scale are based on observed structural damage. Structural engineers usually contribute information for assigning intensity values of VIII or above. Figure 5-3 shows the relationship between the Richter and MMI scales.

**Figure 5-3: Comparison of the Modified Mercalli Intensity Scale and the Richter Scale**

| Modified Mercalli Scale |  | Richter Magnitude Scale |
|-------------------------|--|-------------------------|
| I                       | Detected only by sensitive instruments   | 1.5                     |
| II                      | Felt by few persons at rest, especially on upper floors; delicately suspended objects may swing                              | 2                       |
| III                     | Felt noticeably indoors, but not always recognized as earthquake; standing autos rock slightly, vibration like passing truck | 2.5                     |
| IV                      | Felt indoors by many, outdoors by few, at night some may awaken; dishes, windows, doors disturbed; autos rock noticeably     | 3                       |
| V                       | Felt by most people; some breakage of dishes, windows, and plaster; disturbance of tall objects                              | 3.5                     |
| VI                      | Felt by all, many frightened and run outdoors; falling plaster and chimneys, damage small                                    | 4                       |
| VII                     | Everybody runs outdoors; damage to buildings varies depending on quality of construction; noticed by drivers of autos        | 4.5                     |
| VIII                    | Panel walls thrown out of frames; fall of walls, monuments, chimneys; sand and mud ejected; drivers of autos disturbed       | 5                       |
| IX                      | Buildings shifted off foundations, cracked, thrown out of plumb; ground cracked; underground pipes broken                    | 5.5                     |
| X                       | Most masonry and frame structures destroyed; ground cracked, rails bent, landslides  | 6                       |
| XI                      | Few structures remain standing; bridges destroyed, fissures in ground, pipes broken, landslides, rails bent                  | 6.5                     |
| XII                     | Damage total; waves seen on ground surface, lines of sight and level distorted, objects thrown up in air                     | 7                       |

The Modified Mercalli Intensity value assigned to a specific site after an earthquake has a more meaningful measure of severity to the nonscientist than the magnitude because intensity refers to the effects actually experienced at that place.

“Earthquakes may last only a few seconds or may continue for up to several minutes. They can occur at any time of the day or night and at any time of the year. (Source: <http://www.fema.gov/earthquake/why-earthquakes-occur>)

**Previous occurrences:** Table 5-15 indicates recorded historic earthquakes (roughly magnitude 2.0 and higher on the Richter Scale) that have taken place within roughly 75 miles of the study area based on data contained in the USGS Earthquake Archive. These earthquakes took place after the installation of seismic instruments in the region in the late 1920s, the proliferation of seismograph stations in 1962-1963 that enabled earthquakes with magnitudes <4 to be located, and the starting of micro-earthquake networks in the mid-1970s. Prior to the 1920s earthquake data are based on historical records. Apparently there was a regionally significant earthquake that took place in Edgecombe County on October 4, 1895. This is the only record of such earthquake to have taken place within the counties included in this plan. This earthquake is shown on Map 5-8: Earthquake Epicenters in North Carolina and Portions of Adjacent States (1698-1997).

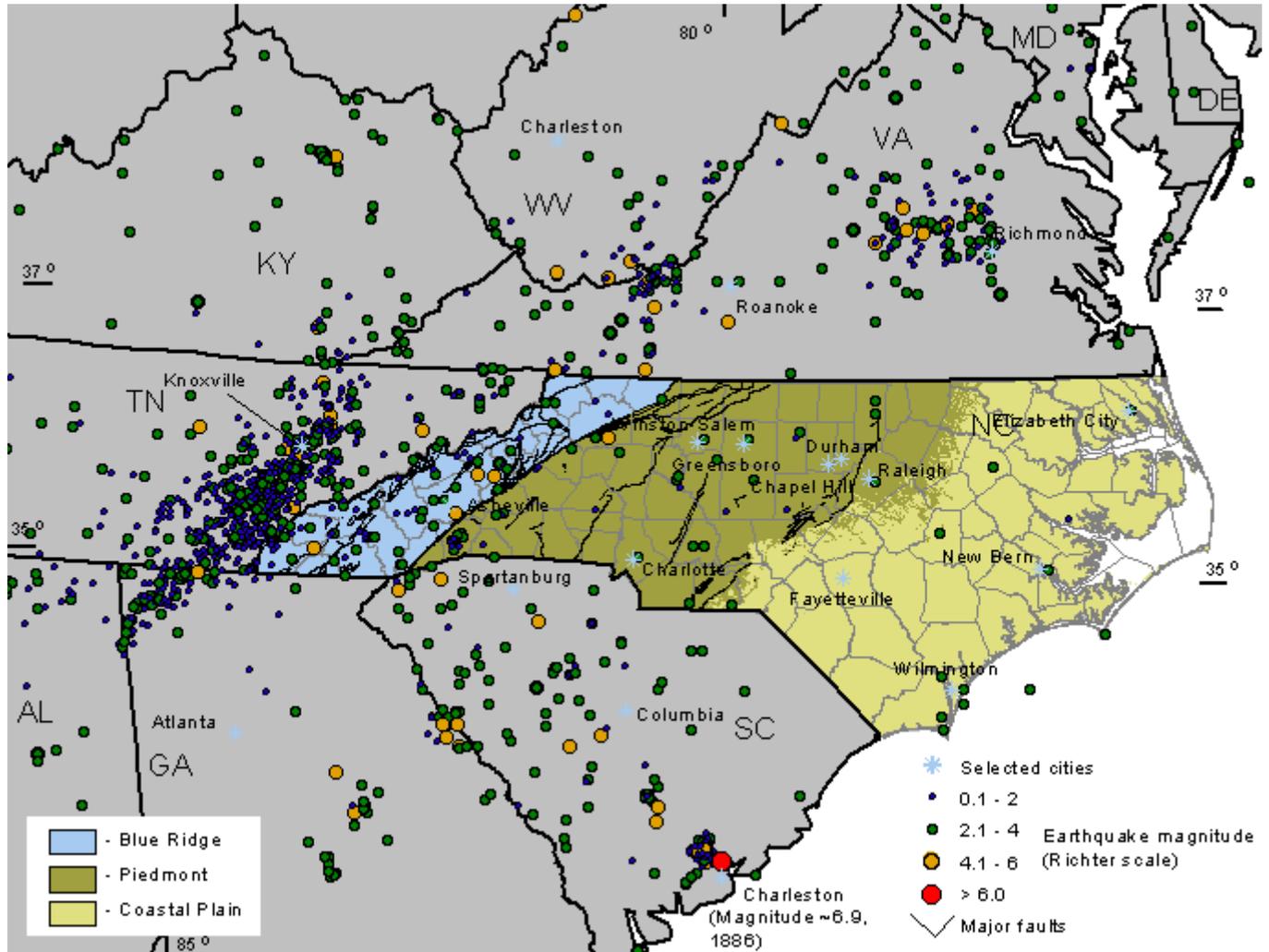
**Table 5.15: Historic Earthquakes within roughly 75 miles of the Study Area**

| Date             | Location   | Magnitude | Depth   |
|------------------|--|-----------|---------|
| 2013 June 24     | 13 km/~8.1 miles SSW of <u>Kinston, NC</u> (in Lenoir County)  | 2.1       | 5.8 km  |
| 1998 October 21  | Virginia (roughly halfway between Richmond & Lynchburg)  | 3.8       | 13.4 km |
| 1995 August 03   | Virginia (Chesapeake Bay region)   | 2.6       | 5.0 km  |
| 1994 August 06   | ~24 km/15 miles east of <u>New Bern, NC</u> (in Pamlico County)  | 3.8       | 5.0 km  |
| 1978 February 24 | ~13.5km/8.5 miles NE of <u>Burlington, NC</u> (in Alamance County) (Virginia-North Carolina border region) | 2.7       | 8.0 km  |

Source: USGS Earthquake Archive Search & URL Builder  
([www.http://earthquake.usgs.gov/earthquakes/search/](http://earthquake.usgs.gov/earthquakes/search/))

In addition to the earthquakes listed in Table 5.15, Wilson County reported that on August 23, 2011 an earthquake centered near Richmond, Virginia was felt in Wilson County, however no damage was reported.

**Map 5-8: Earthquake Epicenters in North Carolina and Portions of Adjacent States (1698-1997)**



On this map, major geologic provinces and known major faults exposed at the surface are shown for North Carolina. Faults identified to date in North Carolina are ancient and inactive. The lack of correspondence between the locations of earthquake epicenters and these faults indicates they are not responsible for earthquakes in North Carolina within historical times. The faults beneath the surface that generate earthquakes have yet to be positively identified.

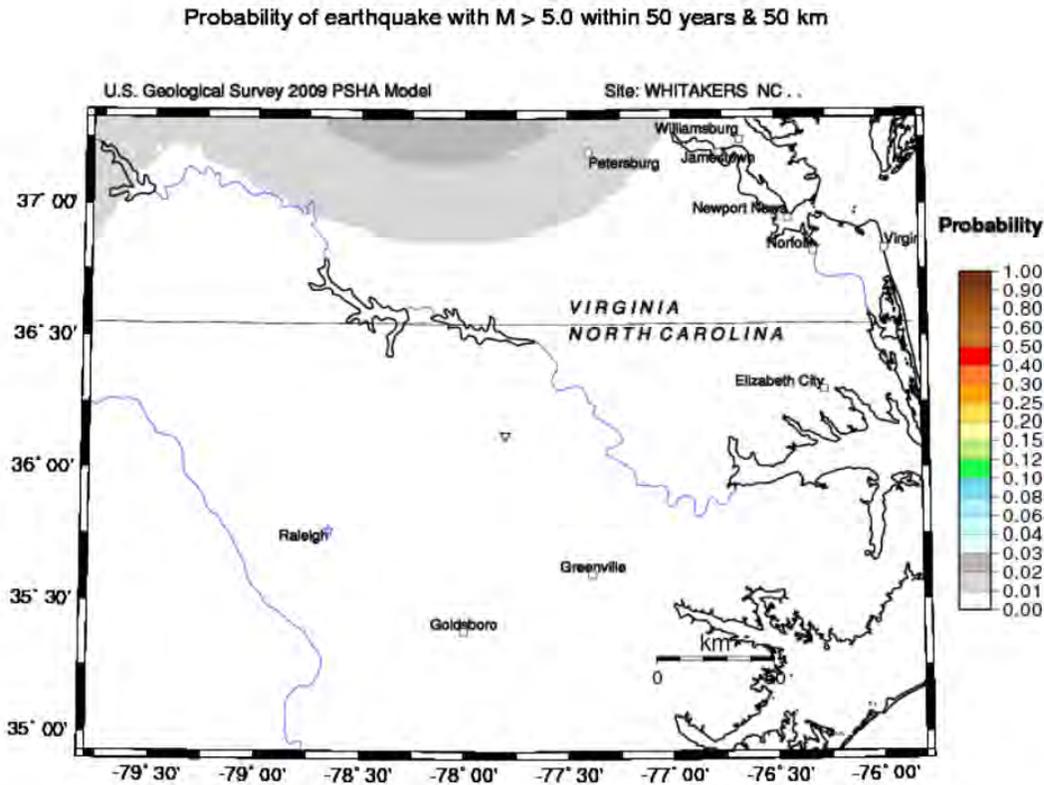
Since they have been recorded, the earthquakes that have impacted the study area have only resulted in very minor if any damage.

**Probability of future events:** Various scientists in cooperation with the US Geological Survey (USGS) have developed several versions of probabilistic seismic hazard maps for the United States. These maps display earthquake ground motions for various probability

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levels across the United States. The ground motions are indicated as peak horizontal ground acceleration (PGA) and spectral accelerations (SA) at 0.2, 0.3, and 1.0 second periods. The probability levels are 10%, 5%, and 2% probabilities of exceedance in 50 years, corresponding to return times of about 500, 1000, and 2500 years, respectively. Using the USGS 2009 Earthquake Probability Mapping tool, the following map was generated, which shows the probability of a 5.0 magnitude earthquake (on the Richter scale) occurring within 50 km (~31 miles) of Whitakers, NC within a 50 year period. A 5.0 magnitude earthquake would likely cause some significant damage to more weakly constructed buildings. The area shown on the map includes all of the counties covered in this plan.

**Map 5-9**



Source: <https://geohazards.usgs.gov/eqprob/2009/index.php>

This map indicates that the chance of such an earthquake occurring within the planning area within the next 50 years is less than 1%. Another seismic hazard map was previously included in this section of this plan (Map 5-7); according to that previous map, the probability of a significant earthquake impacting northeastern North Carolina decreases as one moves from the southwest to the northeast. This map also indicates

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that the source of such an earthquake would likely be in central Virginia, South Carolina, or western North Carolina/Tennessee.

As previously mentioned in this plan, the 2010 NC Hazard Mitigation Plan assigned an earthquake Vulnerability Score of 0 to two of the three counties included in this plan, although a score of 2 (of 9) was assigned to Edgecombe County.

Based on both the USGS maps and the NC Hazard Mitigation Plan, it was decided that the probability of a significant earthquake impacting the planning area in any given year would be less than 1%, which would put this hazard in the “**unlikely**” category.

## 5.2.4 Floods



Photo Source: Nash County Planning Department)



Photo Source: City of Wilson)

**Introduction/Type of hazard:** The Federal Emergency Management Agency (FEMA) defines a flood as “a general and temporary condition of partial or complete inundation of normally dry land areas from” one of the following four sources:

1. “the overflow of inland or tidal waters”,
2. “the unusual and rapid accumulation or runoff of surface waters from any source”,
3. “mudslides (i.e. mudflows)...”, and/or
4. “the collapse or subsidence of land along the shore of a lake or other body of water...” \*1

“Flooding is the most common environmental hazard to affect the United States, due to the widespread geographical distribution of river valleys and coastal areas, and the attraction of human settlements to those areas.” \*2 Within the areas of this plan, flooding is caused almost exclusively by source #2, which normally is the result of heavy rain from a large storm event such as a hurricane, nor’easter or thunderstorm, but flooding can be the result of a more frequent occurrence, such as a spring rain.

Floods are generally considered to fall in one of two categories - flash floods or general floods. Flash floods typically result from heavy localized precipitation that occurs within a short period of time, but can also be caused by the water released as the result of a dam or levee failure. “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 one local area, or by heavy rains generated by hurricanes and tropical storms.” More urbanized areas, with a greater density of roads and buildings, are more susceptible to flash floods than rural areas, because those roads and buildings prevent precipitation from infiltrating into the ground. The result is greater volumes of stormwater runoff, which in turn can result in flash flooding. Many urban areas that have piped drainage systems flowing into fixed drainage channels can experience flash flooding from the runoff that is generated by relatively small but intense

rainfall events. \*2 Undeveloped forest areas -because of their ability to absorb and slowly release greater amounts of precipitation- are typically able to withstand heavier rainfall events than other developed areas.

**Location:** Areas susceptible to flooding by a 1% annual chance flood (commonly called a 100-year flood) have been studied and mapped within all the counties included in this plan. (These areas are also called Special Flood Hazard Areas.) This mapping was for many years carried out through the National Flood Insurance Program and FEMA. Starting in 2000, North Carolina was established as the first Cooperating Technical State (CTS) in the nation, which allowed the state to form its own floodplain mapping program and to begin producing its own flood maps.

Typically these Flood Insurance Rate Maps (FIRMs) were produced for the areas of each county susceptible to flooding, although in many cases, especially in past years, there were unmapped areas with potential risks for flooding. In addition, there are areas with a 0.2% annual chance floodplain, that are not required to meet minimum National Flood Insurance Program requirements, and are in most cases not regulated by local ordinance.

**Extent:** A combination of river basin physiography (the natural features of the Earth's surface), local thunderstorm movements, past soil moisture conditions, the degree of vegetative clearing and the amount of impervious surface coverage (pavement & buildings, for example) help determine the extent of flooding. \*2 Generally accepted measurements of the extent of flood events are the flood depth (number of feet above the natural grade) and the number of feet of flood water above flood stage/the 100-year flood.

The following table (5-15a) shows available high water marks (highest historical flood levels/ peak stages) at USGS (US Geological Survey) station gages located in the Tar-Pamlico and Neuse River basins.

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| <b>Table 5.15a: Flood High Water Marks from Selected Streamgaging Stations in the Edgecombe, Nash, Wilson County Region</b> |                                     |                         |                                     |  |  |                                 |  |
|---|-------------------------------------|-------------------------|-------------------------------------|--|--|---------------------------------|--|
| <b>USGS Station #</b>   | <b>Station Name</b>                 | <b>Period of Record</b> | <b>1999 Flood (Hurricane Floyd)</b> |  |  | <b>Previous Peaks of Record</b> |  |
|   |                                     |                         | <b>Date</b>                         | <b>Peak Stage (ft above sea level)</b> | <b>Recurrence Interval in years (flood category)</b>   | <b>Date</b>                     | <b>Peak Stage (ft above sea level)</b> |
| <b>Tar-Pamlico River Basin</b>  |                                     |                         |                                     |  |  |                                 |  |
| 2082506   | Tar River below Tar River Reservoir | 1973-99                 | 1999/9/17                           | 118.79                                 | 100 to 500 (1 to 0.2% annual chance)                   | 1998/3/23                       | 109.57                                 |
| 2082585   | Tar River at Rocky Mount            | 1977-99                 | 1999/9/17                           | 85.54                                  | 100 to 500 (1 to 0.2% annual chance)                   | 1996/9/12                       | 79.76                                  |
| 2083000   | Fishing Creek near Enfield          | 1923-99                 | 1999/9/18                           | 95.91                                  | 500 (0.2% annual chance)                               | 1940/8/18                       | 91.98                                  |
| 2083500   | Tar River at Tarboro                | 1897-1905; 1931-99      | 1999/9/19                           | 51.88                                  | >500 (less frequent than the 0.2% annual chance flood) | 1940/8/20                       | 42.14                                  |
| <b>Neuse River Basin</b>  |                                     |                         |                                     |  |  |                                 |  |
| 2090380   | Contentnea Creek near Lucama        | 1977-99*                | 1999/9/16                           | 142.43                                 | 100 (1% annual chance)                                 | 1964/10/6                       | 133.71                                 |
| Note: * Regulated period of record, used to compute flood recurrence intervals.   |                                     |                         |                                     |  |  |                                 |  |

Source: Two Months of Flooding in Eastern North Carolina, September - October 1999: Hydrologic Water-Quality, and Geologic Effects of Hurricanes Dennis, Floyd, and Irene; Water-Resources Investigations Report 00-4093, Raleigh, North Carolina 2000, by Jerad D. Bales, Carolyn J. Oblinger, and Asbury H. Sallenger, Jr.

In the three counties covered by this plan, flood depths are not readily available by flood event (other than those listed above in Table 5.15a), whereas the number of events, deaths, injuries, and damages to property and crops are (as indicated in Table 5-16). Therefore the number of events, deaths, injuries, and damages to property and crops were used when considering the potential impact of this hazard within the planning area.

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**Previous occurrences:** Since 1966, approximately 64 flood events have been identified in the three county region, as detailed in the following Table 5-16. (Note: In determining the 64 flood events, those events that impacted multiple counties in the region were only counted as one event. It should also be noted that the events included are only those that have been reported; it is very likely that there have been other events over the years since 1966 that have gone unreported.) The historical information in Table 5-16 was obtained from the National Climatic Data Center, SHELDUS, and the previous county hazard mitigation plans within the region.

| <b>Table 5.16: Flood Events in the Edgecombe, Nash, Wilson County Region<br/>1966 – 2014 (through January)</b> |                  |             |               |                 |                          |                      |
|--|------------------|-------------|---------------|-----------------|--------------------------|----------------------|
| <b>Location</b>  | <b>Date</b>      | <b>Type</b> | <b>Deaths</b> | <b>Injuries</b> | <b>Property Damage *</b> | <b>Crop Damage *</b> |
| <b>Edgecombe County</b>  |                  |             |               |                 |                          |                      |
| Countywide   | 2/13/1966        | Flooding    | 0             | 0               | \$ 5,000                 | \$ 50                |
| Countywide   | 2/28/1966        | Flooding    | 0             | 0               | \$ 500                   | \$ 50                |
| Countywide   | 3/4/1966         | Flooding    | 0             | 0               | \$ 5,000                 | \$ 50                |
| Countywide   | 3/17/1983        | Flooding    | 0             | 0               | \$ 694                   | \$ 0                 |
| Countywide   | 8/15/1989        | Flooding    | 0             | 0               | \$ 5,000                 | \$ 0                 |
| Countywide   | 8/16/1992        | Flooding    | 0             | 0               | \$ 15,625                | \$ 15,625            |
| Countywide   | 3/27/1994        | Flooding    | 0             | 0               | \$ 926                   | \$ 0                 |
| Countywide   | 9/5/1996         | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide   | 7/24/1997        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Fishing Creek, Tar River @ Tarboro   | 1/22/1998        | Flood       | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide   | 1/27/1998        | Flood       | 0             | 0               | \$ 0                     | \$ 0                 |
| Tarboro  | 2/3/1998         | Heavy Rain  | 0             | 0               | \$ 0                     | \$ 0                 |
| Tar River  | 2/9/1998         | Flood       | 0             | 0               | \$ 0                     | \$ 0                 |
| Tarboro  | 2/16/1998        | Heavy Rain  | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide   | 9/6/1999         | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide   | <b>9/15/1999</b> | Flash Flood | <b>8</b>      | 0               | \$ 0                     | \$ 0                 |
| Countywide   | 9/21/1999        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide   | 9/27/1999        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide   | 9/28/1999        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide   | 9/28/1999        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide   | 10/17/1999       | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Northeast Portion  | 6/16/2001        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Central Portion  | 7/5/2002         | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Northwest Portion  | 9/16/2002        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Tarboro  | 9/18/2003        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| West Central Portion   | 6/14/2006        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Rocky Mount  | 7/25/2006        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Macclesfield   | 9/05/2006        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Tarboro  | 7/05/2008        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Battleboro   | 6/09/2009        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Whitakers  | 6/09/2009        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Rocky Mount  | 9/30/2010        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Wiggins Crossroads (southwest of Tarboro)  | 8/29/2011        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |
| Rocky Mount  | 5/23/2012        | Flash Flood | 0             | 0               | \$ 0                     | \$ 0                 |

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| Rocky Mount  | 5/23/2013        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
|--|------------------|----------------------|---------------|-----------------|--------------------------|----------------------|
| <i>Edgecombe Co Totals</i>                               |                  |                      | <b>8</b>      | 0               | \$ 32,745                | \$ 15,775            |
| <b>Location</b>  | <b>Date</b>      | <b>Type</b>          | <b>Deaths</b> | <b>Injuries</b> | <b>Property Damage *</b> | <b>Crop Damage *</b> |
| <b>Nash County</b>                                       |                  |                      |               |                 |                          |                      |
| Countywide   | 2/13/1966        | Flooding             | 0             | 0               | \$ 5,000                 | \$ 50                |
| Countywide   | 2/28/1966        | Flooding             | 0             | 0               | \$ 500                   | \$ 50                |
| Countywide   | 3/4/1966         | Flooding             | 0             | 0               | \$ 5,000                 | \$ 50                |
| Countywide   | 9/21/1979        | Flooding             | 0.12          | 0               | \$ 121,951               | \$ 12,195            |
| Countywide   | 3/17/1983        | Flooding             | 0             | 0               | \$ 694                   | \$0                  |
| Countywide   | 10/10/1990       | <i>Flooding**</i>    | 0.02          | 0               | \$0                      | \$0                  |
| Countywide   | 10/22/1990       | <i>Flooding**</i>    | 0             | 0               | \$0                      | \$0                  |
| Countywide   | 8/16/1992        | Flooding             | 0             | 0               | \$ 15,625                | \$ 15,625            |
| Countywide   | 3/27/1994        | Flooding             | 0             | 0               | \$ 926                   | \$0                  |
| Countywide   | 7/4/1995         | <i>Flash Flood**</i> | 0             | 0               | \$0                      | \$0                  |
| Spring Hope  | 8/27/1995        | <i>Flash Flood**</i> | 0             | 0               | \$0                      | \$0                  |
| Spring Hope  | 10/4/1995        | <i>Flash Flood**</i> | 0             | 0               | \$0                      | \$0                  |
| Rocky Mount/Castalia                                     | 9/10/1996        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Countywide   | 7/24/1997        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Red Oak  | 2/3/1998         | Heavy Rain           | 0             | 0               | \$0                      | \$0                  |
| Tar River  | 2/9/1998         | Flood                | 0             | 0               | \$0                      | \$0                  |
| Nashville  | 2/16/1998        | Heavy Rain           | 0             | 0               | \$0                      | \$0                  |
| Countywide   | <b>9/15/1999</b> | Flash Flood          | <b>4</b>      | 0               | \$0                      | \$0                  |
| Countywide   | 9/21/1999        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Countywide   | 9/28/1999        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Countywide   | 9/28/1999        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Countywide   | 9/28/1999        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Countywide   | 10/17/1999       | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Middlesex/Spring Hope                                    | 6/16/2001        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Southwest portion  | 8/26/2002        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Northern portion   | 8/27/2002        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Momeyer/Spring Hope                                      | 8/30/2002        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| East central portion<br>(Rocky Mount area)               | 9/16/2002        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Nashville  | 6/7/2003         | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| North portion  | 8/17/2003        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| South portion (including<br>Bailey)                      | 5/22/2004        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Nashville  | 7/28/2004        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Countywide   | 8/15/2004        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Sharpsburg   | 6/14/2006        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Aventon  | 3/28/2007        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Strickland Crossroads<br>(between Nashville &<br>Bailey) | 6/16/2009        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Little Easonburg (Rocky<br>Mount)                        | 3/29/2010        | Flash Flood          | 0             | 0               | \$ 25,000                | \$0                  |
| Westry (west side of<br>Rocky Mount)                     | 8/6/2011         | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Spring Hope  | 8/6/2011         | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| Little Easonburg (Rocky<br>Mount)                        | 8/21/2011        | Flash Flood          | 0             | 0               | \$0                      | \$0                  |
| <i>Nash Co Totals</i>                                    |                  |                      | <b>4.14</b>   | 0               | \$ 174,696               | \$ 27,970            |

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| Location                     | Date             | Type          | Deaths        | Injuries        | Property Damage *        | Crop Damage *        |
|------------------------------|------------------|---------------|---------------|-----------------|--------------------------|----------------------|
| <b>Wilson County</b>         |                  |               |               |                 |                          |                      |
| Countywide                   | 2/13/1966        | Flooding      | 0             | 0               | \$ 5,000                 | \$ 50                |
| Countywide                   | 2/28/1966        | Flooding      | 0             | 0               | \$ 500                   | \$ 50                |
| Countywide                   | 3/4/1966         | Flooding      | 0             | 0               | \$ 5,000                 | \$ 50                |
| Countywide                   | 9/21/1979        | Flooding      | 0.12          | 0               | \$ 121,951               | \$ 12,195            |
| Wilson County                | 3/17/1983        | Flash Flood   | 0             | 0               | \$ 694                   | \$ 0                 |
| Wilson County                | 10/10/1990       | Flash Flood** | 0.02          | 0               | \$ 0                     | \$ 0                 |
| Wilson County                | 10/22/1990       | Flash Flood** | 0             | 0               | \$ 0                     | \$ 0                 |
| Wilson County                | 8/16/1992        | Flash Flood   | 0             | 0               | \$ 15,625                | \$ 15,625            |
| Countywide                   | 3/27/1994        | Flooding      | 0             | 0               | \$ 926                   | \$ 0                 |
| Wilson                       | 7/1/1994         | Flash Flood** | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide                   | 7/24/1997        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Lucama                       | 1/27/1998        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide                   | 1/27/1998        | Flood         | 0             | 0               | \$ 0                     | \$ 0                 |
| Wilson                       | 2/3/1998         | Heavy Rain    | 0             | 0               | \$ 0                     | \$ 0                 |
| Wilson                       | 2/16/1998        | Heavy Rain    | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide                   | <b>9/15/1999</b> | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide                   | 9/21/1999        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide                   | 9/27/1999        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide                   | 9/28/1999        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide                   | 9/28/1999        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide                   | 9/28/1999        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide                   | 10/17/1999       | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Countywide                   | 6/16/2001        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Wilson                       | 7/5/2002         | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Wilson                       | 8/26/2002        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Wilson                       | 8/31/2002        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Wilson                       | 5/22/2004        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Northwest portion            | 6/14/2006        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Wilson                       | 7/25/2006        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Evansdale                    | 8/26/2007        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Wilson                       | 6/16/2009        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Lucama                       | 7/25/2009        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Wilson Airport               | 5/17/2010        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Lucama                       | 9/30/2010        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Buckhorn Crossroads          | 9/30/2010        | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| Wilson                       | 6/7/2013         | Flash Flood   | 0             | 0               | \$ 0                     | \$ 0                 |
| <i>Wilson County Totals</i>  |                  |               | 0.14          | 0               | \$ 149,696               | \$ 27,970            |
|                              |                  | <b>Type</b>   | <b>Deaths</b> | <b>Injuries</b> | <b>Property Damage *</b> | <b>Crop Damage *</b> |
| <b>Totals for the Region</b> |                  |               | <b>12.28</b>  | <b>0</b>        | <b>\$ 357,137</b>        | <b>\$ 71,715</b>     |

Note: \* figures rounded to the closest dollar amount; these \$ amounts are clearly under reported, as Hurricane Floyd damages by themselves, greatly exceeded what is shown here.

\*\* These events were included in the previous county hazard mitigation plans, but could not be confirmed via the sources below.

Sources: National Climatic Data Center (from January 1996 through January 2014)= <http://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=37%2CNORTH+CAROLINA>), SHELDUS (Spatial Hazard Events and Losses Database for the United States)(from January 1966 through December 2012)= <http://webra.cas.sc.edu/hvri/products/sheldus.aspx>, and the previous county hazard mitigation plans.

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Without doubt the most significant flooding event to impact the region between 1966 and the present occurred in September 1999, when Tropical Storm/Hurricane Dennis and Hurricane Floyd together dealt eastern North Carolina a severe two-punch blow. Rains from Dennis saturated the ground and overflowed creeks, rivers, and reservoirs before Floyd made landfall three weeks later. Once Floyd passed through the State, severe flash flooding and general flooding occurred with floodwaters overflowing stream and riverbanks for up to two weeks following the storm. Many streams and rivers within the region experienced 100 to 500-year flood levels, and twelve people lost their lives in the region as a result of this flooding.

Both the flash flooding and longer-term general flooding from Hurricane Floyd caused property damage to structures located in floodplains. A significant number of individuals and families in the region were left homeless and a number of businesses were either closed for several weeks or destroyed by the flooding; the City of Rocky Mount and the Town of Princeville were especially hard hit. In the rural areas of Nash County, damages to 409 residential structures and 28 commercial structures were documented by the county tax department. The damage to private property and public infrastructure from Hurricane Floyd’s unprecedented flooding levels totaled \$3 billion throughout eastern North Carolina. Crop damage was estimated at \$500 million. Damages within the three-county region as reported by the county tax departments and the NC State University Cooperative Extension Service are shown in Table 5-17. These figures, as large as they are, likely under-represent the actual losses, because in Nash County the losses inside the municipalities were apparently not included.

| <b>Table 5.17: Hurricane Floyd Damage Assessment for Three-County Region</b> |                      |                          |                          |   |                     |
|--|----------------------|--------------------------|--------------------------|---|---------------------|
| <b>County</b>  | <b>Loss Category</b> |                          |                          |   | <b>Total Losses</b> |
|  | <b>Real Property</b> | <b>Personal Property</b> | <b>Agricultural Crop</b> | <b>Agricultural Equipment &amp; Structure</b> |                     |
| Edgecombe  | \$                   | \$                       | \$                       | \$  | \$ 21.5 million     |
| Nash *   | \$ 38,950,686        | \$ 14,974,310            | \$ 29,500,000            | \$ 3,200,000                                  | \$ 86.6+ million    |
| Wilson   | \$                   | \$                       | \$                       | \$ 3,800,000                                  | \$ 3.8 million      |
| <b>Region</b>  | \$ 38.9+ million     | \$ 14.9+ million         | \$ 29.5+ million         | \$ 7+ million                                 | \$111.9+ million    |

Source: County Tax Departments; NCSU Cooperative Extension Service

\* Nash County data is only for areas outside of incorporated municipalities

**Repetitive Loss Structures & Properties:** A repetitive loss property is a property that contains a structure that is (or previously has been) insured through the National Flood Insurance Program (NFIP) “that has had at least 2 paid flood losses of more than \$1,000 each in any 10-year period since 1978.” \*<sup>3</sup> According to the FEMA website, “a repetitive loss property may or may not be currently insured by the NFIP.” As of October 2005,

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there were over 122,000 repetitive loss properties nationwide. \*4 At the time of the preparation of this plan, the number of repetitive loss properties in North Carolina was not available.

According to 44 CFR Part 201.6(c)(2)(ii), “all plans must address NFIP insured structures that have been repetitively damaged by floods.” Because the federal requirement is that hazard mitigation plans address repetitive loss structures as opposed to properties, the focus of this plan is on the repetitive loss structures within the three-county planning area.

Based on information provided by the NC National Flood Insurance Program (NFIP) staff, the following areas within the planning area contained repetitive loss structures as of May 2014: the cities of Rocky Mount and Wilson, the towns of Nashville, Pinetops, and Sharpsburg, and unincorporated areas in the counties of Edgecombe and Nash.

The following Table 5-18 contains information for each of these seven jurisdictions in the planning area that had repetitive loss structures. Totals for the three-county planning area and the State of NC are also included.

The following information is provided to help clarify Table 5-18:

- The data in the columns titled “Number of Repetitive Loss (RL) Buildings/ Structures”, “Number of Repetitive Losses (RL)”, and “Repetitive Loss (RL) Payments” are total figures, which include insured and uninsured buildings.
- The column “Post-FIRM Repetitive Loss (RL) Buildings in SFHA” includes those repetitive loss buildings located within the Special Flood Hazard Area (100 year floodplain) that were constructed sometime after the date the official FEMA Flood Insurance Rate Maps became effective. The existence of such situations is a bit unusual, because these buildings were required to be constructed to the minimum National Flood Insurance Program standards, which would typically significantly decrease the chance of repetitive losses occurring.
- The data in the “Total Target RL Buildings” column is a combination of the previous two columns (“Insured Buildings with 4 or More Losses” and “Insured Buildings with 2-3 Losses” that are greater than the value of the repetitive loss building).

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| <b>Table 5-18: Repetitive Loss Building Information within the Three-County Region</b> |                                      |   |   |   |  |  |  |   |
|--|--------------------------------------|---|---|---|--|--|--|---|
| <b>Community Name</b>  | <b>Located Within County(s)</b>      | <b>Number of Repetitive Loss (RL) Buildings/ Structures</b> | <b>Residential Structures/ Properties</b> | <b>Non-residential Structures/ Properties</b> | <b>Post-FIRM Repetitive Loss (RL) Buildings in SFHA <sup>1</sup></b> | <b>Insured Buildings with 4 or More Losses</b> | <b>Insured Buildings with 2-3 Losses &gt; Building Value</b> | <b>Total Target RL Buildings <sup>2</sup></b> |
| Edgecombe County (unincorporated areas)  | Edgecombe                            | 2   | 1   | 1   | 0  | 0  | 0  | 0   |
| Pinetops   | Edgecombe                            | 1   | 0   | 1   | 0  | 0  | 0  | 0   |
| Rocky Mount  | Edgecombe, Nash                      | 13  | 9   | 4   | 2  | 1  | 0  | 1   |
| Sharpsburg   | Edgecombe, Nash, Wilson              | 1   | 1   | 0   | 0  | 0  | 0  | 0   |
| Nash County (unincorporated areas)   | Nash                                 | 3   | 3   | 0   | 0  | 0  | 0  | 0   |
| Nashville  | Nash                                 | 1   | 0   | 1   | 0  | 0  | 0  | 0   |
| Wilson, City   | Wilson                               | 16  | 12  | 4   | 0  | 1  | 0  | 1   |
| <b>Totals for the Region</b>   | <b>Edgecombe, Nash, &amp; Wilson</b> | <b>37</b>   | <b>26</b>                                 | <b>11</b>                                     | <b>2</b>   | <b>2</b>                                       | <b>0</b>   | <b>2</b>                                      |
| <b>State of NC</b>   | 100 counties                         | 7,482   |   |   | 1,559  | 998  | 21   | 1,019   |

Notes: <sup>1</sup>SFHA = Special Flood Hazard Area, which is commonly called the 100 year or 1% annual chance floodplain

<sup>2</sup>The "Total Target RL Buildings" is a combination of the previous 2 columns (Insured Buildings with 4 or more losses and those with 2-3 losses that are greater than the value of the repetitive loss building)

Source: FEMA Community Information System via NC NFIP office

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| <b>Table 5-18 continued: Repetitive Loss Building Information within the Three-County Region</b> |                                      |   |   |   |  |
|--|--------------------------------------|---|---|---|--|
| <b>Community Name</b>  | <b>Located Within County(s)</b>      | <b>Number of Repetitive Loss (RL) Buildings/ Structures</b> | <b>Number of Repetitive Losses (RL)</b> | <b>Repetitive Loss (RL) Payments <sup>3</sup></b> | <b>Release Date of Information from FEMA</b> |
| Edgecombe County (unincorporated areas)  | Edgecombe                            | 2   | 4                                       | \$ 236,553.44                                     | 2014-9-15                                    |
| Pinetops   | Edgecombe                            | 1   | 2                                       | \$ 51,161.41                                      | 2014-9-15                                    |
| Rocky Mount  | Edgecombe, Nash                      | 13  | 32                                      | \$ 1.243 M  | 2013-10-25                                   |
| Sharpsburg   | Edgecombe, Nash, Wilson              | 1   | 2                                       | \$ 6,260.88                                       | 2014-9-15                                    |
| Nash County (unincorporated areas)   | Nash                                 | 3   | 6                                       | \$ 307,049.88                                     | 2014-9-15                                    |
| Nashville  | Nash                                 | 1   | 2                                       | \$ 73,425.45                                      | 2013-10-25                                   |
| Wilson, City   | Wilson                               | 16  | 48                                      | \$ 988,398.43                                     | 2013-10-25                                   |
| <b>Totals for the Region</b>   | <b>Edgecombe, Nash, &amp; Wilson</b> | <b>37</b>   | <b>96</b>                               | <b>\$ 2.906 M</b>                                 |  |
| <b>State of NC</b>   | 100 counties                         | 7,482   | 21,051                                  | \$405.936 M                                       | 2014-9-15                                    |

Notes: <sup>3</sup> M= millions of dollars

Source: FEMA Community Information System via NC NFIP office

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A summary of the information in Table 5-18 is as follows (as shown in the row titled “Totals for the Region”). There were:

- a total of 37 repetitive loss structures in the region, 26 of which were residential and 11 of which were non-residential;
- two (2) post-FIRM repetitive loss buildings in the Special Flood Hazard Area (100 year floodplain) in Rocky Mount;
- two (2) insured buildings with 4 or more losses (one in Rocky Mount and one in the City of Wilson);
- no insured buildings with 2 to 3 losses that are greater than the value of the repetitive loss building;
- a total of 96 repetitive losses of \$1,000+ in some 10-year period since 1978, and
- \$2,906,258.57 of total repetitive loss payments in the region.

Based on this information, the following recommendations have been developed:

1. Each of the seven jurisdictions in the planning area that had repetitive loss buildings/structures (as of the date of the information obtained), should consider ways to reduce or eliminate the chance of additional losses (numbers and amounts of resulting \$ payments) occurring at the locations within their jurisdictions. (The specific locations of the losses can be obtained from the NC NFIP office in Raleigh.) Possible mitigation options include building elevation and/or relocation, or buying out and demolishing the repetitive loss buildings/structures. Possible funding sources are included in Section 6 of this plan.
2. The City of Rocky Mount should evaluate/re-evaluate options for mitigating additional losses from its two Post-FIRM RL buildings in the SPFA and its single insured building with 4 or more losses.
3. The City of Wilson should evaluate/re-evaluate options for mitigating additional losses from its single insured building with 4 or more losses.

**Probability of future events:** Based on the historical (previous occurrences) data included in this plan for floods, there have been 64 flood events identified in the planning region over a 48.08 year period (1966 through January 2014), which equals 1.33 floods per year or an equivalent 133 percent change of a flood somewhere in the region on an annual basis. Therefore, the probability of a **flood** (or floods) occurring somewhere in the planning area has been given a rating of “**highly likely**” – which is defined as having a near 100 % probability of occurrence during the next year or any year thereafter.

### 5.2.5 Fog



**Introduction/Type of hazard:** “Fog consists of water droplets suspended in the air at the Earth’s surface.” \*<sup>1</sup> Fog may occur when the moisture content of the air is increased beyond the saturation point. According to the National Weather Service-Weather Forecast Office website \*<sup>2</sup>, there are six major types of fog (radiation, advection, upslope, ice, freezing, and evaporation or mixing). Four types occur within the planning area (radiation, advection, freezing, and evaporation or mixing).

Radiation fog forms at night under clear skies with calm winds when heat absorbed by the earth’s surface during the day is radiated into space. As the earth’s surface continues to cool, provided a deep enough layer of moist air is present near the ground, the humidity will reach 100% and fog will form. Radiation fog varies in depth from 3 feet to about 1,000 feet and is always found at ground level and usually remains stationary. This type of fog can reduce visibility to near zero at times and make driving very hazardous.

Advection fog often looks like radiation fog and is also the result of condensation; however, the condensation in this case is caused not by a reduction in surface temperature, but rather by the horizontal movement of warm moist air over a cold surface. As a result, advection fog can sometimes be distinguished from radiation fog by its horizontal motion along the ground.

In the planning area, advection fog can occur when warm moist air from the south moves into the area and crosses previously cooled water bodies. The air that comes into contact with the cool water cools to its saturation point and fog forms. This type of fog is usually fairly localized around the cool water body, and therefore does not tend to pose as great a threat as other types of fog. An even lesser occurrence of advection fog in the area can occur when warm moist air moves over snow that has previously accumulated on the ground. Because snow is not a common occurrence in the area, this type of fog is rather uncommon.

Another type of fog that is uncommon in the area, is freezing fog. Freezing fog occurs when the water droplets that the fog is composed of are "supercooled". Supercooled water droplets remain in the liquid state until they come into contact with a surface upon which they can freeze. As a result, any object the freezing fog comes into contact with will become coated with ice. The same thing happens with freezing rain or drizzle. Evaporation or mixing fog forms when sufficient water vapor is added to the air by evaporation and the moist air mixes with cooler, relatively drier air. The two common types are steam fog and frontal fog. Steam fog forms when cold air moves over warm water. When the cool air mixes with the warm moist air over the water, the moist air cools until its humidity reaches 100% and fog forms. This type of fog takes on the appearance of wisps of smoke rising off the surface of the water. The other type of evaporation fog is known as frontal fog. This type of fog forms when warm raindrops evaporate into a cooler drier layer of air near the ground. Once enough rain has evaporated into the layer of cool surface, the humidity of this air reaches 100% and fog forms.

Within the counties covered by this plan, fog commonly occurs when there is little or no wind and the air has cooled below the dew point (radiation fog), typically after a precipitation event. The other types of fog (advection, freezing, steam, and frontal) can also occur in the planning area, although they are less likely than radiation fog.

**Location:** "Fog has long been considered a local meteorological phenomenon because of its relationship to local terrain and geography." What this means, for example, is that the formation of fog can be enhanced by water bodies (ex. lakes, rivers) interacting with the air, and once formed, the fog (cool saturated air) would tend to sink and accumulate in low lying areas. Based on this information, the likelihood of fog occurring within the planning area would be greater around water bodies and in low lying areas. On the other hand, there are times when widespread fog encompasses all the counties within the planning area.

**Extent:** The extent of fog is typically measured by its effect on visibility. Dense fog is usually associated with visibilities of  $\frac{1}{4}$  (0.25) mile or less.

The duration of fog in the planning area is usually a few hours, typically during the nighttime hours until mid to late morning when the sun's rays heat the air above the saturation point.

**Previous occurrences:** According to data obtained from the Spatial Hazard Events and Losses Database for the United States (SHELDUS) website, there was one recorded heavy (dense) fog event that impacted two of the three counties included in this plan.

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The February 1971 heavy/dense fog event was recorded to have impacted a total of sixty-eight (68) counties with one fatality, 300 injuries, and \$50,000 in property damage. An accurate listing of the counties where these impacts actually took place is not available, so it is not certain if any of these injuries/damages occurred within the planning area.

**Probability of future events:** Based on the historical (previous occurrences) data included in this plan for heavy/dense fog which may have resulted in damages/injuries/a fatality (1 recorded occurrence over a 52 year period, which is a 1.9% annual chance), the probability of a **dense fog event in which there are damages** occurring sometime during the next year or any year thereafter has been given a rating of “**possible**” – meaning there is between a 1% and 10% probability. (Based on the data, the probability of this hazard is more likely on the low end of it range; i.e. closer to 1% than 10%.)

### 5.2.6 Geological

**Introduction:** There are five types of geological hazards that are covered in this plan:

- Acidic Soils,
- Expansive Soil,
- Geochemical,
- Sinkholes, and
- Subsidence.

**Types of hazards:** The name of this hazard subsection - “Geological” - clearly indicates that the five included hazards are in the geological category. Geology can be defined as the study of the dynamics and physical history of the earth, and the physical, chemical, and biological changes that the earth has undergone or is undergoing. <sup>\*1</sup> Although clearly in the geological category, the five sub-hazards in this subsection are also impacted by and can be made worse by both meteorological and environmental hazards as discussed below.

Acidic Soils: Soil pH is a measurement of the acidity or alkalinity of a soil. Acidic soils are soils that have a value of less than 7 on the pH scale of 0 to 14; basic or alkaline soils have a pH above 7. A pH range of 6.8 to 7.2 is termed *near neutral*. Areas of the world with limited rainfall typically have alkaline soils whereas areas with higher amounts of rainfall typically have acidic soils. General acidic soils values range from 5.5 to 4.5 pH. Very acidic soils range from 4.5 to 3.5 pH. Extremely acidic soils range from 3.5 to 3.0 pH. <sup>\*2 & 3</sup>

Low pH values correspond to the distribution of the Cretaceous Black Creek Formation which contains abundant pyrite, or “fool’s gold”. Iron sulfide minerals such as pyrite are common in rocks found in various areas of North Carolina. During chemical weathering of the rocks, the interaction of rainwater with the sulfide minerals produces a weak sulfuric acid. This acidic runoff can adversely affect streams by making the water more acidic (i.e., decreasing the pH). Uncontrolled runoff from acid-producing rocks can also damage or kill sensitive vegetation. This acid slowly dissolves concrete and corrodes metal, so it can also damage structures associated with roads, such as bridges, and drainage inlets and pipes.

Human activity such as road construction can expose fresh sulfides to the atmosphere and increase the acid runoff. Reliable mitigation measures have been developed for highway construction such as neutralizing the runoff by adding lime to embankments made with acidic rock. The yellow-brown and bright orange stains on bedrock exposed in road cuts usually are the secondary oxides and hydroxide minerals produced from the weathering of iron sulfide minerals. <sup>\*3</sup>

Expansive Soil: An expansive soil is a soil that expands when water is added, and shrinks when it dries out. The subsequent change in volume causes structures to move unevenly and crack. Clay soils that have the ability to change in volume when the water content of the soil changes are considered expansive or highly plastic. Expansive clay particles swell by absorbing large amounts of water relative to their volume. When these particles dry out, they can shrink considerably. When rain falls on the dry, cracked ground, the clays swell; the cracks close; and the ground can heave up as much as several inches. A soil is commonly considered to have expansive tendencies when its plasticity index (PI) is greater than 25. In a virgin soil, the moisture content is frequently at equilibrium. Any act that disturbs this equilibrium and causes changes in the moisture content of the clay will result in swelling or shrinking. Construction, excavation, unusual seasonal conditions, or most common, the addition of irrigation water to the soil are examples of acts that can alter the equilibrium. Trees may damage structures, not only by root uplift, but also by extracting moisture from the soil beneath the foundations, causing the soil to shrink, resulting in settlement of the structure. Conversely, the removal of a tree may cause an increase in the moisture content, and a subsequent swelling of the soil, by ending the moisture extraction of the tree roots. Other causes of disturbed moisture equilibrium may be rising water table, perched water (water contained in the soil by surrounding impermeable soils), leaking sewer and domestic water lines, etc. During periods of drought, the equilibrium is disturbed by the soil becoming dry to a deeper depth than normal. \*<sup>3</sup>

Geochemical: Geochemical related hazards in NC and in the three counties in this plan include arsenic, radon gas, manganese, and selenium, as described below in more detail. While these elements are naturally occurring, they can be detrimental to human health. \*<sup>3</sup>

Arsenic: Arsenic is a colorless, odorless and tasteless semi-metal inorganic element. Arsenic is the 20th most abundant element on the earth, occurring naturally in the earth's crust. Inorganic arsenic is found throughout the environment; it is released by volcanoes, the weathering of arsenic-containing rocks, forest fires, and by commercial or industrial processes. As a result, arsenic can be found in water, air, soil, and plants and animals. \*<sup>4,5</sup>

For most people, the largest source of arsenic exposure is through the ingestion of some foods, with usually smaller intakes from drinking water and air. Exposures to arsenic through skin contact (such as bathing or in the soil) or through vapor inhalation are at lower levels for most people. Among foods, some of the highest levels are typically found in fish and shellfish, although high levels can also result be found in poultry or grains raised in or with arsenic-rich waters and feeds.

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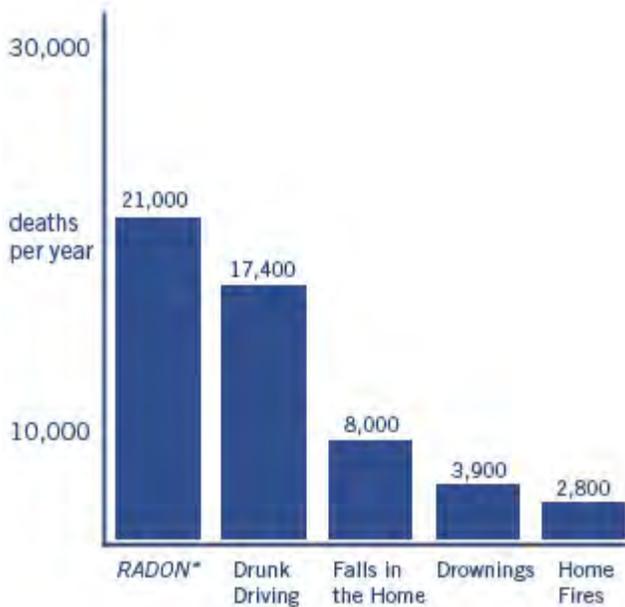
Fortunately, the arsenic in food exists primarily as organic compounds, which are essentially nontoxic. \*5

Inorganic arsenic compounds on the other hand, have a much greater chance of causing human health problems, and they are the predominant forms in drinking water. Among drinking water sources, higher levels of arsenic tend to be found in ground water sources more often than in surface water sources (i.e., lakes and rivers). The greatest exposure risk to arsenic in groundwater is by using it for drinking and cooking. Arsenic in water occurs as a dissolved component or attached to other tiny particles in the water. \*4,5

Various studies have linked long-term exposure to arsenic in drinking water to cancer of the bladder, lungs, skin, kidney, nasal passages, liver, and prostate. Non-cancer effects of ingesting arsenic include cardiovascular, pulmonary, immunological, neurological, and endocrine (e.g., diabetes) effects. Because of the risks to human health that result from arsenic in drinking water federal drinking water standards and state groundwater standards have been put in place. \*4,5

Radon: Radon is an odorless, tasteless and invisible gas produced by the decay of naturally occurring uranium in soil, rock and water. Radon can be found in the earth and rock beneath homes, in well water, and in building materials. Radon is estimated to cause many thousands of deaths each year – even more than drunk driving - as indicated in the following Table 5-19.

**Table 5-19: Estimated Annual Deaths in the US from Various Causes**



\* Radon is estimated to cause about 21,000 lung cancer deaths per year, according to [EPA's 2003 Assessment of Risks from Radon in Homes \(EPA 402-R-03-003\)](#). The numbers of deaths from other causes are taken from the Centers for Disease Control and Prevention's 2005-2006 National Center for Injury Prevention and Control Report and 2006 National Safety Council Reports.

When you breathe air containing radon, you can get lung cancer. This risk (of getting lung cancer from radon) appears to be no different between adults and children. The three factors that determine ones risk are the intensity (concentration) of exposure, the length of exposure, and whether they are a smoker or not. If you smoke and your home has high radon levels, your risk of lung cancer is especially high. The Surgeon General has indicated that radon is the second leading cause of lung cancer in the United States today; only smoking causes more lung cancer deaths. In very rare cases, radon can cause stomach cancer. Lung and stomach cancer are the only proven human health hazards as a result of exposure to radon. \*<sup>3,6,7,8</sup>

Manganese: Manganese is the twelfth most common element in the Earth's crust. It is typically found in low levels in soil, water, plants, and animals. \*<sup>3</sup> Manganese can also be released into the air by way of iron and steel manufacturing facilities, power plants, and coke ovens. \*<sup>9</sup> Everyday, people are exposed to manganese through their food, air, soil, and water. \*<sup>3</sup> "Manganese is a silver-colored metal that forms compounds in the environment with chemicals such as oxygen, sulfur, and chlorine. Manganese compounds are solids that do not evaporate; however, small dust particles can become suspended in air. Manganese can dissolve in water." \*<sup>9</sup>

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Although manganese is an essential micronutrient to humans, at high concentrations it is very toxic to humans and can cause many side effects including manganese poisoning and Parkinson's Disease. \*3

Selenium: Selenium is a naturally occurring inorganic (mineral) element that is distributed widely in nature in most rocks and soils. In its pure form, it exists as metallic gray to black hexagonal crystals, but in nature it is usually combined with sulfide minerals or with silver, copper, lead, and nickel minerals. Selenium functions as an antioxidant and is needed for good health, but exposure to high levels can result in numbness in fingers or toes, or problems with their circulation, as well as brittleness or loss of hair, and deformed nails. Occupational inhalation exposure may cause dizziness, fatigue, irritation of mucous membranes, and respiratory effects. \*3,10 Most processed selenium is used in the electronics industry, but it is interesting to note that it is also used as a nutritional supplement, in the preparation of pharmaceuticals, as a nutritional feed additive for poultry and livestock, in pesticide and fungicides formulations, and as an ingredient in antidandruff shampoos, among other uses. Radioactive selenium is used in diagnostic medicine. \*10 Because one of the greatest potential sources for over-exposure to selenium for the general public is through the water that we drink, the US EPA regulates the level of selenium in drinking water.

Sinkholes: According to the US Geological Survey (USGS), a sinkhole is a depression in the ground that has no natural external surface drainage. Basically this means that when it rains, all of the water stays inside the sinkhole and typically drains into the subsurface. Sinkholes are most common in what geologists call, "karst terrain." These are regions where the type of rock below the land surface can naturally be dissolved by groundwater circulating through them. Soluble rocks include salt beds and domes, gypsum, and limestone and other carbonate rock. When water from rainfall moves down through the soil, these types of rock begin to dissolve and spaces and caverns develop underground. Sinkholes are dramatic because the land usually stays intact for a period of time until the underground spaces just get too big. If there is not enough support for the land above the spaces, then a sudden collapse of the land surface can occur.

While collapses are more frequent after intense rainstorms, there is some evidence that drought can play a role as well. For example, areas where water levels have lowered suddenly are more prone to collapse formation. \*11a

A sinkhole can be naturally occurring, typically a roughly circular depression in the land surface, or from human related activities and situations. For example, collapses can occur above old mines, from leaky faucets, when sewers give way, or due to groundwater

pumping and construction. Sinkholes can also result from changes that occur when water-drainage patterns are altered and new systems are developed. Another potential source can occur when industrial and runoff-storage ponds are created, the resulting substantial weight of the new material can trigger an underground collapse of supporting material. Aquifer systems are another factor in sinkholes. The sediment above the aquifer system may be delicately balanced by ground-water fluid pressure, meaning that the water below ground is actually helping to keep the surface soil in place. Groundwater pumping for urban water supply and for irrigation can produce new sinkholes. If pumping results in a lowering of groundwater levels, then underground structures could fail and thus sinkholes can occur. \*11a&b

**Figure 5-4:** North Carolina Sinkhole Formed as a Result of Nearby Pumping of Groundwater



Source: DENR, Division of Water Resources, Ground Water, Sinkholes webpage ([www.ncwater.org](http://www.ncwater.org))

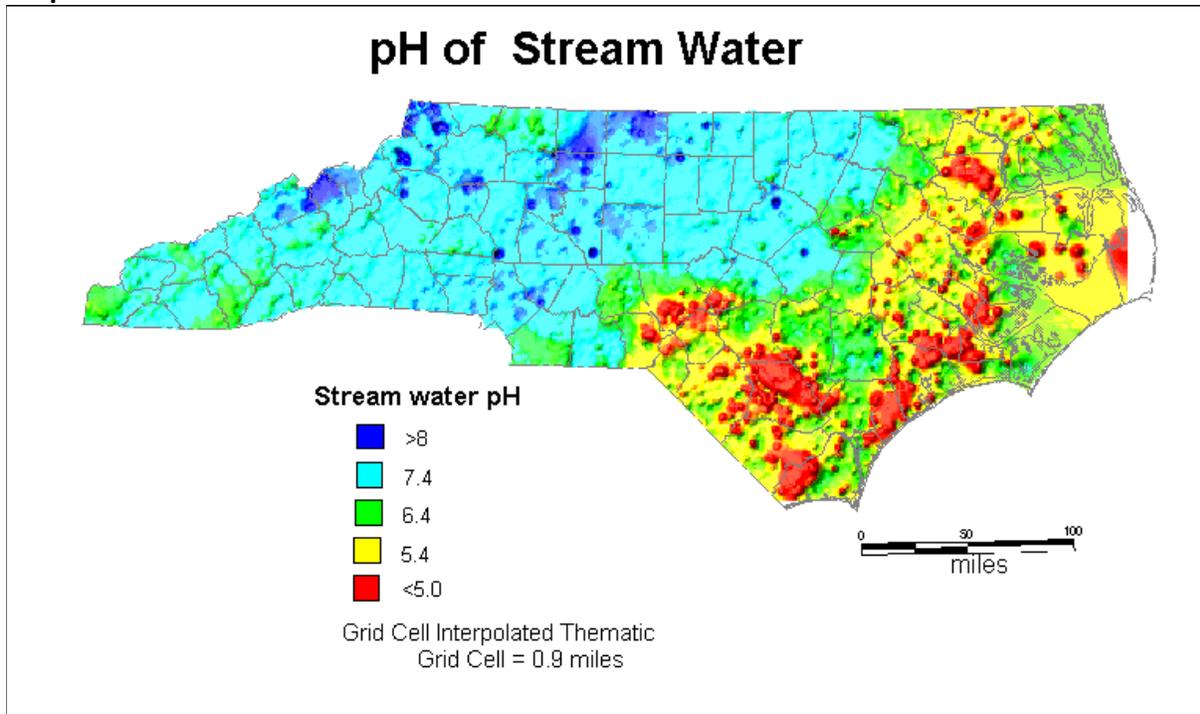
**Subsidence:** Land subsidence occurs when large amounts of ground water have been withdrawn from certain types of rocks, such as fine-grained sediments. The rock compacts because the water is partly responsible for holding the ground up. When the water is withdrawn, the rock falls in on itself. You may not notice land subsidence too much because it can occur over large areas rather than in a small spot, like a sinkhole. More than 80 percent of the identified subsidence in the nation has occurred because of exploitation of underground water, and the increasing development of land and water resources threatens to exacerbate existing land-subsidence problems and initiate new ones. \*12

**Location:** Of the five types of geological hazards that are covered in this plan, three of them (Acidic Soils, Sinkholes, and Subsidence) had a greater chance of occurring in Wilson County, than in Nash and Edgecombe County, based on the hazard scoring in the 2010 State Hazard Mitigation Plan.

**Acidic Soils:** Probably the best source of information on the likely prevalence of acidic soils is USDA’s online WebSoilSurvey. Based on information obtained using this tool, it was determined that the pH of the soils in Edgecombe, Nash, and Wilson County tend to be generally acidic and do not vary significantly from one county to another, although there may be a few more instances of near neutral soils, and rarely alkaline soil in Nash and Edgecombe County. <sup>\*713</sup> (For more details on the pH values of the soils in the three-county planning area, see the “Extent” subsection for Geological Hazards.)

Another interesting source of information is the sampling of stream waters in NC during the 1990s, as shown in Map 5-10: pH of Stream Water. Based on this information, at the time of the samplings, the boundary between predominantly basic/alkaline stream waters and acidic stream waters appeared to run through the three counties in this plan, with northern Nash County having slightly alkaline stream waters, and the remainder of the planning area having slightly to more acidic stream waters.

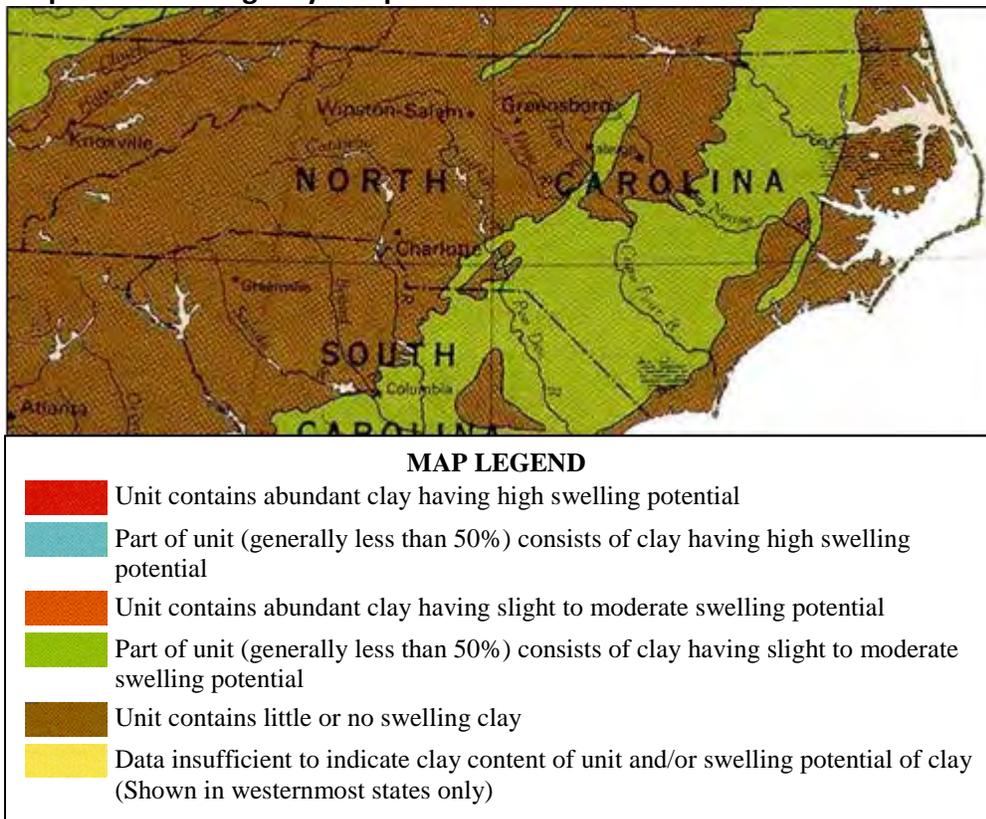
**Map 5-10**



Source: A Geochemical Atlas of North Carolina, NCDENR, Div of Energy, Mineral and Land Resources website

**Expansive Soil:** Although expansive soil is encountered in nearly every state in the United States, the problems related to expansive soil are most severe and widespread in the Great Plains and in the Gulf Coast states. Map 5-11 shows a map of potential swelling soil in North Carolina. \*7714 The information shown on this map appears to show a somewhat greater potential for swelling/expansive soils in the Coastal Plain areas of North Carolina (east of the Fall Zone) than in any other areas of the State. This would mean that within the planning area, Edgecombe County and eastern Wilson County would tend to have a greater potential for expansive soil, although that potential would only be slight to moderate, whereas in the other portions of the area would have little or no potential for expansive soil.

**Map 5-11: Swelling Clays Map for North Carolina**



Source: U.S. Geological Survey publication - "Swelling Clays Map of the Conterminous United States", 1989

**Geochemical:**

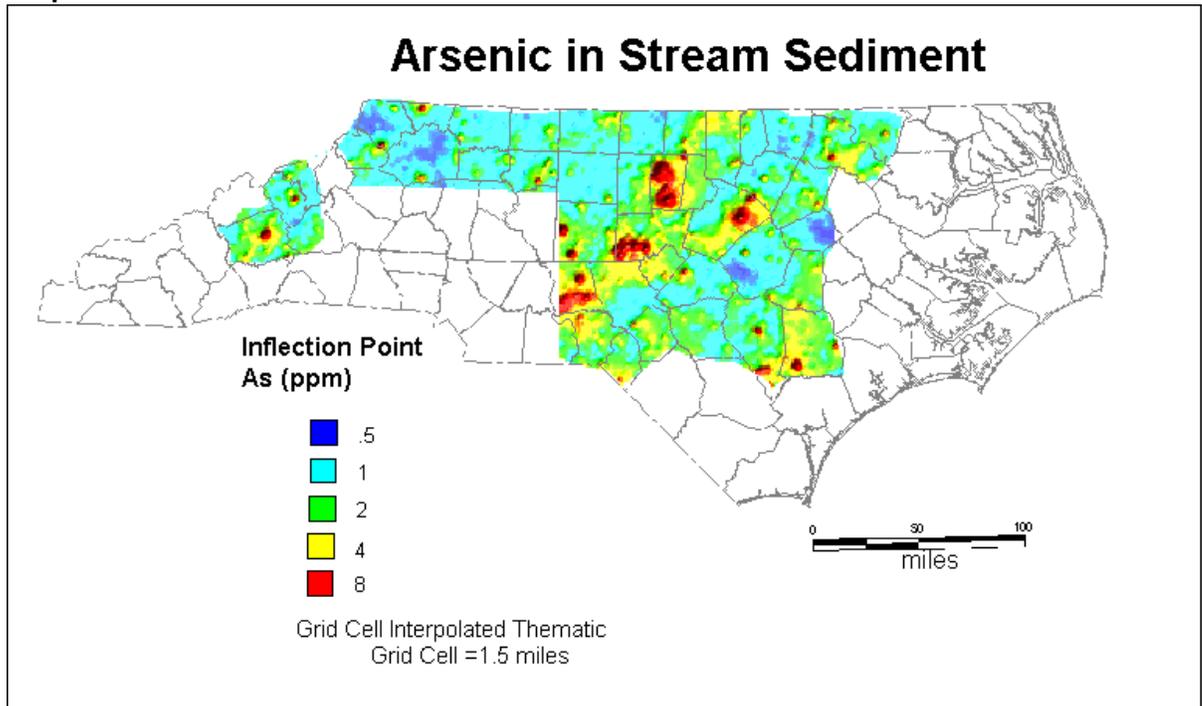
**Arsenic:** Areas of North Carolina's Piedmont that are underlain by metamorphosed volcanic and sedimentary rocks, commonly referred to as the "Slate Belt," have a greater number of wells with detectable and elevated levels of arsenic than in other regions. \*5 However, low to moderate to high levels of arsenic can be found in groundwater in other areas of North Carolina. Since July

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2008, North Carolina legislation has required well tests for all newly constructed domestic water-supply wells. The local health department inspects and samples the well, provides analytical results to the well owner and keeps the results on file. In Nash County, a map of Noncompliant Wells Samples has been developed from this data. Based on sample data collected through 07/15/13, there were several well samples that exceeded EPA's National Primary Drinking Water standard for arsenic. These wells were primarily located in south-central Nash County, north and northeast of Bailey as far north as NC 97. (Nash County's Map of Noncompliant Well Samples is included in Appendix E of this plan.)

The following map may also shed some light on where wells with arsenic may be found in the three-county planning area. This map was developed in the 1990s as part of "A Geochemical Atlas of North Carolina"; it shows the general distribution of arsenic in stream sediments based on samples taken at that time. Because of the limited focus and time that has passed since the map was produced, this map should not be used for site specific determinations. In addition, data for Edgecombe County is not included on the map.

**Map 5-12**



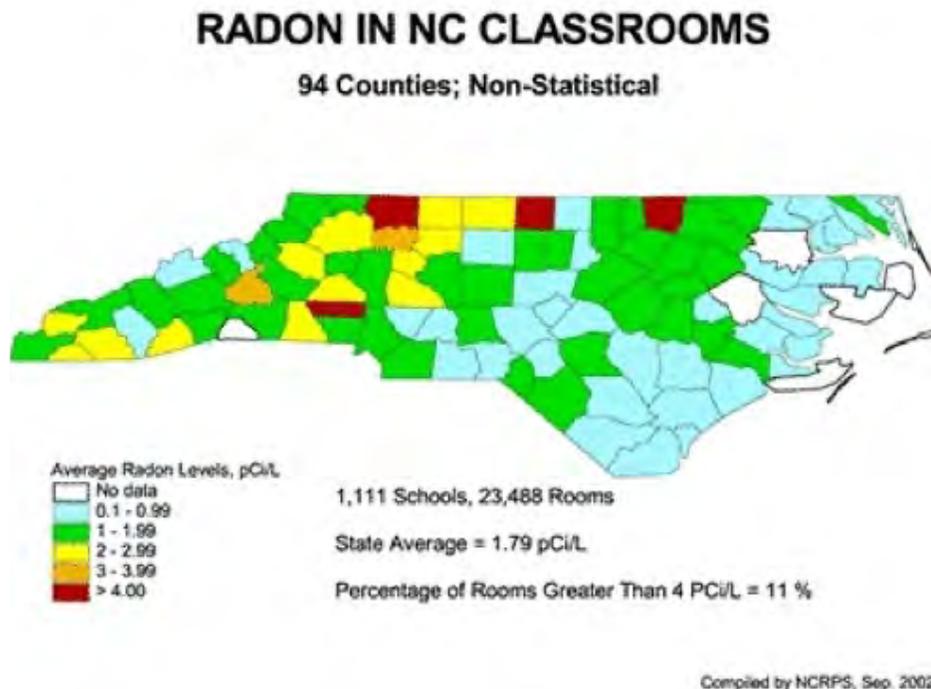
Source: A Geochemical Atlas of North Carolina, NCDENR, Div of Energy, Mineral and Land Resources website

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**Radon:** Radon can be found all over the US and NC. It can get into any type of building — homes, offices, and schools — and result in a high indoor radon level. But you and your family are most likely to get your greatest exposure at home, where you spend most of your time. The following statewide map (Map 5-13: Radon in NC Classrooms) is provided to give an example of the results of radon tests that have been conducted in the past. It is very important to note that this map and any data compiled on radon CAN NOT be used to predict whether a particular site or building will have elevated radon levels. Radon levels are very site specific. The only way to definitively know whether a building has high radon levels is to have it tested. The NC Radon Program recommends that ALL HOMES be tested. This includes apartments, mobile homes, homes with basements, and homes without basements. Testing your home for radon gas will help you determine the amount of radon you may be breathing.

Testing your home for radon is as simple as opening a package, placing a radon detector in a designated area, and after the prescribed number of days (usually 2-7 days), sealing the detector back in the package and mailing it to a lab for evaluation. \*4,5,6,7,8

**Map 5-13**

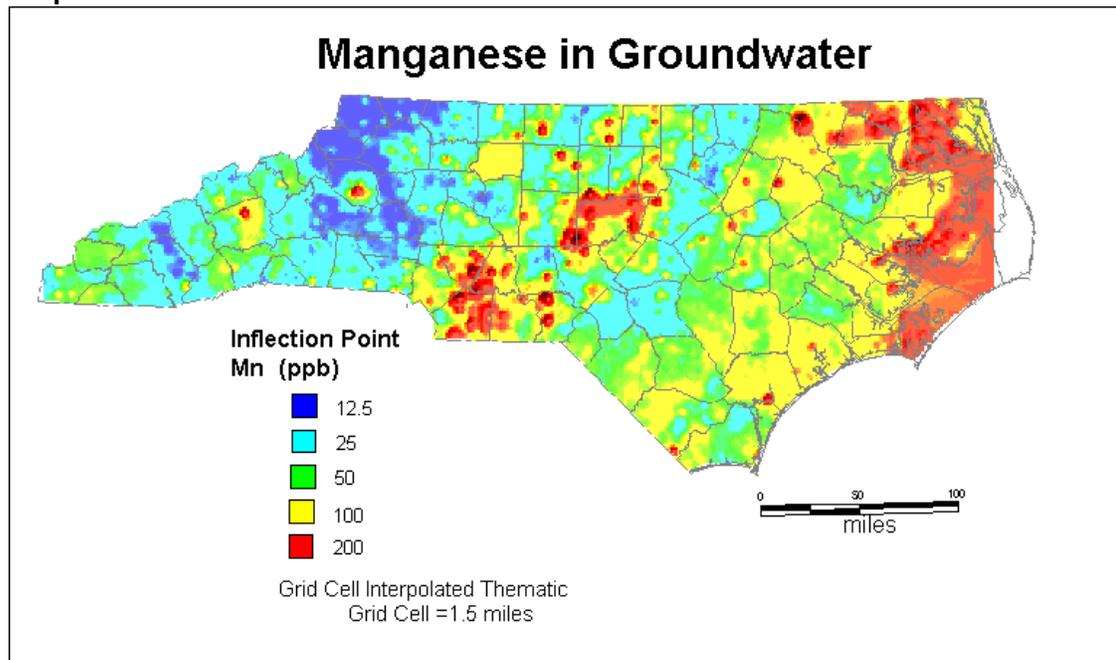


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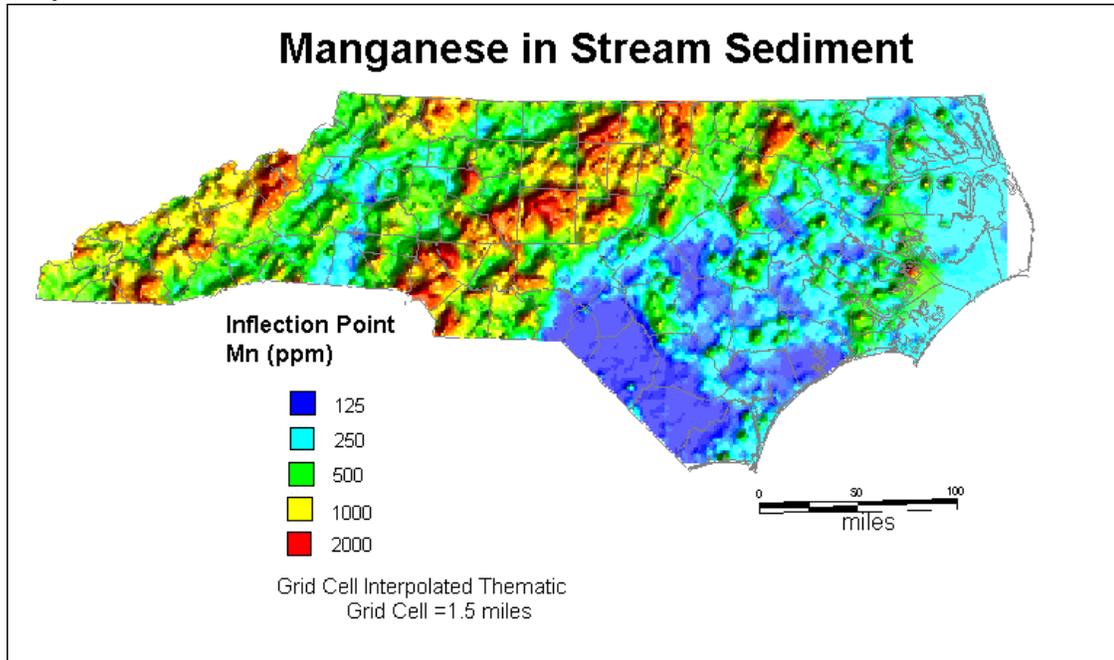
**Manganese:** The following maps may shed some light on where wells with manganese may be found in the three-county planning area. These two maps were developed in the 1990s as part of “A Geochemical Atlas of North Carolina”; they show the general distribution of manganese in groundwater and stream sediments based on samples taken at that time. Because of the limited scale of the maps and the time that has passed since they were produced, these maps should not be used for site specific determinations.

In Nash County, a map of Noncompliant Wells Samples has been developed from data that is collected from tests of all newly constructed domestic water-supply wells. Based on data collected through 07/15/13, there were numerous well samples that exceeded EPA’s National Secondary Drinking Water standard for manganese. These wells were located throughout most areas of Nash County. (Nash County’s Map of Noncompliant Well Samples is included in Appendix E of this plan.)(See the “Extent” and “Previous occurrences” subsections for Geological Hazards, which follow, for more information on the significance of this map and the other two below.)

**Map 5-14**



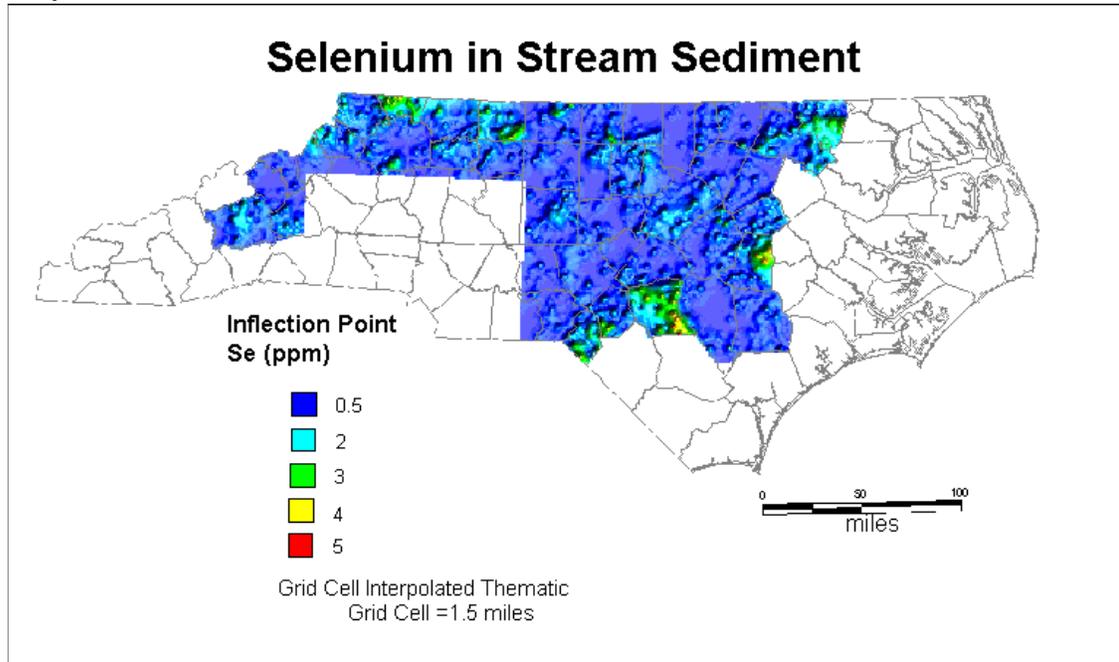
Map 5-15



Source: A Geochemical Atlas of North Carolina, NCDENR, Division of Energy, Mineral and Land Resources website

**Selenium:** The following map may shed some light on where wells with selenium are more likely to be found in the three-county planning area. This map was developed in the 1990s as part of “A Geochemical Atlas of North Carolina”; it shows the general distribution of selenium in stream sediments in Nash and Wilson County based on samples taken at that time. Because of the limited focus and map scale, and the time that has passed since the map was produced, this map should not be used for site specific determinations. In addition, data for Edgecombe County is not included on the map.

Map 5-16



Source: A Geochemical Atlas of North Carolina, NCDENR, Division of Energy, Mineral and Land Resources website

**Sinkholes:** In North Carolina, sinkholes are common features of the southern coastal plain, in areas where the Castle Hayne or River Bend Formations occur at or near the surface. In these areas a high concentration of limestone is present, whereas in the northern coastal plain the soil is relatively sandy. When they have occurred in NC, most sinkholes eventually become flooded and appear as small to medium sized circular lakes. They can be distinguished from non-sinkhole lakes by the absence of any outflow drainage and lack of relationship to surface drainage systems. \*3

In the three-county planning area, according to the 2010 NC Hazard Mitigation Plan, Wilson County has a much greater chance of experiencing naturally occurring sinkholes than do the other two counties. Wilson County had a vulnerability score of 240 on a scale of 0-625, whereas Edgecombe and Nash County had a score of 0.

**Subsidence:** The areas of the coastal plain of NC that have a higher chance of experiencing subsidence are very similar to the areas with a greater susceptibility for sinkholes. \*3

In the three-county planning area, according to the 2010 NC Hazard Mitigation Plan, Wilson County has a somewhat greater chance of experiencing subsidence than do the other two counties. Wilson County had a vulnerability score of 250 on a scale of 0-625, whereas Edgecombe and Nash County had a score of 150.

**Extent:**

Acidic Soils: Probably the best available source of information on the strength or magnitude of acidic soils is USDA's online WebSoilSurvey. Using this tool, it was determined that the pH of the soils in Edgecombe, Nash, and Wilson County typically have a low range of 3.5 to 4.5 and a high range of 5.5 to 6.5, with some unusual values potentially between 6.5 and 8.4. What this means is that the typical soils in the three county area tend to be generally acidic, with some potentially very acidic soils, and a few instances of potentially near neutral soils. Potentially alkaline or basic soils are very rare in the area. \*7

Another source of information related to soil pH values is the sampling of stream waters in NC, as shown in the previous Map 5-10: pH of Stream Water. Based on this information, the lowest stream water pH values (less than 5.0) occurred in a few areas in Wilson and Edgecombe County, with the two largest areas being in western Wilson County in the streams around Buckhorn Reservoir and in extreme eastern Edgecombe County in Fountain Fork Creek. Other acidic streams in the area have been found primarily throughout the eastern third of Edgecombe County and in northwestern Wilson County generally from Sims to Elm City; the pH values in these streams have been measured around 5.4 or lower.

Expansive Soil: It's estimated that approximately one half of the homes built in the United States today are constructed on expansive or other types of reactive soils. \*14 Fortunately, this problem does not appear to be nearly as severe in North Carolina. Nationally, structural damage caused by expansive/reactive soils is estimated at \$6-\$11 billion each year. Due to its wide-spread occurrence and overwhelming damage expense, in the US as a whole, reactive soils rate as the highest risk of any geological hazard, by a large measure. Therefore, anyone looking to buy or build a home should be aware of the potential problems that expansive/reactive soils can cause. \*14

The most common type of reactive soil is expansive clay which, following changes in moisture level, has the ability to shrink or swell. Some expansive clay can expand or contract up to 15 times its original size, thus releasing an extreme amount of stress upon the surrounding environment, including the foundation of your home or other building structure. \*15a

Shrink/swell can occur almost instantaneously. However, most clay soils are very fine grained and do not allow water to pass through them very quickly. This means that it may take several days or weeks to either dry or saturate to a point that shrink/swell can happen. Again, this is dependent on the actual make-up of the clay, climate,

temperature, and surface drainage. The magnitude of shrink or swell is dependent on a number of factors. Those factors that most frequently impact the amount of soil volume change are the amount of clay in the soil, the thickness of the expansive soil zone, the thickness of the active zone and the site climate. \*3

In order to determine the potential expansion of a soil at a specific site, a soils engineer can collect samples from the site and send them to a laboratory for testing. There are lab tests specifically developed to determine the potential for expansion of a soil sample. “By adding water to the sample while measuring its deformation, the soils engineer will compare the result to a scale or Expansion Index. The American Society of Testing Materials (ASTM D 4829) has published a test method and an Expansion Index to quantify the results. The Expansion Index range and potential expansion is as follows: 0-20: Very Low; 21-50: Low; 51-90: Medium; 91-130: High; >130: Very High.” \*15b

“It is important to remember that the soil profile for any particular property may be quite unique. Soil containing cobble, gravel, and sand may also be expansive depending upon the percentage and type of clay in the sample. Depending upon weathering patterns and other factors, near-surface soils may be highly expansive while soils at depth may be non-expansive.” \*15b

#### Geochemical:

Arsenic: In order to protect consumers against the effects of long-term, chronic exposure to arsenic in drinking water, in January of 2001, the US EPA adopted a new **standard for arsenic in drinking water at 10 parts per billion (ppb)**, replacing the old standard of 50 ppb. (This standard is sometimes expressed as 0.01 parts per million (ppm) or 0.01 milligrams per liter (mg/L), which are both equivalent to the 10 ppb standard.) The standard for arsenic is part of EPA’s mandatory National Primary Drinking Water Regulations. In setting these standards EPA has sought to maximize “health risk reduction benefits at a cost that is justified by the benefits.” \*16 In NC, the same standard is required to be met for groundwater used as a public water supply. \*5

Radon: “Like other environmental pollutants, there is some uncertainty about the magnitude of radon health risks. However, we know more about radon risks than risks from most other cancer-causing substances. This is because estimates of radon risks are based on studies of cancer in humans (underground miners).” \*8 “Radon is measured in picocuries per liter of air (pCi/L), a measurement of radioactivity. The U.S. EPA and the Centers for Disease Control and Prevention recommend that **homes with radon levels at or above 4 pCi/L be repaired** to reduce the amount of radon entering the indoor air.” \*6 The NC Radon Program

has information on testing ones home and an interactive mapping tool that allows one to find radon test results for their area at <http://www.ncradon.org/ncradon/index.html#testing>. The site also has information on hiring a trained and certified radon service professional to conduct a measurement in your home. The U. S. EPA highly recommends that anyone having their home measured or mitigated for radon have it done by someone that is certified by either the National Radon Proficiency Program (NRPP) or the National Radon Safety Board (NRSB). The EPA recognizes these two agencies for certification purposes. \*6

Manganese: The United States National Academy of Sciences recommends a daily intake of between 1.8 - 2.3 milligrams (mg) of manganese for adults in good health, with a tolerable upper intake level of 11 mg daily. \*3&17 The Agency for Toxic Substances and Disease Registry's "recommended daily intake of manganese is 2 to 5 mg/d for adults and adolescents". The average manganese levels found in various sources are as follows: average levels in drinking water are approximately 0.004 parts per million (ppm); air levels are approximately 0.02 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ); levels in soil range from 40 to 900 ppm; and the average daily intake from food ranges from 1 to 5 milligrams per day (mg/d). \*9 In addition to its mandatory National Primary Drinking Water Regulations, EPA has established National Secondary Drinking Water Regulations that set non-mandatory water quality standards for 15 contaminants. Manganese is one of the 15. EPA does not enforce these "secondary maximum contaminant levels". They are established only as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color and odor. These contaminants are not considered to present a risk to human health when ingested at or below the secondary maximum contaminant level. For manganese the level is 0.05 milligrams of substance per liter of water (mg/L). \*18 People living in an environment close to certain manganese using industries are at risk for a higher manganese exposure because of the airborne particles of the toxin. People who work in factories where manganese metal is produced from manganese ore or where manganese compounds are used to make steel or other products are most likely to be exposed through inhalation to higher than normal levels of manganese. \*9

Selenium: The United States National Academy of Sciences recommends a daily intake of between 55-60 micrograms of selenium for adults in good health, with a tolerable upper intake level of 400 micrograms daily. \*17 (Note: there are 1,000 micrograms (mcg) in 1 milligram (mg)).

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In 1974, Congress passed the Safe Drinking Water Act. This law requires EPA to determine the level of contaminants in drinking water at which no adverse health effects are likely to occur. (Contaminants are any physical, chemical, biological or radiological substances or matter in water.) Based on the determined levels, EPA then established non-enforceable health goals called maximum contaminant level goals (MCLG). MCLGs are based solely on possible health risks and exposure over a lifetime with an adequate margin of safety. The MCLG for selenium in drinking water is 0.05 mg/L or 50 ppb. EPA has set this level of protection based on the best available science to prevent potential health problems.

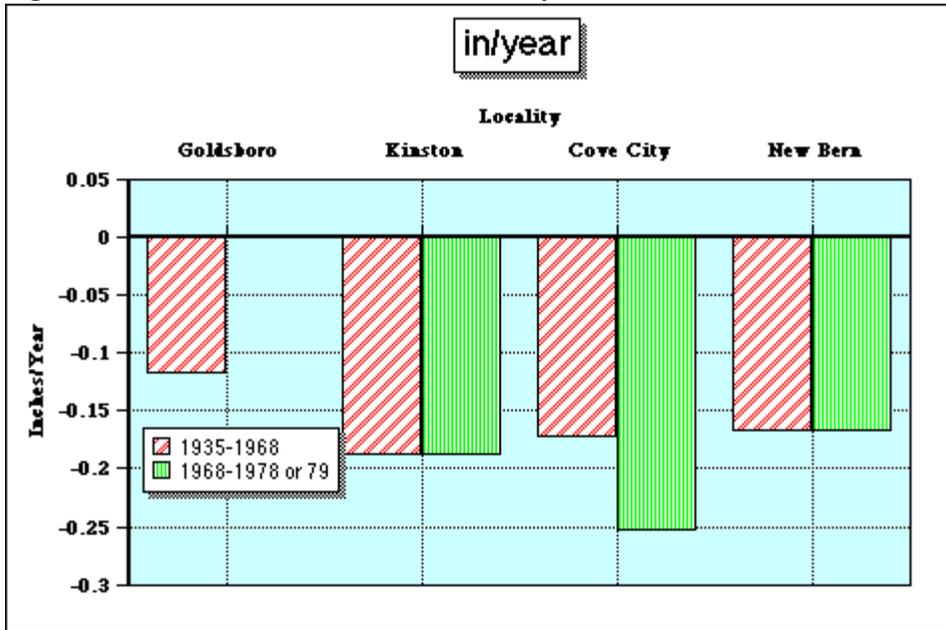
EPA has also set a required regulation for selenium, called a **maximum contaminant level (MCL), at 0.05 milligrams of substance per liter of water (mg/L) or 50 ppb.** (This standard can also be expressed as 0.05 parts per million (ppm) or 0.05 milligrams per liter (mg/L), which are both equivalent to the 50 ppb standard.) Public water systems are required to comply with this MCL. MCLs are set as close to the health goals as possible, considering cost, benefits and the ability of public water systems to detect and remove contaminants using suitable treatment technologies. In the case of selenium, the MCL equals the MCLG, because analytical methods or treatment technology do not pose any limitation. \*19

Sinkholes: Sinkholes can be characterized into two types. First, there are cover-collapse sinkholes, which can *develop abruptly (over a period of hours) and cause catastrophic damages.* Secondly, there are cover-subsidence sinkholes, which form slowly over time with the ground gradually subsiding or deflating. These types of events can be less noticeable and go undetected for long periods.

Sinkhole collapses can range in size and severity. Sinkholes can vary from a *few feet in width to hundreds of acres in area, and from less than one to more than 100 feet deep.* Sinkholes can have dramatic effects, especially in urban settings. They can contaminate water resources and have been seen to swallow up vehicles, swimming pools, parts of roadways, and even buildings. \*11a

Subsidence: In NC, rates of subsidence are measured in inches (or centimeters), whereas in other areas of the country (such as California) where subsidence can be much more extreme, subsidence is measured in feet (or meters). The graph in the following Figure 5-5 shows subsidence that has occurred in four municipalities in eastern NC between 1935 and 1978-79. This information was obtained from a 1993 study of land surface elevation data from Raleigh to New Bern by Emery Balazs with the National Geodetic Survey.

**Figure 5-5: Land Subsidence Rates for Representative Eastern NC Municipalities**



Source: NCDENR, Division of Water Quality, Land Subsidence Information webpage

The picture in the following Figure 5-6, shows the approximate location of maximum subsidence in the United States. The site is in the San Joaquin Valley of California. Signs on pole show approximate altitude of land surface in 1925, 1955, and 1977. In this case, excessive groundwater pumping allowed the upper soil layers to dry out, compress and compact, which is by far the single largest cause of subsidence. Soil compaction results in a reduction of the pore sizes between soil particles, resulting in essentially a permanent condition—rewetting of the underground soil and rock does not cause the land to go back up in altitude. This results in a lessening of the total storage capacity of the aquifer system. \*12

**Figure 5-6: Maximum Land Subsidence in the United States**



Source/Credit: Land Subsidence in the United States, USGS, USGS Fact Sheet-165-00

**Previous occurrences: \*3**

Acidic Soils: Besides the information contained in the previous “Extent” portion of this hazard, including the WebSoilSurvey data and Map 5-10: pH of Stream Water, there is currently no other known historical data regarding acidic soil impacts.

Expansive Soil: Other than the general information contained in the previous “Extent” portion of this hazard, including Map 5-11: Swelling Clays Map for North Carolina, there is currently no other known historical information regarding expansive soil impacts.

Geochemical:

Arsenic: According to EPA’s Toxics Release Inventory (TRI) Program’s Explorer interactive web-tool, in 2013 there was no arsenic being generated through industrial processes in the three-county planning area. But at least in Nash County, according to the County’s map of Noncompliant Well Samples, based on sample data collected through 07/15/13, there were several well samples that exceeded EPA’s National Primary Drinking Water standard for arsenic. These wells were primarily located in south-central Nash County, north and northeast of Bailey as far north as NC 97. (Nash County’s Map of Noncompliant Well Samples is included in Appendix E of this plan.)

Radon: The NC Radon Program has an interactive web-based map (<http://www.ncradon.org/ncradon/index.html>) that shows the highest radon levels (pCi/L) among all known tests within zip code areas in North Carolina. This map shows that there are four zip codes in the three-county area that have had at least one radon test result (and probably more) that exceeded the recommended maximum radon level of 4 pCi/L. These results are summarized in Table 5-20: Radon Test Results in Planning Area.

**Table 5.20: Radon Test Results in Planning Area**

| <b>Zip Code</b> | <b>County</b> | <b>General Area</b> | <b># of Tests (1996 to present)</b> | <b>Highest Test Level* (pCi/L)</b> |
|-----------------|---------------|---------------------|-------------------------------------|------------------------------------|
| 27896           | Wilson        | NW side of Wilson   | 23                                  | 5.5                                |
| 27886           | Edgecombe     | Tarboro             | 13                                  | 5.0                                |
| 27801           | Edgecombe     | Rocky Mount         | 4                                   | 6.4                                |
| 27816           | Nash          | Castalia            | 1                                   | 5.8                                |

Notes: \*Among all houses tested.

It is recommended by the NC Radon Program that a home be mitigated if it has an average test result (mitigation level) of 4 pCi/L or more.

Manganese: According to EPA’s Toxics Release Inventory (TRI) Program’s Explorer interactive web-tool, in 2013 there was some manganese being generated through industrial processes in the three-county planning area. In Nash County there were four companies that produced 6200 pounds of manganese, which were transferred off-site for release or disposal. In Edgecombe and Wilson County there was no recorded manganese being generated in 2013.

In addition to the information available from EPA, a map of Noncompliant Well Samples, including those for manganese, has been produced by Nash County from sample data collected through 07/15/13. This map, which is included in the Appendix E of this plan, shows numerous well samples that exceeded the National Secondary Drinking Water Regulation of 0.05 milligrams of manganese per liter of water (mg/L). But because this is a non-mandatory water quality standard, which is based on aesthetic considerations, such as taste, color and odor, these exceedances are not a major concern.

Selenium: According to EPA’s Toxics Release Inventory (TRI) Program’s Explorer interactive web-tool, in 2013 there was no selenium being generated through industrial processes in the three-county planning area. And according to Nash County’s map of Noncompliant Well Samples, based on sample data collected through 07/15/13, there were no well samples that exceeded EPA’s National

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Primary Drinking Water standard for selenium. (Nash County's Map of Noncompliant Well Samples is included in the Appendix E of this plan.)

**Sinkholes:** In the three-county planning area, there are no known sinkhole occurrences or records of sinkhole impacts.

**Subsidence:** Other than the information contained in Figure 5-5: Land Subsidence Rates for Representative Eastern NC Municipalities in the previous "Extent" portion of this hazard, there is no known historical information regarding subsidence in NC. Within the three-county planning area, there are no known records of subsidence or subsidence impacts.

**Probability of future events:** Because there are five different types of geological hazards and four sub-hazards (within the geochemical hazard type), a separate probability has been developed for four of the hazards and each of the four sub-hazards.

For **acidic soils**, based on the available information, this hazard has been assigned a rating of "**possible**" (between a 1% and 10% probability) for some structural damage or damage to vegetation resulting from this hazard somewhere within the three-county planning area over the next year or any year thereafter.

For **expansive soil**, based on the information available and presented in this plan, this hazard has been assigned a rating of "**possible**" (between a 1% and 10% probability) for some structural damage resulting from this hazard over the next year or any year thereafter in Edgecombe and Wilson County east of the Fall Zone, and "**unlikely**" (less than a 1% probability) in Nash and Wilson County west of the Fall Zone.

For **arsenic**, based on the data presented on the Nash County Noncompliant Well Samples map and other available information, this hazard has been assigned a rating of "**highly likely**" (a near 100 % probability) for some well water exceeding EPA's standard for arsenic in drinking water over the next year or any year thereafter in southern Nash County, and "**likely**" (between a 10% and 100% probability) in the remaining portions of the planning area. In southern Nash County over the last five years, there were on average two new wells each year that exceeded the national drinking water standard for arsenic.

For **radon**, based on the NC Radon Program test results and other available information, this hazard has been assigned a rating of "**likely**" (between a 10% and 100% probability) for exceeding the recommended maximum radon level for air within a dwelling unit over the next year or any year thereafter in Wilson and Edgecombe County, and "**possible**"

(between a 1% and 10% probability) in Nash County. In Wilson County 23 test results exceeded the recommended level during an 18 year time frame, and in Edgecombe County 17 test results were in excess over the same 18 years. But in Nash County, only one test result exceeded the recommended level.

For **manganese** and **selenium**, based on the available information, these hazards have both been assigned a rating of “**unlikely**” (less than a 1% probability) of causing any hazardous conditions over the next year or any year thereafter in the planning area.

For **sinkholes**, based on there being no known historical occurrences of this hazard in the planning area, a rating of “**unlikely**” (less than a 1% probability) of causing any hazardous conditions over the next year or any year thereafter has been assigned to the whole planning area.

For **subsidence**, based on the fact that in the planning area any such condition is likely to be so minor as to not result in any damages to property or persons, this potential hazard has been assigned a rating of “**unlikely**” (less than a 1% probability) over the next year or any year thereafter for the whole planning area.

## 5.2.7 Hurricanes, Tropical Storms, and Extratropical Storms (Nor'easters)



Hurricane Floyd satellite image  
Source: National Weather Service website, NOAA



Bethany Beach, Delaware after Ash Wednesday Storm (Nor'easter)  
Source: Delaware Public Archives

**Introduction/Types of hazards:** Hurricanes, tropical storms, and extratropical storms are strong low pressure weather systems that can significantly impact the counties included in this plan.

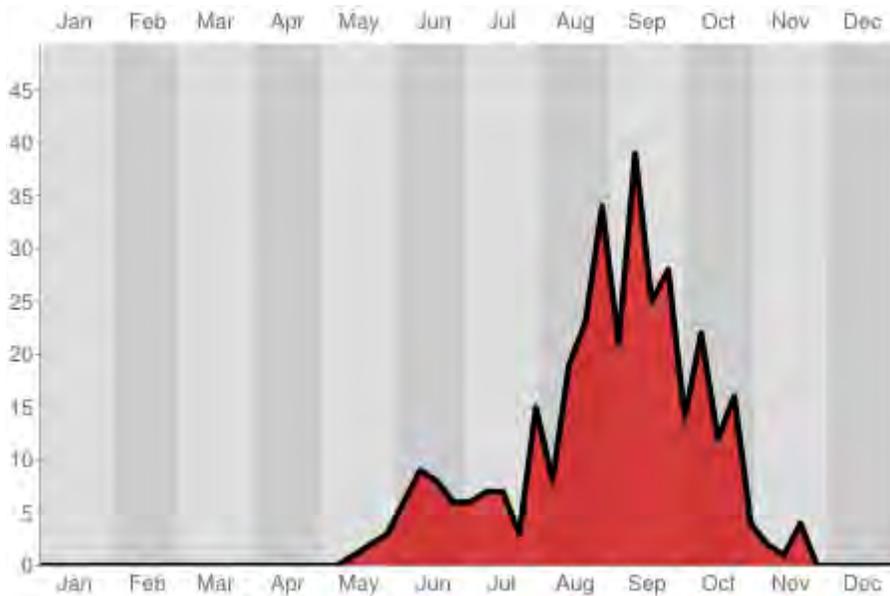
**Hurricane:** According to the National Hurricane Center website, a hurricane is the most intense type of [tropical cyclone](#) in which the maximum sustained surface Wind (using the U.S. 1-minute average) is 74 mph (64 knots) or more. \*<sup>1</sup> Tropical cyclones are warm-core, low-pressure systems producing high Winds that spiral counter-clockwise (in the northern hemisphere) and inward, with the highest Winds near the center of circulation. These warm-core storms typically form over the tropical and subtropical oceans and extract their energy from the heat content of the oceans. Less intense (than hurricanes) forms of tropical cyclones include tropical depressions and tropical storms; the differences between the three types of tropical cyclones are indicated as follows:

- **Tropical Depression**
  - Closed low-pressure system
  - Winds must rotate fully around the closed low-pressure center
  - Maximum sustained winds of up to 39 mph
- **Tropical Storm**
  - Appear more circular than a Tropical Depression, indicating more organization
  - Clearly recognizable rotation
  - Maximum sustained winds from 39 to 73 mph
- **Hurricane**
  - Well-organized, often with a distinct eye
  - Pronounced, strong rotation
  - Maximum sustained winds greater than 73 mph
  - Large range in intensity is described by the Saffir-Simpson Scale

Source: State Climate Office of NC

Hurricanes impacting North Carolina originate in the Atlantic basin, which includes the Caribbean Sea and the Gulf of Mexico. The season for these Atlantic basin hurricanes is “from June 1<sup>st</sup> to November 30<sup>th</sup> with the peak of hurricane season in early- to mid-September” as illustrated in Figure 5-7. This figure shows the total number of days on a weekly basis that the state has been impacted by hurricanes and tropical storms that have passed within at least 150 miles of the State. Although such “storms rarely form outside the hurricane season, there are exceptions: in 2007, Tropical Storm Andrea formed off the North Carolina coast in early May, and in 2005, Tropical Storm Zeta formed on December 30<sup>th</sup> and lasted into 2006.” In viewing Figure 5-7, one should “note the early season (June and July) activity in North Carolina.” This early season activity is typically not seen in other parts of the Atlantic, but is instead specific to the southeastern United States due to the warm Gulf Stream off the coast, and in the case of North Carolina, its protruding coastline. \*<sup>3</sup>

**Figure 5-7: Hurricanes & Tropical Storms Affecting North Carolina (1851-2013)**



Source: State Climate Office of NC

**Extratropical Storm (Nor'easter):** According to the National Weather Service, a nor'easter is a strong low pressure (cyclonic) system that affects the Mid Atlantic and New England States. It can form over land or over the coastal waters. It usually produces heavy snows, flooding rains, strong northeast Winds, coastal flooding, and beach erosion. The State Climate Office of North Carolina indicates that nor'easters are “named for the continuously strong northeasterly Wind that blows in from the Atlantic Ocean as the storm traverses near the coastline of the eastern U.S.” They further elaborate that such storms

“can produce significant weather for a large portion of North Carolina” with Wind gusts that can reach 74 mph (hurricane force Wind), “which can result in coastal erosion and property damage.” \*4 The National Oceanic and Atmospheric Administration (NOAA) website indicates that “nor’easters may occur any time of the year, but are most frequent and strongest between September and April. These storms usually develop between Georgia and New Jersey within 100 miles of the coastline and generally move north or northeastward. Nor’easters typically become most intense near New England and the Canadian Maritime Provinces.” They continue to state that “the East Coast of North America provides an ideal breeding ground for nor’easters. During winter, the polar jet stream transports Cold Arctic air southward across the plains of Canada and the U.S., and eastward toward the Atlantic Ocean, as warm air from the Gulf of Mexico and the Atlantic tries to move northward. The warm waters of the Gulf Stream help keep the coastal waters relatively mild during the winter, which in turn helps warm the Cold winter air over the water. This difference in temperature between the warm air over the water and Cold Arctic air over the land is the area where nor’easters are born.” Because many nor’easters occur during the winter months, some additional information on these storms may be included in the Severe Winter Weather section of this plan.

**Location:** Hurricanes, tropical storms, and extratropical storms are not localized events. Due to the typically large size of these storms (up to 400 miles wide) and the historical record, it is likely that the whole planning area would be impacted by any future storms. Any diminishment of the destructive force of a hurricane, tropical storm, or extratropical storm from one portion of the planning area to another would probably be negligible. Certain aspects of the storms, such as high Winds, would likely impact the whole area with essentially the same intensity, whereas other aspects, such as flooding, would be more significant within delineated floodplains (see the subsection titled “Flood” for more details). The conclusion that the whole planning area would be affected by such storms is supported by the NC State Hazard Mitigation Plan, which indicates the same vulnerability scores for hurricanes and nor’easters within all the counties included in this plan.

**Extent:** The extent or strength of hurricanes is measured by the Saffir-Simpson Hurricane Wind Scale (first proposed in 1971), which is a 1 to 5 categorization based on the hurricane's intensity at a particular time (as indicated in the following Table 5-21). Intensity of a storm is based on its maximum sustained Wind speed (taken as a 1-minute average) and matches up well with the destruction potential of the storm. (Starting in the 2009 hurricane season, the National Hurricane Center decided to omit the storm surge potential from each category because of its large variance based on other important factors besides Wind speed.) The Saffir-Simpson scale also provides examples of the type of damages and impacts associated with Winds of the indicated intensity. In

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general, damages rise by about a factor of four for every category increase. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous, however, and require preventative measures. \*1 & 3

| <b>Table 5-21: Saffir-Simpson Hurricane Scale</b> |                                       |  |
|---|---------------------------------------|--|
| <b>Category</b>                                   | <b>Sustained Winds</b>                | <b>Types of Damage Due to Hurricane Winds</b>  |
| 1   | 74-95 mph<br>64-82 knots              | <b>Very dangerous Winds will produce some damage:</b> Well-constructed frame homes could have damage to roof, shingles, vinyl siding and gutters. Large branches of trees will snap and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.  |
| 2   | 96-110 mph<br>83-95 knots             | <b>Extremely dangerous Winds will cause extensive damage:</b> Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks.  |
| 3 (major)   | 111-129 mph<br>96-112 knots           | <b>Devastating damage will occur:</b> Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to weeks after the storm passes.   |
| 4 (major)   | 130-156 mph<br>113-136 knots          | <b>Catastrophic damage will occur:</b> Well-built framed homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months. |
| 5 (major)   | 157 mph or higher<br>137 kt or higher | <b>Catastrophic damage will occur:</b> A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.  |

Source: National Hurricane Center, National Weather Service

The extent or strength of extratropical storms is commonly measured by the Dolan-Davis Nor'easter Intensity Scale (proposed in 1992), which is a classification of extratropical storms, or northeasters, that was developed for the middle Atlantic coast (see the following Table 5-22). The Dolan-Davis classification was developed based on an analysis of 1,347 such storms over a 42 year period. These storms were grouped into five classes based on the storm duration and wave height in Cape Hatteras, NC. This classification, which "is analogous to the commonly-used Saffir-Simpson Scale for tropical

cyclones” is also “a useful tool in comparing the relative strength of coastal storms” and in projecting storm damages. \*4

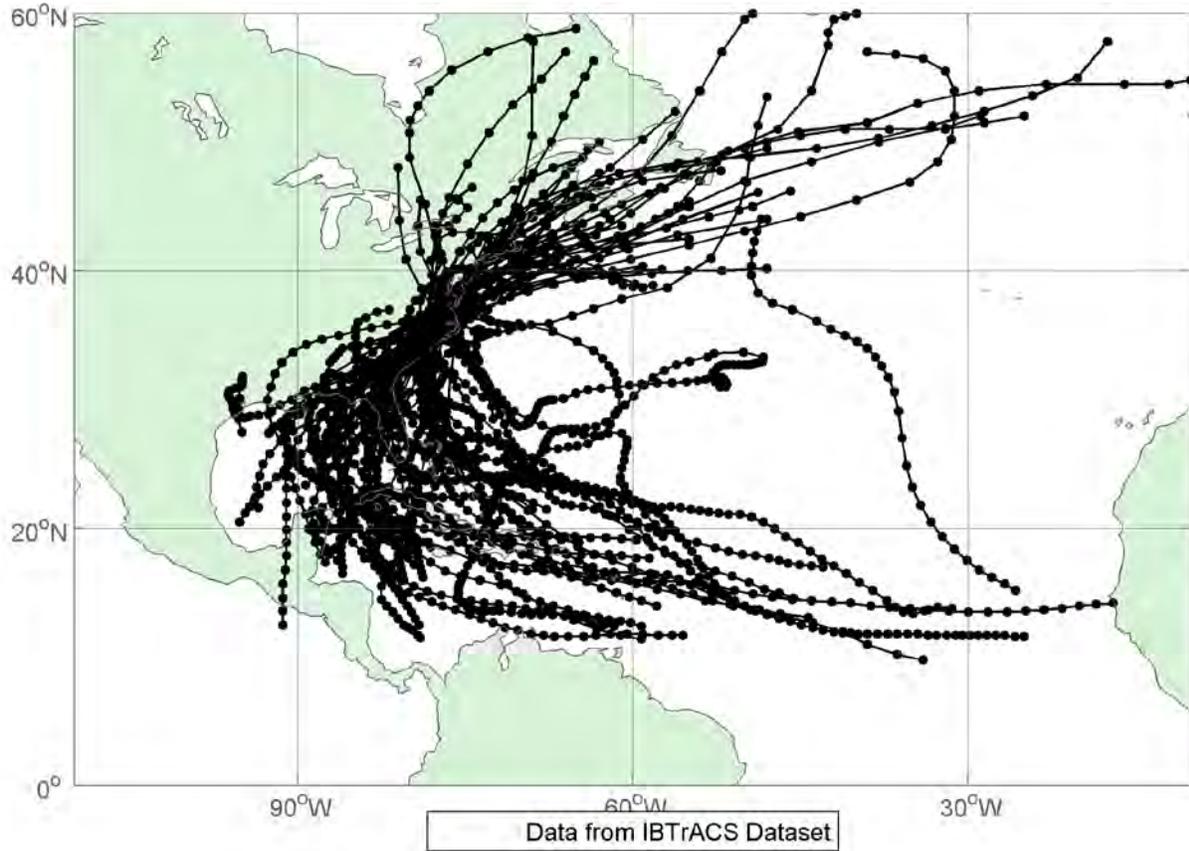
| <b>Table 5-22: Dolan-Davis Nor'easter Intensity Scale</b> |                                    |                                      |                        |  |
|---|------------------------------------|--------------------------------------|------------------------|--|
| <b>Storm Class</b>  | <b>Beach Erosion</b>               | <b>Dune Erosion</b>                  | <b>Inlet Formation</b> | <b>Property Damage</b>                           |
| 1 (weak)  | Minor changes                      | None                                 | No                     | No   |
| 2 (moderate)  | Modest; mostly to lower beach      | Minor                                | No                     | Minor, local                                     |
| 3 (significant)   | Extends across entire beach        | Can be significant                   | No                     | Loss of many structures at local level           |
| 4 (severe)  | Severe beach erosion and recession | Severe dune erosion or destruction   | Occasionally           | Loss of structures at community-level            |
| 5 (extreme)   | Extreme beach erosion              | Dunes destroyed over extensive areas | Common                 | Extensive at regional-scale: millions of dollars |

Source: Journal of Coastal Research, Vol. 8, No. 4, 1992

**Previous occurrences:**

Hurricanes: According to data obtained from the [National Oceanic and Atmospheric Administration](#)'s Historical Hurricane Tracks website, there have been a combined total of 64 hurricanes, tropical storms, and tropical depressions that have passed within 75 miles of the center of the planning area between 1851 and 2008. The tracks of these storms are illustrated on the following Map 5-17.

**Map 5-17: Tracks of Tropical Cyclones within 75 Miles of the Region from 1851 to 2008**



One can see from this map that the starting and ending points of these storms varied greatly, although the vast majority of these storms originated within either the Atlantic Ocean, Caribbean Sea, or the Gulf of Mexico, and dissipated in the northern parts of the North Atlantic Ocean. Due to their proximity (within 75 miles of the center of the Upper Coastal Plain region), it is likely that most if not all of these storms had some level of impact on the region, some having severe impact (like Hurricane Floyd for example). Table 5-23 lists the 64 storm names, when they occurred, and their category(s) as they were impacting the five county planning area. (The strongest storms (category 2 and 3 hurricanes) that impacted the region are listed in **bold**.)

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**Table 5-23: Hurricanes, Tropical Storms, and Depressions within 75 Miles of the Five-County Planning Area: 1851 – 2008**

| Year        | Month          | Storm Name       | Category(s) Impacting the Planning Area         |
|-------------|----------------|------------------|---|
| 1851        | August         | Not Named        | Tropical Storm                                  |
| 1854        | September      | Not Named        | Tropical Storm                                  |
| 1859        | September      | Not Named        | Tropical Storm                                  |
| 1861        | September      | Not Named        | Hurricane Cat 1/ Tropical Storm                 |
| 1872        | October        | Not Named        | Tropical Storm                                  |
| 1874        | September      | Not Named        | Hurricane Cat 1/ Tropical Storm                 |
| 1876        | September      | Not Named        | Hurricane Cat 1                                 |
| 1877        | October        | Not Named        | Tropical Storm                                  |
| <b>1878</b> | <b>October</b> | <b>Not Named</b> | <b>Hurricane Cat 2</b>                          |
| 1881        | September      | Not Named        | Hurricane Cat 1/ Tropical Storm                 |
| 1882        | September      | Not Named        | Tropical Storm                                  |
| 1883        | September      | Not Named        | Tropical Storm                                  |
| 1886        | July           | Not Named        | Tropical Storm                                  |
| 1887        | October        | Not Named        | Tropical Depression/ Tropical Storm             |
| 1888        | September      | Not Named        | Tropical Storm                                  |
| 1889        | September      | Not Named        | Tropical Storm                                  |
| 1893        | June           | Not Named        | Tropical Storm                                  |
| 1893        | October        | Not Named        | Hurricane Cat 1                                 |
| 1894        | October        | Not Named        | Tropical Storm                                  |
| 1897        | October        | Not Named        | Tropical Storm                                  |
| 1899        | Oct/Nov        | Not Named        | Hurricane Cat 1/ Tropical Storm                 |
| 1902        | June           | Not Named        | Tropical Storm                                  |
| 1904        | September      | Not Named        | Tropical Storm                                  |
| 1913        | September      | Not Named        | Hurricane Cat 1/ Tropical Storm                 |
| 1916        | May            | Not Named        | Tropical Storm                                  |
| 1916        | September      | Not Named        | Tropical Storm/ Tropical Depression             |
| 1924        | September      | Not Named        | Tropical Storm                                  |
| 1928        | September      | Not Named        | Tropical Storm/ Hurricane Cat 1/ Tropical Storm |
| 1929        | October        | Not Named        | Tropical Storm                                  |
| 1935        | September      | Not Named        | Tropical Storm                                  |
| 1940        | August         | Not Named        | Tropical Storm                                  |
| 1942        | October        | Not Named        | Tropical Depression                             |
| 1944        | August         | Not Named        | Tropical Storm                                  |
| 1944        | October        | Not Named        | Tropical Storm                                  |
| 1946        | October        | Not Named        | Tropical Depression                             |
| 1947        | October        | Not Named        | Tropical Depression                             |
| <b>1954</b> | <b>October</b> | <b>Hazel</b>     | <b>Hurricane Cat 3/ Hurricane Cat 1</b>         |

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| <b>Year</b> | <b>Month</b>     | <b>Storm Name</b> | <b>Category(s) Impacting the Planning Area</b>  |
|-------------|------------------|-------------------|---|
| 1955        | August           | Diane             | Tropical Storm                                  |
| 1956        | September        | Flossy            | Tropical Depression/ Tropical Storm             |
| 1959        | July             | Cindy             | Tropical Depression                             |
| 1960        | July             | Brenda            | Tropical Storm                                  |
| 1961        | September        | Unnamed           | Tropical Storm                                  |
| 1964        | August           | Cleo              | Tropical Depression                             |
| 1965        | June             | Unnamed           | Tropical Depression                             |
| 1970        | May              | Alma              | Tropical Depression                             |
| 1971        | October          | Ginger            | Tropical Storm/ Tropical Depression             |
| 1972        | June             | Agnes             | Tropical Depression/ Tropical Storm             |
| 1976        | September        | Subtrop 3         | Tropical Depression                             |
| 1985        | August           | Danny             | Tropical Depression                             |
| 1987        | September        | Unnamed           | Tropical Depression                             |
| 1996        | July             | Bertha            | Hurricane Cat 1/ Tropical Storm                 |
| 1997        | July             | Danny             | Tropical Depression/ Tropical Storm             |
| 1998        | September        | Earl              | Tropical Storm                                  |
| 1999        | September        | Dennis            | Tropical Storm/ Tropical Depression             |
| <b>1999</b> | <b>September</b> | <b>Floyd</b>      | <b>Hurricane Cat 2/ Hurricane Cat 1</b>         |
| 2000        | September        | Gordon            | Tropical Depression                             |
| 2000        | September        | Helene            | Tropical Depression/ Tropical Storm             |
| 2001        | June             | Allison           | Tropical Depression                             |
| <b>2003</b> | <b>September</b> | <b>Isabel</b>     | <b>Hurricane Cat 2/ Hurricane Cat 1</b>         |
| 2004        | August           | Charley           | Tropical Storm                                  |
| 2004        | August           | Gaston            | Tropical Depression                             |
| 2006        | June             | Alberto           | Tropical Storm                                  |
| 2006        | September        | Ernesto           | Tropical Storm/ Trop. Depression/Tropical Storm |
| 2008        | September        | Hanna             | Tropical Storm                                  |

Source: NOAA, Historical Tracks website

Of these 64 storms, there was one category 3 Hurricane (Hazel), three category 2 hurricanes, nine category 1 hurricanes, thirty-eight tropical storms, and thirteen tropical depressions – based on their greatest intensity while impacting the planning area. Twenty five of the 64 storms actually crossed over at least one of the five counties included in this plan. Of the twenty-five that crossed the area, there were 3 hurricanes (Isabel in 2003 and two unnamed storms – one in 1928 and another in 1876), 15 tropical storms (Hanna in 2008, Ernesto in 2006, Dennis in 1999 and twelve unnamed storms in the years of 1944(2), 1935, 1916(2), 1904, 1889, 1886, 1883, 1877, 1874, and 1854) and 7 tropical depressions. Looking at these storm records, one can see that the three busiest decades in terms of major storms (hurricanes & tropical storms) that crossed the region, were the 1870s, 1880s, and 2000s, each of which had three such storms.

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Regarding the damages that have resulted in the region from these storms, according to the National Climatic Data Center (NCDC) website, such records are only available from 1996 to the present. Unfortunately the data from the NCDC is not very comprehensive; more comprehensive data is available from the Spatial Hazard Events and Losses Database for the United States (SHELDUS), but the majority of that data is currently only available by purchase. The very limited data that is available for the planning area is indicated in the following Table 5-24. As indicated in this table, the estimated damages for the planning area from these six storms was over \$ 746 million in property damages and nearly \$ 187.5 million in crop damages. Since these figures do not include all of the counties that were impacted by these storms, the actual damages between 1996 and February of 2014 are likely to be significantly higher than indicated. Although these storms were some of the larger ones to impact the planning area, since they are only a small portion of the total number of such storms, one can only guess what the total property and crop damages that have occurred in the area over the years.

**Table 5-24: Damages from Hurricanes Affecting the Five-County Planning Area:  
1996 – 2014 (through February)**

| Date             | Storm Name    | Counties Impacted | Category <sup>1</sup> | Estimated Regional Damages <sup>2</sup>                          |   |
|------------------|---------------|-------------------|-----------------------|--|---|
|                  |               |                   |                       | Property   | Crop  |
| 1996-July        | Bertha        | All five          | 1 Hurricane           | \$ 9,353,333<br>(Wilson Co only)                                 | \$ 8,466,667<br>(Wilson Co only)                                |
| 1996-Sept        | Fran          | All five          | 1 Hurricane           | \$ 322,580,645<br>(4 of 5 counties,<br>excluding<br>Northampton) | \$ 64,516,129<br>(4 of 5 counties,<br>excluding<br>Northampton) |
| 1998-Aug         | Bonnie        | E, N, W           | 1 Hurricane           | None or not<br>available   | \$ 50,000,000<br>(Wilson Co only)                               |
| 1999-Sept        | Dennis        | E, H, N, W        | Tropical<br>Storm     | \$ 20,864,286<br>(Wilson Co only)                                | None or not<br>available  |
| 1999-Sept        | Floyd         | E, H, N, W        | 2 Hurricane           | \$ 387,096,774   | \$ 64,516,129   |
| <u>2003-Sept</u> | <u>Isabel</u> | <u>All five</u>   | <u>2 Hurricane</u>    | <u>\$ 6,128,000</u>  | None or not<br><u>available</u>                                 |
| <b>Totals</b>    |               |                   |                       | <b>\$ 746,023,038</b>  | <b>\$ 187,498,925</b>   |

Notes: <sup>1</sup>- within 75 miles of region, <sup>2</sup> - Losses are not adjusted for inflation,

Sources: National Climatic Data Center;

SHELDUS (Hazards & Vulnerability and Research Institute at the University of South Carolina)

Some additional details on some of the more significant hurricanes that have impacted the planning area are included as follows:

**Unnamed Hurricane of 1878 (10/23/1878):** This category 2 hurricane (also known as the Great October Gale of 1878) made landfall north of Cape Lookout, North Carolina with Winds of around 100 mph. The storm's path took it over New Bern and Williamston, with areas east of the track experiencing hurricane force Winds. In North Carolina and Virginia, there were several ships that were destroyed by the storm. Those in NC included at least three steamers: *City of Houston* (wrecked on Frying Pan Shoals), *Florence Witherbee* (ran aground at Cape Lookout), and *General Barnes* (lost off Cape Hatteras), as well the schooners *Altoona* (washed ashore one mile south of Cape Hatteras), and the schooner *Magnolia* (sank in Albemarle Sound). Many of the storm's fatalities were drownings that resulted from these and other ships being destroyed. Although the records of inland damages in NC from this storm are somewhat sketchy, reports from Virginia and other areas where the hurricane was at equal or lesser intensity, indicated widespread devastation. "The Wind's strength was great enough to un-roof houses, knock down church steeples, uproot trees, and in some places, destroy buildings." \*5 In Virginia, reports indicated crop losses, as well as considerable structural damage to many dwellings. \*5 & 6

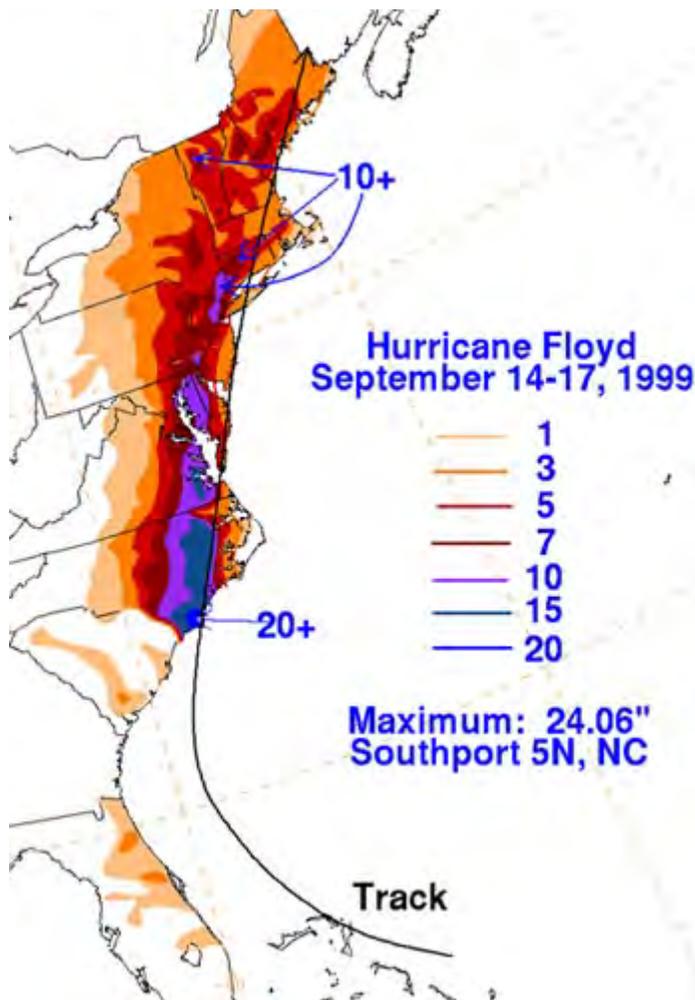
**Hurricane Hazel (10/15/1954):** Hurricane Hazel is the only category 3 hurricane to directly impact the planning area, and is "the most intense hurricane to make landfall in North Carolina during the 20th century. The Category 4 hurricane swept inland near South Carolina, making shambles of many North Carolina beach communities. Destructive Winds affected the eastern quarter of the state, with reports of 100 mph+ gusts north to the Virginia border. Isolated flash flooding occurred west of Hazel's track." \*6

**Hurricane Floyd (09/14/1999–09/15/1999):** Hurricane Floyd made landfall just west of Cape Fear (south of Wilmington) as a category 2 storm, and then tracked over Jacksonville and Edenton. While off the coast of Florida, Floyd was classified as a Category 4 hurricane on the Saffir-Simpson scale. Hurricane Floyd was responsible for the largest peacetime evacuation in the history of the United States, and will likely be categorized as one of the most costly hurricanes to strike the United States during the 20th century. The storm caused massive record flooding and an environmental catastrophe across inland sections of eastern North Carolina, as a result of widespread rainfall amounts between 10 and 15 inches, as illustrated on Map 5-18. These rainfall amounts were made even worse by heavy rains from Hurricane Dennis, which had crossed the area 11 days earlier. \*6 & 7

**Hurricane Isabel (09/17/2003–09/18/2003):** This category 2 hurricane made landfall around 1 pm on Sept. 18, 2003 just north of Cape Lookout (southeast of Morehead City in eastern Carteret County). The eye of the storm headed to the northwest and then turned

northward, passing over eastern Halifax County, where Wind gusts of near hurricane-force were recorded. Many locations in the Coastal Plain received Wind gusts between 50 and 70 mph late in the afternoon until early evening. Many trees were uprooted, subsequently falling on vehicles and homes all across the area. Up to 6 inches of rain fell across Edgecombe, Halifax, and Wilson counties, resulting in the flooding of several roads. Isabel will be remembered for the greatest Wind and storm surge to occur in the region since Hurricane Hazel in 1954, and the 1933 Chesapeake-Potomac Hurricane before that. Also, Isabel will be remembered for the extensive power outages it caused in northeast North Carolina, and the permanent change its storm surge and fallen trees left on the landscape. There were eight deaths directly attributed to Isabel, with one of those fatalities occurring in North Carolina, as well as more than 15 deaths indirectly attributed to the storm.

**Map 5-18: Hurricane Floyd Rainfall Totals**



Source: [Hydrologic Prediction Center](#), NOAA/ National Weather Service, National Centers for Environmental Prediction

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Extratropical Storms (Nor'easters): Unfortunately, the record keeping/data for nor'easters is not nearly as comprehensive as for hurricanes and other hazards. The National Climatic Data Center, for example, does not include them on their list of 48 event types. The following table is a list of notable nor'easters that have impacted North Carolina, as contained in the NC Hazard Mitigation Plan (2010).

| <b>Table 5-25: Nor'easters Impacting North Carolina: 1935 – 2009</b> |             |                            |                          |
|--|-------------|----------------------------|--------------------------|
| <b>Event</b>   | <b>Date</b> | <b>Greatest NC Damages</b> | <b>Extent of Damages</b> |
| Nor'easter   | 11/1935     | Dare County                | \$2.0 million            |
| Ash Wednesday Storm  | 03/1962     | Dare County                | \$1.9 million            |
| Nor'easter   | 04/1988     | Dare County                |                          |
| "The Perfect Storm"<br>(Halloween Storm)                             | 10/1991     | Outer Banks                | \$6.7 million            |
| Storm of the Century   | 03/1993     | NW NC mountains            |                          |
| Labor Day Nor'easter   | 09/1994     | New Hanover County         |                          |
| Nor'easter   | 04/2007     | Dare County                |                          |
| Nor'easter   | 11/2009     | Dare County                | \$2.0 million            |

Source: NC State Hazard Mitigation Plan

**Probability of future events:** Based on the historical data (previous occurrences) included in this plan for hurricanes and tropical storms, which indicated 51 such storms over a 158 year period (1851 through 2008), the probability of a **hurricane or tropical storm event** (in which there would likely be some damages) occurring sometime during the next year or any year was calculated to be 32 percent. Thereafter this hazard has been given a rating of "**likely**" – which means there is between a 10% and 100% probability of it occurring sometime in the planning area during the next year or any year thereafter.

### 5.2.8 Severe Winter Weather



**Introduction/Types of hazards:** Severe winter weather can include heavy snow, strong Wind, Freezing Rain, ice pellets (Sleet), and extreme Cold. The storms that cause severe winter weather are typically extra-tropical cyclones that form in the Gulf of Mexico or off the southeast Atlantic Coast and are fueled by strong temperature gradients and an active upper-level jet stream. “While the danger from winter weather varies across the country, nearly all Americans, regardless of where they live, are likely to face some type of severe winter weather at some point in their lives. Winter storms can range from a moderate snow over a few hours to a blizzard with blinding, Wind-driven snow that lasts for several days. Many winter storms are accompanied by dangerously low temperatures and sometimes by strong Winds, icing, Sleet and Freezing Rain.

One of the primary concerns is the winter weather's ability to knock out heat, power and communications services to your home or office, sometimes for days at a time. Heavy snowfall and extreme cold can immobilize an entire region.

The National Weather Service refers to winter storms as the “Deceptive Killers” because most deaths are indirectly related to the storm. Instead, people die in traffic accidents on icy roads and of hypothermia from prolonged exposure to cold.

**Location:** Severe winter weather is typically not a localized event, although it is possible that certain counties within the planning area could be impacted by a particular weather event, while other counties are not significantly impacted. Certain aspects of severe winter weather, such as high Wind, would likely impact the whole area with essentially the same intensity, whereas other aspects, such as snowfall, ice accumulation, or low temperatures could be more significant within certain limited areas depending on the specific aspects of each storm or weather event. According to the 2010 NC Hazard Mitigation Plan, for each of the specific severe winter weather related hazards that were evaluated (Freezing Rain, snowstorm, blizzard, Wind chill, and extreme Cold) each of the five counties in the planning area had the same numeric vulnerability rating. In other words, Northampton County was rated as having the same chance of experiencing Freezing Rain (for example) as Wilson and the other three counties. One exception to

this general conclusion, is regarding the historical records for average seasonal snowfall, which showed Northampton, Halifax, and the northern portions of Nash and Edgecombe County having an average seasonal snowfall of 6 to 9 inch, whereas Wilson County and the southern portions of Nash and Edgecombe County were shown to have an average seasonal snowfall of 4 to 6 inches. But because the average seasonal snowfall does not directly correlate to severe winter weather --as the seasonal snowfall could be distributed among several small snow events - it is also important to obtain and consider the records of the largest snowfall events that have occurred in the planning area. This information is included in the "Previous occurrences" subsection for this hazard. In spite of any variations in the intensity of severe winter weather that may occur within the region, the overall conclusion is that every portion of the planning area is subject to severe winter weather from time to time.

**Extent:** Typical measures of the extent of severe winter weather can include the depth or thickness of snow or ice (in inches in the US) or an extreme low temperature or extended low temperature event. Unfortunately these measurements are not readily available for most storms from nationally recognized data sources like the National Climatic Data Center, and local sources of such information can be unreliable. The State Climate Office of North Carolina does have available records of the five greatest one-day snowfall events and most extreme low temperature for each county in NC. Therefore, this information, as well as more general storm descriptions from various sources is included in the following information on previous occurrences of severe winter weather in the planning area.

**Previous occurrences:** The best source of data on severe winter weather events, at the time this plan was prepared, was the National Climatic Data Center. Unfortunately, their data reporting only included events from January of 1996 to the present. Earlier and more comprehensive data was likely available from the Spatial Hazard Events and Losses Database for the United States (SHELDUS), but that data was only available by purchase. Additional data, for winter weather events prior to 1996, was able to be obtained from the State Climate Office of NC. Table 5-26 is a compilation of the historical data available from the National Climatic Data Center, the State Climate Office of NC, and previous versions of the hazard mitigation plans of the five counties contained in this regional plan.

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**Table 5-26: Winter Weather – Winter Storm Data for the Planning Area:  
1959 – February 2014**

| <b>Area(s)<br/>Impacted</b> | <b>Starting Date<br/>of Event</b> | <b>Event Type<br/>(General)</b> | <b>Hazardous<br/>Conditions</b>  | <b>Magnitude</b> |
|-----------------------------|-----------------------------------|---------------------------------|----------------------------------|------------------|
| Statewide                   | 1959/02/03                        | Winter Weather - Ice            | Freezing Rain                    | N/A              |
| All Five Counties           | 1960/02/13                        | Winter Weather - Storm          | Snow, Sleet, Freezing Rain, Wind | N/A              |
| Statewide                   | 1960/03/02                        | Winter Weather - Storm          | Snow, Sleet                      | N/A              |
| Statewide                   | 1960/03/09                        | Winter Weather - Storm          | Snow, Sleet                      | N/A              |
| Statewide                   | 1960/03/11                        | Winter Weather - Storm          | Snow, Sleet                      | N/A              |
| Edgecombe, Nash, Wilson     | 1961/01/01                        | Winter Weather - Storm          | Snow, Sleet                      | N/A              |
| Statewide                   | 1961/01/21                        | Winter Weather - Storm          | Snow, Freezing Rain, Cold        | N/A              |
| Statewide                   | 1961/01/26                        | Winter Weather - Storm          | Snow, Sleet, Freezing Rain       | N/A              |
| Statewide                   | 1961/02/03                        | Winter Weather - Storm          | Sleet, Freezing Rain             | N/A              |
| Northampton                 | 1961/02/07                        | Winter Weather                  |                                  | N/A              |
| Northampton                 | 1962/01/01                        | Winter Weather                  |                                  | N/A              |
| Northampton                 | 1962/01/05                        | Severe Winter Weather           |                                  | N/A              |
| Edgecombe, Nash, Wilson     | 1962/01/10                        | Winter Weather - Storm          | Snow, Sleet                      | N/A              |
| Edgecombe, Nash, Wilson     | 1962/01/19                        | Winter Weather - Storm          | Snow, Sleet                      | N/A              |
| Edgecombe, Nash, Wilson     | 1962/01/28                        | Winter Weather - Storm          | Snow, Sleet                      | N/A              |
| All Five Counties           | 1962/12/12                        | Winter Weather                  |                                  | N/A              |
| Statewide                   | 1963/01/24                        | Winter Weather                  | Wind, Cold                       | N/A              |
| All Five Counties           | 1963/01/26                        | Winter Weather                  |                                  | N/A              |
| Statewide                   | 1963/01/29                        | Winter Weather                  | Cold                             | N/A              |
| Statewide                   | 1963/02/26                        | Winter Weather – Storm          | Snow, Cold                       | N/A              |
| Northampton                 | 1963/11/29                        | Severe Winter Weather           |                                  | N/A              |
| Edgecombe, Nash, Wilson     | 1963/12/23                        | Winter Weather - Ice            | Freezing Rain                    | N/A              |
| Edgecombe, Nash, Wilson     | 1963/12/31                        | Winter Weather - Ice            | Freezing Rain, Wind              | N/A              |
| Statewide                   | 1964/01/13                        | Winter Weather - Storm          | Snow, Cold                       | N/A              |
| Statewide                   | 1964/03/30                        | Winter Weather                  | Cold                             | N/A              |
| Northampton                 | 1965/01/16                        | Winter Weather - Storm          | Snow, Cold                       | N/A              |

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| Area(s) Impacted                      | Starting Date of Event | Event Type (General)   | Hazardous Conditions             | Magnitude |
|---------------------------------------|------------------------|------------------------|----------------------------------|-----------|
| Edgecombe, Halifax, Nash, Wilson      | 1965/01/16             | Winter Weather         | Cold                             | N/A       |
| Statewide                             | 1965/01/30             | Winter Weather - Storm | Snow, Sleet, Freezing Rain, Cold | N/A       |
| Edgecombe, Halifax, Nash, Northampton | 1966/01/15             | Winter Weather - Storm | Snow, Sleet, Freezing Rain       | N/A       |
| Statewide                             | 1966/01/25             | Winter Weather - Storm | Snow, Sleet, Freezing Rain       | N/A       |
| Statewide                             | 1966/01/29             | Winter Weather - Storm | Snow, Extreme Cold, Wind         | N/A       |
| All Five Counties                     | 1966/05/09             | Winter Weather         |                                  | N/A       |
| Edgecombe, Nash, Wilson               | 1967/01/19             | Winter Weather - Storm | Snow, Sleet, Freezing Rain       | N/A       |
| Edgecombe, Nash, Wilson               | 1967/02/07             | Winter Weather - Storm | Snow, Sleet, Freezing Rain       | N/A       |
| Statewide                             | 1967/02/08             | Winter Weather - Storm | Heavy Snow, Sleet, Freezing Rain | N/A       |
| Edgecombe, Halifax, Nash, Northampton | 1967/02/17             | Winter Weather - Ice   | Freezing Rain                    | N/A       |
| Statewide                             | 1967/02/25             | Winter Weather         | Cold                             | N/A       |
| Statewide                             | 1967/03/18             | Winter Weather         | Cold                             | N/A       |
| Statewide                             | 1968/01/09             | Ice Storm              | Freezing Rain, Sleet             | N/A       |
| Statewide                             | 1968/01/24             | Ice Storm              | Snow, Freezing Rain              | N/A       |
| Statewide                             | 1968/11/09             | Winter Weather         | Wind                             | N/A       |
| Statewide                             | 1969/02/15             | Winter Weather - Storm | Sleet, Freezing Rain             | N/A       |
| Northampton                           | 1969/02/22             | Winter Weather         |                                  | N/A       |
| Edgecombe, Halifax, Nash, Northampton | 1969/03/01             | Winter Weather - Storm | Snow, Sleet                      | N/A       |
| All Five Counties                     | 1969/12/25             | Winter Weather         |                                  | N/A       |
| Statewide                             | 1970/01/07             | Winter Weather - Storm | Cold, Snow, Sleet, Freezing Rain | N/A       |
| Statewide                             | 1970/01/20             | Winter Weather - Storm | Cold, Snow, Sleet, Freezing Rain | N/A       |
| Statewide                             | 1970/02/04             | Winter Weather         | Cold                             | N/A       |
| Wilson                                | 1970/12/01             | Winter Weather/Wind    |                                  | N/A       |
| Statewide                             | 1971/01/08             | Winter Weather - Storm | Freezing Rain                    | N/A       |
| Edgecombe, Nash, Wilson               | 1971/02/03             | Winter Weather - Fog   | Freezing Rain, fog               | N/A       |
| Statewide                             | 1971/02/13             | Winter Weather - Storm | Wind                             | N/A       |

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| Area(s) Impacted  | Starting Date of Event | Event Type (General)   | Hazardous Conditions                          | Magnitude                                   |
|-------------------|------------------------|------------------------|---|---|
| Northampton       | 1971/03/01             | Winter Weather - Storm | Wind, Sleet, Snow?                            | N/A   |
| All Five Counties | 1971/03/25             | Winter Weather - Storm | Snow  | N/A   |
| Northampton       | 1971/04/05             | Severe Winter Weather  |   | N/A   |
| Statewide         | 1971/12/03             | Winter Weather - Storm | Snow, Sleet, Freezing Rain?                   | N/A   |
| All Five Counties | 1972/01/16             | Winter Weather         | Cold  | N/A   |
| Statewide         | 1973/01/07             | Winter Weather - Storm | Snow, Sleet, Freezing Rain?                   | N/A   |
| All Five Counties | 1973/02/09             | Winter Weather - Storm | Heavy Snow, Wind                              | 5 to 6" in Rocky Mount area, more to the SE |
| All Five Counties | 1975/02/04             | Winter Weather - Storm | Freezing Rain and Snow                        | N/A   |
| All Five Counties | 1975/12/25             | Ice Storm              | Freezing Rain                                 | N/A   |
| All Five Counties | 1976/01/07             | Winter Weather         |   | N/A   |
| All Five Counties | 1976/03/14             | Winter Weather         |   | N/A   |
| All Five Counties | 1978/01/12             | Winter Weather - Wind  |   | N/A   |
| All Five Counties | 1978/01/19             | Winter Weather - Wind  |   | N/A   |
| Statewide         | 1979/02/17             | Winter Weather - Storm | Heavy Snow                                    | 8 to 9" estimated in the area               |
| Statewide         | 1980/03/01             | Winter Weather - Storm | Heavy Snow, Blizzard                          | 16 to 27" in most of the area               |
| All Five Counties | 1982/01/10             | Winter Weather - Storm | Snow then Sleet w/ mainly Freezing Rain, Cold | 1 to 4" range, 2" average snow/Sleet        |
| All Five Counties | 1983/02/06             | Winter Weather - Storm | Snow to Sleet/ Freezing Rain                  | 1 to 2" snow                                |
| All Five Counties | 1983/02/10             | Winter Weather - Storm | Freezing Rain, Wind                           |   |
| All Five Counties | 1983/03/24             | Winter Weather - Storm | Snow, Wind                                    |   |
| All Five Counties | 1983/04/18             | Winter Weather - Storm | Snow, Freeze                                  |   |
| Statewide         | 1983/12/24             | Winter Weather         | Cold  |   |
| All Five Counties | 1984/01/13             | Ice Storm              | Light Freezing Rain and Sleet                 |   |
| All Five Counties | 1984/02/05             | Winter Weather - Storm | Snow  | 3" in Rocky Mount                           |
| Statewide         | 1985/01/20             | Winter Weather         | Extreme Cold                                  | -3 to -8°F in most locations                |
| All Five Counties | 1985/01/28             | Winter Weather - Storm | Snow  |   |

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| Area(s) Impacted                      | Starting Date of Event | Event Type (General)   | Hazardous Conditions  | Magnitude   |
|---------------------------------------|------------------------|------------------------|---|---|
| All Five Counties                     | 1985/04/09             | Winter Weather         |   |   |
| All Five Counties                     | 1987/02/16             | Ice Storm              | Sleet, Freezing Rain  | 1 to 5"+ Sleet & some Freezing Rain   |
| All Five Counties                     | 1988/01/03             | Ice Storm              | Freezing Rain   |   |
| Statewide                             | 1988/01/07             | Winter Weather - Storm | Heavy Snow with some Sleet in eastern- most parts of region | generally 4 to 6", except for ~3" in east, ~8" in SW Nash Co  |
| Statewide                             | 1989/02/17             | Winter Weather - Storm | Heavy Snow  | around 1 to over 10":   |
| All Five Counties                     | 1989/12/09             | Ice Storm              | Freezing Rain   |   |
| All Five Counties                     | 1989/12/22             | Winter Weather - Storm | Snow, Wind  | from a trace to 4":   |
| Statewide                             | 1989/12/25             | Winter Weather         | Extreme Cold  |   |
| All Five Counties                     | 1992/12/27             | Ice Storm              | Freezing Rain   |   |
| Halifax, Northampton                  | 1993/02/25             | Winter Storm           |   |   |
| All Five Counties                     | 1993/03/12             | Winter Storm           |   |   |
| Halifax, Northampton                  | 1993/03/13             | Winter Weather         | Extreme Cold  |   |
| Statewide                             | 1994/01/03             | Winter Storm           | Heavy Snow  |   |
| Edgecombe, Nash, Wilson               | 1994/01/15             | Winter Storm           |   |   |
| Statewide                             | "                      | Winter Weather         | Extreme Cold  |   |
| Statewide                             | 1994/01/19             | Winter Weather         | Extreme Cold  |   |
| All Five Counties                     | 1994/02/10             | Ice Storm              | Freezing Rain   |   |
| Edgecombe, Halifax, Nash, Northampton | 1995/02/15             | Ice                    | Freezing Rain   |   |
| Wilson                                | 1996/01/06             | Ice Storm              | Freezing Rain, some Sleet                                   | 0.25" ice   |
| Edgecombe, Halifax, Nash, Northampton | 1996/01/06             | Winter Storm           | Snow, Sleet to Freezing Rain                                | 4 to 6" snow in NW areas, 0.25" ice in SE areas in Edgecombe & Nash Co; 4 to 6" snow in Halifax Co; 3 to 6" snow in Northampton Co. |
| Edgecombe, Halifax, Nash, Wilson      | 1996/01/11             | Ice Storm              |   |   |
| Edgecombe, Halifax, Nash, Wilson      | 1996/02/02             | Ice Storm              |   |   |
| Northampton                           | "                      | Winter Storm           | Sleet, Freezing Rain  |   |

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| <b>Area(s) Impacted</b>          | <b>Starting Date of Event</b> | <b>Event Type (General)</b> | <b>Hazardous Conditions</b>                | <b>Magnitude</b>  |
|----------------------------------|-------------------------------|-----------------------------|--|---|
| Northampton                      | 1996/02/03                    | Winter Storm                | Snow                                       | 2-6 inches  |
| Edgecombe, Halifax, Nash, Wilson | "                             | Cold/Wind Chill             |  |   |
| Northampton                      | 1996/02/05                    | Cold/Wind Chill             | below 0F temps                             |   |
| Nash                             | 1996/02/06                    | Heavy Snow                  |  |   |
| Northampton                      | 1996/02/16                    | Winter Storm                | Snow                                       |   |
| Edgecombe, Halifax, Nash, Wilson | "                             | Heavy Snow                  |  |   |
| Edgecombe, Nash, Wilson          | 1998/01/19                    | Heavy Snow                  | Rain to Snow                               | 2-4 inches  |
| Northampton                      | 1998/12/23                    | Ice Storm                   | Freezing Rain/ Sleet                       | 0.25 to 0.5" ice  |
| Edgecombe, Halifax, Nash, Wilson | "                             | Ice Storm                   | Freezing Rain                              | 0.25 to 1" ice  |
| Edgecombe, Halifax, Nash, Wilson | 2000/01/18                    | Winter Storm                | Snow, Sleet to Freezing Rain               | 1-3" snow, less than 0.25" ice  |
| Northampton                      | 2000/01/19                    | Winter Storm                | Snow                                       | 2-3" snow   |
| Edgecombe, Halifax, Nash, Wilson | 2000/01/20                    | Winter Storm                | Snow to Freezing Rain/ Rain                | around 2"   |
| Edgecombe, Halifax, Nash, Wilson | 2000/01/22                    | Winter Storm                | Snow to Sleet/ Freezing Rain               | around 1" snow, 0.25" ice   |
| Edgecombe, Halifax, Nash, Wilson | 2000/01/24                    | Winter Storm                | Freezing Drizzle, Sleet to Snow            | 4-8" snow   |
| Northampton                      | "                             | Winter Storm                | Heavy Snow                                 | 7-10" snow  |
| Edgecombe, Halifax, Nash, Wilson | 2000/01/28                    | Winter Storm                | Freezing Rain to Rain                      | less than 0.25" ice   |
| Edgecombe, Halifax, Nash, Wilson | 2000/11/19                    | Heavy Snow                  | Rain to Sleet/ Snow                        | around 2"   |
| All Five Counties                | 2000/12/02                    | Winter Storm                | Heavy Snow                                 | ~3 to nearly 12" in Edgecombe, Halifax, Nash & Wilson Co; ~3 to 9" in Northampton       |
| Northampton                      | 2002/01/02                    | Winter Storm                | Heavy Snow                                 | 5 to 12.5" snow: see Impacts column for details   |
| Edgecombe, Halifax, Nash, Wilson | 2002/01/03                    | Winter Storm                | Snow to Sleet/ Freezing Rain, back to Snow | ~8 to 10" snow totals   |
| All Five Counties                | 2002/12/04                    | Winter Storm                | Snow/ Sleet to Freezing Rain               | around 1" snow, & 0.25 to 0.5" ice in Northampton Co; 0.25+" ice in other four counties |

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| <b>Area(s) Impacted</b>                   | <b>Starting Date of Event</b> | <b>Event Type (General)</b> | <b>Hazardous Conditions</b>  | <b>Magnitude</b>   |
|---|-------------------------------|-----------------------------|------------------------------|--|
| Northampton                               | 2003/01/16                    | Winter Storm                | Snow/ Freezing Rain/ Sleet   | 1 to 2" snow, light ice coating: see Impacts column for details  |
| Northampton                               | 2003/01/23                    | Winter Storm                | Snow                         | ~2 to 3"   |
| Northampton                               | 2003/02/15                    | Winter Storm                | Snow/ Ice                    | around 1" snow & some ice  |
| Halifax, Nash, Wilson                     | 2003/02/16                    | Winter Storm                | Sleet/ Freezing Rain         | up to 1" Sleet, around 0.25" ice: see Impacts column for details   |
| Northampton                               | 2003/11/30                    | Frost/freeze                |                              |  |
| Northampton                               | 2004/01/09                    | Winter Storm                | Snow                         | around 1" snow   |
| All Five Counties                         | 2004/01/25                    | Winter Storm                | Snow/ Sleet to Freezing Rain | 3 to 5" snow/Sleet & 1/8" ice in Edgecombe Co, 1/10" ice in other four counties plus ~4" snow/Sleet in Northampton Co, & ~3 to 4" snow/Sleet in Halifax, Nash, Wilson Co |
| Northampton, Edgecombe, Halifax, Nash     | 2004/02/15                    | Winter Storm                | Snow                         | 3-4" Northampton Co, 2-3" in Halifax Co & northern Edgecombe & Nash Co, lesser amounts to the south  |
| Edgecombe, Nash & Wilson                  | 2004/02/26                    | Winter Storm                | Snow                         | generally 2 to 6" in Nash Co, 3 to 5" in Wilson Co, & 2 to 3" in Edgecombe Co  |
| Halifax                                   | 2004/02/26                    | Winter Weather              | Snow                         | around a trace to 1"   |
| Edgecombe, Halifax, Northampton, & Wilson | 2004/12/19                    | Winter Weather              | Snow                         | 3 to 4" in SE Halifax Co, ~2" in eastern Edgecombe & SE Northampton Co, around 1" in most other areas  |

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| Area(s) Impacted                       | Starting Date of Event | Event Type (General) | Hazardous Conditions         | Magnitude  |
|--|------------------------|----------------------|------------------------------|--|
| All Five Counties                      | 2004/12/26             | Winter Storm         | Snow/ Sleet/ Freezing Rain   | 6 to 9" in eastern Northampton Co, ~6" in Edgecombe, ~4 to 6" in eastern Halifax, Nash & Wilson Co, 1 to 2" in NW Halifax & Northampton Co |
| All Five Counties                      | 2005/01/19             | Winter Weather       | Snow                         | 1 to 2", except less in southern Wilson Co   |
| Edgecombe, Halifax, Nash & Northampton | 2005/01/20             | Winter Weather       | Snow                         | around 1", except less in southern Edgecombe & Nash Co   |
| All Five Counties                      | 2006-02-20             | Winter Weather       | Sleet, Snow, Freezing Rain   |  |
| Nash, Wilson                           | 2007/02/01             | Winter Weather       | Snow                         | around 1" in Wilson Co & southern Nash Co  |
| Edgecombe, Halifax, Nash, Wilson       | 2007/12/07             | Winter Weather       | Freezing Rain                | up to 1/16th inch of ice   |
| Statewide                              | 2009-01-17             | Winter Weather       | Cold                         | 8 to 12 degrees F  |
| All Five Counties                      | 2009/01/19             | Winter Storm         | Snow                         | 4 to 6" in Edgecombe, 3 to 6" in Halifax, Nash, Wilson   |
| Northampton                            | "                      | Winter Weather       | Snow                         | 1 to 2"  |
| Edgecombe                              | 2009/02/04             | Winter Weather       | Snow                         | 1 to 3" mainly from Tarboro south-eastward   |
| Wilson                                 | "                      | Winter Storm         | Snow                         | 2 to 4" in a band ~20 miles wide   |
| All Five Counties                      | 2009/03/01             | Winter Weather       | Snow                         | ~0.5 to 3" with highest amounts in central Northampton, lowest in SE Halifax Co  |
| Halifax, Northampton                   | 2009/12/18             | Winter Weather       | Snow                         | 1 to 2"  |
| Halifax, Northampton                   | 2010/01/29             | Winter Storm         | Heavy Snow                   | 7 to 11" from central Halifax to the north   |
| Edgecombe, Nash & Wilson               | "                      | Winter Storm         | Snow, trace of Freezing Rain | ~3 to 4" snow, except 6+" in northern Nash Co, a trace of ice in all three counties  |
| Halifax, Northampton                   | 2010/02/12             | Winter Weather       | Snow                         | ~1 to 3"   |
| Edgecombe, Nash, Wilson                | "                      | Winter Storm         | Snow                         | 3 to 4"  |
| Halifax                                | 2010/03/02             | Winter Weather       | Snow                         | 1 to 2"  |
| Edgecombe, Nash, Wilson                | "                      | Winter Storm         | Snow                         | ~2.5 to 4"   |

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| <b>Area(s) Impacted</b>                       | <b>Starting Date of Event</b> | <b>Event Type (General)</b> | <b>Hazardous Conditions</b> | <b>Magnitude</b>  |
|---|-------------------------------|-----------------------------|-----------------------------|---|
| Edgecombe, Halifax, Nash, Wilson              | 2010/12/04                    | Winter Weather              | Snow                        | ~1 to 3" with higher amounts in central & northern Edgecombe & Nash Co  |
| Edgecombe, Halifax, Nash, Northampton, Wilson | 2010/12/15                    | Winter Weather              | Snow/ Freezing Rain         | 0.1 to 2.5" snow with higher amounts in northern Halifax Co; a trace to 1/10" ice with higher amounts in northern Nash/Edgecombe & southern Halifax |
| Edgecombe, Halifax, Nash, Northampton, Wilson | 2010/12/26                    | Winter Storm                | Heavy Snow                  | 7 to 13" with highest storm amounts in Edgecombe, Nash, Wilson, & SE Halifax  |
| Halifax                                       | 2011/01/07                    | Winter Weather              | Snow                        | Around 1"   |
| Edgecombe, Halifax, Nash, Northampton, Wilson | 2011/01/10                    | Winter Weather              | Freezing Rain/ Snow         | A trace to 1/5" ice with higher amounts in W Halifax & N Nash; a trace of snow in All Five Counties counties  |
| Edgecombe, Halifax, Nash, Northampton, Wilson | 2011/02/09                    | Winter Weather              | Snow                        | A trace to 0.5"   |
| Edgecombe, Halifax, Nash, Northampton, Wilson | 2012/02/19                    | Winter Weather              | Snow                        | A trace to 1" with higher amounts in NW Northampton/ Halifax Co   |
| Edgecombe, Halifax, Nash, Northampton, Wilson | 2013/01/17                    | Winter Weather              | Snow                        | A trace to 1.7" with higher amounts in NW Halifax Co  |
| Northampton                                   | 2013/01/25                    | Winter Weather              | Snow                        | 1 to 2"   |
| Edgecombe, Halifax, Nash, Northampton, Wilson | 2013/01/28                    | Winter Weather              | Freezing Rain               | A trace in All Five Counties counties, except SE Edgecombe/ S Wilson Co   |
| Edgecombe, Halifax, Nash, Northampton, Wilson | 2013/02/16                    | Winter Weather              | Snow                        | 0.5 to 2+" with higher amounts in E Edgecombe & W Nash/ Wilson Co   |
| Nash  | 2013/12/26                    | Winter Weather              | Freezing Rain               | light glaze on bridges/ overpasses  |
| Edgecombe, Halifax, Nash, Northampton, Wilson | 2014/01/21                    | Winter Weather              | Snow                        | 1 to 3.5" with lower amounts in Northampton Co  |

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| Area(s) Impacted                              | Starting Date of Event | Event Type (General) | Hazardous Conditions       | Magnitude  |
|---|------------------------|----------------------|----------------------------|--|
| Edgecombe, Halifax, Nash, Northampton, Wilson | 2014/01/28             | Winter Storm         | Snow                       | 2.5 to 6" with slightly higher amounts in portions of Edgecombe, Halifax & Wilson Co |
| Edgecombe, Nash, Wilson                       | 2014/02/11             | Winter Weather       | Snow                       | A trace to 0.5" with slightly higher amounts in Wilson Co                            |
| Edgecombe, Halifax, Nash, Wilson              | 2014/02/12             | Winter Storm         | Snow/ Sleet/ Freezing Rain | 3 to 5" snow, a trace to 1/10" ice with slightly higher amounts of both in Nash      |
| Northampton                                   | 2014/02/12             | Winter Storm         | Snow                       | 2 to 4"  |

Sources: National Climatic Data Center, the State Climate Office of NC, and previous versions of local hazard mitigation plans

**Probability of future events:** There have been approximately 198 recorded severe winter weather events (and more actual events including unreported ones) in the planning area over a 55.17 year period (1959 through February of 2014). Based on this data, the probability of another **severe winter weather** event occurring any year within the planning area as a whole was calculated to be roughly 360 percent. (In other words it could be expected that in the average year, there would be three or more such events in the planning area.) Therefore, this hazard has been given a rating of **“highly likely”** – which means there is a near 100% probability of occurrence somewhere in the planning area during the next year and any year thereafter.

### 5.2.9 Thunderstorms (Hail, Lightning, Thunderstorm Wind)



**Introduction/Types of hazards:** “A thunderstorm is a rain shower during which you hear thunder. Since thunder comes from lightning, all thunderstorms have lightning.” \*A A thunderstorm can consist of a single cumulonimbus cloud , a cluster of clouds, or a line of clouds. Thunderstorms form when moist, unstable air near the surface is lifted. This lifting can be caused by thermals generated from a strongly heated surface, the forcing of air upward along a frontal boundary or terrain surfaces, or by the upward motion produced by winds converging near the surface. Thunderstorms are generally transient phenomena that last anywhere from 10 minutes to several hours. They are most likely to occur during the afternoon and evening hours, although they can take place at any hour.

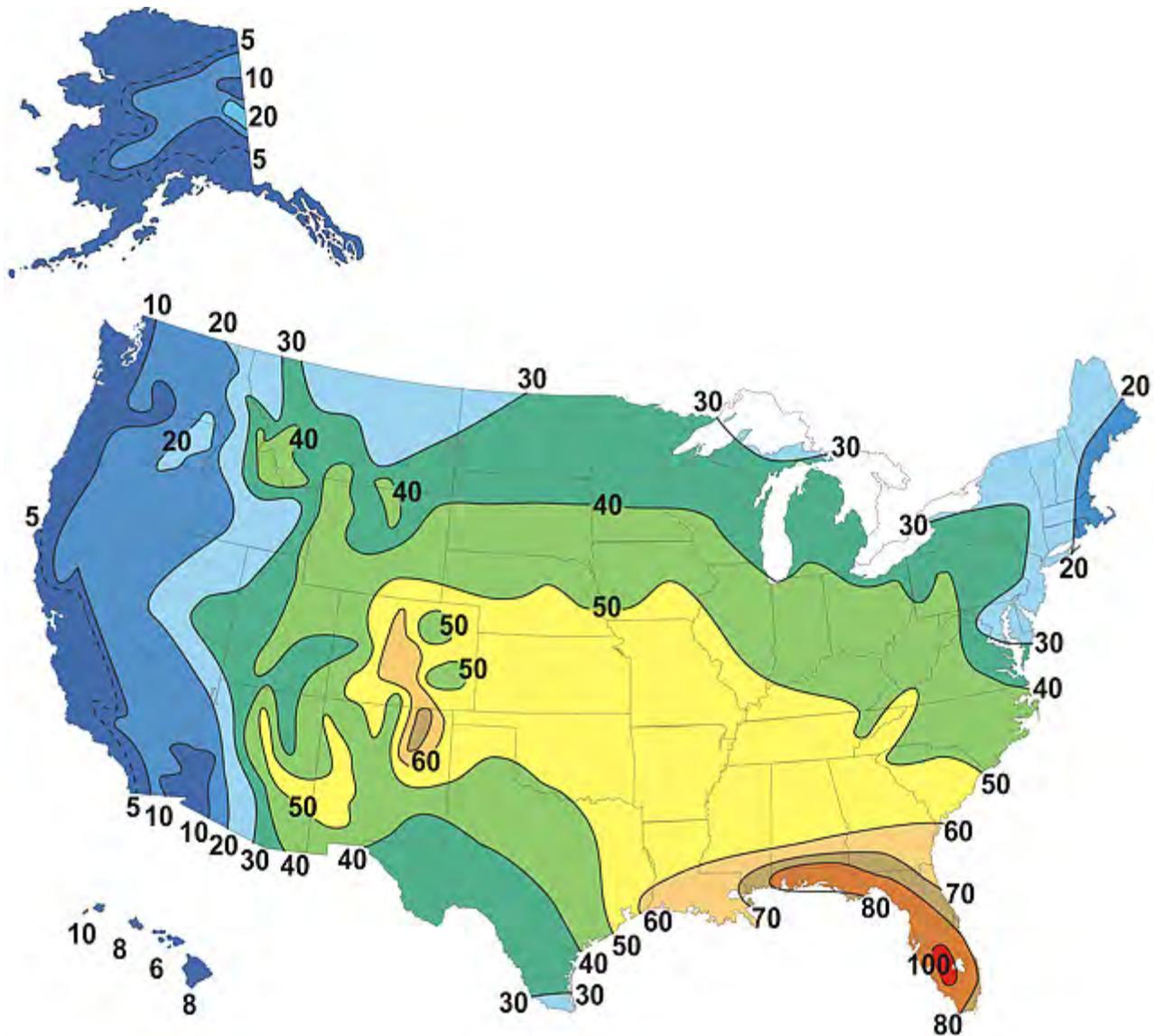
Showery rain and gusty winds often accompany thunderstorms, and in some cases they may also be associated with hail or snow. Thunderstorms occur most frequently during the spring and summer, but they are not unknown in the winter, when thunder can sometimes be heard during intense snowstorms. \*A&B (The term “thunder snow” has been coined as a result of the combination of these two unusual atmospheric partners.)

It is estimated that there are 40,000 or more thunderstorms that occur each day worldwide. At any given moment, there are almost 2,000 thunderstorms taking place somewhere on the earth. This translates into somewhere between 14.6 and 16 million occurrences annually! The United States experiences about 100,000 thunderstorms

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each year. In central and eastern North Carolina, there are typically 40 to 50 days each year in which thunderstorms occur, as illustrated in Map 5-19. \*A&B

**Map 5-19: Average Number of Thunderstorm Days per Year in the United States**



Source: State Climate Office of NC, Thunderstorms Overview webpage

A thunderstorm is classified as “severe” when it contains one or more of the following: hail one inch or greater, winds gusting in excess of 50 knots (57.5 mph), or a tornado. \*A  
In order address these potential aspects (lightning, hail, wind, tornado) of thunderstorms, this “Thunderstorm” subsection of the plan includes more detailed information and data on hail, lightning, and thunderstorm wind. Because of its potentially catastrophic impact, tornadoes are addressed in a separate hazard category (subsection 5.2.10).

**Location:** Because thunderstorms, and their associated sub-hazards of hail, lightning, and strong wind are meteorological or atmospheric based, and there are no major limiting or contributory factors (such as mountains or an ocean within the planning area) that could significantly inhibit their occurrence, every county and portion of the planning area is considered to be vulnerable to these hazards.

**Extent:** The strength or magnitude of a thunderstorm can be measured in a variety of ways, including whether it is classified as severe, the size of the storm, the intensity of the lightning, and any hail, tornado and/or wind, the amount of rainfall, and/or whether there were resulting deaths, injuries, and/or property damages. In regards to hail, its extent can be measured by the size (diameter) of the hailstone, as show in the following Figure 5-8.

**Figure 5-8: Hail Size Estimation Chart**

| Description       | Diameter of Hailstone (in inches) |
|-------------------|-----------------------------------|
| Pea Size          | ¼"                                |
| Small Marble      | ½"                                |
| Penny             | ¾"                                |
| Nickel            | 7/8"                              |
| Quarter           | 1"                                |
| Half Dollar       | 1 ¼"                              |
| Ping Pong Ball    | 1 ½"                              |
| Golf Ball         | 1 ¾"                              |
| Lime              | 2"                                |
| Tennis Ball       | 2 ½"                              |
| Baseball          | 2 ¾"                              |
| Large Apple       | 3"                                |
| Soft Ball         | 4"                                |
| Grape Fruit       | 4 ½"                              |
| Computer CD - DVD | 4 ¾ to 5"                         |

Source: NOAA-National Weather Service Regional Office, Central Region Headquarters website, The Milwaukee Area Skywarn Association

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In regards to lightning, its extent can be measured by average flash density, which is the number of cloud to ground lightning flashes per square mile per year. According to the Vaisala National Lightning Detection Network, in the continental US, between 1997 and 2011, the average flash density was greatest in portions of central Florida, where the density exceeded 33, and lowest along the west coast of Oregon, Washington, and California, where the density was between 0 and 0.25. In Nash, Edgecombe, and Wilson County, the average flash density during the same period was between 9 to 12 lightning flashes per square mile per year. (It should be note that these are average annual lightning density figures for the period indicated; therefore, it is possible that higher lightning densities could be recorded in future years.) See Table 5-28 for historic lightning data for the three counties include in this plan.

Regarding thunderstorms as a hazard type, their extent can be defined by the number of thunder events and wind speed reported; see Table 5-29 for historic thunderstorm wind and other data for the three-county planning area.

Because local data is not readily available for all of the potential classification methods listed at the beginning of this subsection, and the data for some is included with other hazards (i.e. Tornadoes and Floods), historical data for hail, lightning, and thunderstorm associated wind are included in the following "Previous occurrences" portion of this hazard.

**Previous occurrences:** The following three tables document the available historic data for hail, lightning, and thunderstorm wind within the planning area. It should be noted that the information in these tables only includes reported events; therefore the actual numbers of events are almost certainly larger. The reader should also be aware that the years of data that are available are not the same for each subhazard. The reporting period for hail and thunderstorm wind both start in January 1955, whereas the reporting period for lightning starts in January 1996. The actual data for hail in the planning area begins in 1963, for lightning it begins in 1998, and for thunderstorm wind in begins in 1964.

Based on the available data for hail, indicated in the following Table 5-27, the largest size hailstone reported in the three-county area was 2.75 inches in Nash County on two different occasions (2007/3/28 and 2012/7/01). The largest hailstone reported in the other two counties was 1.75 inches, which occurred on several occasions in each county. (It should be noted that future thunderstorm events may result in larger hailstones than those reported here.)

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**Table 5-27: Historic Hail Data for the Planning Area:  
January 1955 – July 2014**

| <b>County</b>    | <b>Location within County</b> | <b>Date</b> | <b>Magnitude<br/>(in inches)</b> |
|------------------|-------------------------------|-------------|----------------------------------|
| Edgecombe County | unreported                    | 1963/4/30   | 1.75                             |
| Nash County      | unreported                    | 1976/8/14   | 1.75                             |
| Wilson County    | unreported                    | 1980/4/27   | 1.00                             |
| Edgecombe County | unreported                    | 1980/8/01   | 1.00                             |
| Wilson County    | unreported                    | 1984/5/08   | .75                              |
| Edgecombe County | unreported                    | 1985/4/16   | 1.00                             |
| Edgecombe County | <i>unreported</i>             | 1985/4/16   | 1.75                             |
| Wilson County    | <i>unreported</i>             | 1986/5/21   | 1.75                             |
| Nash County      | <i>unreported</i>             | 1986/5/30   | .75                              |
| Edgecombe County | <i>unreported</i>             | 1987/4/16   | 1.75                             |
| Nash County      | <i>unreported</i>             | 1987/8/19   | 1.75                             |
| Edgecombe County | <i>unreported</i>             | 1987/8/19   | .75                              |
| Wilson County    | <i>unreported</i>             | 1988/3/26   | .75                              |
| Wilson County    | <i>unreported</i>             | 1988/5/04   | 1.00                             |
| Wilson County    | <i>unreported</i>             | 1988/5/04   | 1.00                             |
| Edgecombe County | <i>unreported</i>             | 1988/5/04   | 1.75                             |
| Wilson County    | <i>unreported</i>             | 1988/5/05   | 1.00                             |
| Nash County      | <i>unreported</i>             | 1988/5/16   | .75                              |
| Wilson County    | <i>unreported</i>             | 1988/5/19   | .75                              |
| Nash County      | <i>unreported</i>             | 1988/6/19   | .75                              |
| Nash County      | <i>unreported</i>             | 1988/9/24   | 1.75                             |
| Nash County      | <i>unreported</i>             | 1988/9/24   | 1.75                             |
| Edgecombe County | <i>unreported</i>             | 1988/9/24   | 1.75                             |
| Nash County      | <i>unreported</i>             | 1989/3/30   | 1.75                             |
| Nash County      | <i>unreported</i>             | 1989/3/30   | .75                              |
| Nash County      | <i>unreported</i>             | 1989/4/27   | 2.50                             |
| Wilson County    | unreported                    | 1989/4/27   | 1.00                             |
| Edgecombe County | Macclesfield                  | 1989/5/23   | .75                              |
| Nash County      | location unclear              | 1989/6/26   | 1.50                             |
| Nash County      | unreported                    | 1989/7/12   | .75                              |
| Nash County      | SW Nash County                | 1990/5/04   | 1.00                             |
| Wilson County    | Wilson                        | 1990/7/12   | 1.25                             |
| Edgecombe County | near Rocky Mount              | 1992/3/07   | .75                              |
| Edgecombe County | near Rocky Mount              | 1992/3/19   | .75                              |
| Nash County      | near Rocky Mount              | 1992/6/26   | 1.75                             |
| Edgecombe County | near Rocky Mount              | 1992/6/26   | .88                              |
| Edgecombe County | Battleboro                    | 1992/7/31   | .75                              |

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| <b>County</b>    | <b>Location within County</b> | <b>Date</b> | <b>Magnitude<br/>(in inches)</b> |
|------------------|-------------------------------|-------------|----------------------------------|
| Wilson County    | Wilson                        | 1993/5/19   | 1.75                             |
| Edgecombe County | Pinetops                      | 1993/5/19   | .75                              |
| Edgecombe County | unreported                    | 1994/5/01   | 1.00                             |
| Edgecombe County | unreported                    | 1994/5/01   | 1.00                             |
| Nash County      | Sharpsburg                    | 1996/5/27   | .75                              |
| Wilson County    | Lucama                        | 1996/5/29   | 1.00                             |
| Nash County      | Samaria                       | 1996/7/02   | 1.75                             |
| Wilson County    | Wrn Half?                     | 1996/7/02   | 1.75                             |
| Edgecombe County | Tarboro                       | 1996/7/30   | 1.75                             |
| Nash County      | Castalia                      | 1996/9/10   | .75                              |
| Wilson County    | Black Creek                   | 1997/5/01   | .75                              |
| Wilson County    | Stantonsburg                  | 1997/5/01   | .75                              |
| Nash County      | Red Oak                       | 1997/7/04   | .75                              |
| Edgecombe County | Rocky Mount                   | 1997/7/18   | .75                              |
| Wilson County    | Wilson                        | 1998/5/04   | .75                              |
| Edgecombe County | Leggett                       | 1998/5/08   | 1.00                             |
| Wilson County    | Lucama                        | 1998/5/08   | 1.50                             |
| Wilson County    | Black Creek                   | 1998/5/08   | 1.75                             |
| Nash County      | Castalia                      | 1998/6/03   | .88                              |
| Nash County      | Rocky Mt-Wilson Airport       | 1998/6/03   | .75                              |
| Edgecombe County | Pinetops                      | 1998/6/03   | 1.25                             |
| Wilson County    | Elm City                      | 1998/6/03   | 1.00                             |
| Nash County      | Spring Hope                   | 1999/3/21   | 1.00                             |
| Nash County      | Red Oak                       | 1999/4/09   | .88                              |
| Wilson County    | Sims                          | 1999/5/07   | .75                              |
| Nash County      | Spring Hope                   | 2000/8/09   | 1.00                             |
| Edgecombe County | Rocky Mount                   | 2000/8/16   | .75                              |
| Wilson County    | Sims                          | 2001/4/01   | .88                              |
| Edgecombe County | Tarboro                       | 2001/5/25   | .88                              |
| Nash County      | Nashville                     | 2001/5/26   | .75                              |
| Nash County      | Nashville                     | 2002/4/19   | 1.00                             |
| Wilson County    | Wilson                        | 2002/7/05   | .75                              |
| Nash County      | Castalia                      | 2002/7/05   | 1.00                             |
| Nash County      | Red Oak                       | 2002/7/05   | .75                              |
| Edgecombe County | Rocky Mount                   | 2002/7/05   | 1.75                             |
| Edgecombe County | Rocky Mount                   | 2003/5/09   | .75                              |
| Nash County      | Rocky Mt-Wilson Airport       | 2003/5/09   | 1.75                             |
| Edgecombe County | Tarboro                       | 2003/5/09   | .75                              |
| Wilson County    | Elm City                      | 2003/5/09   | 1.00                             |

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| <b>County</b>    | <b>Location within County</b> | <b>Date</b> | <b>Magnitude<br/>(in inches)</b> |
|------------------|-------------------------------|-------------|----------------------------------|
| Nash County      | Hickory                       | 2003/5/10   | .75                              |
| Nash County      | Salem                         | 2003/5/10   | 1.00                             |
| Edgecombe County | Whitakers                     | 2003/5/10   | .75                              |
| Edgecombe County | Leggett                       | 2003/5/10   | 1.00                             |
| Nash County      | Dortches                      | 2003/8/17   | .88                              |
| Wilson County    | Wilson                        | 2004/5/22   | 1.00                             |
| Wilson County    | Wilson                        | 2004/5/22   | .75                              |
| Nash County      | Castalia                      | 2004/7/08   | .75                              |
| Nash County      | Dortches                      | 2005/5/15   | .88                              |
| Edgecombe County | Leggett                       | 2005/5/15   | .88                              |
| Nash County      | Goldrock                      | 2005/5/19   | .88                              |
| Edgecombe County | Whitakers                     | 2005/5/19   | 1.00                             |
| Wilson County    | Lucama                        | 2005/7/12   | .75                              |
| Wilson County    | Wilson                        | 2005/7/27   | .75                              |
| Edgecombe County | Rocky Mount                   | 2006/4/03   | .75                              |
| Edgecombe County | Rocky Mount                   | 2006/4/03   | .75                              |
| Wilson County    | Stantonsburg                  | 2006/4/25   | .88                              |
| Nash County      | Nashville                     | 2006/5/14   | 1.75                             |
| Nash County      | Nashville                     | 2006/5/14   | .75                              |
| Nash County      | Rocky Mt-Wilson Airport       | 2006/5/14   | .88                              |
| Edgecombe County | Conetoe                       | 2006/5/14   | .75                              |
| Wilson County    | Lucama                        | 2006/5/20   | .75                              |
| Wilson County    | Wilson                        | 2006/5/20   | 1.25                             |
| Nash County      | Bailey                        | 2006/5/25   | .75                              |
| Wilson County    | Wilbanks                      | 2006/7/03   | .75                              |
| Nash County      | Sharpsburg                    | 2006/7/04   | .75                              |
| Nash County      | Sharpsburg                    | 2006/7/04   | .88                              |
| Wilson County    | Stantonsburg                  | 2006/7/28   | .88                              |
| Nash County      | Goldrock                      | 2007/3/27   | .75                              |
| Nash County      | Goldrock                      | 2007/3/27   | .75                              |
| Nash County      | Red Oak                       | 2007/3/27   | .75                              |
| Nash County      | Rocky Mount-Wilson            | 2007/3/27   | .75                              |
| Nash County      | Aventon                       | 2007/3/28   | 1.00                             |
| Nash County      | Red Oak                       | 2007/3/28   | 1.75                             |
| Nash County      | Rocky Mount-Wilson            | 2007/3/28   | .75                              |
| Nash County      | Rocky Mount-Wilson            | 2007/3/28   | 1.00                             |
| Edgecombe County | Rocky Mount                   | 2007/3/28   | .88                              |
| Nash County      | Rocky Mount-Wilson            | 2007/3/28   | .75                              |
| Edgecombe County | Rocky Mount                   | 2007/3/28   | 1.25                             |

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| <b>County</b>    | <b>Location within County</b> | <b>Date</b> | <b>Magnitude<br/>(in inches)</b> |
|------------------|-------------------------------|-------------|----------------------------------|
| Nash County      | Rocky Mount-Wilson            | 2007/3/28   | 2.75                             |
| Edgecombe County | Rocky Mount                   | 2007/3/28   | 1.75                             |
| Nash County      | Dortches                      | 2007/3/28   | .75                              |
| Edgecombe County | Tarboro                       | 2007/3/28   | 1.00                             |
| Edgecombe County | Old Sparta                    | 2007/3/28   | .88                              |
| Edgecombe County | Conetoe                       | 2007/3/28   | 1.00                             |
| Nash County      | Nashville                     | 2007/4/15   | .75                              |
| Nash County      | Spring Hope                   | 2007/5/12   | 1.00                             |
| Wilson County    | Lucama                        | 2007/6/12   | .88                              |
| Edgecombe County | Leggett                       | 2007/7/17   | .88                              |
| Edgecombe County | Tarboro                       | 2007/7/17   | 1.00                             |
| Edgecombe County | Tarboro                       | 2007/7/17   | 1.00                             |
| Edgecombe County | Leggett                       | 2007/7/17   | .75                              |
| Nash County      | Rocky Mount-Wilson            | 2007/7/27   | .75                              |
| Edgecombe County | Pinetops                      | 2008/4/20   | .75                              |
| Edgecombe County | Kingsboro                     | 2008/4/20   | 1.00                             |
| Edgecombe County | Rocky Mount                   | 2008/4/20   | .88                              |
| Edgecombe County | Coakley                       | 2008/4/20   | .75                              |
| Nash County      | Nashville                     | 2008/5/20   | 1.00                             |
| Nash County      | Castalia                      | 2008/5/20   | 1.00                             |
| Nash County      | Nashville                     | 2008/5/20   | 1.00                             |
| Nash County      | Drake                         | 2008/5/20   | 1.00                             |
| Edgecombe County | Rocky Mount                   | 2008/5/20   | .88                              |
| Edgecombe County | Kingsboro                     | 2008/5/20   | .75                              |
| Nash County      | Little Easonburg              | 2008/5/20   | 1.00                             |
| Edgecombe County | Rocky Mount                   | 2008/5/20   | 1.00                             |
| Wilson County    | Rock Ridge                    | 2008/6/11   | 1.00                             |
| Nash County      | Dortches                      | 2008/7/08   | .75                              |
| Wilson County    | Saratoga                      | 2008/7/22   | .75                              |
| Nash County      | Batchelor XRds                | 2008/8/30   | .75                              |
| Nash County      | Fraziers XRds                 | 2009/4/06   | .75                              |
| Edgecombe County | Crisp                         | 2009/4/20   | .75                              |
| Nash County      | Strickland XRds               | 2009/5/05   | 1.00                             |
| Nash County      | Strickland XRds               | 2009/5/05   | 1.00                             |
| Edgecombe County | Tarboro                       | 2009/5/06   | .88                              |
| Wilson County    | Contentnea                    | 2009/5/29   | 1.00                             |
| Wilson County    | Contentnea                    | 2009/5/29   | 1.75                             |
| Wilson County    | Contentnea                    | 2009/5/29   | .88                              |
| Edgecombe County | Pinetops                      | 2009/5/29   | .88                              |

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| County           | Location within County | Date       | Magnitude (in inches) |
|------------------|------------------------|------------|-----------------------|
| Edgecombe County | Tarboro                | 2009/5/29  | 1.5                   |
| Wilson County    | Black Creek            | 2009/6/15  | 1.00                  |
| Wilson County    | Lamms XRds             | 2009/7/17  | .75                   |
| Wilson County    | Black Creek            | 2009/7/25  | .75                   |
| Wilson County    | Buckhorn XRds          | 2009/7/25  | .75                   |
| Wilson County    | Lucama                 | 2009/7/25  | .75                   |
| Nash County      | Castalia               | 2009/8/11  | .88                   |
| Nash County      | Fraziers XRds          | 2010/4/25  | 1.00                  |
| Edgecombe County | Whitakers              | 2010/8/27  | 1.00                  |
| Edgecombe County | Speed                  | 2011/5/23  | 1.00                  |
| Wilson County    | Wilson                 | 2011/6/19  | 1.00                  |
| Wilson County    | Stantonsburg           | 2011/8/12  | 1.75                  |
| Nash County      | Easonburg              | 2011/8/21  | 1.25                  |
| Edgecombe County | Rocky Mount            | 2011/8/21  | 1.25                  |
| Nash County      | Little Easonburg       | 2011/8/29  | 1.00                  |
| Edgecombe County | Kingsboro              | 2011/8/29  | 1.75                  |
| Nash County      | Easonburg              | 2011/8/29  | 1.25                  |
| Edgecombe County | Wiggins XRds           | 2011/8/29  | 1.00                  |
| Wilson County    | Elm City               | 2012/3/24  | 1.00                  |
| Wilson County    | Wilson Airport         | 2012/5/15  | 1.00                  |
| Edgecombe County | Gethsemane             | 2012/5/23  | .88                   |
| Edgecombe County | Speed                  | 2012/5/23  | 1.00                  |
| Nash County      | Fraziers XRds          | 2012/7/01  | 2.75                  |
| Nash County      | Spring Hope            | 2012/7/04  | 1.00                  |
| Edgecombe County | Rocky Mount            | 2012/7/04  | 1.00                  |
| Nash County      | Spring Hope            | 2012/8/02  | 1.00                  |
| Nash County      | Hickory                | 2012/8/15  | 1.00                  |
| Edgecombe County | Whitakers              | 2012/10/15 | 1.00                  |
| Nash County      | Strickland XRds        | 2014/4/25  | 1.00                  |
| Wilson County    | Contentnea             | 2014/4/29  | 1.75                  |
| Wilson County    | Wilson                 | 2014/4/29  | 1.25                  |
| Wilson County    | Wilson                 | 2014/4/29  | 1.75                  |
| Wilson County    | Wilson                 | 2014/4/29  | 1.75                  |
| Wilson County    | Elm City               | 2014/4/29  | 1.00                  |

Notes: Dates with hail events in multiple locations are highlighted in grey

Source: NOAA, National Climatic Data Center, Storm Events Database

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**Table 5-28: Historic Lightning Data for the Planning Area:  
January 1996 – July 2014**

| County           | Location w/ in County   | Date      | Deaths/<br>Injuries | Property<br>Damage<br>(\$) | Crop<br>Damage<br>(\$) |
|------------------|-------------------------|-----------|---------------------|----------------------------|------------------------|
| Nash County      | Rocky Mt-Wilson Airport | 1998/8/31 | 0/0                 | 10.00K                     | 0                      |
| Edgecombe County | Rocky Mount             | 2002/7/2  | 0/0                 | 25.00K                     | 0                      |
| Nash County      | Rocky Mt-Wilson Airport | 2003/7/11 | 0/2                 | 0                          | 0                      |
| Nash County      | Salem                   | 2003/8/17 | 0/0                 | 710.00K                    | 0                      |
| Wilson County    | Wilson                  | 2005/7/27 | 0/0                 | 20.00K                     | 0                      |
| Nash County      | Nashville               | 2006/5/26 | 0/0                 | 0                          | 0                      |
| Wilson County    | Sims                    | 2010/6/13 | 0/0                 | 500.00K                    | 0                      |
| Wilson County    | New Hope                | 2011/6/10 | 0/0                 | 200.00K                    | 0                      |
| Totals           |                         |           | 0/2                 | 1.465M                     | 0                      |

Notes: Injuries resulting from lightning in are highlighted in light orange;  
Property/crop damages are in thousands (K) or millions (M) of dollars  
Source: NOAA, National Climatic Data Center, Storm Events Database

Based on the available data for thunderstorms (between 1955 and July of 2014), which is indicated in the following Table 5-29, the strongest recorded thunderstorm wind event in the three-county planning area was an estimated 80 knots (92 miles per hour), which occurred in Tarboro (Edgecombe County) on May 21, 2000 and caused at least \$55,000 in property damages. The strongest recorded thunderstorm wind events in the other two counties were 70 knots (roughly 80 miles per hour) in the City of Wilson (Wilson County) on May 3, 1997; and 65 knots (roughly 75 miles per hour) in Nash County on August 19, 1987. The Wilson thunderstorm resulted in four injuries and at least \$50,000 in property damages. (It should be noted that future thunderstorm events may result in stronger winds than those reported here.)

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**Table 5-29: Historic Thunderstorm Wind Data for the Planning Area:  
January 1955 – July 2014**

| County           | Location w/ in County | Date       | Magnitude (knots) | Deaths/ Injuries | Property Damage (\$) | Crop Damage (\$) |
|------------------|-----------------------|------------|-------------------|------------------|----------------------|------------------|
| Edgecombe County | unreported            | 1964/1/20  | 57 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1965/3/17  | 65 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1968/5/18  | 0 kts.            | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1968/7/18  | 0 kts.            | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1968/8/9   | 0 kts.            | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1970/4/2   | 0 kts.            | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1970/6/21  | 0 kts.            | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1970/6/25  | 0 kts.            | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1971/7/21  | 0 kts.            | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1974/3/30  | 0 kts.            | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1974/6/23  | 0 kts.            | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1974/6/23  | 0 kts.            | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1974/6/23  | 0 kts.            | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1975/3/24  | 50 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1975/3/24  | 0 kts.            | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1976/8/14  | 0 kts.            | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1977/5/7   | 0 kts.            | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1977/7/9   | 0 kts.            | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1977/7/10  | 61 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1977/7/21  | 0 kts.            | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1978/5/13  | 0 kts.            | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1978/5/13  | 0 kts.            | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1979/8/19  | 0 kts.            | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1980/8/1   | 60 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1983/7/24  | 0 kts.            | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1984/5/6   | 0 kts.            | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1984/5/8   | 52 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1984/8/9   | 0 kts.            | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1984/11/28 | 0 kts.            | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1985/6/5   | 0 kts.            | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1985/6/5   | 0 kts.            | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1985/7/10  | 0 kts.            | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1985/7/10  | 0 kts.            | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1986/6/24  | 0 kts.            | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1986/6/28  | 0 kts.            | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1986/6/28  | 0 kts.            | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1986/7/10  | 65 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1986/7/10  | 52 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1986/7/11  | 0 kts.            | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1986/7/12  | 0 kts.            | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1986/8/2   | 0 kts.            | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1986/8/2   | 0 kts.            | 0/0              | 0                    | 0                |

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| County           | Location w/ in County | Date      | Magnitude (knts) | Deaths/ Injuries | Property Damage (\$) | Crop Damage (\$) |
|------------------|-----------------------|-----------|------------------|------------------|----------------------|------------------|
| Edgecombe County | unreported            | 1986/8/10 | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1987/5/2  | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1987/5/2  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1987/5/19 | 0 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1987/7/31 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1987/7/31 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1987/8/19 | 65 kts.          | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1987/8/19 | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1988/5/17 | 0 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1988/5/17 | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1988/5/19 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1988/6/17 | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1989/2/21 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1989/3/18 | 0 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1989/3/18 | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1989/3/18 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1989/4/27 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1989/4/29 | 0 kts.           | 0/1              | 0                    | 0                |
| Nash County      | unreported            | 1989/5/6  | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1989/5/23 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1989/6/2  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1989/6/5  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1989/6/15 | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1989/6/15 | 0 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1989/6/15 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1989/6/15 | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1990/5/1  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1990/5/10 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1990/6/3  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1990/6/3  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1990/6/18 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1990/6/22 | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1990/6/23 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1990/6/30 | 0 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1990/6/30 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1990/7/1  | 0 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1990/7/1  | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1990/7/1  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1990/7/1  | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1990/7/1  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1990/7/1  | 0 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1990/7/11 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1990/8/29 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County      | unreported            | 1990/8/29 | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | unreported            | 1990/8/29 | 0 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | unreported            | 1990/8/29 | 0 kts.           | 0/0              | 0                    | 0                |

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| County             | Location w/ in County | Date       | Magnitude (knts) | Deaths/ Injuries | Property Damage (\$) | Crop Damage (\$) |
|--------------------|-----------------------|------------|------------------|------------------|----------------------|------------------|
| Wilson County      | unreported            | 1990/8/29  | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County      | unreported            | 1990/8/29  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | unreported            | 1991/3/29  | 0 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County   | unreported            | 1991/3/29  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | unreported            | 1991/6/2   | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | unreported            | 1991/7/5   | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County      | unreported            | 1992/1/23  | 0 kts.           | 0/1              | 0                    | 0                |
| Nash County        | unreported            | 1992/3/10  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | unreported            | 1992/3/19  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | unreported            | 1992/3/19  | 0 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County   | unreported            | 1992/3/19  | 0 kts.           | 0/1              | 0                    | 0                |
| Nash County        | unreported            | 1992/6/24  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | unreported            | 1992/6/26  | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County      | unreported            | 1992/7/18  | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County      | unreported            | 1992/8/12  | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County      | unreported            | 1992/8/12  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | Nashville             | 1993/1/24  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | Nashville             | 1993/1/24  | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County      | Wilson                | 1993/1/24  | 0 kts.           | 0/0              | 5.00K                | 0                |
| Wilson County      | Wilson                | 1993/1/24  | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County      | unincorporated area   | 1994/7/1   | 0 kts.           | 0/0              | 5.00K                | 0                |
| Wilson County      | Elm City              | 1994/7/1   | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County      | eastern portion       | 1994/7/1   | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County      | Wilson                | 1994/7/27  | 0 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County   | Conetoe               | 1995/1/7   | 0 kts.           | 0/0              | 350.00K              | 0                |
| Nash/Wilson County | Wilson                | 1995/1/7   | 0 kts.           | 0/0              | 300.00K              | 0                |
| Nash County        | Spring Hope           | 1995/1/7   | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | Spring Hill           | 1995/1/15  | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County      | unincorporated area   | 1995/5/10  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | near Nashville        | 1995/7/11  | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County      | Wilson                | 1995/7/11  | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County      | Wilson                | 1995/11/11 | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | Castalia              | 1995/11/11 | 0 kts.           | 0/0              | 20.00K               | 0                |
| Edgecombe County   | Tarboro               | 1995/11/11 | 0 kts.           | 0/0              | 150.00K              | 0                |
| Wilson County      | Lucama                | 1996/4/20  | 0 kts.           | 0/0              | 10.00K               | 0                |
| Wilson County      | Wilson                | 1996/4/23  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | Nashville             | 1996/5/11  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | Samaria               | 1996/7/2   | 0 kts.           | 0/0              | 0                    | 60.00K           |
| Nash County        | southern half         | 1996/7/2   | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County      | western half          | 1996/7/2   | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | Nashville             | 1996/7/15  | 0 kts.           | 0/0              | 0                    | 0                |
| Wilson County      | Wilson                | 1996/7/15  | 0 kts.           | 0/0              | 0                    | 0                |
| Nash County        | Spring Hope           | 1997/3/5   | 50 kts.          | 0/0              | 0                    | 0                |

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| County           | Location w/ in County | Date       | Magnitude (knots) | Deaths/ Injuries | Property Damage (\$) | Crop Damage (\$) |
|------------------|-----------------------|------------|-------------------|------------------|----------------------|------------------|
| Wilson County    | Elm City              | 1997/3/5   | 50 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | Tarboro               | 1997/3/5   | 50 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                | 1997/4/29  | 50 kts.           | 0/0              | 0                    | 0                |
| Nash County      | Middlesex             | 1997/5/1   | 50 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | Macclesfield          | 1997/5/1   | 60 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                | 1997/5/3   | 70 kts.           | 0/4              | 50.00K               | 0                |
| Edgecombe County | Pinetops              | 1997/5/3   | 50 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | Elm City              | 1997/7/4   | 50 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | Elm City              | 1997/7/18  | 50 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | Princeville           | 1998/3/20  | 50 kts.           | 0/0              | 15.00K               | 0                |
| Edgecombe County | Pinetops              | 1998/5/4   | 50 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                | 1999/3/3   | 50 kts.           | 0/0              | 0                    | 0                |
| Nash County      | Middlesex             | 1999/3/3   | 50 kts.           | 0/0              | 0                    | 0                |
| Edgecombe County | countywide            | 1999/3/3   | 50 kts.           | 0/0              | 0                    | 0                |
| Wilson County    | countywide            | 1999/3/3   | 50 kts.           | 0/0              | 0                    | 0                |
| Nash County      | Bailey                | 1999/7/24  | 50 kts.           | 0/0              | 1                    | 0                |
| Nash County      | Middlesex             | 2000/4/8   | 50 kts. E         | 0/0              | 2                    | 0                |
| Edgecombe County | Tarboro               | 2000/4/8   | 50 kts. E         | 0/0              | 3                    | 0                |
| Wilson County    | Wilson                | 2000/4/8   | 50 kts. E         | 0/0              | 4                    | 0                |
| Edgecombe County | Tarboro               | 2000/5/20  | 50 kts. E         | 0/0              | 5                    | 0                |
| Edgecombe County | Tarboro               | 2000/5/21  | 80 kts. E         | 0/0              | 55.00K               | 0                |
| Nash County      | Dortches              | 2000/8/16  | 60 kts. M         | 0/0              | 0                    | 0                |
| Nash County      | Middlesex             | 2000/8/18  | 50 kts. E         | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                | 2000/8/18  | 50 kts. E         | 0/0              | 0                    | 0                |
| Nash County      | central portion       | 2000/12/17 | 50 kts. E         | 0/0              | 0                    | 0                |
| Wilson County    | Sims                  | 2000/12/17 | 50 kts. E         | 0/0              | 0                    | 0                |
| Nash County      | Nashville             | 2001/5/12  | 50 kts. E         | 0/0              | 0                    | 0                |
| Edgecombe County | Kingsboro             | 2001/5/12  | 50 kts. E         | 0/0              | 0                    | 0                |
| Edgecombe County | Rocky Mount           | 2001/5/12  | 50 kts. E         | 0/0              | 0                    | 0                |
| Edgecombe County | Tarboro               | 2001/5/25  | 50 kts. E         | 0/0              | 0                    | 0                |
| Nash County      | Middlesex             | 2002/5/13  | 50 kts. E         | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                | 2002/5/13  | 50 kts. E         | 0/0              | 0                    | 0                |
| Nash County      | Bailey                | 2002/5/13  | 50 kts. E         | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                | 2002/5/13  | 50 kts. E         | 0/0              | 0                    | 0                |
| Edgecombe County | countywide            | 2002/5/13  | 50 kts. E         | 0/0              | 0                    | 0                |
| Nash County      | Spring Hope           | 2002/6/1   | 50 kts. E         | 0/0              | 0                    | 0                |
| Edgecombe County | Battleboro            | 2002/6/1   | 50 kts. E         | 0/0              | 0                    | 0                |
| Wilson County    | Buckhorn XRds         | 2002/6/1   | 50 kts. E         | 0/0              | 0                    | 0                |
| Nash County      | Stanhope              | 2002/6/6   | 50 kts. E         | 0/0              | 0                    | 0                |
| Wilson County    | Sims                  | 2002/6/6   | 50 kts. E         | 0/0              | 0                    | 0                |
| Nash County      | Sharpsburg            | 2002/7/22  | 50 kts. E         | 0/0              | 0                    | 0                |
| Nash County      | Samaria               | 2003/2/22  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Nashville             | 2003/7/9   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Bailey                | 2003/7/9   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Nashville             | 2003/8/17  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Castalia              | 2003/10/14 | 50 kts. EG        | 0/0              | 0                    | 0                |

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| County           | Location w/ in County       | Date       | Magnitude (knots) | Deaths/ Injuries | Property Damage (\$) | Crop Damage (\$) |
|------------------|-----------------------------|------------|-------------------|------------------|----------------------|------------------|
| Wilson County    | Saratoga                    | 2003/10/14 | 50 kts. EG        | 0/1              | 0                    | 0                |
| Nash County      | Castalia                    | 2004/3/7   | 60 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                      | 2004/3/7   | 60 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                      | 2004/5/2   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Macclesfield                | 2004/5/2   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Macclesfield                | 2004/5/2   | 60 kts. EG        | 0/0              | 15.00K               | 0                |
| Edgecombe County | Crisp                       | 2004/6/4   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Macclesfield                | 2004/6/11  | 60 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Red Oak                     | 2004/7/10  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Salem                       | 2004/7/12  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Tarboro                     | 2004/9/8   | 60 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Samaria                     | 2004/10/13 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Elm City                    | 2004/10/13 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Nashville                   | 2005/3/8   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                      | 2005/3/8   | 60 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Macclesfield                | 2005/3/8   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Rocky Mount                 | 2005/6/7   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Leggett                     | 2005/7/21  | 60 kts. EG        | 0/0              | 250.00K              | 0                |
| Nash County      | Rocky Mt-<br>Wilson Airport | 2005/8/16  | 50 kts. MG        | 0/0              | 0                    | 0                |
| Nash County      | Spring Hope                 | 2006/4/3   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Spring Hope                 | 2006/4/3   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Middlesex                   | 2006/4/25  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                      | 2006/4/25  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                      | 2006/4/25  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                      | 2006/4/25  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Spring Hope                 | 2006/5/26  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Dortches                    | 2006/5/26  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Dortches                    | 2006/5/26  | 60 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Spring Hope                 | 2006/5/26  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Nashville                   | 2006/6/21  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Pinetops                    | 2006/6/21  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Black Creek                 | 2006/6/21  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Nashville                   | 2006/7/4   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Aventon                     | 2006/7/19  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Nashville                   | 2006/7/19  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Stantonsburg                | 2006/7/28  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Saratoga                    | 2006/7/28  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Stantonsburg                | 2006/7/29  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Nashville                   | 2006/8/7   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Bailey                      | 2006/11/16 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Spring Hope                 | 2006/11/16 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Kingsboro                   | 2006/11/16 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Bailey                      | 2007/6/27  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                      | 2007/7/10  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Speed                       | 2007/7/10  | 50 kts. EG        | 0/0              | 0                    | 0                |

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| County             | Location w/ in County | Date       | Magnitude (knots) | Deaths/ Injuries | Property Damage (\$) | Crop Damage (\$) |
|--------------------|-----------------------|------------|-------------------|------------------|----------------------|------------------|
| Nash/Wilson County | Rocky Mount/Wilson    | 2007/7/28  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County   | Pinetops              | 2007/8/9   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County   | Pinetops              | 2007/8/9   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County      | Wilson                | 2007/8/9   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County        | Castalia              | 2007/8/10  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County   | Tarboro               | 2007/8/10  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County   | Pinetops              | 2007/8/10  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County      | Wilson                | 2007/8/21  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County      | Sims                  | 2007/8/21  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County        | Spring Hope           | 2007/8/21  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County        | Baily                 | 2007/8/21  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County   | Tarboro               | 2007/8/21  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County   | Conetoe               | 2007/8/21  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County        | Bailey                | 2008/3/4   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County      | Lucama                | 2008/3/5   | 52 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County   | Speed                 | 2008/3/5   | 52 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County   | Tarboro Airport       | 2008/3/5   | 53 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County      | Lamm                  | 2008/6/1   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County   | Princeville           | 2008/7/5   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County        | Bailey                | 2008/7/8   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County      | Sims                  | 2008/7/8   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County        | Mt. Pleasant          | 2008/7/8   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash/Wilson County | Rocky Mount/Wilson    | 2008/7/8   | 59 kts. MG        | 0/0              | 0                    | 0                |
| Nash County        | Easonburg             | 2008/7/8   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County      | Wilson                | 2008/7/31  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County        | Corinth               | 2008/8/10  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County      | Elm City              | 2008/8/30  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County      | Wilkerson XRds        | 2008/8/31  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County   | Leggett               | 2008/11/15 | 60 kts. EG        | 0/0              | 15.00K               | 0                |
| Nash County        | Stanhope              | 2009/1/7   | 51 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County      | Buckhorn XRds         | 2009/1/7   | 51 kts. EG        | 0/0              | 0                    | 0                |
| Nash County        | Goldrock              | 2009/1/7   | 51 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County   | Leggett               | 2009/1/7   | 51 kts. EG        | 0/0              | 0                    | 0                |
| Nash County        | Hickory               | 2009/1/28  | 52 kts. EG        | 0/0              | 0                    | 0                |
| Nash County        | Dortches              | 2009/1/28  | 52 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County   | St. Lewis             | 2009/1/28  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County   | Speed                 | 2009/1/28  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County        | Nashville             | 2009/4/6   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County   | Wiggins XRds          | 2009/5/6   | 60 kts. EG        | 0/0              | 30.00K               | 0                |
| Edgecombe County   | Wiggins XRds          | 2009/5/6   | 52 kts. EG        | 0/0              | 0                    | 0                |
| Nash County        | Nashville             | 2009/5/9   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County        | Taylors Store         | 2009/5/9   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County        | Corinth               | 2009/5/9   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County      | Wilson                | 2009/5/9   | 50 kts. EG        | 0/0              | 0                    | 0                |

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| <b>County</b>    | <b>Location w/ in County</b> | <b>Date</b> | <b>Magnitude (knots)</b> | <b>Deaths/ Injuries</b> | <b>Property Damage (\$)</b> | <b>Crop Damage (\$)</b> |
|------------------|------------------------------|-------------|--------------------------|-------------------------|-----------------------------|-------------------------|
| Edgecombe County | Heartsease                   | 2009/5/29   | 58 kts. EG               | 0/0                     | 30.00K                      | 0                       |
| Edgecombe County | Tarboro                      | 2009/5/29   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | Whitakers                    | 2009/6/9    | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | Leggett                      | 2009/6/9    | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | Battleboro                   | 2009/6/9    | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | Whitakers                    | 2009/6/9    | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Nash County      | Aventon                      | 2009/6/9    | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Nash County      | Salem                        | 2009/6/9    | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Wilson County    | Wilson                       | 2009/7/1    | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | Pinetops                     | 2009/7/1    | 50 kts. EG               | 0/0                     | 2.00K                       | 0                       |
| Nash County      | Samaria                      | 2009/7/1    | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Nash County      | Spring Hope                  | 2009/7/17   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Wilson County    | Saratoga                     | 2009/7/17   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Wilson County    | Lucama                       | 2009/7/25   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Nash County      | Bailey                       | 2009/7/31   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | Speed                        | 2009/7/31   | 50 kts. EG               | 0/0                     | 15.00K                      | 0                       |
| Edgecombe County | Tarboro                      | 2009/7/31   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | Tarboro                      | 2009/7/31   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Nash County      | Dortches                     | 2009/9/28   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Nash County      | Drake                        | 2009/9/28   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Wilson County    | Contentnea                   | 2009/9/28   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Nash County      | Fraziers XRds                | 2010/4/25   | 56 kts. EG               | 0/0                     | 2.50K                       | 0                       |
| Wilson County    | Wilson                       | 2010/6/13   | 50 kts. EG               | 0/0                     | 5.00K                       | 0                       |
| Edgecombe County | Leggett                      | 2010/6/29   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | Leggett                      | 2010/6/29   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Nash County      | Samaria                      | 2010/7/16   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Nash County      | Nashville                    | 2010/7/16   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Nash County      | Spring Hope                  | 2010/7/17   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | Pinetops                     | 2010/7/17   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Wilson County    | Lamms XRds                   | 2010/7/17   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | Macclesfield                 | 2010/7/20   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Wilson County    | Lucama                       | 2010/7/20   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | Speed                        | 2010/8/27   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Nash County      | Bass XRds                    | 2010/11/17  | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | Whitakers                    | 2010/11/17  | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | Leggett                      | 2010/11/17  | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Wilson County    | Black Creek                  | 2011/3/10   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Wilson County    | Wilson                       | 2011/3/10   | 50 kts. EG               | 0/0                     | 3.00K                       | 0                       |
| Wilson County    | Town Creek                   | 2011/3/10   | 50 kts. EG               | 0/0                     | 5.00K                       | 0                       |
| Edgecombe County | Kingsboro                    | 2011/3/10   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Nash County      | Stanhope                     | 2011/4/5    | 50 kts. EG               | 0/0                     | 20.00K                      | 0                       |
| Wilson County    | Lucama                       | 2011/4/5    | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | Leggett                      | 2011/4/5    | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Nash County      | Spring Hope                  | 2011/4/5    | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Edgecombe County | near Pinetops                | 2011/6/23   | 50 kts. EG               | 0/0                     | 0                           | 0                       |
| Nash County      | Nashville                    | 2011/6/24   | 50 kts. EG               | 0/0                     | 0                           | 0                       |

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| County           | Location w/ in County     | Date      | Magnitude (knots) | Deaths/ Injuries | Property Damage (\$) | Crop Damage (\$) |
|------------------|---------------------------|-----------|-------------------|------------------|----------------------|------------------|
| Nash County      | Middlesex to near Red Oak | 2011/6/27 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Wilson Airport            | 2011/6/27 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Kingsboro                 | 2011/6/27 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Buckhorn XRds             | 2011/7/5  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                    | 2011/7/23 | 50 kts. EG        | 0/0              | 10.00K               | 0                |
| Wilson County    | Bridgersville             | 2011/7/23 | 56 kts. MG        | 0/0              | 0                    | 0                |
| Wilson County    | Bridgersville             | 2011/7/23 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Leggett                   | 2011/7/24 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Westry                    | 2011/7/25 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Rocky Mount               | 2011/7/25 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Holdens XRds              | 2011/8/12 | 50 kts. EG        | 0/0              | 1.50K                | 0                |
| Wilson County    | Stantonsburg              | 2011/8/12 | 60 kts. EG        | 0/0              | 30.00K               | 0                |
| Nash County      | Castalia                  | 2011/8/21 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Easonburg                 | 2011/8/21 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Rocky Mount               | 2011/8/21 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                    | 2011/8/29 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Spring Hope               | 2011/12/7 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                    | 2012/2/23 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Black Creek               | 2012/4/21 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Leggett                   | 2012/4/21 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Buckhorn XRds             | 2012/5/4  | 50 kts. EG        | 0/0              | 2.50K                | 0                |
| Nash County      | Mt. Pleasant              | 2012/6/1  | 50 kts. EG        | 0/0              | 40.00K               | 0                |
| Nash County      | Easonburg                 | 2012/6/22 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Leggett                   | 2012/6/25 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Leggett                   | 2012/6/25 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Leggett                   | 2012/6/25 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Momeyer                   | 2012/6/25 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Mt. Pleasant              | 2012/6/25 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                    | 2012/6/29 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Taylor's XRds             | 2012/7/1  | 50 kts. EG        | 0/0              | 2.50K                | 0                |
| Wilson County    | Wilson Airport            | 2012/7/1  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Town Creek                | 2012/7/1  | 50 kts. EG        | 0/0              | 10.00K               | 0                |
| Wilson County    | Moore's XRds              | 2012/7/1  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Hickory                   | 2012/7/1  | 50 kts. EG        | 0/0              | 10.00K               | 0                |
| Nash County      | Hickory                   | 2012/7/1  | 50 kts. EG        | 0/0              | 5.00K                | 0                |
| Wilson County    | Wilson                    | 2012/7/1  | 50 kts. EG        | 0/0              | 5.00K                | 0                |
| Wilson County    | Town Creek                | 2012/7/1  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Pinetops                  | 2012/7/1  | 50 kts. EG        | 0/0              | 100.00K              | 0                |
| Edgecombe County | Kingsboro                 | 2012/7/1  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Wiggins XRds              | 2012/7/1  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Samaria                   | 2012/7/4  | 50 kts. EG        | 0/0              | 2.00K                | 0                |
| Wilson County    | Contentnea                | 2012/7/4  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Moore's XRds              | 2012/7/4  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Black Creek               | 2012/7/4  | 50 kts. EG        | 0/0              | 2.00K                | 0                |
| Edgecombe County | Old Sparta                | 2012/7/5  | 50 kts. EG        | 0/0              | 0                    | 0                |

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| County           | Location w/ in County | Date       | Magnitude (knots) | Deaths/ Injuries | Property Damage (\$) | Crop Damage (\$) |
|------------------|-----------------------|------------|-------------------|------------------|----------------------|------------------|
| Edgecombe County | Conetoe               | 2012/7/5   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Bass XRds             | 2012/7/6   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Nashville             | 2012/7/6   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Castalia              | 2012/7/6   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Drake                 | 2012/7/6   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Momeyer               | 2012/7/21  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Bailey                | 2012/7/23  | 50 kts. EG        | 0/0              | 4.00K                | 0                |
| Wilson County    | Sims                  | 2012/7/23  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Rock Ridge            | 2012/7/23  | 50 kts. EG        | 0/0              | 2.00K                | 0                |
| Edgecombe County | Macclesfield          | 2012/7/24  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Rocky Mount           | 2012/7/24  | 50 kts. EG        | 0/0              | 2.00K                | 0                |
| Edgecombe County | Conetoe               | 2012/7/24  | 50 kts. EG        | 0/0              | 2.00K                | 0                |
| Nash County      | Nashville             | 2012/10/15 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Goldrock              | 2012/10/15 | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Dortches              | 2013/6/9   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Middlesex             | 2013/6/13  | 50 kts. EG        | 0/0              | 1.00K                | 0                |
| Wilson County    | Saratoga              | 2013/6/13  | 50 kts. EG        | 0/0              | 15.00K               | 0                |
| Edgecombe County | Whitakers             | 2013/6/18  | 50 kts. EG        | 0/0              | 1.00K                | 0                |
| Wilson County    | Buckhorn XRds         | 2013/6/25  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Pinetops              | 2013/7/16  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Samaria               | 2013/8/10  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Black Creek           | 2013/8/10  | 50 kts. EG        | 0/0              | 1.00K                | 0                |
| Wilson County    | near Lucama           | 2013/9/3   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Nashville             | 2014/1/11  | 50 kts. EG        | 0/0              | 0.50K                | 0                |
| Edgecombe County | Rocky Mount           | 2014/1/11  | 50 kts. EG        | 0/0              | 5.00K                | 0                |
| Nash County      | Aventon               | 2014/4/25  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Wilson                | 2014/4/25  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Contentnea            | 2014/4/25  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Town Creek            | 2014/4/29  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Wilson County    | Rock Ridge            | 2014/6/5   | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | Speed                 | 2014/6/21  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Edgecombe County | St. Lewis             | 2014/6/21  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Samaria               | 2014/7/10  | 50 kts. EG        | 0/0              | 0.50K                | 0                |
| Nash County      | Goldrock              | 2014/7/24  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Nash County      | Salem                 | 2014/7/24  | 50 kts. EG        | 0/0              | 0                    | 0                |
| Totals           |                       |            |                   | 0/8              | 1.607M               | 60.00K           |

Notes Injuries resulting from thunderstorm wind are highlighted in light yellow;  
Property/crop damages are in thousands (K) or millions (M) of dollars

Source: NOAA, National Climatic Data Center, Storm Events Database

**Probability of future events:** Based on the historical (previous occurrences) data included in this plan, the following probabilities have been determined:

**Hail:** There have been 188 recorded hail events (of 0.75 inches or greater) in the planning area over a roughly 59.5 year period (1955 through July of 2014). Based on this data, the probability of another such hail event occurring any year within the planning area as a whole was calculated to be roughly 316 percent. (In other words it could be expected that in the average year, there would be three or more hail events in the planning area.) Therefore, this hazard has been given a rating of “**highly likely**” – which means there is a near 100% probability of occurrence somewhere in the planning area during the next year and any year thereafter.

**Thunderstorm Wind:** There have been 394 recorded thunderstorm wind events in the planning area over a roughly 59.5 year period (1955 through July of 2014). Based on this data, the probability of another such wind event occurring any year within the planning area as a whole was calculated to be roughly 662 percent. (In other words it could be expected that in the average year, there would be more than six thunderstorm wind events in the planning area.) Therefore, this hazard has been given a rating of “**highly likely**” – which means there is a near 100% probability of occurrence somewhere in the planning area during the next year and any year thereafter.

**Lightning:** Unfortunately, the data that is readily available for lightning events in the planning area is very limited, so as to be inadequate to draw conclusions. But based on the knowledge that thunderstorms, lightning, and hail tend to occur under similar atmospheric conditions, and because hail and thunderstorm wind have both been assigned a rating of “highly likely”, the most logical conclusion is to also give a rating of “**highly likely**” to lightning.

### 5.2.10 Tornadoes



**Introduction/Type of hazard:** “A tornado is a narrow, violently rotating column of air that extends from the base of a thunderstorm to the ground. Because wind is invisible, it is hard to see a tornado unless it forms a condensation funnel made up of water droplets, dust and debris. Tornadoes are the most violent of all atmospheric storms.” \*A

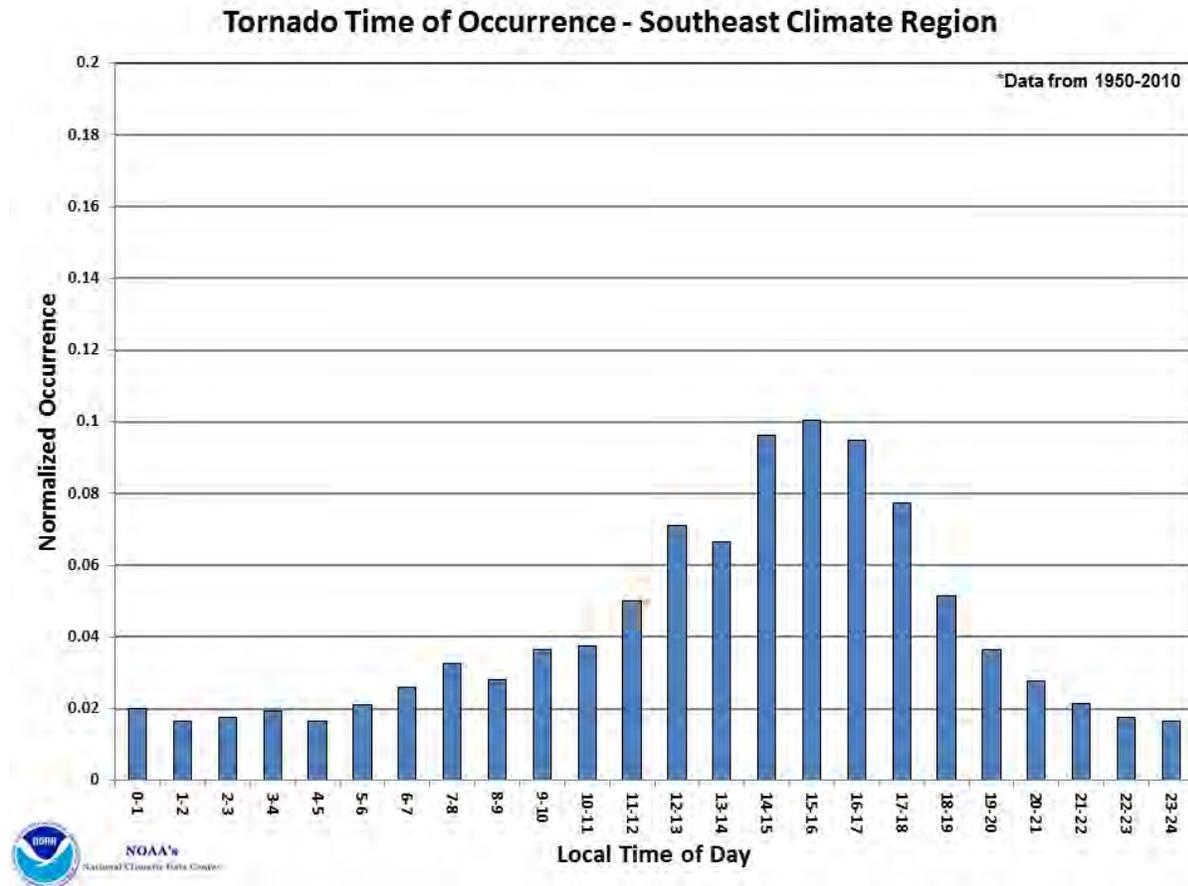
“One of the main difficulties with tornado records is that a tornado, or evidence of a tornado must have been observed. Unlike rainfall or temperature, which may be measured by a fixed instrument, tornadoes are short-lived and very unpredictable. If a tornado occurs in a place with few or no people, it is not likely to be documented.

Today, nearly all of the United States is reasonably well populated, or at least covered by NOAA's Doppler weather radars. Even if a tornado is not actually observed, modern damage assessments by National Weather Service personnel can discern if a tornado caused the damage, and if so, how strong the tornado may have been. This disparity between tornado records of the past and current records contributes a great deal of uncertainty regarding questions about the long-term behavior or patterns of tornado occurrence. Improved tornado observation practices have led to an increase in the number of reported weaker tornadoes, and in recent years EF-0 tornadoes have become more prevalent in the total number of reported tornadoes. In addition, even today many smaller tornadoes still may go undocumented in places with low populations or inconsistent communication facilities.

Because most tornadoes are related to the strength of a thunderstorm, and thunderstorms normally gain most of their energy from solar heating and latent heat released by the condensation of water vapor, it is not surprising that most tornadoes occur in the afternoon and evening hours, with a minimum frequency around dawn (when temperatures are lowest and radiation deficits are highest). However, tornadoes have occurred at all hours of the day, and nighttime occurrences may give sleeping residents of a community little or no warning.” \*F

The following Figure 5-9 shows the chances by local times of the day that tornadoes have occurred in the southeast region of the US (which includes six states from Virginia to Florida, including North Carolina), based on historical data. From this information, one can see that one has a greater chance of experiencing a tornado between the hours of 2pm and 5pm (14 to 17 hours in military time).

**Figure 5-9: Tornado Occurrences by Time of Day**



In addition, tornadoes occur throughout the year. Because a tornado may occur at any time of the day or year somewhere in the United States, there really is no national tornado "season" (as there is with Atlantic hurricanes). Instead, each region may experience increased tornadic potential at different times of the year. For the United States as a whole, the months in which tornadoes are most likely, correspond to the times of year with increased solar heating and strong frontal systems. Regionally, the frequency of tornadoes in the United States is closely tied with the progression of the warm season when warm and cold air masses often clash. In the Southeast and South Central regions, tornadoes tend to occur frequently during the early spring, although they can occur during later spring, summer, and late autumn. The fewest tornadoes are

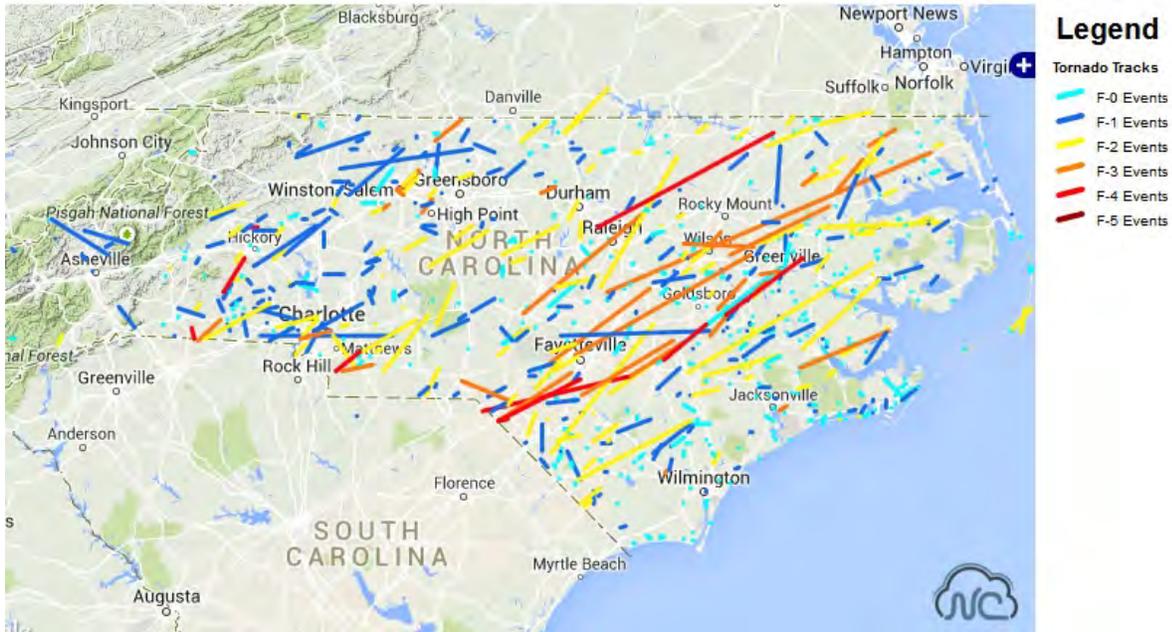
documented during the winter months. Although rare, deadly winter outbreaks do occur.  
\*F

**Location:** Within the United States, there are two regions with a disproportionately high frequency of tornadoes. Florida is one and "Tornado Alley" in the south-central United States is the other. Florida has numerous tornadoes simply due to the high frequency of almost daily thunderstorms. In addition, several tropical storms or hurricanes often impact the Florida peninsula each year. When these tropical systems move ashore, the embedded convective storms in the rain bands often produce tornadoes. However, despite the violent nature of a tropical storm or hurricane, the tornadoes they spawn (some as water spouts) tend to be weaker than those produced by non-tropical thunderstorms.

Tornado Alley is a nickname given to an area in the southern plains of the central United States that consistently experiences a high frequency of tornadoes each year. Tornadoes in this region typically happen in late spring and occasionally the early fall. The Gulf Coast area has a separate tornado maximum nicknamed "Dixie Alley" with a relatively high frequency of tornadoes occurring in the late fall (October through December). \*D

In North Carolina, while tornadoes have occurred in all parts of the state, the storms with greater intensity and longer paths have tended to be more concentrated in a band starting at the South Carolina border near Laurinburg, NC running northeast to the Virginia line near the Great Dismal Swamp (south of Suffolk, VA). The following Map 5-20 shows the paths of these recorded NC tornadoes. Within this sixty mile wide band of greater historical tornado occurrences, the cities of Fayetteville, Goldsboro, Greenville, Raleigh, Rocky Mount, and Wilson are included. \*E

**Map 5-20: Tornado Events in NC (1950 - 2013), by Tornado Tracks**



Source: State Climate Office of North Carolina, SPC Storm Reports Map; Google Maps

Based on the information shown on this map, it is apparent that tornadoes have the potential to occur at any location in the planning area.

**Extent:** Wind speeds in tornadoes range from values below that of weak hurricane speeds to more than 300 miles per hour! Unlike hurricanes, which produce wind speeds of generally lesser values over relatively widespread areas (when compared to tornadoes), the maximum winds in tornadoes are often confined to extremely small areas and can vary tremendously over very short distances, even within the funnel itself. The tales of complete destruction of one house next to one that is totally undamaged are true and well-documented. \*B

The most common and practical way to determine the strength of a tornado is to look at the damage it caused. From the damage, we can estimate the wind speeds. An “Enhanced Fujita Scale” was implemented by the National Weather Service in 2007 to rate tornadoes in a more consistent and accurate manner (see the following Table 30: The Enhanced Fujita Tornado Scale). This table compares the estimated winds in the original F-scale and the operational EF-scale that is currently in use by the NWS.

The EF-Scale takes into account more variables than the original Fujita Scale (F-Scale) when assigning a wind speed rating to a tornado, incorporating 28 damage indicators such as building type, structures and trees. For each damage indicator, there are 8 degrees of damage ranging from the beginning of visible damage to complete destruction

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of the damage indicator. The original F-scale did not take these details into account. The original F-Scale historical data base will not change. An F5 tornado rated years ago is still an F5, but the wind speed associated with the tornado may have been somewhat less than previously estimated. A correlation between the original F-Scale and the EF-Scale has been developed. This makes it possible to express ratings in terms of one scale to the other, preserving the historical database. \*<sup>B</sup> It is important to note that, despite the improvements, the EF-scale still remains a set of *wind estimates* (not measurements) based on damage. \*<sup>B&C</sup>

| <b>Table 5-30: The Enhanced Fujita Tornado Scale</b> |                               |                            |                             |                              |                            |
|--|-------------------------------|----------------------------|-----------------------------|------------------------------|----------------------------|
| <b>FUJITA SCALE</b>                                  |                               |                            | <b>OPERATIONAL EF-SCALE</b> |                              |                            |
| <b>F Number</b>                                      | <b>Fastest 1/4-mile (mph)</b> | <b>3 Second Gust (mph)</b> | <b>EF Number</b>            | <b>Intensity Description</b> | <b>3 Second Gust (mph)</b> |
| 0  | 40-72                         | 45-78                      | 0                           | Gale                         | 65-85                      |
| 1  | 73-112                        | 79-117                     | 1                           | Weak                         | 86-110                     |
| 2  | 113-157                       | 118-161                    | 2                           | Strong                       | 111-135                    |
| 3  | 158-207                       | 162-209                    | 3                           | Severe                       | 136-165                    |
| 4  | 208-260                       | 210-261                    | 4                           | Devastating                  | 166-200                    |
| 5  | 261-318                       | 262-317                    | 5                           | Incredible                   | Over 200                   |

Sources: "The Enhanced Fujita Tornado Scale", NOAA's National Climatic Data Center, Asheville, NC; NOAA's National Weather Service, Storm Prediction Center website

The NWS is the only federal agency with authority to provide 'official' tornado EF Scale ratings. The goal is assign an EF Scale category based on the highest wind speed that occurred within the damage path. First, trained NWS personnel will identify the appropriate damage indicators from a list of 28 used in rating damages. (The first 23 damage indicators are related to the type of building (from small barns to high rise buildings); the other five indicators are for towers (transmission line or other freestanding), free standing poles (light, flag, luminary), and trees (hardwood or softwood)). The NWS personnel then determine which one of the 8 degrees of damage matches the observed damage. The tornado evaluator will then make a judgment within the range of upper and lower bound wind speeds, as to whether the wind speed to cause the damage is higher or lower than the expected value for the particular degree of damage. This is done for several structures not just one, before a final EF rating is determined. \*<sup>C</sup>

In North Carolina, between 1950 and 2013, there were no recorded F-5 tornadoes, although there have been several F-4 tornadoes. During this timeframe, there was only one municipality in NC that was directly impacted by an F-4 tornado – the Town of Red Springs (which is southwest of Fayetteville, in Robeson County). \*<sup>E</sup>

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**Previous occurrences:** An average of 1253 tornadoes occurred in the United States each year between 1991 and 2010; in NC the average was 31 per year, which was the 17<sup>th</sup> highest among the 50 States. The best source of data on tornado events in the US and NC, at the time this plan was prepared, was the National Climatic Data Center. Their storm events database included 38 recorded tornadoes in the three-county planning area from January of 1950 through July of 2014. Earlier and more comprehensive data was likely available from the Spatial Hazard Events and Losses Database for the United States (SHELDUS), but at the time of inquiry, that data was only available by purchase. The following Table 5-31 contains the recorded historical tornado data available from the National Climatic Data Center for the counties contained in this regional plan.

**Table 5-31: Historic Tornado Data for the Planning Area: January 1950 – July 2014**

| County (Location)               | Date              | Magnitude |                   |                  | Deaths/<br>Injuries | Property<br>Damage<br>(\$) |
|---------------------------------|-------------------|-----------|-------------------|------------------|---------------------|----------------------------|
|                                 |                   | Scale     | Length<br>(miles) | Width<br>(yards) |                     |                            |
| Edgecombe County                | 1953/3/15         | F3        | 9.2               | 27               | 0/0                 | 0.03K                      |
| Nash County                     | 1953/3/15         | F3        | 1.3               | 27               | 0/0                 | 0.03K                      |
| Wilson County                   | 1953/3/15         | F3        | 19.6              | 27               | 0/1                 | 250.00K                    |
| Wilson County                   | 1954/9/20         | F2        | 0.5               | 100              | 0/4                 | 250.00K                    |
| Edgecombe County                | 1957/11/08        | F3        | 22.1              | 150              | 0/3                 | 250.00K                    |
| Wilson County                   | 1957/11/08        | F3        | 5.1               | 150              | 0/1                 | 250.00K                    |
| Nash County                     | 1969/10/02        | F1        | 0                 | 10               | 0/0                 | 25.00K                     |
| Nash/Edgecombe County           | 1973/5/28         | F0        | 1                 | 33               | 0/0                 | 25.00K                     |
| Edgecombe County                | 1977/5/05         | F1        | 1.5               | 23               | 0/0                 | 25.00K                     |
| Nash/Edgecombe County           | 1978/6/03         | F1        | 0.2               | 20               | 0/0                 | 2.50K                      |
| Nash County                     | 1979/4/03         | F1        | 0.5               | 23               | 0/1                 | 25.00K                     |
| Nash County                     | 1981/2/11         | F2        | 3.3               | 800              | 0/0                 | 2.500M                     |
| Nash County                     | 1983/3/18         | F2        | 3                 | 17               | 0/0                 | 250.00K                    |
| Nash Co. (West Mount)           | 1984/3/28         | F2        | 2                 | 177              | 0/0                 | 2.500M                     |
| Nash County                     | 1984/9/13         | F0        | 0.1               | 10               | 0/0                 | 0                          |
| Nash County                     | <b>1988/11/28</b> | <b>F4</b> | 10                | 200              | <b>2/22</b>         | 2.500M                     |
| Edgecombe County                | 1992/11/23        | F3        | 24                | 100              | 0/2                 | 250.00K                    |
| Wilson County                   | 1992/11/23        | F3        | 25                | 100              | 0/0                 | 250.00K                    |
| Edgecombe Co. (Pinetops)        | 1995/11/11        | F1        | 1                 | 100              | 0/3                 | 50.00K                     |
| Nash Co. (Spring Hope)          | 1996/4/15         | F1        | 4                 | 50               | 0/0                 | 50.00K                     |
| Wilson Co. (Buckhorn Reservoir) | 1996/7/12         | F0        | 0.3               | 50               | 0/0                 | 0                          |
| Wilson County                   | 1997/5/01         | F0        | 2                 | 50               | 0/0                 | 70.00K                     |
| Edgecombe Co. (Conetoe)         | 2002/10/11        | F1        | 2                 | 50               | 0/0                 | 0                          |
| Wilson Co. (Lucama)             | 2002/10/11        | F1        | 2                 | 50               | 0/0                 | 0                          |
| Nash Co. (Nashville)            | 2003/5/09         | F0        | 0.2               | 20               | 0/0                 | 0                          |
| Wilson Co. (Stantonsburg)       | 2004/6/04         | F0        | 1                 | 100              | 0/0                 | 0                          |
| Nash Co. (Spring Hope)          | 2006/5/14         | F0        | 1                 | 100              | 0/0                 | 0                          |
| Wilson County                   | 2008/8/27         | EF0       | 4.47              | 50               | 0/0                 | 0                          |
| Wilson Co. (Black Creek)        | 2008/8/28         | EF0       | 1.18              | 100              | 0/0                 | 50.00K                     |
| Wilson Co. (Lucama)             | 2008/11/15        | EF2       | 3.36              | 150              | 0/0                 | 0                          |

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| County (Location)                      | Date              | Magnitude  |                   |                  | Deaths/<br>Injuries | Property<br>Damage<br>(\$) |
|--|-------------------|------------|-------------------|------------------|---------------------|----------------------------|
|  |                   | Scale      | Length<br>(miles) | Width<br>(yards) |                     |                            |
| Wilson Co. (Wilson to Elm City)        | <b>2008/11/15</b> | <b>EF3</b> | 8.19              | 100              | <b>1/4</b>          | 1.000M                     |
| Nash Co. (Middlesex)                   | 2009/5/05         | EF0        | 0.23              | 30               | 0/0                 | 0                          |
| Wilson Co. (Buckhorn Crossroads)       | 2009/5/05         | EF2        | 2.77              | 100              | 0/1                 | 1.500M                     |
| Wilson Co. (Stantonsburg area)         | 2011/3/06         | EF0        | 0.38              | 25               | 0/0                 | 0                          |
| Wilson Co. (Lucama to Wilson)          | 2011/4/16         | EF2        | 8.97              | 200              | <b>0/10</b>         | 3.000M                     |
| Wilson Co. (Black Crk-Stantonsburg)    | 2011/8/06         | EF0        | 2.54              | 75               | 0/0                 | 150.00K                    |
| Wilson Co. (Stantonsburg)              | 2012/8/11         | EF1        | 0.21              | 40               | 0/0                 | 350.00K                    |
| Edgecombe Co. (Conetoe area)           | 2014/4/29         | EF0        | 4.15              | 100              | 0/0                 | 25.00K                     |
| Total Deaths/Injuries/Property Damages |                   |            |                   |                  | 3/52                | 230.00K                    |

Notes: Dates with tornado events in multiple locations are highlighted in beige-green;  
Tornadoes resulting in deaths are bolded and those with three or more injuries are highlighted in light orange;  
Property damage are in thousands (K) or millions (M) of dollars

Source: NOAA, National Climatic Data Center, Storm Events Database

Wilson County reported that a tornado touched down in Stantonsburg on 8/14/2012 causing damage to five buildings, possibly destroying one beyond repair. It is likely that this tornado is the same one indicated in the previous Table 5-31 as occurring on 8/11/2012; the discrepancy could be due to one date being the actual event and the other being the date that the damage assessment was completed. An analysis of the historic tornado data in this table shows that between 1950 and July of 2014 in Edgecombe County there were 9 recorded tornadoes, in Nash there were 14, and in Wilson County there were 17. (It should be noted that during this period it is likely that there were smaller tornadoes in undeveloped areas that were not identified and /or reported as such.)

A breakdown of the magnitude of the 38 reported tornadoes in the region as a whole was 13 (thirteen) F0/EF0 storms, 9 (nine) F1/EF1 storms, 7 (seven) F2/EF2 storms, 8 (eight) F3/EF3 storms, and 1(one) F4/EF4 storm. (There were no recorded F5/EF5 tornadoes in the planning area during the reporting period.) There were 3 deaths, 52 injuries, and more than \$230,000 in property damages from these reported tornadoes. The average length of these tornadoes was 4.7 miles, the average width was 93 yards (or 279 feet), and the average damage amount was roughly \$410,500. (In most storms the amount of damage was much smaller than the average, but there were six tornadoes that each caused between one and three million dollars in damages, which increased the overall average.)

**Probability of future events:** Based on the historical data (previous occurrences) included in this plan for tornadoes, which indicated at least 38 such events over a 64.5 year period (1950 through July of 2014), the probability of a **tornado** (in which there would likely be some damages) occurring some year within the planning area as a whole was calculated to be roughly **59 percent**. This percentage would give this hazard a rating of **“likely”** – meaning there is between a 10% and 100% probability of it occurring sometime during the next year or any year thereafter.

### 5.2.11 Wildfires/Forest Fires



**Introduction/Type of hazard:** For those growing up during the 1940s through the 1990s, Smokey the Bear's phrase "Only YOU can prevent forest fires" is most likely your first introduction to hazard mitigation. According to the Ad Council, Smokey Bear and his message are recognized in the United States by 95% of adults and 77% of children. <sup>\*A</sup> In spite of its success, the original Smokey Bear campaign has been criticized by wildfire policy experts in cases where decades of fire suppression and the indigenous [fire ecology](#) was not taken into consideration, helping to create forests unnaturally dense with fuel. When a brushland, woodland, or forested area is not impacted by fire for a long period of time, large quantities of flammable leaves, branches and other organic matter tend to accumulate on the forest floor and above in brush [thickets](#). When a forest fire eventually does occur in such an area where a natural cycle period has been suppressed, the increased amount of fuel present creates a [crown fire](#), which destroys all vegetation and affects surface soil chemistry. Frequent small 'natural' [ground fires](#) prevent the accumulation of fuel and allow large, slow-growing vegetation (e.g. trees) to survive. There is increasing use of [controlled burns](#) directed by skilled firefighters, and allowing wildland fires not causing human harm or threat to burn out.

As a result, the goal and theme of the Smokey Bear campaign was adjusted in 2001 from "Only you can prevent forest fires" to "Only you can prevent wildfires". The purpose of the change was to respond to the criticism, and to distinguish 'bad' intentional or accidental wildfires from the needs of sustainable forests via natural 'good' fire ecology. <sup>\*B</sup>

"North Carolina's most severe fire season occurs from late winter through late spring (February through May). There is also a shorter fire season that occurs in the fall after leaves have dropped. Spring fire season severity is driven by several factors. The driest and windiest days in North Carolina typically occur in the spring. Frequent cold fronts pass through the state, often without rain, leaving dry, blustery days in their wake. Relative humidity can bottom out in the teens and single digits during spring. When combined with wind, these conditions can lead to rapidly spreading wildfires." <sup>\*C</sup>

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**Location:** While the entire planning area has the potential to be impacted by wildfires, the most susceptible areas are those located in what has been referred to as the wildland-urban interface. The wildland-urban interface (WUI) is the area where structures and other human development meet or intermingle with undeveloped wildland, forest or vegetative fuels. North Carolina has more WUI acres than any other state in the country, and our growth increases this acreage every year. The interface creates great challenges for fire managers as nearly every fire or its associated smoke has the potential to negatively impact homes, roads, farms and other development. \*<sup>D</sup> Within larger urban areas (such as Rocky Mount, Wilson, and Tarboro), the risk of wildfires tends to be lower because they typically have smaller nearby areas of undeveloped wildland, forest and vegetative fuels, whereas, the 22 smaller municipalities are likely to be at greater risk due to their closer intermingling with surrounding forest and agricultural lands.

**Extent:** Since the North Carolina Forest Service (NCFS) began keeping records of fire occurrence in North Carolina on private and state-owned lands in 1928, there has been an average of about 4,000 fires burning more than 115,000 acres annually. The peak occurred in 1955, when more than 580,000 acres burned. In the last 10 years, the Tar Heel State has averaged closer to 4,500 fires per year and around 25,000 acres burned annually. A majority of wildfires in the state are human-caused through the careless burning of yard debris such as branches, sticks, and leaves, and these fires typically grow to an acre or two in size before they are suppressed.

The following Table 5-32, shows a breakdown of the causes of wildfires in North Carolina since 1972.

| <b>Table 5-32: Wildfires/Forest Fires by Cause in North Carolina, 1972-2013</b> |   |                |
|---|---|----------------|
| <b>Fire Cause</b>   | <b>Average Acres Burned Each Year As a Result</b> | <b>Percent</b> |
| Debris Burning  | 13,461  | 38             |
| Incendiary *  | 7,439   | 21             |
| Misc.   | 4,251   | 12             |
| Smoking   | 3,188   | 9              |
| Children  | 2,834   | 8              |
| Machine Use   | 2,125   | 6              |
| Railroad  | 1,063   | 3              |
| Lightning   | 708   | 2              |
| Camping   | 354   | 1              |
| Totals  | 35,425  | 100            |

Note: \* Incendiary means "intentionally set", which is not necessarily arson – the "intent to damage or destroy another's property"; whether arson or not, intentionally setting a fire is a felony in NC

Source: North Carolina Forest Service Fire Reporting System

“In drought years, which are often associated with [La Niña](#) conditions, we typically have greater fire frequency and more extreme and difficult-to-control fires. For example, in 2008 and 2011, there were several large fires ([Pains Bay Fire](#), [Evans Road Fire](#), [Juniper Road Fire](#)) in the coastal plain that took weeks to months to suppress, collectively burned more than 125,000 acres, and cost tens of millions of dollars to battle.” \*C

In the Nash, Edgecombe, Wilson County area, from 2004-2014 the greatest number of fires to occur in any year was 144 fires in 2007, as indicated in Table 5-36. The largest number of acres to be consumed in the three counties in a year was 628 acres in 2008. The largest number of acres to be consumed in a single fire event was 300 acres, which occurred in Edgecombe County in February 2008. The causes of the largest fires from 2004-2014 included debris burning (12 times), incendiary (3 times), lightning (3 times), machine use (3 times), children (2 times), down power line (2 times), smoking (2 times), campers (1 time), electric fence (1 time), escaped control burn (1 time), railroad welding (1 time), miscellaneous (1 time), and unknown (1 time). These causes are similar to those listed in Table 5-32 for all of NC, and show that wildfires can result from a variety of causes.

**Previous occurrences:** The National Climatic Data Center storm events database showed 0 (zero) wildfire events occurring in the planning area between 1950 and August of 2014. Earlier and more comprehensive data was possibly available from the Spatial Hazard Events and Losses Database for the United States (SHELDUS), but at the time of inquiry, that data was only available by purchase. Fortunately some local data was available from Robert W. Lipford, Registered Forester for District Five of the North Carolina Forest Service, as well as the Nash, Wilson, and Edgecombe County Forest Services offices.

The following five Tables (5-33 through 5-37) include historical wildfire data (from 2004-2014) for the three individual counties in this plan (Nash, Edgecombe, and Wilson) and for the region as a whole. In Nash County during this period, the largest number of fires (65) occurred in two separate years (2013 and 2014); in Edgecombe County 35 fires occurred in 2006; and in Wilson County the largest number of fires (70) occurred during 2007. (Note: the largest events and totals are highlighted in each table.)

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**Table 5-33: Ten Year Fire Occurrence Statistics for Nash County:  
2004 – 2014**

| Year          | # Fires    | Total Acres   | Largest Fire (in terms of acres impacted) |                |                                      |                    |
|---------------|------------|---------------|---|----------------|--------------------------------------|--------------------|
|               |            |               | Acres                                     | Date           | Cause                                | Suppression Costs  |
| 2004          | 16         | 21.40         | 5   | 5/26/04        | Debris burning                       | \$250.00           |
| 2005          | 26         | 50.75         | 15  | 9/05/05        | Incendiary                           | \$2350.00          |
| 2006          | 29         | 46.90         | 18  | 2/28/06        | Debris burning                       | \$400.00           |
| 2007          | 42         | 59.40         | 20  | 9/11/07        | Down Power Line                      | \$3300.00          |
| 2008          | 22         | 32.50         | 12  | 2/10/08        | Down Power Line<br>(house destroyed) | \$1000.00          |
| 2009          | 10         | 36.50         | 22  | 8/11/09        | Escaped Control Burn                 | \$840.00           |
| 2010          | 20         | 28.30         | 8   | 2/19/10        | Debris burning                       | \$280.00           |
| 2011          | 57         | <b>152.40</b> | <b>60</b>                                 | <b>7/18/11</b> | <b>Lightning</b>                     | <b>\$12,700.00</b> |
| 2012          | 51         | 48.90         | 8   | 2/26/12        | Campers                              | \$750.00           |
| 2013          | <b>65</b>  | 64.60         | 10  | 3/23/13        | Debris burning                       | \$525.00           |
| 2014          | <b>65</b>  | 53.30         | 10  | 4/04/14        | Debris burning                       | \$475.00           |
| <b>Totals</b> | <b>403</b> | <b>594.95</b> |   |                |                                      |                    |

Source: NC Forest Service, Nash County Office

**Table 5-34: Ten Year Fire Occurrence Statistics for Edgecombe County:  
2004 – 2014**

| Year          | # Fires    | Total Acres   | Largest Fire (in terms of acres impacted) |                |                |                   |
|---------------|------------|---------------|---|----------------|----------------|-------------------|
|               |            |               | Acres                                     | Date           | Cause          | Suppression Costs |
| 2004          | 19         | 18.80         | 5   | 4/08/04        | Debris burning |                   |
| 2005          | 26         | 34.10         | 6   | 2/13/05        | Children       |                   |
| 2006          | <b>35</b>  | 97.00         | 80  | 4/05/06        | Incendiary     |                   |
| 2007          | 32         | 21.80         | 6   | 10/21/07       | Electric Fence |                   |
| 2008          | 29         | <b>558.60</b> | <b>300</b>                                | <b>2/10/08</b> | <b>Unknown</b> |                   |
| 2009          | 13         | 21.90         | 7   | 4/10/09        | Debris burning | \$575.00          |
| 2010          | 19         | 29.60         | 6   | 3/08/10        | Debris burning | \$730.00          |
| 2011          | 18         | 122.40        | 80  | 7/04/11        | Lightning      |                   |
| 2012          | 8          | 18.40         | 10  | 6/16/12        | Machine Use    |                   |
| 2013          | 11         | 27.70         | 10  | 6/23/13        | Machine Use    | \$475.00          |
| 2014          | 12         | 5.30          | 1   | 6/03/14        | Debris burning | \$75.00           |
| <b>Totals</b> | <b>222</b> | <b>955.60</b> |   |                |                |                   |

Source: NC Forest Service, Edgecombe County Office

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**Table 5-35: Ten Year Fire Occurrence Statistics for Wilson County:  
2004 – 2014**

| Year          | # Fires    | Total Acres   | Largest Fire (in terms of acres impacted) |          |                     |                   |
|---------------|------------|---------------|---|----------|---------------------|-------------------|
|               |            |               | Acres                                     | Date     | Cause               | Suppression Costs |
| 2004          | 30         | 47.70         | 10  | 3/24/04  | Machine             | \$999.99          |
| 2005          | 40         | 104.10        | 30  | 8/09/05  | Debris burning      | \$999.99          |
| 2006          | 41         | 98.30         | 40  | 4/08/06  | Smoking             | \$4999.99         |
| 2007          | <b>70</b>  | 160.80        | 70  | 8/14/07  | Lightning           | \$4999.99         |
| 2008          | 30         | 37.00         | 10  | 6/29/08  | Possible Children   | \$4999.99         |
| 2009          | 23         | 14.30         | 4   | 4/18/09  | Debris burning      | \$1960.00         |
| 2010          | 37         | 31.90         | 7   | 11/24/10 | Smoking             | \$3000.00         |
| 2011          | 34         | 98.00         | 55  | 2/19/11  | Debris burning      | \$10,120.00       |
| 2012          | 23         | 43.60         | 20  | 3/19/12  | Probable Incendiary | \$750.00          |
| 2013          | 29         | 33.50         | 15  | 5/15/13  | Railroad Welding    | \$3220.00         |
| 2014          | 24         | 19.46         | 2.5                                       | 3/15/14  | Miscellaneous       | \$1575.00         |
| <b>Totals</b> | <b>381</b> | <b>688.66</b> |   |          |                     |                   |

Source: NC Forest Service, Wilson County Office

**Table 5-36: Ten Year Fire Occurrence Statistics for the Region  
(Nash, Edgecombe, & Wilson County Combined):  
2004 – 2014**

| Year          | # Fires     | Total Acres     | Largest Fire (in terms of acres impacted) |                  |                      |                   |
|---------------|-------------|-----------------|---|------------------|----------------------|-------------------|
|               |             |                 | Acres                                     | Date             | Cause                | Suppression Costs |
| 2004          | 65          | 87.90           | 10  | 3/24/2004        | Machine              | \$999.99          |
| 2005          | 92          | 188.95          | 30  | 8/09/2005        | Debris burning       | \$999.99          |
| 2006          | 105         | 242.20          | 80  | 4/05/2006        | Incendiary           | ??                |
| 2007          | <b>144</b>  | 242.00          | 70  | 8/14/2007        | Lightning            | \$4999.99         |
| 2008          | 81          | <b>628.10</b>   | <b>300</b>                                | <b>2/10/2008</b> | <b>Unknown</b>       | ??                |
| 2009          | 46          | 72.70           | 22  | 8/11/2009        | Escaped Control Burn | \$840.00          |
| 2010          | 76          | 89.80           | 8   | 2/19/2010        | Debris burning       | \$280.00          |
| 2011          | 109         | 372.80          | 80  | 7/04/2011        | Lightning            | ??                |
| 2012          | 82          | 110.90          | 20  | 3/19/2012        | Probable Incendiary  | \$750.00          |
| 2013          | 105         | 125.80          | 15  | 5/15/2013        | Railroad Welding     | \$3220.00         |
| 2014          | 101         | 78.06           | 10  | 4/04/2014        | Debris burning       | \$475.00          |
| <b>Totals</b> | <b>1006</b> | <b>2,239.21</b> |   |                  |                      |                   |

Source: Combined from Nash, Edgecombe and Wilson County Forest Service Offices

The following Table 5-37 is a selection of the key historical local data available from North Carolina Forest Service for the counties contained in this regional plan.

| <b>Table 5-37: Historic Wildfire Data for the Planning Area: 1970 – 2008</b> |                        |                     |                                      |
|--|------------------------|---------------------|--------------------------------------|
| <b>County</b>  | <b>Number of Fires</b> | <b>Acres Burned</b> | <b>Average Acres Burned Per Fire</b> |
| Edgecombe  | 1,166                  | 5,513.5             | 4.73                                 |
| Nash   | 1,090                  | 4,612.9             | 4.23                                 |
| Wilson   | 1,168                  | 4,397.1             | 3.76                                 |

Totals 3,424 14,523.5

Source: North Carolina Forest Service, District Five Forester

An analysis of the historic wildfire data in the previous table shows that between 1970 and 2008 in each county there were roughly 1100 wildfires/forest fires. Because Wilson County is somewhat smaller in size than the other two, this would tend to indicate that Wilson County had a somewhat greater concentration of fires, on the basis of fires per square mile for example. Nash County’s lowest number of fires, with it being the largest county in geographic area, would tend to indicate that it had a somewhat lower concentration of fires on fire per square mile basis.

The number of acres burned was more in line with the county sizes, as Wilson County had the lowest number of acres burned, although Edgecombe County had a significantly greater number of acres burned than the other two counties.

The average acres burned per fire data, indicates that the average fire size in Edgecombe County was larger than the other two counties, and in Nash County the average fire size was smaller than in Edgecombe County, but larger than in Wilson. It should be noted that the average fire size can be somewhat misleading, in that most fires are smaller than the average size, but the occasionally significantly larger fires tend to make the average higher than it would otherwise be.

**Probability of future events:** Based on the historical (previous occurrences) data included in this plan for recorded wildfires/forest fires, in the planning area as a whole there have been 3,424 such fires over a 39 year period (1970 through 2008), which equates to nearly 88 fires per year, or an equivalent to a 8,779 percent annual chance. As a result, this hazard has been assigned a rating of “**highly likely**” – which means there is a near 100% probability of this hazard occurring somewhere in the planning area during the next year and any year thereafter.

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### Endnotes

- Dam1\* Association of Dam Safety Officials website
- Drought1\* NC Hazard Mitigation Plan, 2010  
Drought2\* NOAA, National Weather Service, Climate Prediction Center  
Drought3\* National Drought Mitigation Center, US Drought Monitor
- Heat Wave1\* Ready.gov (The Dept of Homeland Security & FEMA)  
Heat Wave2\* NOAA, National Weather Service  
Heat Wave3\* US Environmental Protection Agency (EPA), Excessive Heat Events Guidebook, June 2006  
Heat Wave4\* US Environmental Protection Agency (EPA), Heat-Related Deaths brochure, 2012  
Heat Wave5\* "Heat-Related Fatalities in North Carolina", American Journal of Public Health, 2005 April, by [Maria C. Mirabelli](#), MPH and [David B. Richardson](#), PhD  
Heat Wave6\* Primary Beginnings Child Development Centers, Children's Health blog, 8-2012  
Heat Wave7\* NOAA, National Weather Service Office of Climate, Water, and Weather Services
- Flood1\* FEMA, Managing Floodplain Development Through the National Flood Insurance Program, FEMA E-273, July 2008  
Flood2\* NC Hazard Mitigation Plan, 2010  
Flood3\* NFIP, National Flood Insurance Manual, June 2014  
Flood4\* [www.fema.gov/txt/rebuild/repetitive\\_loss\\_faqs.txt](http://www.fema.gov/txt/rebuild/repetitive_loss_faqs.txt)
- Fog1\* NC Hazard Mitigation Plan, 2010  
Fog2\* [http://www.crh.noaa.gov/jkl/?n=fog\\_types](http://www.crh.noaa.gov/jkl/?n=fog_types)
- Geological1\* Dictionary.com  
Geological2\* Colorado State University Extension website, 12-2014  
Geological3\* NC Hazard Mitigation Plan, 2010  
Geological4\* United States Environmental Protection Agency website (Arsenic in Drinking Water, Arsenic Compounds, Basic Information about the Arsenic Rule  
Geological5\* NCDENR, Division of Water Quality, Aquifer Protection Section, Arsenic in Groundwater of North Carolina  
Geological6\* NC Radon Program, NC Dept of Health & Human Services  
Geological7\* <http://www.epa.gov/radon/aboutus.html>  
Geological8\* A Citizen's Guide to Radon, US EPA  
Geological9\* Agency for Toxic Substances and Disease Registry (ATSDR). *Toxicological Profile for Manganese (Update)*. Draft for Public Comment. U.S. Public Health Service, U.S. Department of Health and Human Services, Atlanta, GA. 1997.  
Geological10\* Agency for Toxic Substances & Disease Registry, Toxic Substances Portal, Selenium  
Geological11a\* [http://www.usgs.gov/blogs/features/usgs\\_top\\_story/the-science-of-sinkholes/](http://www.usgs.gov/blogs/features/usgs_top_story/the-science-of-sinkholes/)  
Geological11b\* NCDENR, Division of Water Resources, Ground Water, Sinkholes webpage (<http://www.ncwater.org/?page=567>)  
Geological12\* Land Subsidence in the United States, USGS, USGS Fact Sheet-165-00  
Geological13\* WebSoilSurvey, NRCS, USDA.

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- Geological14\* [http://www.surevoid.com/soil\\_maps/risk\\_areas\\_us.php](http://www.surevoid.com/soil_maps/risk_areas_us.php)
- Geological15a\* <http://www.surevoid.com/soils/description.php>
- Geological15b\* <http://www.foundation-repair-guide.com/expansive-soil.html>
- Geological16\* United States Environmental Protection Agency, Fact Sheet: Drinking Water Standard for Arsenic
- Geological17\* [www.yourhealthbase.com/database/a121c.htm](http://www.yourhealthbase.com/database/a121c.htm)
- Geological18\* United States Environmental Protection Agency, Secondary Drinking Water Regulations: Guidance for Nuisance Chemicals.
- Geological19\* United States Environmental Protection Agency website, Water: Basic Information about Regulated Drinking Water Contaminants, Basic Information about Selenium in Drinking Water
- Hurricane1\* National Weather Service, National Hurricane Center
- Hurricane2\* NOAA, National Weather Service, JetStream – Online School for Weather
- Hurricane3\* State Climate Office of North Carolina
- Hurricane4\* National Oceanic and Atmospheric Administration (NOAA) website
- Hurricane5\* The Hurricane of October 21-24, 1878, Delaware Geological Survey, Special Publication No. 22, Kelvin Ramsey & Marijke Reilly, 2002.
- Hurricane6\* Website for Hurricanes and the Middle Atlantic States (<http://www.midatlantichurricanes.com/>, North Carolina & Virginia pages)
- Hurricane7\* NC Hazard Mitigation Plan, 2010
- Hurricane\* Journal of Coastal Research, Vol. 8, No. 4, 1992
- Thundrstrm\*A NOAA, National Severe Storms Laboratory, Severe Weather 101 webpage
- Thundrstrm\*B State Climate Office of NC, Thunderstorms Overview webpage
- Tornado\*1 NOAA, National Severe Storms Laboratory, Severe Weather 101 webpage
- Tornado\*B "The Enhanced Fujita Tornado Scale", NOAA's National Climatic Data Center, Asheville, NC
- Tornado\*C National Weather Service Weather Forecast Office, Norman, OK
- Tornado\*D NOAA, National Climatic Data Center, Tornado Alley webpage
- Tornado\*E State Climate Office of North Carolina, SPC Storm Reports Map Showing Tornado Events In NC (1950 - 2013) webpage
- Tornado\*F NOAA, National Climatic Data Center, Historical Records and Trends webpage
- Wildfire\*A ["The Ad Council At A Glance"](#) (PDF). [adcouncil.org](http://ad council.org).
- Wildfire\*B [L.A. Times; "At 65, Smokey Bear is still fighting fires;" July 24, 2009](#)
- Wildfire\*C State Climate Office of NC, The Impact of Wildfires in North Carolina, by Paul Gellerstedt, NC Forest Service
- Wildfire\*D NC Forest Service, Fire Control & Prevention, The Wildland/Urban Interface webpage

### **5.3: IDENTIFICATION OF COMMUNITY ASSETS**

#### **5.3.1: INTRODUCTION**

Identification of community assets at risk to hazards is an essential planning element in any hazard mitigation planning effort. Community assets can be broadly defined so as to include resources in the community that are important to the character and overall function of a community. There are four major broad categories that can be used to describe community assets, including people, properties or the built environment, natural environments, and community or area economy.

#### **5.3.2: PEOPLE**

People within the community, area or region are its most important and valuable assets. Recognition of the population densities within an area or region, as well as population with greater vulnerabilities is important in order to appreciate the risk to people within a community or region. For example, the most populated county in the three counties participating in the Nash-Edgecombe-Wilson Multi-Jurisdictional Hazard Mitigation Plan is Nash County with an estimated 2013 population of 95,093 persons. Wilson County is not far behind with an estimated 2013 population of 82,350. Edgecombe County with an estimated 2013 population of 55,574 remain more rural with smaller sized communities.

Although a detailed population analysis is provided in Section II, the following table compares all the counties and communities within the three county region regarding estimated 2013 population. Within the three county area an estimated 233,017 person reside as of 2013, and based upon a continued average growth in the area of over 7% since the 2000 population, low to moderate population increases in the area most likely continued through the current date of this Plan (2015). Within these counties there are also major population centers where people are concentrated in cities, towns and smaller incorporated communities. For example, Rocky Mount in Nash County with an estimated 2013 population of 56,954 is the largest city followed by Wilson in Wilson County with an estimated 2013 population of 49,628. These population centers that also include the smaller community of Tarboro with an estimated 2013 population of 11,348 represent the largest concentration of people that could be at risk in a natural disaster, such as a hurricane or other major storms such as tornados. Within these communities there are also vulnerable population due to location in or near flood plains as well as a variety of population groups that are more vulnerable due to English as a non native language or concentrations of visitors in area colleges.

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For example, there are an estimated 859 college students living in dormitories on two campuses, Barton College in the City of Wilson in Wilson County with 417 housed students and NC Wesleyan College in Rocky Mount in Nash County with 442 housed students.

**Table 5.38**

| <b>2013 POPULATION IN THE THREE COUNTY PLAN</b>  |                                   |
|--|-----------------------------------|
| <b>County</b>  | <b>Estimated 2013 Population*</b> |
| <b>Wilson County</b>   | 82,350                            |
| City of Wilson   | 49,628                            |
| Black Creek  | 615                               |
| Elm City   | 1,624                             |
| Kenly  | 1,549                             |
| Lucama   | 933                               |
| Saratoga   | 410                               |
| Sims   | 283                               |
| Stantonsburg   | 788                               |
| Sharpsburg#  | 2,014                             |
| Unincorporated Area  | 24,578                            |
| <b>Nash County</b>   | 95,093                            |
| Rocky Mount##  | 56,954                            |
| Bailey   | 566                               |
| Castalia   | 262                               |
| Dortches   | 937                               |
| Middlesex  | 818                               |
| Momeyer  | 223                               |
| Nashville  | 5,482                             |
| Red Oak  | 3,443                             |
| Spring Hope  | 1,324                             |
| Whitakers###   | 737                               |
| Unincorporated Area  | 24,347                            |
| <b>Edgecombe County</b>  | 55,574                            |
| Tarboro  | 11,348                            |
| Conetoe  | 287                               |
| Leggett  | 60                                |
| Macclesfield   | 465                               |
| Pinetops   | 1,358                             |
| Speed  | 80                                |
| Princeville  | 2,046                             |
| Unincorporated Area  | 39,930                            |
| <b>Total</b>   | 233,017                           |
| <b>NOTES:</b> # Sharpsburg is in three counties (Edgecombe, Wilson and Nash); ##Rocky Mount is in two counties (Nash and Edgecombe); ### Whitakers is in Nash and Edgecombe County.<br><b>Data Sources:</b><br>For estimated 2013 Population See:<br><a href="http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml#none">http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml#none</a> |                                   |

The subsection 5.2.3 entitled "Vulnerable Populations" presents information on physically and other type population groups considered vulnerable, including elderly and disabled as well as populations in nursing facilities, jails, group homes or emergency shelters, and juvenile correction facilities. Many of these facilities are considered critical vulnerable population facilities and are plotted on the map on page \_ and discussed in the next section.

In addition, there is a large migrant farm population as well as Hispanic population. As a 2013 report on Public Radio East regarding the Migrant Farm worker Camps in Eastern North Carolina stated:<sup>1</sup>

*"North Carolina ranks fifth in the nation for its number of migrant farm workers, and eastern North Carolina has the highest concentration in the state. Many of the farm workers in eastern North Carolina are coming from Mexico and other Latin American countries. They are contracted to work in America on a H2-A Visa, which allows them to stay in our country for up to a year.*

*Those workers are usually brought here on buses to Vass, NC where the North Carolina Growers Association is located. Then there is a process thru the system where they are distributed throughout the state depending on what grower they're going to be going to. Duplin County, Wayne County, Wilson County, Lenoir County, Pitt County, these are some of the more populated areas for migrant farmworkers."*

<sup>1</sup> See: <http://publicradioeast.org/post/part-one-migrant-farmworker-camps-enc>

The migrant workers in our region are vulnerable to hazardous conditions due to many factors, including lack of English as their native language, poor housing conditions, and other related factors, such as poor living conditions. Special attention should be paid to insure that migrant worker camps throughout the three county area are properly and quickly notified of any pending hazard. For example, The Association of Mexicans in NC (252-757-3916) located in Greenville NC (approximately 35 miles East of Wilson, N.C.) should be involved in efforts to help communicate natural hazards to migrant worked and other Hispanic populations in this three county area. Emergency managers in all jurisdictions in this Plan should develop specific strategies and contacts to insure the non-English speaking population have access to vital information.

Area colleges and other concentrations of population groups need to also be promptly notified through emergency management operations of pending hazard(s) with adequate and timely notification to allow these facilities to take appropriate measures to help protect their populations.

### **5.3.3: VULNERABLE POPULATIONS**

During natural hazard events, certain populations within an area may be more vulnerable to harm than the general population and this situation varies from place to place and facility to facility. Certain characteristics of a particular population group may render them more vulnerable to natural disasters in some cases.<sup>2</sup> Although hazard mitigation plans must focus on physical vulnerability, such as the risks to structures, particular population groups may be especially vulnerable to disasters due to age, poverty, race, disability or language barriers. As a result these socially vulnerable populations often face greater challenges preparing for, coping with and recovering from disasters. Hazard mitigation plans should address both physical and social vulnerability. There are three types of Vulnerable Populations, Physical (such as the infirmed), Economical (such as the low income), and Cultural (such as non-English speaking populations). Infirmed patients in nursing homes may be more at risk than the general population that has more mobility and access to safe areas during severe storms. Also, the decision to shelter in place or evacuate can literally mean life or death for physically challenged and frail elderly or infirmed in the three county area.

In regards to structural vulnerabilities, mobile homes pose the greatest risk due in part to their particular construction and placement on the land. By determining the various

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<sup>2</sup> UNC Institute for the Environment, [Wilson County Vulnerability Assessment](#), Capstone Team, Fall 2011

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levels and locations of vulnerable populations and structures, emergency communications and effective operations can be comprehensively applied and considerations provided for appropriate actions and improved emergency management services to address the emergency needs of the most vulnerable populations and locations. The following table provides an indicator of the degree of vulnerable populations in the three county area and major cities within each county:

**Table 5.39**

| <b>PHYSICALLY VULNERABLE POPULATIONS IN THE THREE COUNTY AREA PLUS MAJOR CITIES WITHIN EACH COUNTY IN 2010</b>   |                      |                    |                    |                    |                         |                |
|--|----------------------|--------------------|--------------------|--------------------|-------------------------|----------------|
| <b>Population Groups</b>   | <b>Wilson County</b> | <b>Wilson City</b> | <b>Nash County</b> | <b>Rocky Mount</b> | <b>Edgecombe County</b> | <b>Tarboro</b> |
| <b>Total Population (2010)</b>   |                      |                    |                    |                    |                         |                |
| <b>Nursing Facilities</b>  | 760                  | 756                | 563                | 377                | 366                     | 366            |
| <b>Local Jail or Prisons</b>   | 167                  | 167                | 947                | 498                | 832                     | 234            |
| <b>Non-institutional Facilities</b>  | 43                   | 43                 | 40                 | 80                 | 99                      | 59             |
| <b>Emergency/Transitional Shelters</b>   | 19                   | 19                 | 38                 | 64                 | 50                      | 24             |
| <b>Group Homes/Housing</b>   | 166                  | 52                 | 146                | 94                 | 53                      | 7              |
| <b>Colleges</b>  | 417                  | 417                | 442                | 442                | 0                       | 0              |
| <b>Juvenile/Correction/Homes</b>   | 18                   | 13                 | 27                 | 25                 | 25                      | 0              |
| <b>Hospice Facilities</b>  | 0                    | 0                  | 6                  | 6                  | 0                       | 0              |
| <b>Data Sources:</b>   |                      |                    |                    |                    |                         |                |
| For Tarboro see: <a href="http://www.city-data.com/city/Tarboro-North-Carolina.html">http://www.city-data.com/city/Tarboro-North-Carolina.html</a>             |                      |                    |                    |                    |                         |                |
| For Rocky Mount see: <a href="http://www.city-data.com/city/Rocky-Mount-North-Carolina.html">http://www.city-data.com/city/Rocky-Mount-North-Carolina.html</a> |                      |                    |                    |                    |                         |                |
| For Wilson City see: <a href="http://www.city-data.com/city/Wilson-North-Carolina.html">http://www.city-data.com/city/Wilson-North-Carolina.html</a>           |                      |                    |                    |                    |                         |                |
| For Wilson County see: <a href="http://www.city-data.com/county/Wilson_County-NC.html">http://www.city-data.com/county/Wilson_County-NC.html</a>               |                      |                    |                    |                    |                         |                |
| For Nash County see: <a href="http://www.city-data.com/county/Nash_County-NC.html">http://www.city-data.com/county/Nash_County-NC.html</a>                     |                      |                    |                    |                    |                         |                |
| For Edgecombe County see: <a href="http://www.city-data.com/county/Edgecombe_County-NC.html">http://www.city-data.com/county/Edgecombe_County-NC.html</a>      |                      |                    |                    |                    |                         |                |

Physically vulnerable populations also include elderly persons, as well as institutionalized and physically disabled individuals. Economically vulnerable populations primarily include persons living in poverty, and culturally vulnerable populations include persons of ethnic origins that might be at a disadvantage in receiving or accessing critical emergency information in times of hazardous conditions and. For example, one report indicated that since "African-American populations are historically vulnerable, this merits consideration in a hazard mitigation plan and associated disaster vulnerability assessments".<sup>3</sup>

<sup>3</sup> UNC Institute for the Environment, Wilson County Vulnerability Assessment, 2011, p. 6 (See: [http://www.ie.unc.edu/for\\_students/courses/capstone/11/wilson\\_vulnerability\\_assessment.pdf](http://www.ie.unc.edu/for_students/courses/capstone/11/wilson_vulnerability_assessment.pdf))

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The table below displays cultural and economical vulnerabilities in the three county area.

**Table 5.40**

| <b>CULTURALLY AND ECONOMICALLY VULNERABLE POPULATIONS</b>                               |             |               |                  |           |             |
|---|-------------|---------------|------------------|-----------|-------------|
| <b>Population Groups</b>  | <b>Nash</b> | <b>Wilson</b> | <b>Edgecombe</b> | <b>NC</b> | <b>US</b>   |
| <b>Physically Vulnerable*</b>   |             |               |                  |           |             |
| Total Population  | 95,545      | 81,020        | 56,256           | 9,535,483 | 308,745,538 |
| Elderly (65+)   | 14.0%       | 14.4%         | 14.7%            | 12.9%     | 13.0%       |
| Householder Living Alone  | 27.4        | 27.8          | 27.1             | 27.0%     | 26.7%       |
| Physically Disabled with 1 or more disability item*#                                    | 5.64%       | 4.67%         | No Data          | 4.38%     | 4.5%        |
| Institutionalized Persons   | 1.6%        | 1.2%          | No Current Data  | 1.2%      | 1.3%        |
| <b>Economically Vulnerable**</b>  |             |               |                  |           |             |
| Median Household Income   | 43,757      | \$33,116      | \$33,917         | \$46,450  | \$53,046    |
| Family median household income  | 54494       | \$41,551      | \$41,605         | \$57,146  | \$64,585    |
| Families living below poverty line  | 13.7        | 13.4%         | 19.2%            | 12.4%     | 10.9%       |
| Female headed Families with children below poverty line                                 | 43.7%       | 43.4%         | 36.3%            | 42.8%     | 39.1%       |
| <b>Culturally and Historically Vulnerable***</b>  |             |               |                  |           |             |
| Non-English speaking  | 1.1%        | 2.7%          | No Data          | 2.6%      | 4.5%        |
| <b>Ethnicity:****</b>   |             |               |                  |           |             |
| Hispanic  | 6.3%        | 9.5%          | 3.7%             | 8.4%      | 16.3%       |
| Non-Hispanic  |             | 90.5%         | 96.3%            | 91.6      | 83.7%       |
| <b>Race****</b>   |             |               |                  |           |             |
| African-American  | 37.2%       | 39.0%         | 57.4%            | 21.5%     | 12.6%       |
| American-Indian   | .7%         | .3%           | .3%              | 1.3%      | .9%         |
| Asian-American  | .8%         | 1.1%          | .2%              | 2.2%      | 4.8%        |
| White   | 55.9%       | 52.0%         | 38.5%            | 68.5%     | 72.4%       |
| Two or more races   | 1.6%        | 1.6%          | 1.0%             | 2.2%      | 2.9%        |
| <b>Data Sources:</b>  |             |               |                  |           |             |
| * 2010 US Census  |             |               |                  |           |             |
| *# 2010 American Community Survey   |             |               |                  |           |             |
| ** 2012 US Census Selected Economic Characteristics-2008-2012 American Community Survey |             |               |                  |           |             |
| *** 2013 American Community Survey (1-Year Estimate)                                    |             |               |                  |           |             |
| **** 2010 US Census - Demographic Profile   |             |               |                  |           |             |

From a hazard mitigation planning perspective, the significance of the combined socially and physically vulnerable populations in the three county area is an indicator of persons or groups who most likely are more immobile than the general population or otherwise may need additional care or assistance when disaster strikes. Protective measures such as medical transportation, chaperone supervision, or evacuation assistance may be necessary to keep these groups safe in the event of a natural disaster.<sup>4</sup> For example, to address socially vulnerabilities mitigation plans might include:

<sup>4</sup> UNC Institute for the Environment, **Wilson County Vulnerability Assessment**, 2011, p. 5 (See: [http://www.ie.unc.edu/for\\_students/courses/capstone/11/wilson\\_vulnerability\\_assessment.pdf](http://www.ie.unc.edu/for_students/courses/capstone/11/wilson_vulnerability_assessment.pdf))

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- ✓ Identification of concentrations of special needs residents to help target preparedness, response, education, and mitigation actions;
- ✓ Identification of the types of visiting populations and their likely locations to assess potential problems;
- ✓ Identification of locations and concentrations of access and functional needs to best assist identified populations; and
- ✓ Insure locations which provide health or social services that are critical to disaster recovery are identified and that access is known and available for special needs populations.

Although all built environments are potentially vulnerable to natural hazards, mobile homes are particularly vulnerable due to construction, materials and placement or anchoring onto the ground. As can be seen in the following table, mobile homes make up a large percentage of residential units within the three county area. It is important that emergency management operations and Plans identify the location and concentrations of mobile home units, so that provisions can be made for addressing emergency management operations to consider particular vulnerabilities and related impact needs for these type structures. As demonstrated in the Hurricane Floyd flooding event in 1999 in this three county area, devastation was particularly acute for mobile home parks adjacent to or within the Flood Plain.

**Table 5.41**

| <b>PHYSICAL VULNERABILITIES (RESIDENTIAL STRUCTURES) IN THE THREE COUNTY AREA</b>   |                |               |                     |
|---|----------------|---------------|---------------------|
| <b>Type Unit</b>  | <b>Wilson*</b> | <b>Nash**</b> | <b>Edgecombe***</b> |
| Residential Built Units (including Apartments)  | 26,552         | 30,055        | 18,118              |
| Mobile Homes  | 4,177 (16%)    | 6,983 (23%)   | 5,533 (31%)         |
| Boats/RVs   | 0              | 16            | 351                 |
| <b>Data Sources:</b>  |                |               |                     |
| *For Wilson County see: <a href="http://www.city-data.com/county/Wilson_County-NC.html">http://www.city-data.com/county/Wilson_County-NC.html</a>             |                |               |                     |
| **For Nash County see: <a href="http://www.city-data.com/county/Nash_County-NC.html">http://www.city-data.com/county/Nash_County-NC.html</a>                  |                |               |                     |
| *** For Edgecombe County see: <a href="http://www.city-data.com/county/Edgecombe_County-NC.html">http://www.city-data.com/county/Edgecombe_County-NC.html</a> |                |               |                     |

Research suggests that, “in communities with well-conceived disaster plans socially vulnerable populations are not presumed to be helpless, they are seen as having significant capacity to cope and participate” while dealing with the risks and threats of various hazards.”<sup>5</sup>

<sup>5</sup> See: UNC Institute for the Environment, **Disaster Plans: Challenges and Choices to Build the Resiliency of Vulnerable Populations**, 2008, p. 24  
[http://www.ie.unc.edu/cscd/pdf/Plan\\_assessment.pdf](http://www.ie.unc.edu/cscd/pdf/Plan_assessment.pdf)

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As stressed in the above information, in regards to developing emergency management plans, specific goals for vulnerable populations, such as the elderly, infirmed or culturally/economically disadvantaged populations, must be developed that take into consideration the distinct needs of each population group that may need to be addressed separately from the general population during disasters. Also, disadvantaged, vulnerable populations, particularly economically or culturally disadvantaged populations who may be more likely to live in poorer quality houses, including mobile homes, and may be subject to greater damage in severe storms should be accounted for in overall mitigation goals as well as emergency monitoring and operations. For example:

- Shelters should be properly equipped and staffed to respond to the critical needs of the aging population.
- Transportation planning should be elder-specific in disaster planning.
- Long term care facilities should coordinate transportation needs with the local governments to ensure elder-specific or other vulnerable population needs can be met during times of disaster.
- Long-term care facilities should coordinate with local governments and ensure the needs of their residents can be addressed if an evacuation is required.
- Partnerships with local medical and health professionals, non-profits, and local, indigenous CDC that cater to the needs of the three county area's diverse elderly population and other vulnerable populations during response, recovery and mitigation should be strengthened.

Working with the vulnerable populations and empowering them through the provision of appropriate information and partnering with them to develop appropriate response options can reduce the risks to this population group.

There are several key principles that should be addressed in emergency management goals as well as could be included in mitigation action strategies for the area in order to adequately serve vulnerable populations during severe hazard conditions:<sup>6</sup>

1. Fact-based identification of the vulnerable populations and their locations is a key principle, especially in initial emergency management efforts to organize and recognize vulnerable populations.
2. Coordinate all emergency management operations and making arrangements with all independent agencies in the area that work with vulnerable populations.
3. Insure there are public participation programs and distribution of appropriate information that raise awareness among the vulnerable populations about hazards

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<sup>6</sup> See: [http://www.ie.unc.edu/cscd/pdf/Plan\\_assessment.pdf](http://www.ie.unc.edu/cscd/pdf/Plan_assessment.pdf)

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and empowers them regarding what can realistically and appropriately be done by a particular population in case of an emergency during dangerous conditions.

4. Implement and monitor progress regarding these various principles.

The elderly, especially the disabled elderly are particularly vulnerable to natural disasters that impact living conditions and services. The following table displays the percentage of persons over age 65 for various characteristics, including ethnicity, within the three county area compared to the State. Of note is the fact that a high percentage of the persons over 65 have some degree of disability, and all the counties have a similar overall percentage of elderly with Nash County having the most persons over age 65.

**Table 5.42**

| <b>2013 POPULATION AGE 65 AND OVER, INCLUDING RACE/ETHNICITY</b>                   |                             |                                      |                    |  |  |                    |  |
|--|-----------------------------|--------------------------------------|--------------------|--|--|--------------------|--|
| <b>Jurisdiction</b>  | <b>With No Disabilities</b> | <b>With One or More Disabilities</b> | <b>White Alone</b> | <b>Black or African American Alone</b> | <b>American Indian and Alaska Native Alone</b> | <b>Asian Alone</b> | <b>Hispanic or Latino Origin (of Any race)</b> |
| Edgecombe County (8,423 Elderly or 15.4% of Total Population or 54,588)            | 57%                         | 43%                                  | 51.80%             | 47.30%                                 | 0.00%  | 0.10%              | 0.90%  |
| Nash County (13,857 or 14.7% of the Total Population of 93,952)                    | 60%                         | 40%                                  | 70.60%             | 27.50%                                 | 0.60%  | 0.70%              | 0.70%  |
| Wilson County (11,901 or 14.7% of the Total Population of 80,443)                  | 58%                         | 42%                                  | 68.20%             | 30.30%                                 | 0.20%  | 0.20%              | 1.20%  |
| North Carolina (1,302,077 or 13.6% of the Total Population of 9,550,684)           | 62%                         | 38%                                  | 81.60%             | 15.80%                                 | 0.80%  | 1.10%              | 1.40%  |
| <b>Data Source:</b> U.S. Census Bureau, 2011-2013 3-Year American Community Survey |                             |                                      |                    |  |  |                    |  |

**5.3.4: ECONOMY**

With the general upturn in the economy at the local, State and National level since the downturn that began in 2008, the three county area in this Plan appears to have begun to recover. For example, as of November 2014, unemployment rates in the three county area were 8.7% for Wilson as compared to 11.2% in 2013, 8.0% for Nash County as compared to 10.9% in 2013, and 10.3% in Edgecombe as compared to 13.4% in 2013.

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For the most part employment in the three county area is similar with private industry employing the most workers. Major private industry employment sectors include manufacturing, health care, accommodation and food service, and retail trade. Government and public administration are provide also major employment.

Between 2000 and 2010 Nash County with a 3,209 increase in employment and Wilson County with a 2,556 increase in employment experienced the greatest increase in employment. Edgecombe County with a 1,112 increase experienced a slight reduction in their workforces during this same time period. Starting with the recession, all three counties experienced labor force reductions from 2008 to 2010 with Edgecombe County affected the greatest, losing 623 employees, or 2.5% of its labor force. The overall employment growth in the entire UCPCOG Region of only 4% between 2000 and 2010 was considerably less than those for the state which increased 9.4% for the same 10-year period.<sup>7</sup>

Overall between 2000 and 2010, this regional area experienced substantial decline in manufacturing and construction jobs while health care/social assistance and accommodations/food services, as well as public administration slightly increased. Health care/social assistance was the only sector that experienced a steady increase. Although retail trade has the largest number of employees and continues the trend through 2010, but its share of employment dropped from 2000 to 2010. The table below displays more current employment data, comparing 2012 with 2013.

**Table 5.43**

| <b>REGIONAL EMPLOYMENT AND ESTABLISHMENTS (2012-2013)</b>  |                                 |                           |                                 |                           |                 |
|--|---------------------------------|---------------------------|---------------------------------|---------------------------|-----------------|
| <b>County</b>  | <b>2012</b>                     |                           | <b>2013</b>                     |                           | <b>% Change</b> |
|  | <b>Number of Establishments</b> | <b>Average Employment</b> | <b>Number of Establishments</b> | <b>Average Employment</b> |                 |
| <b>Edgecombe County</b>  | 974                             | 18,017                    | 949                             | 18,004                    | -0.07% (-.57%)  |
| <b>Wilson County</b>   | 1,801                           | 37,456                    | 1,883                           | 37,659                    | 0.54% (4.55%)   |
| <b>Nash County</b>   | 2,392                           | 39,829                    | 2,243                           | 36,418                    | -8.56% (-6.23%) |
| <b>Total</b>   | <b>5,164</b>                    | <b>95,302</b>             | <b>5,075</b>                    | <b>92,081</b>             |                 |
| <b>Data Source:</b> UCPCOG prepared spreadsheet on Regional Employment and Establishments -2012-2013 |                                 |                           |                                 |                           |                 |

<sup>7</sup> UCPCOG, 2012/2013, [Comprehensive Economic Development Strategy- 2014-2015](#), pg 13

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The following table displays major 2013 employment sectors within the three county area:<sup>8</sup>

**Table 5.44**

| <b>2013 EMPLOYMENT IN THE THREE COUNTY AREA</b>   |                    |          |                      |          |                         |          |
|---|--------------------|----------|----------------------|----------|-------------------------|----------|
|   | <b>Nash County</b> | <b>%</b> | <b>Wilson County</b> | <b>%</b> | <b>Edgecombe County</b> | <b>%</b> |
| Total Employment  | 36,429             |          | 37,685               |          | 18,078                  |          |
| Total Private Industries  | 30,381             | 83.4%    | 31,500               | 83.6%    | 13,728                  | 75.9%    |
| Total Government  | 6,048              | 16.6%    | 6,185                | 16.4%    | 4,350                   | 24.1%    |
| Manufacturing   | 4,364              | 12.0%    | 8,919                | 23.7%    | 2,998                   | 16.6%    |
| Health Care   | 3,843              | 10.5%    | 3,560                | 9.4%     | NA                      | NA       |
| Accommodation & Food Service  | 4,188              | 11.5%    | 2,880                | 7.6%     | 1,057                   | 5.8%     |
| Retail Trade  | 4,981              | 13.7%    | 3,635                | 9.6%     | 2,655                   | 14.7%    |
| Public Administration   | 1,663              | 4.6%     | 1,843                | 4.9%     | 2,319                   | 12.8%    |
| <b>Data Source:</b> AccessNC Demographics (See: <a href="http://accessnc.commerce.state.nc.us/EDIS/demographics.html">http://accessnc.commerce.state.nc.us/EDIS/demographics.html</a> ) |                    |          |                      |          |                         |          |

Although most employed persons are in the private industries within the three county area, government and manufacturing are also large employers. The following table displays the total number of business and manufacturing establishments in each of the three counties:

**Table 5.45**

| <b>LOCAL BUSINESSES/INDUSTRIES IN FIRST QUARTER OF 2014</b>   |                                 |   |  |
|---|---------------------------------|---|--|
| <b>County</b>   | <b>Total Private Industries</b> | <b>Total Manufacturing Establishments</b> | <b>Total Retail Establishments (with Food &amp; Drink)</b> |
| Nash County   | 2,154                           | 95  | 829  |
| Wilson County   | 1,807                           | 93  | 620  |
| Edgecombe County  | 863                             | 37  | 309  |
| <b>Data Source:</b> AccessNC Demographics (See: <a href="http://accessnc.commerce.state.nc.us/EDIS/demographics.html">http://accessnc.commerce.state.nc.us/EDIS/demographics.html</a> ) |                                 |   |  |

The top 25 employers in each of the three counties are set forth in the following tables with separate tables devoted to each county with the Nash County major employers listed in the first table.

<sup>8</sup> AccessNC Demographics (See: <http://accessnc.commerce.state.nc.us/EDIS/demographics.html>)

**Table 5.46**

| <b>NASH COUNTY MAJOR EMPLOYERS (2ND QUARTER) 2014</b>  |                                   |                                 |
|--|-----------------------------------|---------------------------------|
| <b>Name of Company</b>   | <b>Type Enterprise</b>            | <b>Estimated Employee Range</b> |
| Hospira Inc  | Manufacturing                     | 1000+                           |
| Nash General Hospital  | Health Services                   | 1000+                           |
| Nash-Rocky Mount Schools & Health Services   | Education                         | 1000+                           |
| Consolidated Diesel Co   | Manufacturing                     | 1000+                           |
| County Of Nash   | Government/Public Administration  | 500-999                         |
| Intercall Inc  | Trade, Transportation & Utilities | 500-999                         |
| Wal-mart Associates, Inc   | Trade                             | 500-999                         |
| Pnc Bank Na  | Financial Activities              | 500                             |
| Express Temporary Services   | Business Services                 | 500                             |
| Hardee's 250   | Leisure & Hospitality             | 250                             |
| Kaba Ilco Corporation  | Manufacturing                     | 250                             |
| Autumn Corporation   | Education & Health Services       | 250                             |
| The Cheesecake Factory Bakery Inc  | Leisure & Hospitality             | 250                             |
| Boice Willis Clinic P A  | Education & Health Services       | 250                             |
| Mcdonalds  | Leisure & Hospitality             | 250                             |
| Manpower Temporary Services  | Professional & Business Services  | 250                             |
| Dept of Public Safety  | Government                        | 250                             |
| Honeywell International Inc  | Manufacturing                     | 250                             |
| Nash Community College   | Education & Health Services       | 250                             |
| Barnes Farming Corporation   | Natural Resources and Mining      | 250                             |
| Food Lion  | Trade                             | 250                             |
| Edwards Inc  | Construction                      | 250                             |
| Kelly Services Inc   | Professional & Business Services  | 100                             |
| Barnhill Contracting Co  | Construction                      | 100                             |
| Eagle Sportswear Llc   | Manufacturing                     | 100                             |
| <b>Data Source:</b> AccessNC Demographics - See: ( <a href="http://accessnc.commerce.state.nc.us/EDIS/business.html">http://accessnc.commerce.state.nc.us/EDIS/business.html</a> ) |                                   |                                 |

In the above table Hospira Inc, Nash General Hospital, Nash-Rocky Mount Schools & Health Services, Consolidated Diesel Co, County Of Nash, Intercall Inc and Wal-mart Associates, Inc represent employers with over 500 employees. Of these the governmental and institutional organizations (Nash General Hospital, Nash-Rocky Mount Schools and County Of Nash) employ substantial workers.

The next table displays the major employers in Wilson County.

**Table 5.47**

| <b>WILSON COUNTY MAJOR EMPLOYERS (2ND QUARTER) 2014</b>  |                            |                                 |
|--|----------------------------|---------------------------------|
| <b>Name of Company</b>   | <b>Type Enterprise</b>     | <b>Estimated Employee Range</b> |
| BB & T   | Financial Activities       | 1000+                           |
| Wilson Medical Center Inc  | Health Services            | 1000+                           |
| Bridgestone Americas Tire Operation  | Manufacturing              | 1000+                           |
| Wilson County Schools  | Education Services         | 1000+                           |
| Intervet Inc Trade,  | Transportation & Utilities | 1000+                           |
| County Of Wilson   | Government                 | 500-999                         |
| City Of Wilson   | Government                 | 500-999                         |
| S T Wooten Construction Co Inc   | Construction               | 500-999                         |
| Alliance One International Inc   | Manufacturing              | 500-999                         |
| Kidde Aerospace/ Fenway Safety Syse  | Manufacturing              | 500-999                         |
| Smithfield Foods Inc   | Manufacturing              | 500-999                         |
| NC Dept Of Health & Human Services   | Government                 | 250-499                         |
| Eon Labs Inc   | Manufacturing              | 250-499                         |
| Wilson Technical Community College   | Education Services         | 250-499                         |
| Wal-Mart Associates Inc  | Trade                      | 250-499                         |
| Zelenka Nursery Division   | Trade                      | 250-499                         |
| Office Services Unlimited  | Business Services          | 250-499                         |
| Ardagn Glass Inc   | Manufacturing              | 250-499                         |
| Southern Piping Company (A Corp)   | Construction               | 250-499                         |
| Fleet Personnel Corp   | Transportation & Utilities | 250-499                         |
| N C Dept Of Transportation   | Government                 | 100-249                         |
| Phillips Home Health Care  | Health Services            | 100-249                         |
| Food Lion  | Trade,                     | 100-249                         |
| Purdue Pharmaceuticals   | Manufacturing              | 100-249                         |
| Myles Home Health Agency   | Health Services            | 100-249                         |
| <i>Data Source: AccessNC Demographics - See: (<a href="http://accessnc.commerce.state.nc.us/EDIS/business.html">http://accessnc.commerce.state.nc.us/EDIS/business.html</a>)</i> |                            |                                 |

As with Nash County substantial numbers of employees are employed by institutions and governments, including County and City of Wilson, Wilson Medical Center, and Wilson County Schools. In addition, BB & T Bridgestone Americas Tire Operation and Intervet Inc Trade all have 1000 or more employees.

The remaining table regarding county employment on the next page displays Edgecombe County major employers. As with the previous counties, major employers include institutional and governmental organizations, including the City Of Rocky Mount, Edgecombe Tarboro Board of Education, Edgecombe County and East Carolina Health Inc. all have 500 and more employees. In addition, the private companies of QVC Rocky Mount Inc and McLane Mid-Atlantic Inc have substantial employees.

**Table 5.48**

| <b>EDGECOMBE COUNTY MAJOR EMPLOYERS (2ND QUARTER) 2014</b>   |                             |                                 |
|--|-----------------------------|---------------------------------|
| <b>Name of Company</b>   | <b>Type Enterprise</b>      | <b>Estimated Employee Range</b> |
| City Of Rocky Mount  | Government                  | 1000+                           |
| QVC Rocky Mount Inc  | Trade                       | 1000+                           |
| Edgecombe Tarboro Board of Education   | Education                   | 500-999                         |
| Mclane Mid-Atlantic Inc  | Transportation & Utilities  | 500-999                         |
| East Carolina Health Inc   | Health Services             | 500-999                         |
| Edgecombe County   | Government                  | 500-999                         |
| The Hillshire Brands Company   | Manufacturing               | 250-499                         |
| Mebtel Inc   | Information                 | 250-499                         |
| General Foam Plastics Corp   | Manufacturing               | 250-499                         |
| Meadowbrook Meat Co Inc,   | Trade                       | 250-499                         |
| Air System Components Inc  | Manufacturing               | 250-499                         |
| Carolina System Technology Inc   | Manufacturing               | 250-499                         |
| Edgecombe Community College  | Education                   | 250-499                         |
| Nash-Rocky Mount Schools   | Education                   | 250-499                         |
| ABB Inc  | Manufacturing               | 250-499                         |
| Town Of Tarboro  | Government                  | 100-249                         |
| Wal-Mart Associates Inc  | Trade                       | 100-249                         |
| Dept Of Public Safety Public Administration 100-249  | Government                  | 100-249                         |
| Food Lion  | Trade                       | 100-249                         |
| The Fountains At The Albemarle   | Education & Health Services | 100-249                         |
| Superior Essex Communications  | Manufacturing               | 100-249                         |
| U S Postal Service   | Government                  | 100-249                         |
| Beverly Health & Rehab Services Inc  | Health Services             | 100-249                         |
| Bojangles Famous Chicken & Biscuits  | Leisure & Hospitality       | 100-249                         |
| Barnhill Contracting Co 1  | Construction                | 100-249                         |
| <b>Data Source:</b> AccessNC Demographics - See: ( <a href="http://accessnc.commerce.state.nc.us/EDIS/business.html">http://accessnc.commerce.state.nc.us/EDIS/business.html</a> ) |                             |                                 |

**5.3.5: GENERAL DEVELOPMENT AND GROWTH TRENDS**

**Overall Development**

The three county area included in this Plan is an intricate mix of farmland, open space and forestry, along with considerable development, such as housing, commercial and industrial uses, concentrated in the area's larger cities, including Rocky Mount, Nashville, Tarboro, Princeville, and the City of Wilson. The region's waterways, including portions of the Tar River and Neuse tributaries traverse the counties dividing the towns or cities, open spaces and farm lands into various isolated land areas requiring bridges for passage between area. Of the three counties in this Plan, Edgecombe County is particularly carved up by water ways and accompanying natural areas. The passage ways across these natural waterways and other natural areas are provided not only by major transportation routes including I-95, 64, 264, 301, 158 and 258, but also by many local roads that together well serve the entire area. In addition,

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the areas' larger jurisdictions have excellent rail service with a major north-south rail corridor that runs parallel to I-95. Also, passenger and freight service stations are located in Wilson and Rocky Mount. (See Section II for more information on the geography of the area.)

The following table displays the acreages of all three counties and the all jurisdictions within these counties. It is these jurisdictions that provide varying levels of public infrastructure and services where the concentrations of the majority (if not all) of the intense and consolidated development within the three county area can be found. However, since the recession and downturn of the national economy, few major developments have occurred within the three county area. In general the development that has occurred in this time period has been primarily isolated instances of infill development within existing subdivisions and undeveloped or existing development areas within existing corporate limits.

**Table 5.49**

| <b>CONCENTRATION OF DEVELOPMENT WITHIN THE THREE COUNTY AREA</b>  |                      |                      |                      |                         |                      |
|---|----------------------|----------------------|----------------------|-------------------------|----------------------|
| <b>Jurisdiction</b>   | <b>Size In Acres</b> | <b>Jurisdiction</b>  | <b>Size In Acres</b> | <b>Jurisdiction</b>     | <b>Size In Acres</b> |
| <b>Nash County</b>  |                      | <b>Wilson County</b> |                      | <b>Edgecombe County</b> |                      |
| Nash County   | 347,520              | Wilson County        | 239,360              | Edgecombe County        | 324,480              |
| Rocky Mount   | 14,541               | City of Wilson       | 18,649               | Rocky Mount             | 9,406                |
| Red Oak   | 12,499               | Black Creek          | 459                  | Tarboro                 | 6,991                |
| Dortches  | 4,558                | Elm City             | 423                  | Princeville             | 857                  |
| Nashville   | 2,078                | Saratoga             | 406                  | Pinetops                | 673                  |
| Spring Hope   | 885                  | Lucama               | 386                  | Leggett                 | 506                  |
| Momeyer   | 735                  | Stantonsburg         | 353                  | Macclesfield            | 368                  |
| Sharpsburg  | 613                  | Sims                 | 91                   | Conetoe                 | 227                  |
| Middlesex   | 596                  |                      |                      | Speed                   | 225                  |
| Whitakers   | 516                  |                      |                      |                         |                      |
| Castalia  | 485                  |                      |                      |                         |                      |
| Bailey  | 446                  |                      |                      |                         |                      |
| Estimated Total Concentrated Developed Area   | <b>40,030</b>        |                      | <b>20,767</b>        |                         | <b>19,253</b>        |
| Estimated Total Undeveloped Area  | <b>307,490</b>       |                      | <b>218,593</b>       |                         | <b>305,227</b>       |
| <b>Data Source:</b> Acreages calculated using city and county GIS data from NC One Map Geographic Data for NC |                      |                      |                      |                         |                      |

Although some development, such as new institutional uses, has occurred within the county areas outside the corporate jurisdictional boundaries, this has not been the norm. For example, new housing developments have primarily been individual building starts within existing subdivisions and not new major housing developments. The economic recession in the 2008 to 2010 time period impacted major new development and housing subdivision growth in this area as well as throughout the country. However, with counties continuing to support water line extensions and even sewer in the case of Edgecombe County, development outside the corporate jurisdictions may occur once economic conditions improves sufficient enough to foster

additional development. However, there still remains growth opportunities within existing corporate jurisdictions, and development at and along their fringe boundaries will most likely result in annexations.

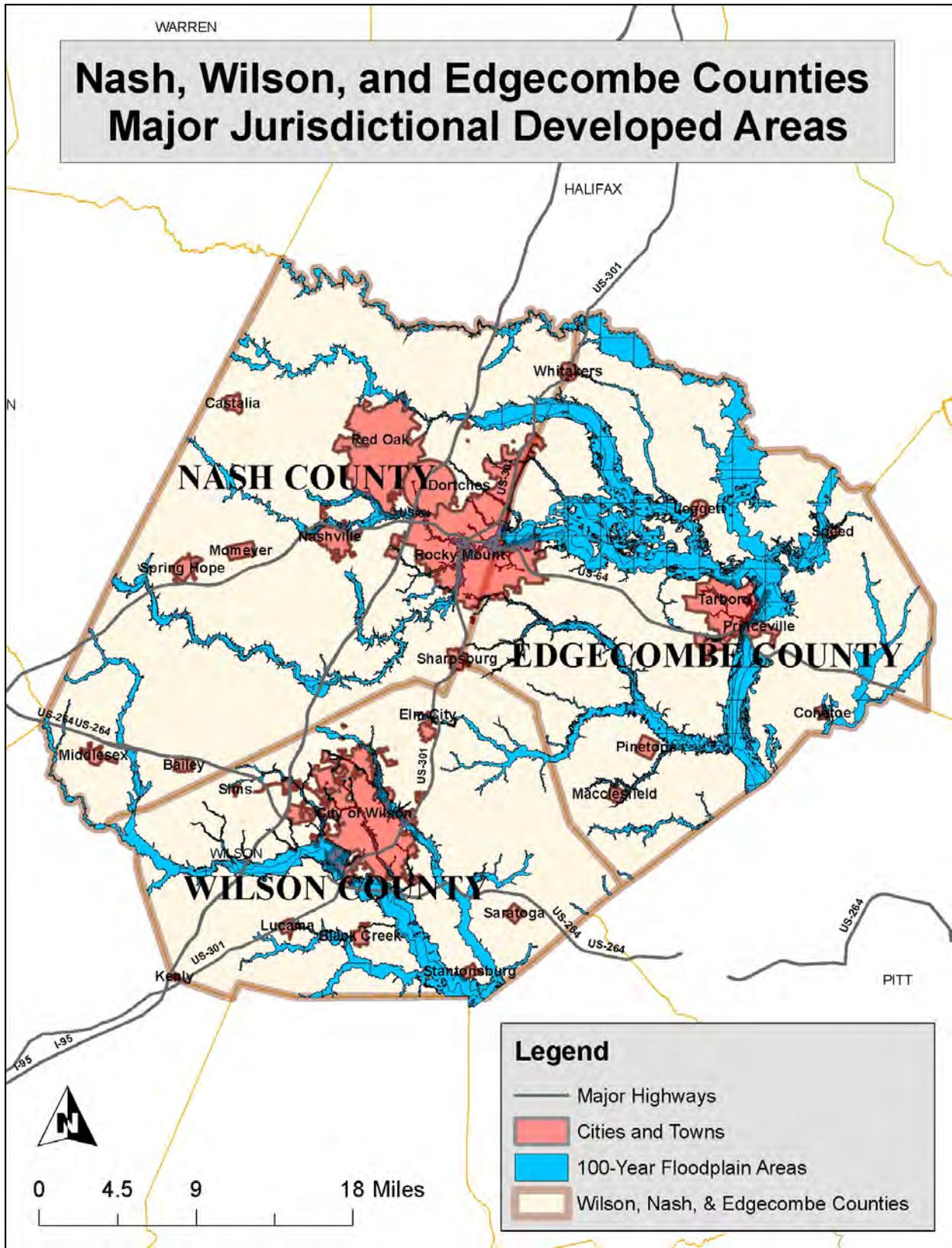
According to information in the above table, 80,050 acres or about 9% represent concentrated development within the three county area with 813,310 acres or about 91% undeveloped or very sparsely developed. Of the total acreage within the three county area or 893,360 acres approximately 146,778 acres or 16% consists of floodplains.

The map on the next page illustrates the concentration of development within the three county area.

### **Population Growth**

The North Carolina Office of State Budget and Management projects that Nash County (25.9%) and Wilson County (18.4%) will continue experience the greatest population growth within the Upper Coastal Plain Council of Government (UCPCOG) region (Wilson, Nash, Edgecombe, Halifax and Northampton Counties) from 2010 – 2030. Projections also show that the region will grow 13.5%, although considerably less than the 30.3% increase projected for North Carolina as a whole. Two of the counties in the UCPCOG region experienced a considerable increase in population between 2000 and 2010 with Wilson at 10.1% and Nash at 9.6% as reported by the US Census Bureau. These different ethnic groups may likely continue to experience increases in the future population growth and reflect trends established between 2000 and 2010, including a decrease in the White population group in Nash and Edgecombe.

The three county area in this Plan also have a diversified population and this diversification is anticipated to continue to grow. In the 2010 Census Edgecombe County's population is composed of 57.4% Black or African-Americans, Nash County has 55.9% Black or African-Americans, and only Wilson County has a majority of it population as White at 52.0%. In addition, the Hispanic or Latino ethnic group make up 9.5% of the population in Wilson County and 6.3% in Nash County and 3.7% in Nash County.



**Poverty and Education**

Counties within the UCPCOG region continue to experience higher poverty levels and lower median household income than North Carolina. Although all three counties and North Carolina experienced an increase in poverty from 2000 - 2010, Wilson County's 7.0 percentage point change was the largest increase, Edgecombe County had the highest percent of population below the poverty level at 24.5%, and Nash County continued to have the lowest poverty rate in the region at 15.6%. In 2010, it was estimated that the entire UCPCOG region of five counties had 65,112 individuals in poverty.

This three county Plan are also has lower than State levels in educational attainment as displayed in the following table. Although Wilson and Nash Counties have higher educational attainment than Edgecombe, their educational attainment still lags the State.

**Table 5.50**

| <b>EDUCATIONAL ATTAINMENT IN SELECTED COUNTIES, 2000-2010</b> |   |                             |                                      |   |                             |                                      |  |   |
|---|---|-----------------------------|--------------------------------------|---|-----------------------------|--------------------------------------|--|---|
| <b>Jurisdiction</b>   | <b>2000</b>                             |                             |                                      | <b>2010</b>                             |                             |                                      | <b>% Change 2000-2010</b>                            |   |
|   | <b>Population 25 Years and Over</b>     |                             |                                      | <b>Population 25 Years and Over</b>     |                             |                                      |  |   |
|   | <b>% High School Graduate or Higher</b> | <b>% Associate's Degree</b> | <b>% Bachelor's Degree or Higher</b> | <b>% High School Graduate or Higher</b> | <b>% Associate's Degree</b> | <b>% Bachelor's Degree or Higher</b> | <b>%-Point Change High School Graduate or Higher</b> | <b>%-Point Change Bachelor's Degree or Higher</b> |
| Edgecombe County  | 65.6                                    | 4.8                         | 8.5                                  | 75.3                                    | 7.8                         | 9.9                                  | 9.7  | 1.4   |
| Wilson County   | 69.4                                    | 5.1                         | 15.1                                 | 76.4                                    | 8.2                         | 17.1                                 | 7.0%   | 2.0   |
| Nash County   | 75.6                                    | 6.3                         | 17.2                                 | 80.4                                    | 8.3                         | 18.9                                 | 4.8%   | 1.7   |
| North Carolina  | 78.1                                    | 6.8                         | 22.5                                 | 83.0                                    | 8.2                         | 25.8                                 | 4.9%   | 3.3   |
| <b>Data Source:</b> US Census Bureau, 2000 and 2010 Census    |   |                             |                                      |   |                             |                                      |  |   |

Disproportionate lower educational attainment in the three county area as compared to the State, as well as higher poverty rates, negatively impact this area regarding opportunities for growth and development. Although economic growth helps people move out of poverty, low education attainment results in many persons continuing their lives in poverty as well as insuring that they remain uncompetitive for employment. Unfortunately areas that suffer from high poverty and low education attainment are less competitive for economic and overall development. With the

downturn in the national economy coupled with low education attainment and high poverty, this area's ability to attract new growth development is hampered.

### **5.3.6: NATURAL ENVIRONMENT**

The natural environment of the three counties in the Nash-Edgecombe-Wilson Multi-Jurisdictional Hazard Mitigation Plan is dominated by the river basins and accompanying forests and wetlands in the area. Two river basins are in the three county area, including the Tar-Pamlico River Basin in Nash and Edgecombe Counties and the Neuse River Basin in Wilson County. Both these river basin systems not only provide highly productive farm nutrients as well as serve fish nurseries in the coastal estuaries. The Neuse River Basin is the most populated basin and runs through 11 counties, stretching from the Piedmont of NC to the coast. This basin also feeds one of the largest and most productive estuary system (Albemarle and Pamlico Sounds) that provide 90% of the commercial seafood species caught in NC. Although buffer rules (protected 50' riparian buffer) are in place to protect these basins, development continues to increase in this region and entire basins, and urban pavement, buildings and residential lawns replace natural forests and wood lands along this basin. As a result these basins are not as capability of holding back flood waters, rain runoff or melting snows, because forest lands that are able to trap and hold floodwaters are being destroyed.

Protecting or conserving the valuable natural resources in the three county area is not only important for our own existence. As the clearly stated in a website devoted to preservation articles:<sup>9</sup>

*Environment is not just pretty trees, threatened plants, animals and ecosystem. It is literally the entity on which we all subsist, and on which the entire agricultural and industrial development depends. Development without concern for the environment can only be short-term development. In the long run such a development can go on only at the cost of enormous human suffering, increased poverty and oppression. Our very existence depends on conservation of the environment.*

The natural system also plays an enormous role in providing a resource protection that can help reduce the impact of natural hazards by preserving or restoring natural areas and their protective functions. For example, wetlands and forests store flood waters and reduce runoff. These areas include floodplains, wetlands, and forests. They can also serve as open space for a community as well as provide areas for

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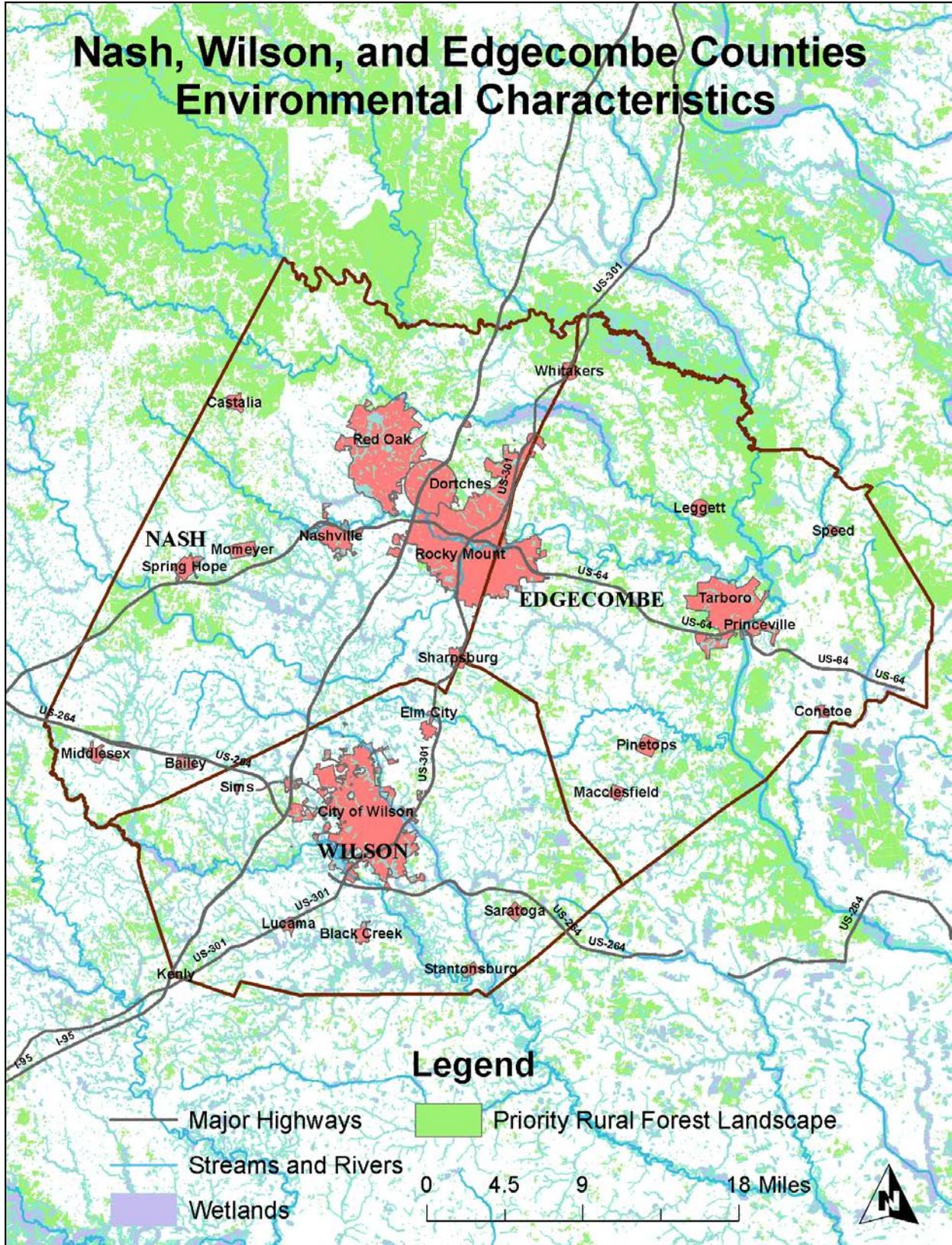
<sup>9</sup> **Bhati, Niharika, [Why should we protect our environment?](#)**, Preserve Articles -Preservation Articles for Eternity, (see: <http://www.preservearticles.com/201102104008/why-should-we-protect-our-environment.html>)

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parks and recreation. Mitigation strategies must include protection of these valuable resources through efforts that:

- ✓ Promote forest and natural vegetation management as well as fire resistant landscaping, fuel breaks, etc.
- ✓ Insure that erosion and sediment control measures are in place and enforces
- ✓ Encourage wetland preservation and restoration, as well as animal, bird and fish habitat preservation
- ✓ Where possible purchase such lands for open space or seek conservation easements

The map on the following page displays the three county area and illustrates the extensiveness of the natural environment in this area, including wetlands, forests, stream or rivers. This map also shows the extent of the various municipalities within the three county area. The major urban areas of Rocky Mount along with adjacent municipalities, the City of Wilson and Tarboro/Princeville areas are particularly dense and are spread out into the natural landscape, further increasing water runoff and eroding of the natural environment. With consistent and careful buffering of streams, as well as continued protection of wetlands and preservation efforts to protect the natural forests, the area can continue to benefit from the natural environment and its resources to sustain and protect life. Hazard mitigation strategies should include activities and initiatives to protect the natural environment that can perhaps best be expressed in Land Development Plans development policies and complementary Zoning Ordinances.



### **5.3.7 CRITICAL FACILITIES**

**Critical Facilities** – Structures, systems and institutions that are necessary for a community’s response to and recovery from major natural disasters are considered critical facilities. Critical facilities are essential to the health, safety, and welfare of the planning area, and must continue to operate during and following a disaster to reduce the severity of impacts and accelerate recovery. Examples of such facilities include hospitals (primary and alternate locations), law enforcement facilities and fire/rescue stations (especially vehicles), local government fueling stations, jails and juvenile detention centers, emergency operations centers (911 and special disaster centers), shelters, nursing homes, major roads, airports/heliports, electrical distribution systems, and telephone and cellular phone systems. Whenever these facilities are destroyed or damaged to the point that they are not usable, they must be repaired or relocated as soon as practically possible.

This definition was developed through consultation with the Mitigation Advisory Committee (MAC) members (emergency management and other local government representatives through a series of meetings. The consensus of the MAC was to organize these facilities into two major types, “Public Safety/Health Related (including law enforcement and medical)” and “Utility-Infrastructure Related”. Within each of the two types, lists of possible critical facilities were evaluated by staff from the existing county plans, other Hazard Mitigation Plans and other sources. The draft list was then evaluated, revised, and then agreed upon by the MAC. See Appendix E for Table E.1 Critical Facility Types for the NEW Regional HMP, which shows the agreed upon list of critical facilities organized into the two major types: Public Safety/Health Related and Utility-Infrastructure Related.

Under the Public Safety/Health Related type, are included 19 facilities; and under the Utility-Infrastructure Related type, are included 16 facilities. Within each type, possible critical facilities were organized into three categories: regional, county/municipal, or other. Regional critical facilities are those that the MAC determined to likely have a regionally significant impact on emergency management and recovery after a hazard event. County/municipal facilities are those that the MAC determined as being significant for emergency management and recovery at the county and/or municipal level. Other facilities include the remaining originally considered facilities that were determined to not have a significant impact on emergency management and recovery within the planning area.

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In developing Table E.1, staff and the MAC realized that it is possible that some facilities might be considered critical in one or more counties, but not in all three counties. Therefore, each facility was evaluated at the county level and noted as being a critical facility (CF) or other (O) non-critical facility.

In evaluating the potential critical facilities in their jurisdiction, Table E.1 was provided to each jurisdiction. As a result of the information obtained from the counties and municipalities, lists of critical facilities and maps were prepared. A separate list was prepared for each county and municipality, which was reviewed and approved by the MAC representative(s) for each local government. These lists are also included in Appendix E. Risk Assessment. The maps of critical facilities include 2 maps for Nash and Wilson County (Public Safety/Health related & Utility-Infrastructure related), two map for the larger municipalities (Rocky Mount and Wilson), and one map for two other smaller municipalities (Tarboro and Sharpsburg), the later of which has jurisdiction in all three counties. Nash County also decided to prepare two maps for each of the municipalities located inside the boundaries of that county. All the maps that were prepared are folded and included in pockets in Appendix H. Maps.

**5.4: ANALYSIS AND SUMMARIZATION OF RISKS AND VULNERABILITIES-  
EXISTING STRUCTURES AND PROPERTY DAMAGE**

**5.4.1 INTRODUCTION**

One of the most serious natural hazards that pose threats to the built environment, as witnessed by prior storms and flooding events include hurricanes, flooding events and tornados. Also tropical storms occur frequently with hurricanes less frequently. However, hurricanes can and have posed serious threat to the inland counties of Wilson, Nash and Edgecombe Counties. With only approximately 120 or less miles separating these counties from the ocean, a hurricane that travels up the coast of NC is most likely going to impact this area. For example since 1851 only one Category 3 hurricane has struck this three county area, and three Category 2 hurricanes and nine Category 1 hurricanes impacted the area. However, over 38 tropical storms have struck the area since 1851 with primary concern for extended rainfall and flooding instead of high winds. Hurricanes on the other hand can cause extensive damage over a wide area. For example, since 1996 approximately \$700,000,000 in damages in this three county area have resulted from major hurricanes. The massive flooding event during Hurricane Floyd in 1999 is but one example of the destruction of such storms that cause massive disruption and even loss of life. A Federal buy-out program allowed many structures removed from floodplains and property owners to be compensated as a result of Hurricane Floyd and the resulting flooding. For more information on natural hazards and risks see Section 5.1.

**5.4.2 FLOODPLAIN HAZARD**

By using current tax records from the three counties and evaluating all improved properties within the flood plain areas of the three counties, an estimated dollar amount can be determined as too the value of properties at potential risk, especially if a major 500 year flooding event occurred. With 146,7778 acres in the floodplains within the three county area, substantial development has already occurred within these floodplain areas as suggested by the total value of improved properties (including building and related improvements) within or adjacent to the floodplains, estimated to be \$1,653,603,511 based upon tax value for improvements in the various counties. This represents about 15% of the entire tax value of all improvements within the three counties. The map on the page following the table displays the three counties and extensive floodplains that penetrate and extend throughout the counties.

The table on the next page displays information about the three county areas regarding potential threat to the built environments within these counties. Of particular

interest is the determination of value of improved properties that could be impacted by flooding.

Among the counties within the three county area, Nash County has the highest percentage of property value within the floodplain, followed closely by Edgecombe County. The following table displays the number of parcels and property values within floodplain area of jurisdictions.

**Table 5.51**

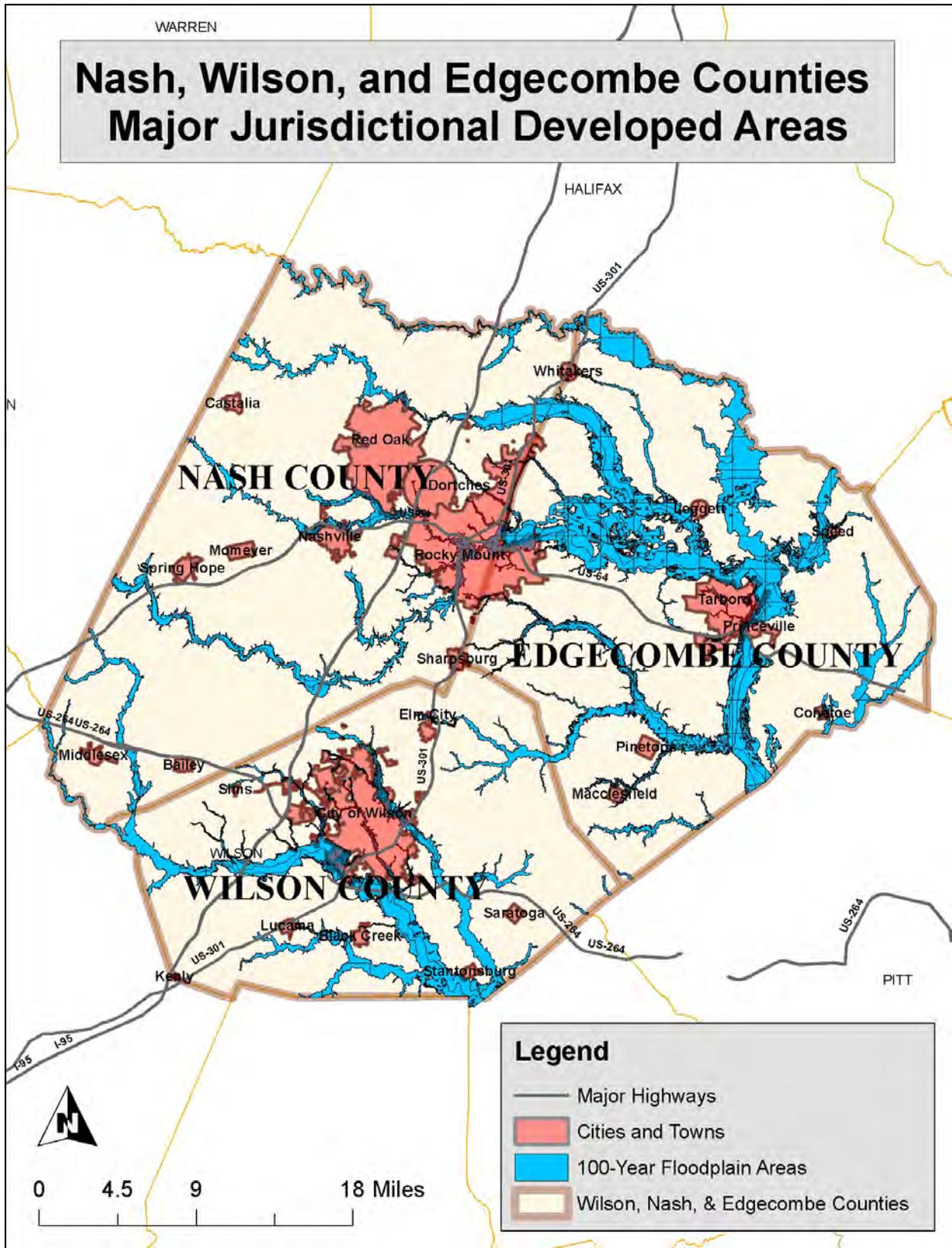
| <b>TAX PARCEL VALUES FOR IMPROVED PROPERTIES IN THE THREE COUNTY AREA AND IMPROVED VALUES WITHIN THE FLOODPLAINS</b> |                              |                               |                                 |  |  |   |  |
|--|------------------------------|-------------------------------|---------------------------------|--|--|---|--|
| <b>County</b>  | <b>Total Acres in County</b> | <b>Total Floodplain Acres</b> | <b>% of Acres in Floodplain</b> | <b>Total Improved Properties in or adjacent to the Floodplain **</b> | <b>Total Value of All Improvements in County</b> | <b>Total Value of Improvements in Floodplain***</b> | <b>% of Improvements in Floodplain</b> |
| <b>Nash County*</b>  | 333,488                      | 34,304                        | 10.3%                           | 4,892  | <b>\$4,474,610,716</b>                           | <b>\$763,881,800</b>                                | <b>17.1%</b>                           |
| <b>Wilson County</b>   | 239,360                      | 35,266                        | 14.7%                           | 4,316  | <b>\$4,436,998,424</b>                           | <b>\$539,605,663</b>                                | <b>12.2%</b>                           |
| <b>Edgecombe County*</b>   | 324,480                      | 77,208                        | 23.8%                           | 4,835  | <b>\$2,145,670,359</b>                           | <b>\$350,116,048</b>                                | <b>16.3%</b>                           |

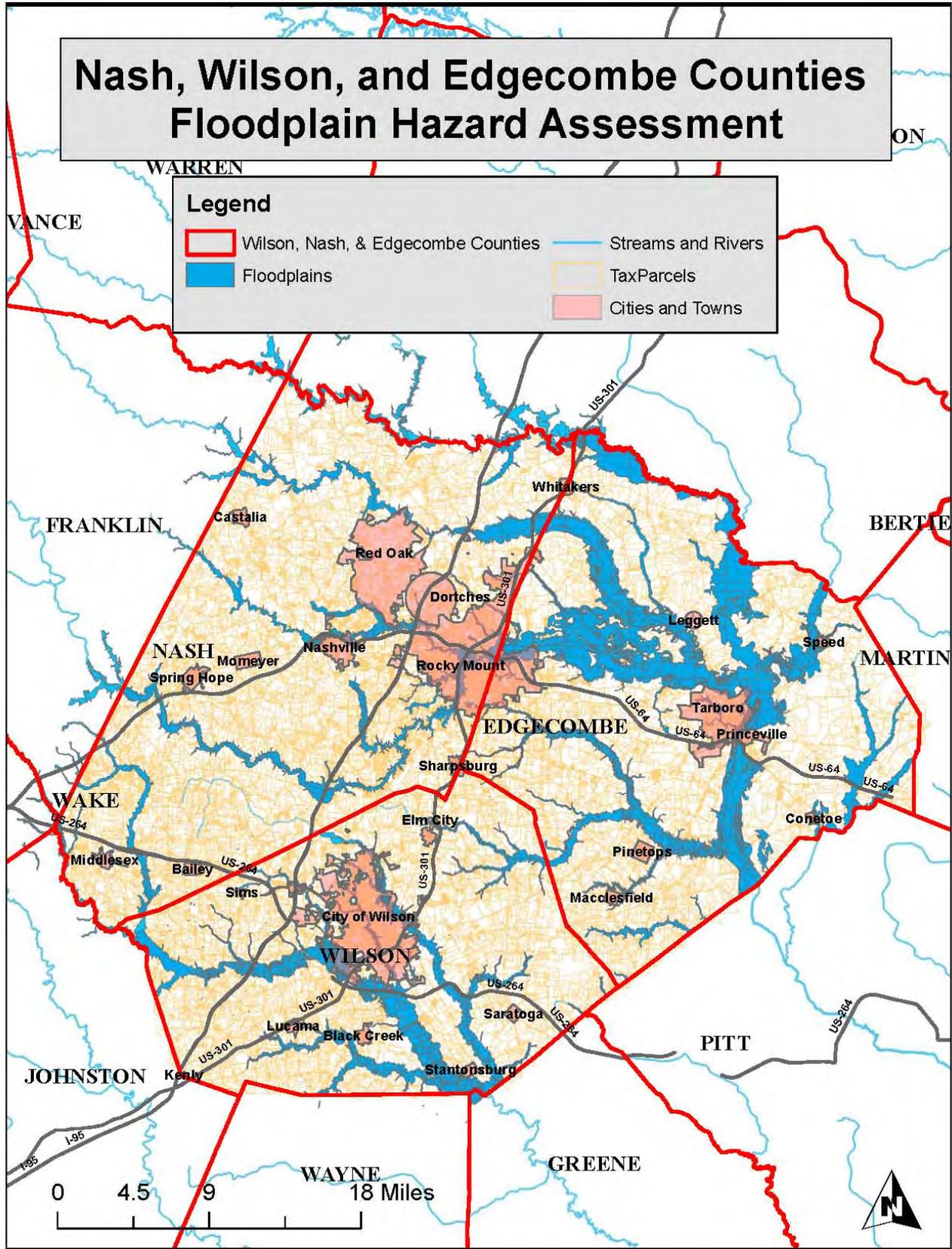
**Data Sources:**  
 Floodplain Boundary Information for three counties: FRIS - NC Flood Risk Information System (See: <http://fris.nc.gov/fris/Download.aspx?ST=NC>)  
 County Parcel Tax Files for each County  
 Floodplain Analysis using tax parcel data to determine parcels and improvements in the Floodplains was conducted using ArcMap 9.3 geo-processing capabilities

**Notes:**  
 \*The Nash County estimated Improvement values include the portion of Rocky Mount in Edgecombe County.  
 \*\* An estimated number of improved properties is provided in this column. Of note is the fact that this does not imply that all these properties are in the floodplain, but do include properties that penetrate into the floodplains and could be impacted by severe flooding, such as a 500 year or greater flood.  
 \*\*\* The estimated value of all property improvements (building and structures) in the floodplain areas is provided in this column.

The map on the next page displays the three county area and floodplain information.

Among the largest jurisdictions within the three counties, Tarboro has the most percentage of properties within the floodplain. The following table displays the number of parcels and property values within floodplain area of jurisdictions. Within the largest jurisdictions displayed below, Tarboro has the most property improvement percentage loss within the floodplain. Rocky Mount has the highest dollar amount of potential property improvement losses. The table on the page following the map displays the total number of parcels within the floodplain area of the City of Wilson, Rocky Mount and Tarboro, Nashville and Red Oak, communities with major floodplain areas in the three county area.



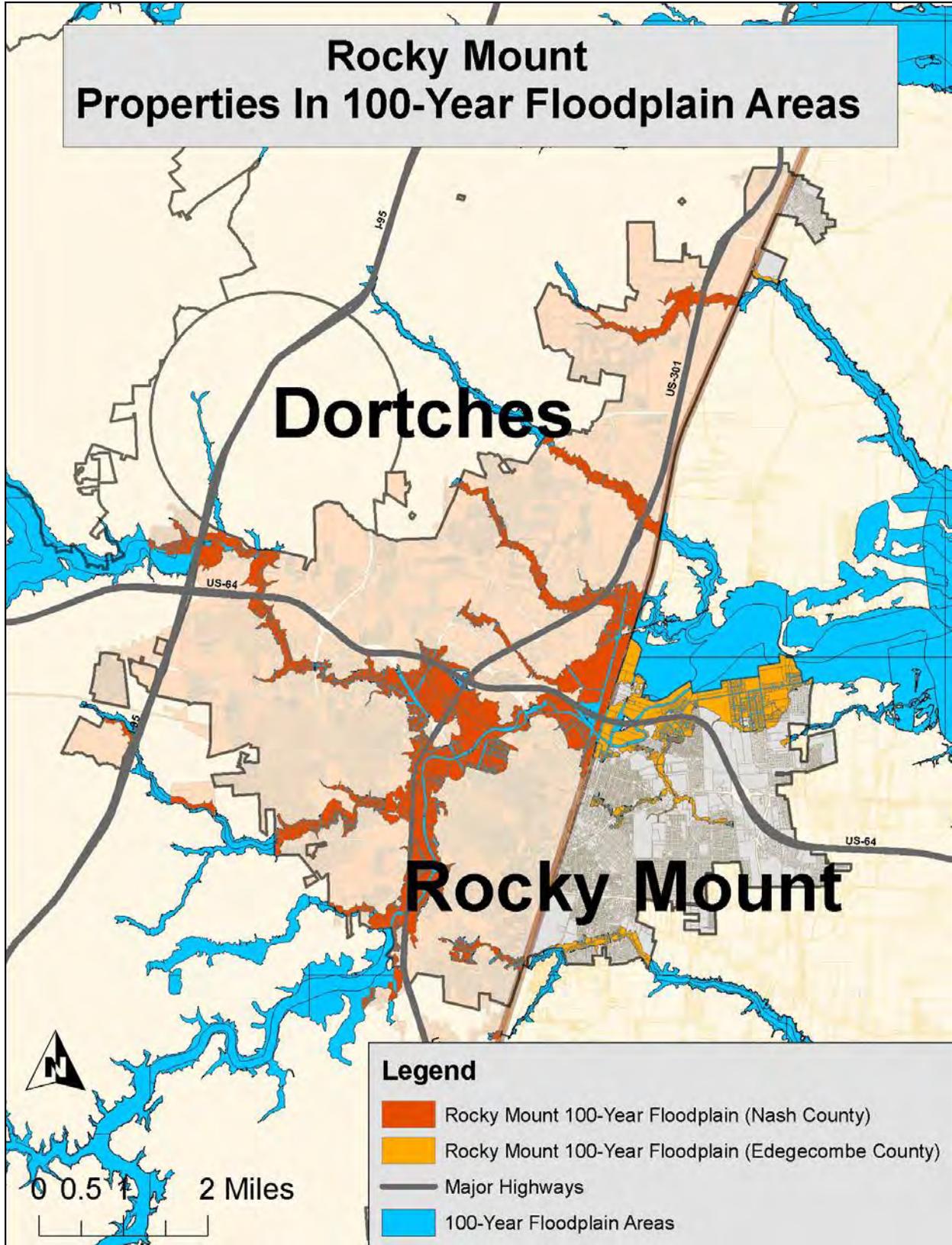


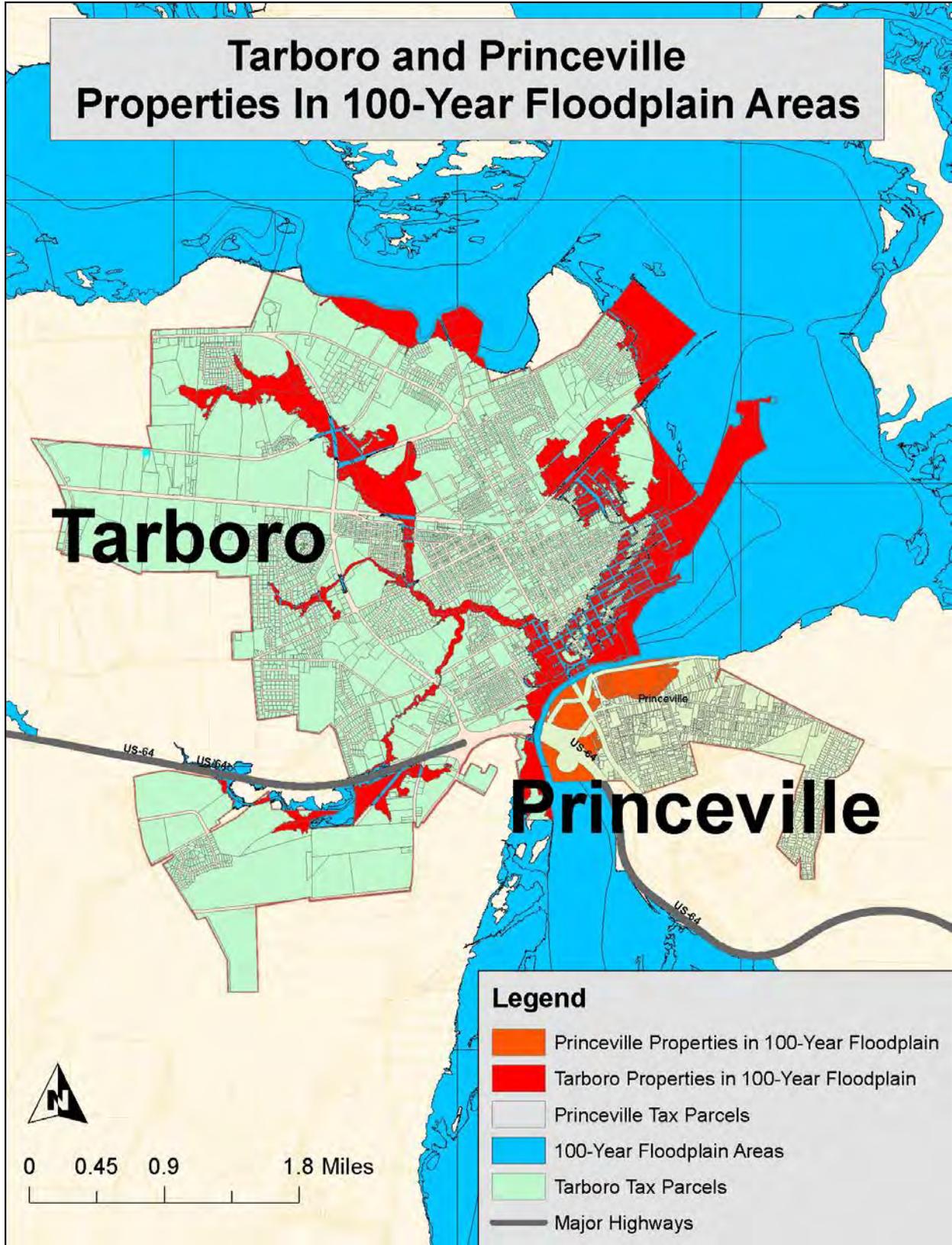
**Table 5.52**

| <b>ESTIMATED PROPERTIES IN SELECTED MAJOR JURISDICTIONS AND ESTIMATED PROPERTY IMPROVEMENT VALUES SUBJECT TO POTENTIAL FLOOD DAMAGE</b>  |                                    |   |   |  |  |   |   |
|--|------------------------------------|---|---|--|--|---|---|
| <b>Jurisdiction and County</b>   | <b>Total Acres in Jurisdiction</b> | <b>Total Estimated Acres in Or Adjacent To Floodplain Areas</b> | <b>% of Acres in Floodplain Within Jurisdiction</b> | <b>Total Improved Properties in Or Adjacent To The Floodplain **</b> | <b>Total Value of All Improvements in Jurisdiction</b> | <b>Total Value of Estimated Improvements in Or Adjacent To Floodplain Areas</b> | <b>% of Improvements in Floodplain Area</b> |
| Rocky Mount (Nash County)*   | 23,947                             | 6,710   | 28.0%   | 3,538 (13.8%)  | \$2,784,447,320  | \$672,798,120   | 24.2%                                       |
| Nashville (Nash County)  | 2,379                              | 372   | 15.6%   | 100 (4.6%)   | \$279,728,639  | \$9,592,224   | 3.4%  |
| Red Oak (Nash County)  | 12,079                             | 1,439   | 11.9%   | 44 (3.2%)  | \$187,872,291  | \$7,842,288   | 4.2%  |
| City of Wilson (Wilson County)   | 18,505                             | 8,090   | 43.7%   | 1,609 (14.3%)  | \$2,936,121,301  | \$386,064,898   | 13.2%                                       |
| Tarboro (Edgecombe County)*  | 8,348                              | 4,902   | 59.7%   | 1,258 (24%)  | \$657,718,229  | \$197,787,278   | 30.1%                                       |
| Princeville (Edgecombe County)   | 748                                | 205   | 27.4%   | 13 (1.2%)  | \$47,853,263   | \$759,511   | 1.6%  |
| <p><b>Data Sources:</b><br/>                     Floodplain Boundary Information for three counties: FRIS - NC Flood Risk Information System (See: <a href="http://fris.nc.gov/fris/Download.aspx?ST=NC">http://fris.nc.gov/fris/Download.aspx?ST=NC</a>)<br/>                     County Parcel Tax Files for each County<br/>                     Floodplain Analysis to determine parcels and improvements in the Floodplains conducted using ArcMap 9.3 geo-processing capabilities</p> <p><b>Notes:</b><br/>                     *The estimated Improvement values also include the portion of Rocky Mount in Edgecombe County.<br/>                     ** An estimated number of improved properties is provided in this column. Of note is the fact that this does not imply that all these properties are in the floodplain, but do include properties that are adjacent to or penetrate into the floodplains and could be impacted by severe flooding, such as a 500 year flood. The percentages in parentheses are the percentage of the number of developed parcels in the floodplain to total developed lots in the jurisdiction.</p> |                                    |   |   |  |  |   |   |

The following maps display the various jurisdictions in the tables above and parcels potentially impacted by the floodplain hazard.









### **5.4.3 HURRICANE AND TORNADO HAZARDS**

Of note is that all or portions of the improved property values for selected jurisdictions in the above tables as well as the three counties in the tables on the three counties are also at potential risk from the devastation of hurricanes and tornado activities in the area. The total value of all improvements in the three counties and various selected jurisdictions as displayed in the above tables is an indication of the estimated total improved values at potential risk to some degree of damage during severe hurricanes with strong wind forces that penetrate and spread out over the entire three county area.

Unlike hurricanes, tornados follow meandering paths as they cut across land. For example, a severe Tornado would impact this area and cause substantial damage over a path approximately 409 acres in size as calculated based upon previous evidence of tornado paths in this three county area that averaged approximately 5 miles long and 100 - 160 feet in width.<sup>10</sup> Previous tornado activity in the three county area has destroyed homes and businesses, and although these tornados have followed limited tracks their destructive trails have left many building completely destroyed or severely damaged. The table on the next page highlights improved values that could be impacted by such a severe or strong tornado that traverse a 409 acre path of destruction in this area.

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<sup>10</sup> Numerous tornados are reported by the National Weather Services and included on the News and Observer web site where tornados with 5 mile long paths and widths more than 100 feet have been reported in this three county area (See: <http://www.newsobserver.com/2011/04/18/1137952/weather-service-releases-detailed.html>). Also, see Weather Explained (<http://www.weatherexplained.com/Vol-1/Tornadoes.html>) that reports tornado activities that are strong have approximate paths of 200 yards wide and lengths of nine miles on average, but most average about 4 miles long and 300-400 feet wide..

**Table 5.53**

| <b>ESTIMATED PROPERTY IMPROVEMENTS IN SELECTED MAJOR JURISDICTIONS AND COUNTIES IMPACTED BY A SEVERE TORNADO THAT IMPACTS 409 ACRES (AVERAGE PATH OF A TORNADO)</b> |   |  |  |   |   |
|---|---|--|--|---|---|
| <b>Jurisdiction and County</b>  | <b>Total Improved Acres Within Jurisdiction</b> | <b>Total Value of All Improvements in Jurisdiction</b> | <b>Average Value Per Improved Acre</b> | <b>Total Value of Estimated Improvements Impacted By Severe or Strong Tornado (Average Value Per Improved Acre X 409 Acres)</b> | <b>% of Total Improvements Impacted</b> |
| Nash County   | 157,556   | \$4,474,610,716  | \$28,400                               | \$11,615,656  | .26%                                    |
| Rocky Mount*  | 17,109  | \$2,784,447,320  | \$162,748                              | \$66,563,736  | 2.39%                                   |
| Nashville (Nash County)   | 1,530   | \$279,728,639  | \$182,829                              | \$74,777,133  | 26.73%                                  |
| Red Oak (Nash County)   | 5,359   | \$187,872,291  | \$35,057                               | \$14,338,453  | 7.63%                                   |
| Wilson County   | 138,813   | \$4,436,998,424  | \$31,964                               | \$13,073,216  | .29%                                    |
| City of Wilson (Wilson County)  | 17,265  | \$2,936,121,301  | \$170,062                              | \$69,555,379  | 2.37%                                   |
| Edgecombe County  | 322,218   | \$2,145,670,359  | \$6,659                                | \$2,723,557   | .13%                                    |
| Tarboro (Edgecombe County)*   | 6,440   | \$657,718,229  | \$102,130                              | \$41,771,235  | 6.35%                                   |
| Princeville (Edgecombe County)  | 352   | \$47,853,263   | \$135,947                              | \$55,602,229  | 116.19%                                 |

**Data Sources:** County Parcel Tax Files for each County  
**Notes:**\*The estimated Improvement values and acreages include the portions of Rocky Mount in Nash County and Edgecombe County. Analysis of impacted values determined using ArcMap 9.3.

As is evidenced by the information in the above table, a severe tornado would be particularly destructive in the smaller communities, including Princeville and Nashville that have fewer developed acreage than the other communities.

**5.4.4. IMPACT OF HAZARDS ON CREATION OF DEBRIS AND DRIBRIS REMOVAL**

The Emergency Management staff of the US Corps of Engineers developed a Hurricane Debris Estimation Model to forecast the volume of disaster debris generated by hurricanes. This model was developed for planning purposes.<sup>11</sup> For example, the results of this model provides valuable information for Emergency Management Departments and Directors in the various counties and jurisdictions to have the necessary research material in order to work with their individual counties and/or towns now and into the future to development contingency plans for handling debris, including storage and hauling operations in the event of a hurricane. This planning effort could also be a regional approach for continuity and consistency in order for all governments to be included.

The model assigns factors to be used for things such as:

- Vegetative cover
- Commercial density

<sup>11</sup> See: [https://dps.sd.gov/emergency\\_services/emergency\\_management/images/dmgappa.pdf](https://dps.sd.gov/emergency_services/emergency_management/images/dmgappa.pdf)

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- Precipitation
- Hurricane category

These factors are used with demographic data such as the number of households to project the number of cubic yards of disaster debris that will be generated from the storm event.

- Household debris includes damage to the house, contents and surrounding shrubs and trees.
- Vegetative cover includes all trees and shrubbery located along public rights-of-way, parks and residential areas.
- Commercial density includes debris generated by damage to businesses and industrial facilities.
- Private contractors will remove the majority of commercial related debris; however, disposal/reduction space is still required.
- Very wet storms will cause ground saturation, increasing tree fall.

This information can then be used to estimate the number and size of disaster debris storage and processing sites. For example:

- Estimate debris pile stack height of 10-feet.
- 60% usage of land area to provide for roads, safety buffers, burn pits...  
**1 acre (ac) = 4,840 square yards (sy)**  
**10 foot stack height = 3.33 yards(y)**  
**Total volume per acre = 4,840 sy/ac x 3.33 y = 16,117 cubic yards/acre (cy/ac)**
- From the example above, the acreage required for debris reduction sites is:  
**7,000,000/ 16,117 cy/ac = 434 acres (required for debris storage only, no buffers, etc.**
- To provide for roads and buffers, the acreage must be increased by a factor of 1.66.  
**434 ac x 1.66 = 720 acres or, since one square mile (sm) = 640 acres**  
**720ac/640acress/sm=1.12 sm.**

The storm debris generated usually falls into one of two classes:

- 30% Clean woody debris
- 70% Mixed C&D, of the 70% mixed C&D:
  - 42% Burnable but requires sorting
  - 5% Soil
  - 15% Metals
  - 38% Land filled

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Based upon the above, 7,000,000 cy of debris would break down as follows:

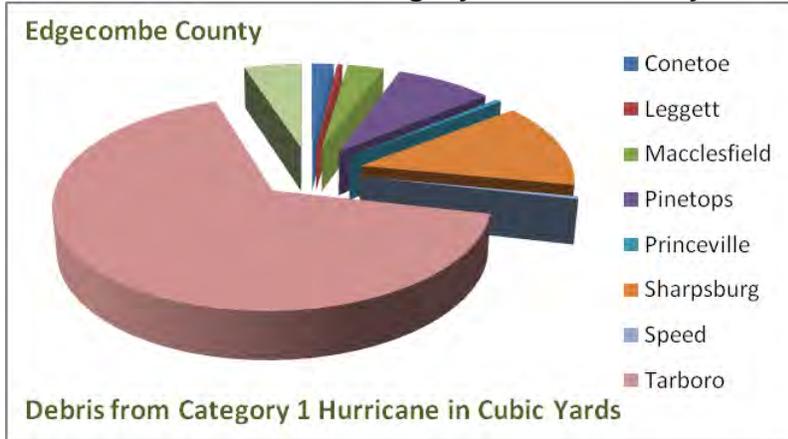
- 2,100,000 cy Clean woody debris
- 4,900,000 cy Mixed C&D of the 4,900,000 cy of mixed C&D, 2,058,000 cy is burnable but requires sorting.
- 245,000 CY is soil,
- 735,000 CY is metals, and 1,862,000 cy is land filled.
- Burning will produce about 95% volume reduction.
- Chipping and grinding reduce the debris volume on a 4-to-1 ratio (4 CY is reduced to 1 CY) or by 75%. <sup>12</sup>The rate of burning is basically equal to the rate of chipping/grinding, about 200 CY/hr. However, chipping requires on-site storage and disposal of the chips/mulch.

Utilizing this model the following data has been generated for each of the Towns in the region participating in this planning project. This data is good to within the +/- 30%. Table 5.36 displays debris resulting from a Category 1 hurricane. Also, in order to present a worst case scenario, the Towns were also modeled for a Category 5 hurricane. The model results for categories 1-5 can be found in Appendix E.

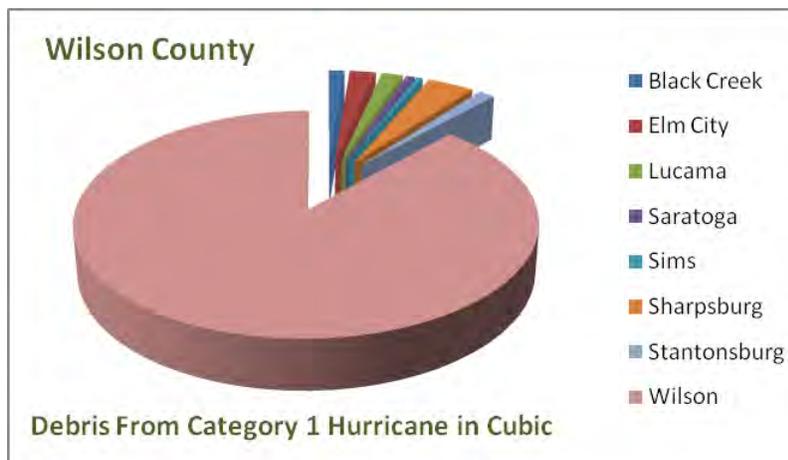
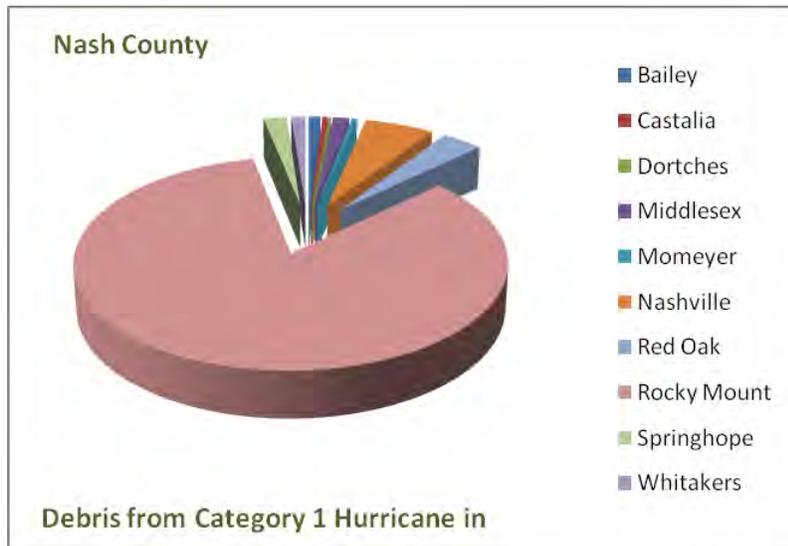
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<sup>12</sup> USACE Hurricane Debris Estimating Model

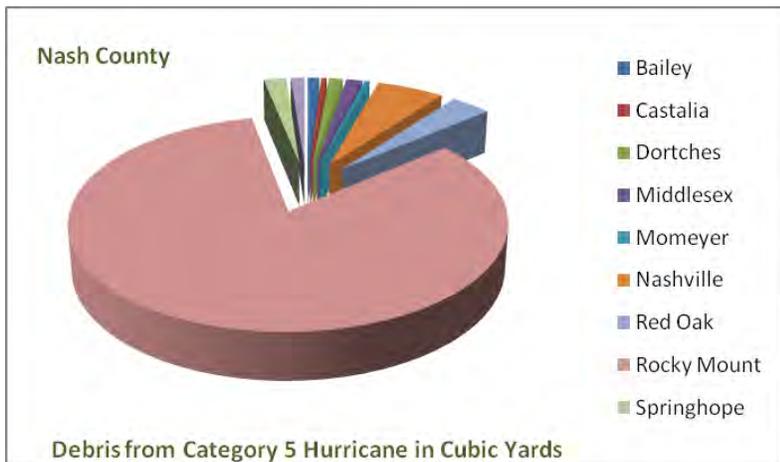
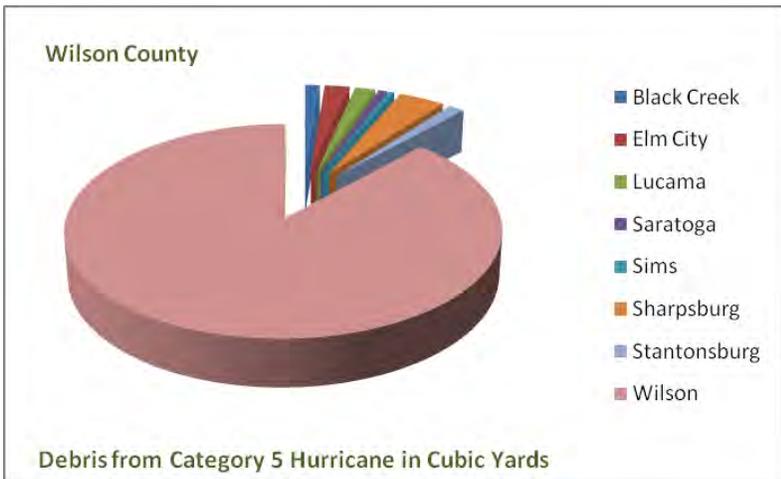
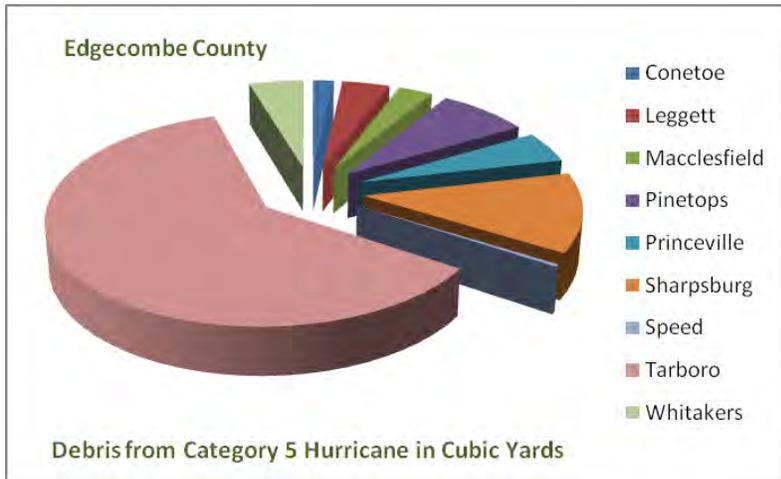
Table 5.54: Debris for Category 1 Hurricane by County (Tables and Charts)



| CATEGORY 1 DEBRIS BY LOCATION |                       |
|-------------------------------|-----------------------|
| Township                      | Debris in Cubic Yards |
| Conetoe                       | 585.0                 |
| Leggett                       | 135.72                |
| Macclesfield                  | 978.12                |
| Pinetops                      | 2,606.76              |
| Princeville                   | 161.28                |
| Sharpsburg                    | 4,137.12              |
| Speed                         | 131.04                |
| Tarboro                       | 20,400.12             |
| Whitakers                     | 1,549.08              |
| Nash County                   | Debris in Cubic Yards |
| Bailey                        | 1,019.28              |
| Castalia                      | 491.04                |
| Dortches                      | 145.08                |
| Middlesex                     | 1,417.32              |
| Momeyer                       | 438.96                |
| Nashville                     | 6,059.88              |
| Red Oak                       | 3,660.48              |
| Rocky Mount                   | 85,920.84             |
| Spring Hope                   | 2,023.68              |
| Whitakers                     | 1,231.32              |
| Wilson County                 | Debris in Cubic Yards |
| Black Creek                   | 943.02                |
| Elm City                      | 1,602.12              |
| Lucama                        | 1,308.06              |
| Saratoga                      | 534.04                |
| Sims                          | 381.94                |
| Sharpsburg                    | 2,887.92              |
| Stantonsburg                  | 1,030.9               |
| Wilson                        | 65,615.94             |



**Table 5.55: Debris for Category 5 Hurricane by County (Tables and Charts)**



| CATEGORY 5 DEBRIS BY LOCATION |                       |
|-------------------------------|-----------------------|
| Edgecombe County              | Debris in Cubic Yards |
| Conetoe                       | 23,400.0              |
| Leggett                       | 54,288.8              |
| Macclesfield                  | 39,124.8              |
| Pinetops                      | 104,270.4             |
| Princeville                   | 64,771.2              |
| Sharpsburg                    | 165,484.8             |
| Speed                         | 5241.6                |
| Tarboro                       | 816,004.8             |
| Whitakers                     | 61,963.2              |
| Wilson County                 | Debris in Cubic Yards |
| Black Creek                   | 41,492.88             |
| Elm City                      | 70,493.28             |
| Lucama                        | 57,554.64             |
| Saratoga                      | 23,494.6              |
| Sims                          | 16,805.36             |
| Sharpsburg                    | 131,468.48            |
| Stantonsburg                  | 45,359.6              |
| Wilson                        | 2,887,101.3           |
| Nash County                   | Debris in Cubic Yards |
| Bailey                        | 40,749.28             |
| Castalia                      | 19,631.04             |
| Dortches                      | 48,928.88             |
| Middlesex                     | 56,662.32             |
| Momeyer                       | 17,548.96             |
| Nashville                     | 242,264.88            |
| Red Oak                       | 146,340.48            |
| Rocky Mount                   | 3,434,985.8           |
| Spring Hope                   | 80,903.68             |
| Whitakers                     | 49,226.32             |

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The assumptions made in these models were as follows:

- Edgecombe County appears to have more dense vegetation than Nash and Wilson Counties.
- Edgecombe County has fewer households than Nash and Wilson Counties.

For these reasons Edgecombe County and the Municipalities within were given higher a vegetation factor and a lower land use factor. All of the Counties and Municipalities were assigned a medium to heavy precipitation factor for each hurricane category.

**Solid Waste Handling Fees**

These values were established by converting cubic yards to tons and multiplying the result by the cost/ton each County’s Solid Waste Department charges for Construction and Demolition Debris (C&D). That figure is for all disaster debris to be landfilled. That total was then multiplied by 32% to establish the cost of disposal at the County Solid Waste Facility after each County had utilized a Disaster Debris Contractor that had recycled and/or burned 68 % of the Debris. These figures only accommodate for disposal at the County Waste Management Facility, so they do not include the cost of:

- The Disaster Debris Contractor
- Disaster Debris Recovery Operations
- Disaster Debris Staging and Processing sites (that are permitted by the NC DENR Solid Waste Section)

The following tables are for debris from a Category 1 Hurricane

**Table 5.56**

| <b>Debris Disposal Costs for Category 1 Hurricane In Edgecombe County</b> |                               |                               |
|---|-------------------------------|-------------------------------|
| <b>Edgecombe County</b>   | <b>Landfill Disposal Cost</b> | <b>32% Requiring Landfill</b> |
| Conetoe   | \$17,988.75                   | \$5,756.40                    |
| Leggett   | \$4,173.39                    | \$1,335.48                    |
| Macclesfield  | \$30,077.19                   | \$9,624.70                    |
| Pinetops  | \$80,157.87                   | \$25,650.52                   |
| Princeville   | \$4,959.36                    | \$1,588.99                    |
| Sharpsburg  | \$127,216.44                  | \$40,709.26                   |
| Speed   | \$4,029.48                    | \$1,289.43                    |
| Tarboro   | \$627,300.00                  | \$200,736.00                  |
| Whitakers   | \$47,634.21                   | \$15,242.95                   |

**Table 5.57**

| <b>Debris Disposal Costs for Category 1 Hurricane In Nash County</b> |                               |                               |
|--|-------------------------------|-------------------------------|
| <b>Nash County</b>   | <b>Landfill Disposal Cost</b> | <b>32% Requiring Landfill</b> |
| Bailey   | \$36,694.08                   | \$11,742.11                   |
| Castalia   | \$17,677.44                   | \$5,656.78                    |
| Dortches   | \$5,222.88                    | \$1,671.32                    |
| Middlesex  | \$51,023.52                   | \$16,327.53                   |
| Momeyer  | \$15,802.56                   | \$5,056.82                    |
| Nashville  | \$218,155.68                  | \$69,809.82                   |
| Red Oak  | \$131,777.28                  | \$42,168.73                   |
| Rocky Mount  | \$3,093,150.20                | \$989,808.06                  |
| Spring Hope  | \$72,852.48                   | \$23,312.79                   |
| Whitakers  | \$44,327.52                   | \$14,184.81                   |

**Table 5.58**

| <b>Debris Disposal Costs for Category 1 Hurricane In Wilson County</b> |                               |                               |
|--|-------------------------------|-------------------------------|
| <b>Wilson County</b>   | <b>Landfill Disposal Cost</b> | <b>32% Requiring Landfill</b> |
| Black Creek  | \$28,290.60                   | \$9,052.99                    |
| Elm City   | \$48,063.60                   | \$15,380.35                   |
| Lucama   | \$39,241.80                   | \$12,557.38                   |
| Saratoga   | \$16,021.20                   | \$5,126.78                    |
| Sims   | \$11,458.20                   | \$3,666.62                    |
| Sharpsburg   | \$86,637.60                   | \$27,724.03                   |
| Stantonsburg   | \$30,927.00                   | \$9,896.64                    |
| Wilson   | \$1,968,478.20                | \$629,913.02                  |

**The following tables are for a Category 5 Hurricane**

Note: Since there is no record of a Category 5 Hurricane ever directly impacting the planning area, these tables should be considered worst case scenario planning figures.

**Table 5.59**

| <b>Debris Disposal Costs for Category 5 Hurricane In Nash County</b> |                               |                               |
|--|-------------------------------|-------------------------------|
| <b>Nash County</b>   | <b>Landfill Disposal Cost</b> | <b>32% Requiring Landfill</b> |
| Bailey   | \$1,466,974.00                | \$469,431.68                  |
| Castalia   | \$706,717.44                  | \$226,149.58                  |
| Dortches   | \$1,761,439.60                | \$563,660.67                  |
| Middlesex  | \$2,039,843.50                | \$652,749.92                  |
| Momeyer  | \$631,762.56                  | \$202,164.01                  |
| Nashville  | \$8,721,535.60                | \$2,790,891.30                |
| Red Oak  | \$5,268,257.20                | \$1,685,842.30                |
| Rocky Mount  | \$12,383,488.00               | \$3,962,716.10                |
| Spring Hope  | \$2,912,532.40                | \$932,010.36                  |
| Whitakers  | \$1,772,147.50                | \$567,087.20                  |

**Table 5.60**

| <b>Debris Disposal Costs for Category 5 Hurricane In Wilson County</b> |                               |                               |
|--|-------------------------------|-------------------------------|
| <b>Wilson County</b>   | <b>Landfill Disposal Cost</b> | <b>32% Requiring Landfill</b> |
| Black Creek  | \$1,244,786.40                | \$398,331.64                  |
| Elm City   | \$2,114,798.40                | \$676,735.48                  |
| Lucama   | \$1,726,639.20                | \$55,254.54                   |
| Saratoga   | \$704,838.00                  | \$225,548.16                  |
| Sims   | \$504,160.80                  | \$161,331.45                  |
| Sharpsburg   | \$3,944,054.40                | \$1,262,097.40                |
| Stantonsburg   | \$1,360,788.00                | \$435,452.16                  |
| Wilson   | \$86,613,036.00               | \$27,716,171.00               |

**Table 5.61**

| <b>Debris Disposal Costs for Category 5 Hurricane In Edgecombe County</b> |                               |                               |
|---|-------------------------------|-------------------------------|
| <b>Edgecombe County</b>   | <b>Landfill Disposal Cost</b> | <b>32% Requiring Landfill</b> |
| Conetoe   | \$719,550.00                  | \$230,256.00                  |
| Leggett   | \$1,669,380.60                | \$534,201.79                  |
| Macclesfield  | \$1,203,087.60                | \$384,988.03                  |
| Pinetops  | \$320,642.55                  | \$102,605.61                  |
| Princeville   | \$1,991,714.40                | \$637,348.60                  |
| Sharpsburg  | \$5,088,657.60                | \$1,628,370.40                |
| Speed   | \$161,179.20                  | \$51,577.34                   |
| Tarboro   | \$25,092,147.00               | \$8,029,487.00                |
| Whitakers   | \$1,905,368.40                | \$609,717.88                  |

These costs in the above tables demonstrate that it certainly pays to divert as much disaster debris as possible from the landfill thus saving valuable landfill air space and the associated disposal costs. These costs may be reimbursable from FEMA as long as the County's and Municipalities follow the protocols outlined in the PD 325 document. This is a FEMA document with guidelines for managing disaster debris.

## SECTION 6: MITIGATION STRATEGIES

### 6.1 Overall Goals and Objectives

The overall purpose of a local government is to promote the health, safety, and general welfare of the citizens of the community. In keeping with this purpose, the counties and participating municipalities in the region have agreed to include four goals for hazard mitigation planning in this regional hazard mitigation plan. Each goal, purposefully broad in nature, serves to establish parameters that were used in developing more specific objectives and county/municipal level mitigation actions. Consistent implementation of these objectives and actions will over time ensure that the regional goals are also achieved.

Mitigation objectives are designed to support the four regional goals while further defining parameters for development of local mitigation actions. Objectives are numbered to correspond with the goal that each supports.

A list of the goals and objectives for this regional hazard mitigation plan are as follows:

**Goal #1** Protect the public health, safety and welfare by increasing public awareness of hazards and by encouraging collective and individual responsibility for mitigating hazard risks.

**Objective 1.1** The counties and municipalities will engage in activities and practices that will help mitigate the impacts of natural hazards.

**Objective 1.2** The counties and municipalities participating in the National Flood Insurance Program (NFIP) will implement a public awareness campaign to educate citizens of the possible hazards associated with locating in floodplains and of measures that can be taken to lessen impacts of future floods.

**Objective 1.3** The counties and municipalities will work to ensure that emergency services are adequate to protect public health and safety.

**Goal #2** Improve technical capability to respond to hazards and to improve the effectiveness of hazard mitigation actions.

**Objective 2.1** The counties and municipalities will work together to develop policies that limit the provision of public services (water, sewer, etc.) to proposed new development in flood hazard areas.

**Objective 2.2** The counties and participating municipalities will continue to evaluate participation in the Community Rating System (CRS) to help monitor hazard mitigation efforts and to improve the affordability of flood insurance for citizens.

**Goal #3** Enhance existing, or create new, policies and ordinances that will help reduce the damaging effects of natural hazards.

**Objective 3.1** The counties and municipalities will continue to encourage future development to occur in such a way as to protect wetlands, floodplains, and other natural features that serve to reduce flood hazard susceptibility.

**Objective 3.2** The counties and participating municipalities will enforce National Flood Insurance Program (NFIP) development standards and also study additional methods that would help prevent increases in flood velocities and levels that endanger both people and property. (Some of the municipalities will be adopting flood damage prevention regulations for the first time.)

**Goal #4** Protect the most vulnerable populations, buildings, and critical facilities through the implementation of cost-effective and technically feasible mitigation actions.

**Objective 4.1** The counties and municipalities will continue to restrict or discourage development in known or predictable pathways of natural hazards such as in identified floodplains. Where hazard locations are unpredictable, such as during hurricane force winds, the local governments will ensure that new structures are built to current required standards, in order to resist the possible impacts of natural hazards.

**Objective 4.2** While recognizing that property owners have the constitutional right to put land to an economically viable use, the Counties and municipalities will honor this right while working to limit development in areas that may cause emergency workers to

put lives at risk (to rescue someone from a structure built in a hazardous area, etc.).

## **6.2 Local Government Mitigation Actions**

This subsection of the plan includes a mitigation actions table for each participating jurisdiction. The mitigation action steps for Edgecombe County are listed first (Table 6-2), followed by a separate table for the action steps for each municipality within that county (in alphabetical order). The actions for Wilson County and its municipalities therein are next, with Nash County and their municipalities following thereafter.

### **A. Development and Prioritization of Action Steps**

Mitigation actions were developed and prioritized by each local government jurisdiction, after receiving instructions from the NC Division of Emergency Management (NCEM) on FEMA's revised guidelines for mitigation actions. A short version of those federal mitigation planning requirements is that each participating local government must have a minimum of two actions for each hazard being mitigated (or two actions that address all the hazards in their jurisdiction), and they must have an action or actions that address the built environment. Local governments were also instructed to no longer use terms like "ongoing" and "continuous" in the target completion date column, but to put an estimated year of completion. For those actions shown as completed in each of the previously adopted County plans, local governments were instructed to remove those actions from this new plan. For those actions completed anytime after the adoption of the previous County plans, local governments were instructed to indicate the year that they were completed and to note that they were completed in the "Status Update" column. Other actions that were desired to be deleted (due to no longer being applicable, due to limited capabilities of the local government, or other reasons) were noted as such in the target completion date column in the jurisdiction's table.

In developing actions, the counties and municipalities categorized their actions into one of the following six types of mitigation actions (developed by FEMA):

#### **1. Prevention (P) Measures**

Preventive measures are intended to "keep hazard problems from getting worse". They are particularly effective in reducing a community's future vulnerability, especially in areas where development has not occurred or where capital improvements have not been substantial. Examples of prevention measures include:

- (a) Comprehensive land use planning
- (b) Zoning regulations

- (c) Subdivision regulations
- (d) Open space preservation
- (e) Building codes
- (f) Floodplain regulations
- (g) Stormwater management
- (h) Drainage system maintenance
- (i) Capital improvements programming
- (j) Riverine/stream setbacks

2. Property Protection (PP) Measures

Property protection measures seek to protect existing structures (and their potential occupants) by modifying the building to withstand hazardous events, removing structures from hazardous locations, and/or helping to ensure that financial resources are available for repairs/reconstruction after a hazard event. Examples of property protection measures include:

- (a) Protection of critical facilities
- (b) Building relocation
- (c) Building elevation
- (d) Building acquisition and clearance
- (e) Building retrofit (ex. windproofing, floodproofing, seismic design techniques, etc.)
- (f) Other measures (safe rooms, shutters, shatter-resistant glass)
- (g) Insurance

3. Natural Resource (NR) Protection

Natural resource protection activities reduce the impact of natural hazards by “preserving or restoring natural areas” and their mitigation functions. Such areas include floodplains, wetlands, and dunes. Parks, recreation or conservation agencies and organizations often implement these measures. Examples include:

- (a) Floodplain protection
- (b) Watershed management
- (c) Riparian buffers (vegetation along surface waters)
- (d) Erosion and sedimentation control
- (e) Forestry & vegetation practices/management (ex. fire resistant landscaping, fuel breaks, etc.)
- (f) Habitat preservation/protection
- (g) Wetland preservation and restoration
- (h) Slope stabilization

4. Structural (S) Projects

Structural mitigation projects are intended to lessen the impact of a hazard by “modifying the environmental natural progression of the hazard event through construction”. The projects are usually designed by engineers and managed or maintained by engineering/public works staff. Examples include:

- (a) Reservoirs
- (b) Dams, levees/dikes and floodwalls
- (c) Diversions, retention and detention basins
- (d) Channel modification and maintenance
- (e) Storm sewers

5. Public Education (PE), Information & Awareness Activities

Public education, information and awareness activities are used to advise residents, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques that the public can use to protect themselves and their property. Examples of measures to educate and inform the public include:

- (a) Outreach projects
- (b) Speaker series/ demonstration events
- (c) Hazard map information
- (d) Library materials
- (e) Real estate disclosure
- (f) Environmental/hazards education (schools/the public)

6. Emergency Services (ES) Measures/Protection

Although not typically considered a mitigation technique, emergency service measures typically minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. Examples include:

- (a) Hazard warning systems
- (b) Evacuation planning and management
- (c) Emergency response planning, training, & exercises
- (d) Quick/temporary measures in anticipation of a hazard event (i.e. sandbagging for flood protection, installing temporary shutters/window covering for wind protection)

The local actions steps were developed mostly by local government staff with consultation with the counties and/or Upper Coastal Plain Council of Government staff, but in some cases in consultation with, or by the mayor or a designated member of the local governing board. For many of the larger jurisdictions, the

specific actions were developed by the departmental staff responsible for their implementation. Each jurisdiction categorized its actions as having a low, moderate/medium or high priority, primarily based on an assessment of the need for the specific action, the potential beneficial effects (health, safety, quality of life, environmental) from implementation of the action, and the projected cost of implementation. A secondary factor was the current availability of funding.

Three additional factors, which are appropriate measures for local governments to use in assessing and categorizing their actions, are as follows:

1. Cost effectiveness, i.e., do returns or savings produced by implementation of the action outweigh the cost of implementation?
2. Environmental impact, i.e., are actions designed to protect environmentally fragile areas as natural stormwater storage areas?
3. Technical feasibility, i.e., can the action be undertaken by the county/municipality using current staff and local funds, state, or federal funds, or do other funding sources need to be identified?

It should be noted that some potential action steps are recommended for all communities and are included in the tables. Upon further review these may be modified, but for purposes of this multi-jurisdictional plan, these action steps are included due to the recommendations in section 4. Other potential action steps that might not be included are more appropriately addressed at the state level, as indicated by established responsibilities within the State of North Carolina and available funding.

## **B. Mitigation Action Step Tables**

### **Explanation of Columns and Acronyms**

#### **Columns**

1. **Action #:** corresponds to one of the six FEMA mitigation action types listed above
2. [*County or Municipal*] **Action:** description of action to be undertaken; where applicable, CRS category is referenced (City of Rocky Mount, City of Wilson, Town of Tarboro, and Town of Nashville only). Note: An explanation of CRS activities is included in Table 6.32.
3. **Hazard:** hazard or hazards which the action addresses
4. **Goal(s) and/or Objective(s) Addressed:** the numbered goal(s)/objective(s) which the action supports
5. **Relative Priority:** the ranking (low, moderate or high) of the action for funding and implementation

6. **Funding Sources:** local, state, federal, and/or other potential sources of funds are noted
7. **Responsible Party:** local government department or agency responsible for undertaking the action. Note: Each county board of commissioners and the individual municipal boards have ultimate authority to approve any policy, program or regulation revisions.
8. **Target Completion Date:** year in which the local government would like for the action to be completed; in the case of completed actions, this is the date the action was completed
9. **Status Update:** description of the state of the action (i.e. this action is new, has been completed, or is being deleted), or activities that have occurred or have not occurred during the last five years (since the previous adopted plan)

### **Acronyms**

|          |  |
|----------|--|
| CRS -    | Community Rating System  |
| EMS -    | County Emergency Management Services                           |
| FEMA -   | Federal Emergency Management Agency                            |
| EM -     | Emergency Management Manager                                   |
| GIS -    | County or Municipal Geographic Information Services            |
| NCDENR - | North Carolina Department of Environment and Natural Resources |
| NCDOT -  | North Carolina Department of Transportation                    |
| NCEM -   | North Carolina Division of Emergency Management                |
| NRCS -   | Natural Resource Conservation Services                         |
| P&D -    | Planning and Development Department                            |
| P&I-     | Planning and Inspections                                       |
| PW -     | County or Municipal Public Works Department                    |
| UD -     | County or Municipal Utilities Department                       |
| CA -     | County Administration  |
| TA -     | Town Administration/Town Clerk (unless otherwise indicated)    |
| TC -     | Town Commissioners (unless otherwise indicated)                |
| TB -     | Town or City Board or Council                                  |

## **C. Regional Interests and Opportunities for Improved Hazard Mitigation Initiatives**

### **C.1. Preventive Activities (P)**

The recommendations in section 4 of this plan include initiatives that address several weaknesses noted in many of the communities. For example, only the City of Wilson, Rocky Mount, Tarboro, Leggett, and Nash County have on-going hazard mitigation committees. These committees help build community support for improved hazard mitigation initiatives and insure that the private sector is represented in discussions and decisions about hazard mitigation. Hazard mitigation initiatives must constantly be

communicated to the public for continued preparation and awareness of relevant hazard mitigation information of importance for the public. In addition to dissemination of hazard mitigation information to the public, an established hazard mitigation advisory committee is also an excellent approach to establish cross communication between the public and government. Action steps have been added to all communities to insure that such advisory committees are established or if already established are utilized to help improve hazard mitigation preventive activities. This Action Step calls for the establishment or continuation of a three or more member local hazard mitigation committee with private sector participation to meet annually with assistance of emergency management personnel in order to review progress of a community's hazard mitigation plan, and evaluate and make recommendations for mitigation needs and potential initiatives.

### **C.2. Property/Structural Protection (PP)**

Where communities have not purchased generators for critical facilities, this action step provides for obtaining a generator(s) to provide emergency power for critical town facilities as a high priority with funding through various State, Federal or Local sources.

In addition, another optional action step recommended for local communities regards evaluating all critical facilities within a community for possible improvements to reduce their exposure to natural hazards. After such evaluation or review a report should be prepared with findings regarding needs for improvements that can be presented to the elected governing board for further evaluation and decision.

### **C.3. Emergency Services Protection (ES)**

Many of the communities as reported in Section 4 utilize a siren as a warning device. However, such warnings do not provide critical information in order for residents within the community to become properly informed regarding particular hazards or additional actions that should be taken for safety. The proposed action step provides that communities encourage and assist their residents through distributed information to sign up for warning notifications offered by their counties for improved emergency warnings or notifications for residents. Another option is for a municipality to establish its own warning notification phone system.

### **C.4. Public Education and Awareness (PE)**

Public education is essential to help communities understand and appreciate the natural hazards that occur in the community as well as actions that residents and/or businesses can undertake to be better prepared to withstand such hazards. For example, obtaining and distributing FEMA hazard mitigation related handouts and making such materials available for residents at town hall and/or as inserts in utility bills will help further educate the public regarding various hazards.

**D. Hazard Mitigation Action Steps: Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan**

Mitigation action steps are set forth in the following tables for all jurisdictions in the Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan (N.E.W. Regional Hazard Mitigation Plan 2015-2020). In preparing these action steps, the following considerations were at the fore front in their development and a variety and comprehensive range of mitigation actions or initiatives are the result.

- 1) Help reduce the effects of various hazards experienced by local jurisdictions
- 2) Provide opportunities to protect properties and life through various action steps that address structures, properties and related safety concerns.
- 3) Provide a variety of different hazard mitigation alternatives to meet different hazards.
- 4) Identify positions and/or parties or departments that are responsible for implementation.
- 5) Establish priorities for each action step and potential funding sources
- 6) Determine the completion status of existing action steps and target for completion of new action steps
- 7) Link action steps to hazard mitigation goals and objectives.
- 8) Address deficiencies identified in section 4 regarding community capability needs.

The N.E.W. Regional Hazard Mitigation Plan with individual action steps for each of the three counties and their jurisdictions were prepared in accord with the sample table on the next page. All counties and their municipalities in this three county plan have submitted action steps as listed in Table 6-1:

**Table 6-1**

| <b>COUNTIES AND JURISDICTIONS WITH ACTION STEPS SUBMITTED</b> |                      |                    |
|---|----------------------|--------------------|
| <b>Edgecombe County</b>                                       | <b>Wilson County</b> | <b>Nash County</b> |
| Conetoe   | City of Wilson       | Bailey             |
| Leggett   | Black Creek          | Castalia           |
| Macclesfield  | Elm City             | Dortches           |
| Pinetops  | Lucama               | Middlesex          |
| Princeville   | Saratoga             | Momeyer            |
| Rocky Mount*  | Sharpsburg*          | Nashville          |
| Speed   | Sims                 | Red Oak            |
| Tarboro   | Stantonsburg         | Spring Hope        |
| Whitakers*  |                      |                    |

\* Rocky Mount, Sharpsburg, and Whitakers are each located in more than one county



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| <b>Table 6-2: Edgecombe County Mitigation Actions – Ordered by Action #</b> |  |                            |  |                          |                                |                          |                               |  |
|---|--|----------------------------|--|--------------------------|--------------------------------|--------------------------|-------------------------------|--|
| <b>Action #</b>   | <b>Edgecombe County Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b>         | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>   |
| <b>PP-1</b>   | Provide constant power supply to Administration building   | All                        | Goal 4                                       | High                     | Mitigation grant, Fed. & State | County EM office         | 2015                          | New - application accepted NCEM for structural improvement                             |
| <b>ES-1</b>   | Increase participant in use of Code Red system through information to residents to encourage sign up | All                        | Goal 1 & 2                                   | Moderate                 | County                         | County EM office/ CA     | 2017                          | New Action Step: Code Red system already installed                                     |
| <b>P-1</b>  | ICS Training in EOC operations for all   | All                        | Goals 1 & 2                                  | Moderate                 | County & State                 | County EM office         | 2016                          | New - Classes to be beheld randomly  |
| <b>PP-2</b>   | Place new EOC in full operational status   | All                        | Goals 1 & 2                                  | High                     | County, State & Federal        | County EM office         | 2016                          | New - Generator purchase being worked out with grant                                   |
| <b>PP-3</b>   | Place generators at shelters (structural)  | Flood/Hurricane            | Goal 4                                       | Moderate                 | County & State                 | County EM office         | 2016                          | Generator(s) need to be installed - Received new generator from DPR4 w/transfer switch |
| <b>S-1</b>  | Maintain Army Corp of Engineers  | Flooding                   | Goal 4                                       | High                     | County                         | County EM office         | 2016                          | New - maintenance to be worked out US  |

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| Table 6-2: Edgecombe County Mitigation Actions – Ordered by Action # |  |                     |                                       |                   |                     |                   |                        |  |
|--|--|---------------------|---------------------------------------|-------------------|---------------------|-------------------|------------------------|--|
| Action #   | Edgecombe County Actions   | Hazard(s) Addressed | Goal(s) and/or Objective(s) Addressed | Relative Priority | Funding Sources     | Responsible Party | Target Completion Date | Status Update  |
|  | Dikes  |                     |                                       |                   |                     |                   |                        | Army Corp or Engineers for maintenance approval            |
| ES-1   | Replace Hwy 33 new bridges over Tar River  | Flooding            | Goal 4                                | High              | NC DOT State        | NC DOT            | 2017                   | New - plan to replace are in NC DOT 2016 plans.            |
| P-2  | Implement new County EOP   | All                 | Goal 3                                | High              | County              | County EM office  | 2015                   | Plan is written awaiting approval for implementation       |
| P-3  | Implement New County Debris Management Plan  | Hurricane           | Goal 3                                | High              | County              | County EM office  | 2015                   | Plan is written awaiting approval for implementation       |
| ES-2   | Combine Tarboro & Edgecombe 911 centers  | All                 | Goal 2                                | High              | Federal State       | County EM office  | 2020                   | New - beginning of the process, developing funding options |
| PE-1   | Encourage or assist residents through information to sign up for the county's emergency warning notification | All                 | Goals 1.1 & 1.3                       | Moderate          | Local State Federal | CA/County EM      | 2019                   | New  |

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| <b>Table 6-2: Edgecombe County Mitigation Actions – Ordered by Action #</b>   |  |   |  |                          |                           |                          |                               |  |
|---|--|---|--|--------------------------|---------------------------|--------------------------|-------------------------------|--|
| <b>Action #</b>   | <b>Edgecombe County Actions</b>                                    | <b>Hazard(s) Addressed</b>                                    | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b>    | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>                           |
|   | system   |   |  |                          |                           |                          |                               |  |
| <b>P-4</b>  | Establish a three or more member local Hazard Mitigation Committee | All   | Goal 1.1                                     | Moderate                 | Local                     | CC/CA                    | 2016                          | New Action                                     |
| <b>ES-3</b>   | Improve County bridges and roads drainage                          | flood; tornado; Hurricane/tropical storm/ severe storm        | Goal 4                                       | High                     | Federal<br>State<br>Local | NC DOT                   | 2019                          | New Action - monitor & report progress in 2019 |
| P-5   | NC Building codes to regulate tie downs                            | Tornado/hurricane /nor'easters/ flooding/severe winter storms | Goal 4                                       | Moderate                 | Local                     | Building Inspections     | 2017                          | Continuing- monitor & report progress in 2017  |
| S-2   | Maintain all dams and dikes  | Flooding; Dams / Leave Failure                                | Goal 4                                       | High                     |                           | Maintenance Dept.        | 2017                          | Continuing - monitor & report progress in 2017 |
|   |  |   |  |                          |                           |                          |                               |  |
|   |  |   |  |                          |                           |                          |                               |  |
|   |  |   |  |                          |                           |                          |                               |  |
| <b>Abbreviations: PB – Planning Board, CC – County Commissioners, CM – County Manager, CA - County Administration, ZA – Zoning Administrator, and EM - Emergency Management</b> |  |   |  |                          |                           |                          |                               |  |

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| <b>Table 6-3: Conetoe Mitigation Actions – Ordered by Action #</b> |  |                            |  |                          |                          |                             |                               |                      |
|--|--|----------------------------|--|--------------------------|--------------------------|-----------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Conetoe Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b>    | <b>Target Completion Date</b> | <b>Status Update</b> |
| <b>P-1</b>   | Ensure all construction meets or exceeds NFIP Flood Insurance elevation – 2ft                                      | Flood                      | Goal 1&2                                     | High                     | Federal, State & Local   | TB                          |                               | Complete             |
| <b>NR-1</b>  | Monitor drainage ditches in town   | Flood                      | Goal 1&2                                     | Moderate                 | Local                    | TB                          |                               | Complete             |
| <b>PE-3</b>  | Make citizens aware of NFIP  | Flood                      | All  | Moderate                 | Local                    | TB                          | 2017                          | New Action           |
| <b>PP-1</b>  | Emergency Animal Shelter   | All                        | Goal 3                                       | Moderate                 | Local                    | Coop. Extension             |                               | Complete             |
| <b>P-2</b>   | Drought Response Program (providing steps to help alleviate the effects of a drought on the agriculture community) | Drought                    | Goal 1&3                                     | Moderate                 | Local                    | Soil & Water Conservation   | 2017                          | New Action           |
| <b>NR-2</b>  | Wetland Reserve Program (conservation easements are created to deter development in flooded areas)                 | All                        |  | Moderate                 | Local                    | Soil & Water Conservation   |                               | Complete             |
| <b>P-3</b>   | NC Building codes to regulate tie downs  | All                        | Goal 1&2                                     | Medium                   | Local                    | County Building Inspections |                               | Complete             |

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| <b>Table 6-3: Conetoe Mitigation Actions – Ordered by Action #</b>   |   |                            |  |                          |  |                          |                               |                      |
|--|---|----------------------------|--|--------------------------|--|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Conetoe Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>                   | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
| <b>P-4</b>   | Establish a three or more member local Hazard Mitigation Committee  | All                        | 1.1  | Moderate                 | Local                                      | Mayor/ TB                | 2016                          | New Action           |
| <b>PP-2</b>  | Obtain a generator(s) to provide emergency power for critical town facilities (Structural)                          | All                        | 4.0  | High                     | State/<br>Federal<br>Grant funds,<br>Local | TA                       | 2016                          | New Action           |
| <b>ES-1</b>  | Encourage or assist residents through information to sign up for the county's emergency warning notification system | All                        | 1.1, 1.3                                     | Moderate                 | Local, State,<br>Federal                   | TA/Mayor                 | 2019                          | New Action           |
| <b>PE-3</b>  | Obtain FEMA and/or other handouts on multiple hazards & make available for residents at Town Hall                   | All                        | 1.0,   | Moderate                 | FEMA, Local                                | TB                       | 2018                          | New Action           |
|  |   |                            |  |                          |  |                          |                               |                      |
| <i>Abbreviations: PB – Planning Board, TB -Town Commissioners (Board), CM -County Manager, TA -Town Administration, ZA -Zoning Administrator, and EM - Emergency Management, Coop Extension - County Cooperative Extension Service</i> |   |                            |  |                          |  |                          |                               |                      |

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| <b>Table 6-4: Leggett Mitigation Actions – Ordered by Action #</b> |   |   |  |                          |                                     |                          |                               |   |
|--|---|---|--|--------------------------|-------------------------------------|--------------------------|-------------------------------|---|
| <b>Action #</b>  | <b>Leggett Actions</b>  | <b>Hazard(s) Addressed</b>  | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b>              | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>                                      |
| P-1  | Cooling stations, shelters with A/C                           | Heat Waves  | Goal 4                                       | Low                      | Local                               | Staff / Volunteers       | 2015                          | Complete  |
| P-2  | Leggett- Zoning & Building Codes                              | Flood   | Goal 3                                       | High                     | Local                               | TA/PB                    |                               | Complete  |
| PP-1   | Town Hall/Fire Dept. backup generator                         | All   | Goal 4                                       | High                     | Federal, local, state               | TA                       | 2015                          | Complete  |
| PE-1   | Hazard map, floodplain information & Code Red alert brochures | Flood   | Goal 1                                       | High                     | Federal, local, state               | Staff / Volunteers       | 2014                          | Complete - would like "all hazard" brochure & information |
| P-3  | Provide early warning: big siren & Code Red alert             | All   | Goal 1                                       | High                     | Federal, local, state               | EM/ E-911/TA             | 2015                          | Complete  |
| PP-2   | NC Building codes to regulate tie downs                       | Tornado/ hurricane/ nor'easters flooding/ severe storms/ freezing | Goal 3                                       | Moderate                 | Code mandate- federal, local, state | Building Inspections     | 2015                          | Underway with evaluation during 2015                      |
| PP-3   | Power loss, back-up generators at shelters                    | All   | Goal 4                                       | High                     | Local                               | EM Staff                 | 2015                          | Generator connectors currently being installed            |
| ES-1   | Improve county bridges and roads                              | Flood; tornado;   | Goal 4                                       | High                     | Federal, local, state               | NC DOT                   | 2016                          | Underway with evaluation in 2015                          |

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| <b>Table 6-4: Leggett Mitigation Actions – Ordered by Action #</b> |   |  |  |                          |                        |                          |                               |                      |
|--|---|--|--|--------------------------|------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Leggett Actions</b>  | <b>Hazard(s) Addressed</b>                                     | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
|  | drainage  | Hurricane; nor'easters; tropical storm; Severe storm/ freezing |  |                          |                        |                          |                               |                      |
| <b>P-4</b>   | Establish a three or more member local HM Committee with private sector participation   | All  | Goal 1                                       | Moderate                 | Local                  | Mayor/ TB                | 2016                          | New Action           |
| <b>ES-2</b>  | Encourage or assist residents through information to sign up for Code Red and/or the county's emergency warning notification system | All  | Goal 1                                       | Moderate                 | Local, State, Federal  | TA or Mayor              | 2019                          | New Action           |
| <b>PE-2</b>  | Obtain FEMA Hazard Mitigation related handouts & make available for residents at Town Hall and/or as inserts in Utility Bills       | All  | Goal 1                                       | Moderate                 | FEMA, Local            | TA                       | 2018                          | New Action           |
| <b>P-5</b>   | Emergency Animal Shelter  | All  | Goal 4                                       | Moderate                 | Local, State           | Cooperative Extension    | 2015                          | New Action           |

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| <b>Table 6-4: Leggett Mitigation Actions – Ordered by Action #</b>   |   |                            |  |                          |                                   |                          |                               |                      |
|--|---|----------------------------|--|--------------------------|-----------------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Leggett Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b>            | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
|  |   |                            |  |                          |                                   | Service                  |                               |                      |
| <b>PP-4</b>  | Conduct an internal review and prepare a report regarding critical facilities that:<br>✓ Evaluates all critical facilities for possible improvements to reduce their exposure to natural hazards<br>✓ Includes findings that will be presented to the elected governing Board | All                        | Goal 4                                       | High                     | State/ Federal Grant funds, Local | TA/TC/TM                 | 2018                          | New Action           |
|  |   |                            |  |                          |                                   |                          |                               |                      |
| <b>Abbreviations: PB - Planning Board, TB or TC -Town Commissioners (Board), TM -Town Manager, TA -Town Administration, ZA -Zoning Administrator, and EM - Emergency Management, Coop Extension - County Cooperative Extension Service, NC DOT - NC Department of Transportation</b> |   |                            |  |                          |                                   |                          |                               |                      |

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| <b>Table 6-5: Macclesfield Mitigation Actions – Ordered by Action #</b> |  |                            |  |                          |  |                             |                               |                      |
|---|--|----------------------------|--|--------------------------|--|-----------------------------|-------------------------------|----------------------|
| <b>Action #</b>   | <b>Macclesfield Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>                   | <b>Responsible Party</b>    | <b>Target Completion Date</b> | <b>Status Update</b> |
| <b>PP-1</b>   | NC Building codes to regulate tie downs  | All                        | Goal 1&2                                     | Moderate                 | Local                                      | County Building Inspections | Completed in 2010             | Previous Action      |
| <b>P-1</b>  | Drought Response Program (providing steps to help alleviate the effects of a drought on the agriculture community) | Drought                    | Goal 1&3                                     | Moderate                 | Local                                      | Soil & Water Conservation   | Completed in 2008             | Previous Action      |
| <b>P-2</b>  | Emergency Animal Shelter   | All                        | Goal 3                                       | Moderate                 | Local                                      | Coop Extension 2007         | Completed in 2007             | Previous Action      |
| <b>P-3</b>  | Establish a three or more member local hazard mitigation committee   | All                        | Goal 1.1                                     | Moderate                 | Local                                      | Town Clerk                  | 2016                          | New Action           |
| <b>PP-2</b>   | Obtain a generator(s) to provide emergency power for critical town facilities                                      | All                        | Goal 4                                       | High                     | State/<br>Federal<br>Grant<br>funds, Local | Town Clerk                  | 2016                          | New Action           |
| <b>ES-1</b>   | Encourage or assist residents through information to sign up for the county's emergency warning notification       | All                        | Goals 1.1 & 1.3                              | Moderate                 | Local,<br>State,<br>Federal                | Town Clerk                  | 2019                          | New Action           |

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| <b>Table 6-5: Macclesfield Mitigation Actions – Ordered by Action #</b>  |  |                            |  |                          |                          |                          |                               |                      |
|--|--|----------------------------|--|--------------------------|--------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Macclesfield Actions</b>                                      | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
|  | system   |                            |  |                          |                          |                          |                               |                      |
| <b>PE-1</b>  | Obtain FEMA handouts & make available for residents at Town Hall | All                        | Goal 1                                       | Moderate                 | FEMA,<br>Local           | Town Clerk               | 2018                          | New Action           |
| <i>Abbreviations: PB - Planning Board, TB or TC -Town Commissioners (Board), TM -Town Manager, TA -Town Administration, ZA -Zoning Administrator, and EM - Emergency Management, Coop Extension - County Cooperative Extension Service, NC DOT - NC Department of Transportation</i> |  |                            |  |                          |                          |                          |                               |                      |

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**Table 6-6: Pinetops Mitigation Actions – Ordered by Action #**

| <b>Action #</b> | <b>Pinetops Actions</b>  | <b>Hazard(s) Addressed</b>  | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b>  | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>   |
|-----------------|--|---|--|--------------------------|-------------------------|--------------------------|-------------------------------|--|
| <b>PP-1</b>     | NC Building codes to regulate tie downs<br>Public and provide education through pamphlets  | Tornado/<br>Hurricane/<br>Nor'Easters/<br>Flooding/<br>severe storms/<br>Freezing | Goal 3                                       | Moderate                 | local,state             | Building Inspections     | 2015                          | In 2010 HM Plan:<br>Continuing - monitor progress in 2016  |
| <b>ES-1</b>     | Improve county bridges and roads drainage  | Tornado/<br>Hurricane/<br>Nor'Easters/<br>Flooding/<br>severe storms/<br>Freezing | Goal 4                                       | High                     | Federal/<br>state/local | NC DOT                   | 2015                          | In 2010 HM Plan<br>Continuing - TA to monitor progress in 2015 and summarize in a staff report to the town board                               |
| <b>ES-2</b>     | Confirm that the existing "Black Board Connect" notification system will be utilized for natural disasters and other critical events<br><del>Establish "Code Red" System</del> | All   | Goal 1                                       | High                     | Local                   | EM/<br>E-911             | 2015                          | Amended Action, incomplete to this point because it was overlooked & there have not been any significant natural disasters in the past 5 years |

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| <b>Table 6-6: Pinetops Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                        |                          |                               |   |
|---|---|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|---|
| <b>Action #</b>   | <b>Pinetops Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>                                  |
| <b>P-1</b>  | Cooling Stations Shelters with A/C (Office of Aging currently has a fan program)  | Heat Waves                 | Goal 4                                       | Moderate                 | local                  | Staff / Volunteers       | 2015                          | In 2010 HM Plan Continuing - monitor progress in 2015 |
| <b>P-2</b>  | Emergency Animal Shelter  | All                        | Goal 4                                       | High                     | Local                  |                          | 2015                          | Monitor Progress in 2015 & report to Town Board       |
| <b>P-3</b>  | Establish a three or more member local hazard mitigation committee  | All                        | Goal 1.1                                     | Moderate                 | Local                  | Mayor/ TB/TA/TC          | 2016                          | New Action  |
| <b>ES-3</b>   | Encourage or assist residents through information to sign up for the county's emergency warning notification system           | All                        | Goals 1.1 & 1.3                              | Moderate                 | Local, State, Federal  | TA or Mayor              | 2019                          | New Action  |
| <b>PE-1</b>   | Obtain FEMA hazard mitigation related handouts & make available for residents at Town Hall and/or as inserts in Utility Bills | All                        | Goal 1.0                                     | Moderate                 | FEMA, Local            | TC                       | 2018                          | New Action  |

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| <b>Table 6-6: Pinetops Mitigation Actions – Ordered by Action #</b>  |  |                            |  |                          |                                   |                          |                               |                      |
|--|--|----------------------------|--|--------------------------|-----------------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Pinetops Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b>            | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
| <b>PP-2</b>  | Conduct an internal review and prepare a report regarding critical facilities that: <ul style="list-style-type: none"> <li>✓ Evaluates all critical facilities for possible improvements to reduce their exposure to natural hazards</li> <li>✓ Includes findings that will be presented to the elected governing Board</li> </ul> | All                        | Goal 4                                       | High                     | State/ federal grant funds, local | TA/TC/TM                 | 2018                          | New Action           |
| <b>Abbreviations: PB - Planning Board, TB or TC -Town Commissioners (Board), TM -Town Manager, TA -Town Administration, ZA -Zoning Administrator, and EM - Emergency Management, Coop Extension - County Cooperative Extension Service</b> |  |                            |  |                          |                                   |                          |                               |                      |

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| <b>Table 6-7: Princeville Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |  |                          |                               |   |
|--|---|----------------------------|--|--------------------------|--|--------------------------|-------------------------------|---|
| <b>Action #</b>  | <b>Princeville Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>                   | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>  |
| <b>P-1</b>   | Emergency Animal Shelter  | All                        | Goal 3                                       | Moderate                 | Local                                      | Coop Extension           | 2007                          | Complete  |
| <b>PP-1</b>  | Obtain a generator(s) to provide emergency power for critical town facilities <i>(if known specify which facility)</i>                | All                        | Goal 4.0                                     | High                     | State/<br>federal<br>grant funds,<br>local | Town<br>Manager          | 2012                          | Complete  |
| <b>ES-1</b>  | Code Red System (phone notification system in times of potential disasters)   | All                        | All Goals                                    | High                     | Local                                      | EM,<br>E-911             | 2015                          | Complete, just completed  |
| <b>ES-2</b>  | Improve County bridges and roads drainage   | All                        | Goals 1&2                                    | High                     | State<br>local                             | NC DOT                   | 2016                          | Continuing -TA to monitor progress by 2016 and report to Town Board |
| <b>ES-3</b>  | Encourage or assist residents through information to sign up for "Code Red" and/or the County's emergency warning notification system | All                        | Goals 1.1 & 1.3                              | Moderate                 | Local, state,<br>federal                   | TA or Mayor              | 2019                          | New Action  |
| <b>PE-1</b>  | Obtain FEMA handouts & make available for residents at Town Hall  | All                        | Goal 1.0                                     | Moderate                 | FEMA, local                                | TC                       | 2018                          | New Action  |

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| <b>Table 6-7: Princeville Mitigation Actions – Ordered by Action #</b>   |   |                            |  |                          |  |                          |                               |                      |
|--|---|----------------------------|--|--------------------------|--|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Princeville Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>                   | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
| <b>P-2</b>   | Establish a three or more member local Hazard Mitigation Committee  | All                        | Goal 1.1                                     | Moderate                 | Local                                      | Town Manager             | 2016                          | New Action           |
| <b>PP-2</b>  | Conduct an internal review and prepare a report regarding critical facilities that:<br>✓ Evaluates all critical facilities for possible improvements to reduce their exposure to natural hazards<br>✓ Includes findings that will be presented to the elected governing Board | All                        | Goal 4                                       | High                     | State/<br>federal<br>grant funds,<br>local | TA/TC/TM                 | 2018                          | New Action           |
| <i>Abbreviations: PB - Planning Board, TB or TC -Town Commissioners (Board), TM -Town Manager, TA -Town Administration, ZA -Zoning Administrator, and EM - Emergency Management, Coop Extension - County Cooperative Extension Service, NC DOT - NC Department of Transportation, E-911 - Emergency Phone System</i> |   |                            |  |                          |  |                          |                               |                      |

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| <b>Table 6-8: Rocky Mount Mitigation Actions – Ordered by Action #</b> |   |                                   |   |                 |                        |                                      |                               |  |
|--|---|-----------------------------------|---|-----------------|------------------------|--------------------------------------|-------------------------------|--|
| <b>Action #</b>  | <b>Rocky Mount Actions</b>  | <b>Type(s) of Hazard Targeted</b> | <b>Goal(s) and Objective(s) Addressed</b> | <b>Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b>             | <b>Target Completion Date</b> | <b>Status</b>  |
| <b>ES-1</b>  | Utilize “Code Red” public notification system   | All                               | Goal 1.3                                  | High            | Local                  | Fire Department                      | 2020                          | Continued use of the notification system.  |
| <b>P-1</b>   | Maintain FEMA flood hazard maps   | Flooding                          | Goals 1.1, 2.2, & 3.2                     | High            | Local, FEMA            | Planning Department                  | 2020                          | Map updates adopted in 2013; Continue to provide public access to maps and participate in CRS program. |
| <b>PE-1</b>  | Insert floodplain awareness brochure in utility bill annually   | Flood                             | Goals 1.2 & 2.2                           | High            | Local                  | Planning Department & Public Affairs | 2020                          | Recurring inserts in utility bills planned on an annual basis.   |
| <b>PE-2</b>  | Provide information on the City’s website about flood hazards   | Flood                             | Goal 1.2                                  | High            | Local                  | Planning Department                  | 2020                          | Commitment to permanently updating flood hazard information on the City’s website                      |
| <b>ES-2</b>  | Enhance the City radio network’s compatibility with surrounding jurisdictions by becoming VIPER compliant to facilitate communications with the State and surrounding local | All                               | Goal 1.3                                  | Moderate        | Local, state           | Staff                                | 2015                          | VIPER compliant radio system; Completion of radio "rebanding" project by State of NC                   |

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| <b>Table 6-8: Rocky Mount Mitigation Actions – Ordered by Action #</b> |   |                                   |   |                 |                        |                          |                               |   |
|--|---|-----------------------------------|---|-----------------|------------------------|--------------------------|-------------------------------|---|
| <b>Action #</b>  | <b>Rocky Mount Actions</b>  | <b>Type(s) of Hazard Targeted</b> | <b>Goal(s) and Objective(s) Addressed</b> | <b>Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status</b>   |
|  | jurisdictions   |                                   |   |                 |                        |                          |                               |   |
| <b>ES-3</b>  | Continue to be a certified “Storm Ready Community”  | All                               | Goal 1.1                                  | Moderate        | Local                  | Fire Department          | 2016                          | Anticipate renewal of cyclical three-year certification as has been the case since 2004.  |
| <b>S-1</b>   | Evaluate city-maintained bridges and culverts for elevation or capacity improvements                    | Flood                             | Goal 4.1                                  | Moderate        | Local                  | Public Works             | 2017                          | Existing bridges and culverts are inspected biannually; improvements made as needed.  |
| <b>ES-4</b>  | Work with NCDOT to improve bridges, bridge approaches, and culverts/ drainage on NCDOT maintained roads | Flood                             | Goal 4.1                                  | Moderate        | Local, NCDOT           | Public Works             | 2017                          | Analyzed biannually as part of basin master planning.   |
| <b>P-2</b>   | Maintain and update City Codes, Plans, and Ordinances   | All                               | Goal 2.1                                  | Moderate        | Local                  | Planning and Inspections | 2020                          | Perpetual analysis of development patterns is expected with subsequent updates to ordinances and plans to be carried out accordingly. |
| <b>PE-3</b>  | Partner with local broadcast media  | All                               | Goal 1.2                                  | Low             | Local                  | Public Affairs           | 2020                          | Rolling agreements with local broadcast media are in place to ensure information reaches public in a timely manner.                   |

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| <b>Table 6-8: Rocky Mount Mitigation Actions – Ordered by Action #</b> |   |                                   |   |                 |                        |                                 |                               |  |
|--|---|-----------------------------------|---|-----------------|------------------------|---------------------------------|-------------------------------|--|
| <b>Action #</b>  | <b>Rocky Mount Actions</b>  | <b>Type(s) of Hazard Targeted</b> | <b>Goal(s) and Objective(s) Addressed</b> | <b>Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b>        | <b>Target Completion Date</b> | <b>Status</b>  |
| <b>PE-4</b>  | Develop and deliver hazard specific presentations to City employees and the public    | All                               | Goal 1.2                                  | Low             | Local                  | Public Affairs, Fire Department | 2020                          | Regular presentations planned for City cable access channel and website, with periodic workshops for City staff.             |
| <b>P-3</b>   | Execute the Drought Management Implementation Plan                                    | Drought                           | Goal 1.1                                  | High            | Local                  | Staff                           | 2020                          | Continued use of Drought Management Plan during drought events   |
| <b>P-4</b>   | Implement a Stormwater Credit Manual  | Flood                             | Goals 2.1, 3.1, & 3.2                     | High            | Local                  | Engineering                     | Completed                     | Manual has been developed and is regularly made available to parties seeking to develop in the City.                         |
| <b>ES-5</b>  | Create a regional “confined space rescue team”  | All                               | Goals 1.3 & 4.2                           | High            | Local                  | Fire Department                 | Completed                     | Amended action to have the existing Technical Rescue Team serve in this capacity; entered into contracts with area counties. |
| <b>PP-1</b>  | Develop the Environmental Services Complex as a secondary Emergency Operations Center | All                               | Goal 1.3                                  | High            | Local                  | Fire Department                 | Completed                     | The complex has been equipped to serve as secondary EOC as needed.   |
| <b>PP-2</b>  | Install backup generator at fire station # 2  | All                               | Goal 1.3                                  | High            | Local                  | Fire Department                 | Completed                     | Generator has been installed.  |

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| <b>Table 6-8: Rocky Mount Mitigation Actions – Ordered by Action #</b> |   |                                   |   |                 |                                   |                          |                               |  |
|--|---|-----------------------------------|---|-----------------|-----------------------------------|--------------------------|-------------------------------|--|
| <b>Action #</b>  | <b>Rocky Mount Actions</b>  | <b>Type(s) of Hazard Targeted</b> | <b>Goal(s) and Objective(s) Addressed</b> | <b>Priority</b> | <b>Funding Sources</b>            | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status</b>  |
| <b>ES-6</b>  | Create pre-set debris removal & debris management contracts   | All except Heat Wave / Drought    | Goal 1.1                                  | High            | Local                             | Public Works             | Completed                     | Three-year contract awarded in 2014, with an annual examination of performance.                    |
| <b>ES-7</b>  | Create a debris management monitoring contract  | All except Heat Wave / Drought    | Goal 1.1                                  | High            | Local                             | Public Works             | Completed                     | Annual examination of debris management performance as part of three-year contract issued in 2014. |
| <b>ES-8</b>  | Contract with NCDOT for Debris, snow and ice removal on certain State maintained roads  | Freezes / Winter Storms           | Goals 1.1 & 1.3                           | High            | Local, NCDOT                      | Public Works             | Completed                     | Contract with NCDOT is in place.   |
| <b>P-5</b>   | Cooling Stations and fan distribution   | Heat Wave                         | Goal 1.1                                  | Low             | Local                             | Staff                    | Completed                     | Rocky Mount Senior Center is publicized as a cooling station.                                      |
| <b>PP-3</b>  | Conduct an internal review and prepare a report regarding critical facilities that:<br><ul style="list-style-type: none"> <li>✓ Evaluates all critical facilities for possible improvements to reduce their exposure to natural hazards</li> <li>✓ Includes findings that will be presented to the elected governing Board</li> </ul> | All                               | Goal 4                                    | High            | State/ federal grant funds, local | TA/TC/TM                 | 2018                          | New Action   |

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| <b>Table 6-8: Rocky Mount Mitigation Actions – Ordered by Action #</b>   |  |                                   |   |                 |                        |                          |                               |               |
|--|--|-----------------------------------|---|-----------------|------------------------|--------------------------|-------------------------------|---------------|
| <b>Action #</b>  | <b>Rocky Mount Actions</b>   | <b>Type(s) of Hazard Targeted</b> | <b>Goal(s) and Objective(s) Addressed</b> | <b>Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status</b> |
| P-6  | Develop a Continuity of Operations Plan  | All                               | Goal 1.3                                  | High            | Local                  | Fire Department          | 2016                          | New Action    |
| ES-9   | Encourage or assist residents through information to sign up for "Code Red" and/or the County's emergency warning notification systems | All                               | Goals 1.1 & 1.3                           | Moderate        | Local, state, federal  | Mayor/TA                 | 2019                          | New Action    |
| <b>Abbreviations: PB - Planning Board, TB or TC -Town Commissioners (Board), TM -Town Manager, TA -Town Administration, ZA -Zoning Administrator, and EM - Emergency Management, Coop Extension - County Cooperative Extension Service, NC DOT - NC Department of Transportation, E-911 - Emergency Phone System</b> |  |                                   |   |                 |                        |                          |                               |               |

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| <b>Table 6-9: Speed Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |  |                          |                               |   |
|--|---|----------------------------|--|--------------------------|--|--------------------------|-------------------------------|---|
| <b>Action #</b>  | <b>Speed Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>                   | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>  |
| <b>PP-1</b>  | NC Building codes to regulate tie downs   | All                        | Goal 1&2                                     | Moderate                 | Local                                      | TC                       | 2010                          | Complete  |
| <b>P-1</b>   | Maintain ordinances and Codes   | All                        | All Goal                                     | Moderate                 | Local                                      | TC                       | 2012                          | Complete  |
| <b>ES-1</b>  | Improving County bridges and roads drainage   | All                        | Goals 1&2                                    | High                     | State/<br>local                            | TC                       | Previous Plan                 | Continuing -TA to monitor progress by 2016 and report to Town Board |
| <b>P-2</b>   | Emergency Animal Shelter  | All                        | Goal 3                                       | Moderate                 | Local                                      | TC                       | 2017                          | New Action  |
| <b>P-3</b>   | Establish a three or more member local Hazard Mitigation Committee  | All                        | Goal 1.1                                     | Moderate                 | Local                                      | Mayor/<br>TB/TA          | 2016                          | New Action  |
| <b>PP-2</b>  | Obtain a generator(s) to provide emergency power for critical town facilities                                   | All                        | Goal 4.0                                     | High                     | State/<br>federal<br>grant funds,<br>Local | TA                       | 2016                          | New Action  |
| <b>ES-2</b>  | Encourage or assist residents through information to sign up for County's emergency warning notification system | All                        | Goals 1.1 &<br>1.3                           | Moderate                 | Local, state,<br>federal                   | TA/mayor                 | 2018                          | New Action  |
| <b>PE-1</b>  | Obtain FEMA handouts & make available for residents at Town Hall  | All                        | Goal 1.0                                     | Moderate                 | FEMA, local                                | TC                       | 2017                          | New Action  |

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| <b>Table 6-9: Speed Mitigation Actions – Ordered by Action #</b>   |                      |                            |  |                          |                          |                          |                               |                      |
|--|----------------------|----------------------------|--|--------------------------|--------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Speed Actions</b> | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
|  |                      |                            |  |                          |                          |                          |                               |                      |
|  |                      |                            |  |                          |                          |                          |                               |                      |
|  |                      |                            |  |                          |                          |                          |                               |                      |
| <i>Abbreviations: PB - Planning Board, TB or TC -Town Commissioners (Board), TM -Town Manager, TA -Town Administration, ZA -Zoning Administrator, and EM - Emergency Management, Coop Extension - County Cooperative Extension Service, NC DOT - NC Department of Transportation, E-911 - Emergency Phone System</i> |                      |                            |  |                          |                          |                          |                               |                      |

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| <b>Table 6-10: Tarboro Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                        |  |  |   |
|---|---|----------------------------|--|--------------------------|------------------------|--|--|---|
| <b>Action #</b>   | <b>Tarboro Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b>   | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b>                         | <b>Target Completion Date</b>  | <b>Status Update</b>  |
| <b>P-1</b>  | Obtain CRS through FEMA   | Flood                      | Reduce impact of future disasters by regulating development in know high hazard areas (new Goal 3)   | Moderate                 | Local                  | Planning   | Complete   | CRS certification obtained  |
| <b>P-2</b>  | Adopt Tar-Pamlico Stormwater Program  | Flood                      | Reduce impact of future disasters by regulating development in know high hazard areas; Reduce risk of loss of life and injury (new Goal 3)               | High                     | Local                  | Planning   | Complete   | Program has been adopted  |
| <b>P-3</b>  | Using codes, plans, ordinances and certifications to regulate development in hazard areas | All                        | Reduce impact of future disasters, reduce risk of loss of life and injury, provide education to citizens to protect themselves and families (new Goal 1) | Moderate                 | Local                  | Planning, Public Works, Fire, Police & Utilities | Continuing (Evaluate progress & finalize evaluation report findings by 2017) | Staff is evaluating and prioritizing current codes, plans, ordinances and certifications to see how to better reduce impacts during natural hazard events |

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| <b>Table 6-10: Tarboro Mitigation Actions – Ordered by Action #</b> |  |                                |  |                          |                        |   |                               |   |
|---|--|--------------------------------|--|--------------------------|------------------------|---|-------------------------------|---|
| <b>Action #</b>   | <b>Tarboro Actions</b>   | <b>Hazard(s) Addressed</b>     | <b>Goal(s) and/or Objective(s) Addressed</b>   | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b>                    | <b>Target Completion Date</b> | <b>Status Update</b>  |
| <b>P-4</b>  | Enforce Minimum Housing Code   | Extreme Temperatures           | Reduce impact of future disasters, reduce risk of loss of life and injury, provide education to citizens to protect themselves and families (new Goal 3) | Moderate                 | Local                  | Planning & Inspections                      | Delete                        | Progress and benchmarks cannot accurately be tracked as this action is continuous   |
| <b>P-5</b>  | Work with NCDOT to improve culverts/drainage on NCDOT roads in the Town limits                   | Flood                          | Reduce impact of future disasters, reduce risk of loss of life and injury (new Goal 4)   | Low                      | State                  | NCDOT, Planning & Public Works              | Complete                      | Measures have been taken to ensure culverts and drainage deficiency have been corrected   |
| <b>P-6</b>  | Open emergency animal shelter during times of hazard   | All                            | Reduce impact of future disasters, provide education to citizens (new Goal 4)  | Moderate                 | Local                  | Town Animal Control & County Animal Control | Complete                      | During times of natural hazards emergency animal shelters are open to provide a safe place for citizens animals   |
| <b>PE-1</b>   | Place information concerning the Town stormwater management plan and regulations on Town website | Flood<br>Erosion<br>Subsidence | Provide education to citizens that will empower them to protect themselves a families in natural disasters (new Goal 1)                                  | Moderate                 | Local                  | Planning                                    | 2016                          | New Action: Modified item from previous plan and we will work towards compiling all necessary information to provide our citizens the ability to easily |

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| <b>Table 6-10: Tarboro Mitigation Actions – Ordered by Action #</b> |   |                            |   |                          |                        |   |                               |  |
|---|---|----------------------------|---|--------------------------|------------------------|---|-------------------------------|--|
| <b>Action #</b>   | <b>Tarboro Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b>  | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b>                      | <b>Target Completion Date</b> | <b>Status Update</b>   |
|   |   |                            |   |                          |                        |   |                               | access stormwater information via the town's website   |
| <b>ES-1</b>   | Promote the Code Red System provided by Edgecombe County to citizens of the Town of Tarboro through handouts in the utility bills | All                        | Reduce risk of loss of life, injury and impact of future hazards; Provide education to citizens to protect themselves and their families (new Goal 1) | High                     | Local                  | Planning, Fire & Police                       | 2017                          | New Action: Modified item from previous plan; many citizens have not taken advantage of this free notification system and we will work to provide information to our citizens to ensure they know the service is available for their use |
| <b>PE-2</b>   | Place information concerning cooling stations and the elderly fan distribution program on the Town Website                        | Extreme Temperatures       | Reduce risk of loss of life, injury and impact of future hazards; Provide education to citizens to protect themselves and their families (new Goal 1) | Moderate                 | Local State            | Planning, Emergency Services & Dept. on Aging | 2018                          | New Action: Modified item from previous plan; Updating information available to citizens to place on website   |
| <b>NR-1</b>   | Work to develop a local erosion and sedimentation control program   | All                        | Reduce risk of impact of future hazards; Provide education to citizens (new Goal  | Moderate                 | Local                  | Planning & Inspections                        | 2017                          | New Action: All erosion and sedimentation control review and permits are through the   |

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| <b>Table 6-10: Tarboro Mitigation Actions – Ordered by Action #</b>  |   |                            |  |                          |                        |   |                               |   |
|--|---|----------------------------|--|--------------------------|------------------------|---|-------------------------------|---|
| <b>Action #</b>  | <b>Tarboro Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b>   | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b>                          | <b>Target Completion Date</b> | <b>Status Update</b>  |
|  |   |                            | 3)   |                          |                        |   |                               | state; To better manage, the State has given authority to local governments to implement their own programs; We will look into a local program in Tarboro |
| <b>S-1</b>   | Inspect storm sewer system to see if functioning properly and make improvements as necessary            | Flood                      | Reduce impact of future disasters, reduce risk of loss of life and injury, provide education to citizens to protect themselves and families (Goal 4) | High                     | Local                  | Public Works                                      | 2018                          | New action  |
| <b>ES-2</b>  | Coordinate a emergency response training/exercise with the County, State and Federal Emergency Agencies | All                        | Reduce impact of future disasters, reduce risk of loss of life and injury; Provide education to citizens to protect themselves and families (Goal 2) | Moderate                 | State<br>Federal       | Fire<br>Police<br>County<br>Emergency<br>Services | 2019                          | New Action:<br>Modification of existing action; Will work to organize training session with appropriate agencies  |
| <b>Abbreviations: PB - Planning Board, TB or TC -Town Commissioners (Board), TM -Town Manager, TA -Town Administration, ZA -Zoning Administrator, and EM - Emergency Management, Coop Extension - County Cooperative Extension Service, NC DOT - NC Department of Transportation, E-911 - Emergency Phone System</b> |   |                            |  |                          |                        |   |                               |   |

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| <b>Table 6-11: Whitakers Mitigation Actions – Ordered by Action #</b> |  |                            |                                     |                          |                        |                          |                               |   |
|---|--|----------------------------|-------------------------------------|--------------------------|------------------------|--------------------------|-------------------------------|---|
| <b>Action #</b>   | <b>Whitakers Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goals/Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>  |
| <b>P-1</b>  | Update zoning and subdivision regulations<br><i>Adopted December 2005</i>  | Flood                      | new Goal 3                          | Moderate                 | Local                  | PB & TB                  | 2005                          | Exiting Current Action Step previously completed and will be deleted  |
| <b>P-2</b>  | Continue to utilize Capital Improvement Program incorporate stormwater needs   | All                        | new Goal 3, 1.1                     | Moderate                 | Local                  | TB                       | 2012                          | Completed: <i>Town upgraded to 10" water lines from the Bloomer Hill community to the Town to improve fire protection; and installed 17 new fire hydrants in town, replacing 50 year old equipment.</i> |
| <b>P-3</b>  | Work with NCDOT & RPO to identify long term solutions to localized flooding on US 301., with implementation strategy | Flood                      | Goal 4, 1.1                         | High                     | Local, NCDOT           | RPO, TB & NCDOT          | 2016                          | Identified solution with NCDOT, but they have not yet implemented it  |

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| <b>Table 6-11: Whitakers Mitigation Actions – Ordered by Action #</b> |  |                            |                                     |                          |                                   |                          |                               |   |
|---|--|----------------------------|-------------------------------------|--------------------------|-----------------------------------|--------------------------|-------------------------------|---|
| <b>Action #</b>   | <b>Whitakers Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goals/Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b>            | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>  |
| <b>ES-1</b>   | Prepare plan for re-routing traffic in town when flooding occurs (US 301 and Edgecombe sites)  | Flood                      | Goal 3, 1.1                         | Moderate                 | Local                             | TB & NCDOT               | 2013                          | Completed (re-routing plan is in place)   |
| <b>PP-1</b>   | Obtain a generator to provide emergency power for Town Hall/Police Station (critical facilities) which was built for a quick connect | All                        | Goal 4                              | High                     | State/ federal grant funds, local | TA                       | 2017                          | New Action  |
| <b>ES-2</b>   | Encourage or assist residents through information to sign up for County's emergency warning notification system                      | All                        | Goal 1                              | Moderate                 | Local, state, federal             | TA/mayor                 | 2019                          | New Action  |
| <b>PE-1 (was PI-1)</b>  | Coordinate with Nash and Edgecombe Counties to maintain digital zoning and land use maps   | All                        | 1.1, 1.2                            | Moderate                 | Counties                          | Counties, Town           | 2016                          | Town has prepared digital maps, and expects to coordinate with counties by 2016 |
| <b>PE-2 (was PI-2)</b>  | Update and correct address maps for emergency notifications to the   | All                        | 1.1, 1.2                            | Moderate                 | Local                             | TB, NCDOT                | n/a                           | Delete (the 2 counties are now responsible for addressing within Town)          |

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| <b>Table 6-11: Whitakers Mitigation Actions – Ordered by Action #</b>  |   |                            |                                     |                          |                        |                          |                               |                      |
|--|---|----------------------------|-------------------------------------|--------------------------|------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Whitakers Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goals/Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
|  | public  |                            |                                     |                          |                        |                          |                               |                      |
| <b>PE-3</b>  | Obtain FEMA handouts on all hazards & make available for residents at Town Hall | All                        | Goal 1                              | Moderate                 | FEMA, local            | TA                       | 2018                          | New Action           |
| <i>Abbreviations: PB - Planning Board, TB or TC -Town Commissioners (Board), TM -Town Manager, TA -Town Administration, ZA -Zoning Administrator, and EM - Emergency Management, Coop Extension - County Cooperative Extension Service, NC DOT - NC Department of Transportation, E-911 - Emergency Phone System</i> |   |                            |                                     |                          |                        |                          |                               |                      |

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| <b>Table 6-12: Wilson County Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                        |                          |                                |  |
|---|---|----------------------------|--|--------------------------|------------------------|--------------------------|--------------------------------|--|
| <b>Action #</b>   | <b>Wilson County Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b>  | <b>Status Update</b>   |
| <b>Preventive Actions</b>   |   |                            |  |                          |                        |                          |                                |  |
| <b>P-1</b>  | Revise/update regulatory floodplain maps, (New DFIRMS scheduled to be effective on November 3, 2014.)   | Flood                      | New Goals 2 & 3                              | High                     | NC DENR                | P&I                      | Complete and maps adopted 2013 | Completed: New floodplain map adopted 4/16/2013  |
| <b>P-2</b>  | Evaluate benefits of participation in the Community Rating System (CRS).  | Flood                      | New Goal 2.2                                 | Moderate                 | Local                  | P&I                      | 2010-2011                      | This action will be deleted  |
| <b>P-3</b>  | Add drainage as an issue to be discussed during Technical Review Committee review of proposed development plans.  | Flood                      | New Goal 3                                   | High                     | Local                  | P&I                      | 2020                           | This action is deferred to 2020, to allow time to create a TRC                                 |
| <b>P-4</b>  | Continue to support the NC Sedimentation Control Commission efforts to ensure erosion and sedimentation control measures are properly installed and maintained during construction. | Flood                      | New Goal 3                                   | High                     | Local & state          | P&I                      | N/A                            | This action will be deleted and replaced with action # <b>NR-1</b>                             |
| <b>NR-1</b>   | Adopt a policy to not extend public services and utilities into flood hazard or other environmentally sensitive areas to discourage growth.   | Flood                      | New Goal 3                                   | Moderate                 | Local                  | P&I                      | 2009                           | This action will be deleted because it has been completed with the adoption of the UDO in 2010 |

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| <b>Table 6-12: Wilson County Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                        |                          |                               |                      |
|---|---|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>   | <b>Wilson County Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
| <b>P-5</b>  | In cooperation with NCDOT and the Upper Coastal Plain and Rural Planning Organization to develop a Comprehensive Transportation plan for the County and municipalities. | All                        | New Goal 3                                   | Moderate                 | Local                  | P&I                      | 2012                          | Completed in 5/2012  |

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**Table 6-12: Wilson County Mitigation Actions – Ordered by Action #**

| Action # | Wilson County Actions   | Hazard(s) Addressed | Goal(s) and/or Objective(s) Addressed | Relative Priority | Funding Sources | Responsible Party | Target Completion Date | Status Update   |
|----------|---|---------------------|---------------------------------------|-------------------|-----------------|-------------------|------------------------|---|
| P-6      | <p>After the Growth Plan has been updated:</p> <ul style="list-style-type: none"> <li>➤ Undertake a major revision of land use ordinances to ensure compliance with plan policies;</li> <li>➤ In revising the ordinances, consider adopting a flood hazard overlay zone to ensure that inappropriate development is adequately controlled;</li> <li>➤ Revise the Manufactured Home Park ordinance to include specific requirement to delineate floodplains and approximate boundary of wetlands on preliminary and final plats for new or expanded mobile home parks;</li> <li>➤ Revise subdivision ordinance plat requirements to include specific requirement that flood hazard boundaries and potential wetlands be shown on sketch design plans, preliminary plats and final plats;</li> <li>➤ Revise ordinances to allow for and encourage clustering of lots in all residential zoning districts not just within protected watersheds.</li> <li>➤ Review and update as necessary the Flood Damage Prevention Ordinance to ensure maximum protection from flood hazard events (CRS 430).</li> <li>➤ Consider raising the minimum finished floor elevation to more than 2' above base flood elevation (BFE) to provide more flood protection for new or substantially improved structures. (CRS 430)</li> </ul> | All                 | New Goal 3                            | Moderate          | Local           | P&I               | 2009                   | This Action Step will be deleted because it was completed in 1/2010 |

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| <b>Table 6-12: Wilson County Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                        |                          |                               |   |
|---|---|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|---|
| <b>Action #</b>   | <b>Wilson County Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>  |
| <b>P-7</b>  | Inventory existing lots and structures within flood hazard areas to establish baseline data regarding current state of development within flood hazard areas.   | Flood                      | New Goal 2                                   | Moderate                 | Local                  | P&I                      | 2020                          | Continuing Action Step: This action is deferred until 2020, due to the lack of staff and funding  |
| <b>P-8</b>  | Acquire destroyed or substantially damaged properties and relocate households (voluntary program) (CRS 520/420).  | Flood                      | New Goals 3 & 4                              | High                     | FEMA<br>NCEM           | P&I                      | As needed                     | As FEMA make funds available after an event. This action will be deleted as a “Prevention” action and included as a Property Protection action( <b>PP-1</b> ) |
| <b>P-9</b>  | <p><b>Building Inspections:</b></p> <ul style="list-style-type: none"> <li>➤ Continue to require and maintain FEMA elevation certificates for all permits for new buildings or improvements to buildings on lots including any portion of the 100- year floodplain (CRS 310).</li> <li>➤ Count building improvements cumulatively (maintain permit history so when cumulate improvements equal 50% of building value,(substantial improvement) building must be brought up to flood protection standards for new construction) with a goal to eventually have all flood hazard goal to eventually have all flood hazard endangered buildings brought up to flood protection standards (CRS 430).</li> </ul> | Flood                      | New Goals 3 & 4                              | High                     | Local                  | P&I                      | N/A                           | This Action Step, although it continues, will be deleted because it is part of our Standard Operating Procedures and is considered completed.                 |

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| <b>Table 6-12: Wilson County Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                        |                            |   |  |
|---|---|----------------------------|--|--------------------------|------------------------|----------------------------|---|--|
| <b>Action #</b>   | <b>Wilson County Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b>   | <b>Target Completion Date</b>                 | <b>Status Update</b>   |
|   | <ul style="list-style-type: none"> <li>➤ Continue to maintain elevation certificates on all new construction and substantial improvements; make available to the public (CRS 310).</li> <li>➤ Ensure that manufactured homes are installed and secured property.</li> <li>➤ Ensure doorframes are securely anchored; especially double doors that can be very dangerous in high winds.</li> </ul> |                            |  |                          |                        |                            |   |  |
| <b>P-10</b>   | Establish coordinating committee to ensure that all parties responsible for stormwater management communicate to ensure maximum cooperation in developing and maintaining stormwater drainage systems within the County   | Flood                      | Goal 1                                       | Moderate                 | Local                  | P&I                        | 2020  | New Action Step: This action relative priority has been changed from high to moderate and target completion date is changed to 2020. |
| <b>P-11</b>   | Establish and maintain coordinated debris inspection program with debris removal programs to correct problem sites.   | Flood                      | Goal 1.1                                     | Moderate                 | Local                  | P&I/<br>NRCS/<br>EM/<br>SW | 2020  | Continuing Action Step: This Action Step has been deferred to 2020 because of lack of staff and funding.                             |
| <b>P-12</b>   | Emergency water connects have been put in place that can connect Wilson with Rocky Mount, Kenly, Edgecombe County, Johnston County, Wayne County.   | Droughts                   | Goal 2                                       | Moderate                 | Local                  | P&I<br>Water               | Partially Completed in 2007, continue to 2020 | Continuing Action Step: Wayne county emergency water connection is yet to be installed. Target date to be completed is 2020.         |

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| <b>Table 6-12: Wilson County Mitigation Actions – Ordered by Action #</b> |  |                            |  |                          |                        |                          |                               |  |
|---|--|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|--|
| <b>Action #</b>   | <b>Wilson County Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>   |
| <b>P-13</b>   | Include provisions within the UDO Wilson County will be adopting a Conservation Overlay District which will require a Minimum 40,000 (forty-thousand) square foot lot size. This District will cover much of the western part of Wilson County around Buckhorn Reservoir. Requiring larger lots in this area will reduce the impact on flood prone areas.) | Floods                     | Goal 3                                       | High                     | Local                  | P&I                      | 2009                          | This action will be deleted, it was completed with the adoption of the UDO in 1/2010.              |
| <b>NR-2</b>   | Require all development that involve the disturbance of more than one acre of land to receive a sedimentation/ erosion control permit from NCDENR  | Flood                      | Goal 3                                       | High                     | Local                  | P&I/<br>DENR             | 2015                          | New Action Step  |
| <b>P-14</b>   | Require all new developments with new roads and mobile home parks to develop an evacuation plan for all residents.   | Flood                      | Goal 3                                       | High                     | Local                  | P                        | 2013                          | New Action Step:<br>This action is included in the Flood Protection Ordinance adopted on 3/5/2013. |
| <b>Property Protection</b>  |  |                            |  |                          |                        |                          |                               |  |
| <b>PP-1</b>   | Acquire destroyed or substantially damaged properties and relocate households (voluntary program) (CRS 520/420).   | Flood                      | Goal 4                                       | High                     | FEMA<br>NCEM           | P&I                      | As needed                     | New Action Step:<br>As FEMA make funds available after an event                                    |

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| <b>Table 6-12: Wilson County Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                        |  |                               |   |
|---|---|----------------------------|--|--------------------------|------------------------|--|-------------------------------|---|
| <b>Action #</b>   | <b>Wilson County Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b>                 | <b>Target Completion Date</b> | <b>Status Update</b>  |
| <b>P-15</b>   | Establish the Regulatory Flood Protection Elevation at BFE plus two feet  | Flood                      | Goal 3                                       | High                     | Local                  | P  | Completed                     | New Action Step:<br>This action is included in the Flood Protection Ordinance adopted on 3/5/2013                     |
| <b><i>Natural Resource Protection</i></b>                                 |   |                            |  |                          |                        |  |                               |   |
| <b>NR-2</b>   | Require all development that involve the disturbance of more than one acre of land to receive a permit from NCDENR                                      | Flood                      | Goal 3                                       | High                     | Local                  | P&I/<br>NCDENR                           | 2015                          | New Action Step   |
| <b><i>Emergency Services Protection</i></b>                               |   |                            |  |                          |                        |  |                               |   |
| <b>ES-1</b>   | Ensure adequate evacuation time in case of major hazard event   | All                        | Goals 1.1 & 1.3                              | High                     | Local                  | EM                                       | 2004-2005                     | This action is considered completed and will be deleted. This action will be covered under <b>ES-3</b> of this table. |
| <b>PP-2</b>   | Establish program for evaluation and improvements of critical services and facilities.  | All                        | Goal 1.3                                     | High                     | Local                  | EM/<br>NCDOT/<br>Utilities/<br>Hospitals | 2004-2005                     | This action has been completed.   |
| <b>PP-3</b>   | Evaluate flood or access problems for critical facilities; develop recommendations for protecting critical facilities. Identify alternate command posts | All                        | Goal 1.3                                     | High                     | Local                  | EM                                       | 2004-2005                     | This action has been completed.   |

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| <b>Table 6-12: Wilson County Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                        |                          |                               |   |
|---|---|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|---|
| <b>Action #</b>   | <b>Wilson County Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>  |
| <b>P-16</b>   | Improve Hazard Warning and Response Plan – warning and evacuating critical facilities, getting persons out of flood prone or isolated areas, controlling vehicles on evacuation routes, evacuation of hazard materials (CRS 610). | All                        | Goal 1.3                                     | High                     | Local                  | EM                       | 2004-2005                     | This action has been completed.   |
| <b>ES-2</b>   | Water line expansion Phase I and Phase II of the Wilson County water system with fire hydrants being placed in the rural areas water is much more accessible when needed to fight a wild fire.                                    | All                        | Goal 2                                       | Moderate                 | Local                  | EM & Water Dept.         | N/A                           | This action will be deleted and be replaced by <b>ES-4</b> of this table.                                   |
| <b>ES-3</b>   | Evaluate evacuation routes considering road upgrades and new road construction  | All                        | Goal 2                                       | High                     | Local                  | EM & P                   | 2020                          | New Action Step   |
| <b>ES-4</b>   | Require fire protection equipment to be installed in new subdivisions as determined by the County Fire Marshal and fire service agency.   | Wild Fire                  | Goal 2                                       | High                     | Local                  | P&I<br>EM                | 2016                          | New Action Step   |
| <b>PE-1</b>   | Advise/assist property owners in retrofitting homes and businesses. (Retrofitting is defined as any modification to an existing building or yard to protect the property from flood damage.)                                      | Flood                      | 1.1<br>1.2                                   | High                     | Local                  | P&I                      | Ongoing                       | Retrofitting information is provided when building permits are applied for to develop in flood prone areas. |

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**Table 6-12: Wilson County Mitigation Actions – Ordered by Action #**

| <b>Action #</b>   | <b>Wilson County Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>  |
|---|--|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|---|
| <b>PE-2</b>   | Establish and maintain information on retrofitting techniques at the Planning and Inspections Department and also at the public library. Publicize through citizen news bulletins or newsletters. (CRS 330/350/360). | Flood                      | Goals 1.1 & 1.2                              | High                     | Local                  | P&I                      | 2020                          | Continuing Action Step: This action will be extended to 2020 to allow time for additional funding.              |
| <b>P-17</b>   | Update flood maps to reflect new subdivisions, changes in corporate limits, and all new FIRM data; publicize availability of maps and keep record of service (CRS 320).  | Flood                      | 1.1<br>1.2<br>2.3                            | High                     | Local                  | P/GIS                    | 2016                          | Continuing Action Step: Extended to 2016 to allow time to receive support documentation of planned annexations. |
| <b>PE-3</b>   | Add information on hazard awareness to the County website and link with town websites as available   | All                        | Goals 1.1 & 1.2                              | High                     | Local                  | P                        | 2005-2006                     | Completed: The 2010 Wilson County Hazard Mitigation Plan is on the County's web page.                           |
| <b>P-18</b>   | Establish a three or more member local HM Committee with private sector participation  | All                        | Goal 1.1                                     | Moderate                 | Local                  | CM/CC                    | 2017                          | New Action Step   |
| <b>ES-5</b>   | Encourage or assist residents through information to sign up for County's emergency notifications  | All                        | Goals 1.1 & 1.3                              | Moderate                 | Local, State, Federal  | Fire Marshall/CA         | 2019                          | New Action Step   |
| <p><b>Abbreviations: PB - Planning Board, CC - County Commissioners, CM -County Manager, CA - County Administration, ZA – Zoning Administrator, and EM - Emergency Management, P - Planning , I - Inspections, NCDENR- NC Department of Environment &amp; Natural Resources, GIS - Geographic Information System, NRCS - United States Dept. of Agriculture Natural Resources Conservation Resources, SW - County Solid Waste Dept.</b></p> |  |                            |  |                          |                        |                          |                               |   |

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| <b>Table 6-13: Black Creek Mitigation Actions - Ordered by Action #</b> |   |                            |  |                          |                                 |                          |                               |                         |
|---|---|----------------------------|--|--------------------------|---------------------------------|--------------------------|-------------------------------|-------------------------|
| <b>Action #</b>   | <b>Black Creek Action</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>        | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>    |
| <b>PP-1</b>   | Update Water Treatment System for Well #5   | All                        | New Goal 2                                   | Moderate                 | State/federal                   | TS                       | 2010                          | Completed to be deleted |
| <b>PP-2</b>   | Generator for Town Hall   | All                        | New Goal 4                                   | High                     | State/Federal/local             | TS                       | 2010                          | Completed to be deleted |
| <b>NR-3</b>   | Storm Sewer: Analyze potential point sources for infrastructure leaks within sewer system   | Flood                      | New Goal 4                                   | Moderate                 | Local                           | TB                       | 2010                          | Completed to be deleted |
| <b>P-1</b>  | Big Siren for Early Warning   | All                        | New Goal 1                                   | High                     | Local                           | TB/TA                    |                               | Completed to be deleted |
| <b>P-2</b>  | Establish or continue a three or more member local HM Committee with private sector participation to:   | All                        | Goal 1                                       | Moderate                 | Local                           | Mayor/TB/TA              | 2017                          | New Action Step         |
| <b>PP-3</b>   | Conduct an internal review and prepare a Report that:<br><ul style="list-style-type: none"> <li>✓ Evaluates all critical facilities for possible improvements to reduce their exposure to natural hazards</li> <li>✓ Includes findings that will be presented in a report to the elected governing Board</li> </ul> | All                        | Goal 4                                       | High                     | State/federal grant funds/local | TA/TB                    | 2016                          | New Action Step         |
| <b>ES-1</b>   | Encourage or assist residents through information to sign   | All                        | Goal 1                                       | Moderate                 | Local, state/                   | TA/mayor                 | 2019                          | New Action Step         |

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| <b>Table 6-13: Black Creek Mitigation Actions - Ordered by Action #</b>   |   |                            |  |                          |                          |                          |                               |                      |
|---|---|----------------------------|--|--------------------------|--------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>   | <b>Black Creek Action</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
|   | up for County's emergency notifications   |                            |  |                          | federal                  |                          |                               |                      |
| <b>PE-1</b>   | Obtain FEMA Hazard Mitigation related handouts & make available for residents at Town Hall and/or as inserts in Utility Bills | All                        | Goal 1                                       | Moderate                 | FEMA/<br>local           | TA/<br>Town Clerk        | 2018                          | New Action Step      |
| <i>Abbreviations: PB - Planning Board, TB or TC -Town Commissioners (Board), TM -Town Manager, TA -Town Administration (including Town Clerk), TS - Town Superintendent, ZA -Zoning Administrator, and EM - Emergency Management, Coop Extension - County Cooperative Extension Service, NC DOT - NC Department of Transportation, E-911 - Emergency Phone System</i> |   |                            |  |                          |                          |                          |                               |                      |

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**Table 6-14: Elm City Mitigation Actions – Ordered by Action #**

| <b>Action #</b>               | <b>Elm City Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>  | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>   |
|-------------------------------|---|----------------------------|--|--------------------------|---------------------------|--------------------------|-------------------------------|--|
| <b>P-1</b>                    | Establish a three or more member local Hazard Mitigation Committee  | All                        | Goal 1.1                                     | Moderate                 | Local                     | Mayor<br>TB              | 2017                          | New Action   |
| <b>P-2<br/>(Previous P-3)</b> | Adopt a revised Flood Damage Prevention Ordinance and revise accordingly as new measures are adopted.     | Flood                      | Goal 1.2                                     | High                     | Local                     | PB<br>TB                 | 2009-2010                     | Complete   |
| <b>P-3<br/>(Previous P-4)</b> | Purchase a portable generator that can be used at any of the Town's four wastewater lift stations         | All                        | Goal 1.1                                     | Moderate                 | Local                     | PU                       | 2009                          | Complete 2014  |
| <b>P-4<br/>(Previous P-5)</b> | Purchase and install three more generators, so each wastewater lift station will have its own generator   | All                        | Goal 1.1                                     | Moderate                 | Local                     | PU                       | 2010-2013                     | Complete 2014  |
| <b>P-5<br/>(Previous P-6)</b> | Continue to pursue funding in order to assist in mitigating all hazards                                   | All                        | Goal 1.1                                     | Moderate                 | Local<br>State<br>Federal | TB                       | 2019                          | Continuing, previously not completed because Town does not have any repetitive loss properties |
| <b>NR-1</b>                   | The Town will review and update policies on water shortage to be more prepared in the event of a drought. | All                        | Goal 1.2                                     | Moderate                 | Local                     | TA<br>TB<br>PU<br>TC     | 2009-2010                     | Complete   |

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| <b>Table 6-14: Elm City Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |  |                          |                               |   |
|--|---|----------------------------|--|--------------------------|--|--------------------------|-------------------------------|---|
| <b>Action #</b>  | <b>Elm City Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>                   | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>  |
| <b>PE-1</b><br>(Previous PI-1)                                       | Work in conjunction with Wilson County to produce and maintain digital maps                                       | All                        | Goal 2.3                                     | Moderate                 | County                                     | Wilson County            | 2015                          | Continuing, digital maps previously produced with COG assistance; looking to update them with COG or County this year |
| <b>PP-1</b>  | Obtain a generator(s) to provide emergency power for critical town facilities<br><i>(Generator for Town Hall)</i> | All                        | Goal 4.0                                     | High                     | State/<br>Federal<br>Grant funds,<br>Local | TA                       | 2016                          | New Action  |
| <b>ES-1</b>  | Encourage or assist residents through information to sign up for County's emergency warning notification system   | All                        | Goals 1.1 & 1.3                              | Moderate                 | Local, State,<br>Federal                   | TA<br>Mayor<br>TB        | 2019                          | New Action  |
| <b>PE-2</b>  | Obtain FEMA handouts & make available for residents at Town Hall  | All                        | Goal 1.0                                     | Moderate                 | FEMA, Local                                | TA<br>TC                 | 2018                          | New Action  |
|  |   |                            |  |                          |  |                          |                               |   |
|  |   |                            |  |                          |  |                          |                               |   |
|  |   |                            |  |                          |  |                          |                               |   |
|  |   |                            |  |                          |  |                          |                               |   |

*Abbreviations: PB - Planning Board, TB -Town Commissioners (Board), TM -Town Manager, TA -Town Administration, TC - Town Clerk, PU - Public Utilities, ZA -Zoning Administrator, and EM - Emergency Management, Coop Extension - County Cooperative Extension Service, NC DOT - NC Department of Transportation, E-911 - Emergency Phone System*

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**Table 6-15: Lucama Mitigation Actions – Ordered by Action #**

| <b>Action #</b>      | <b>Lucama Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
|----------------------|---|----------------------------|--|--------------------------|--------------------------|--------------------------|-------------------------------|----------------------|
| <b>Previous P-1</b>  | Adopt a revised Flood Damage Prevention Ordinance and revise accordingly as new measures are adopted.                                 | Flood                      | Goal 3.1                                     | High                     | Local                    | PB<br>TB                 | Complete 2004                 | Completed            |
| <b>Previous P-3</b>  | Electric Emergency Load Reduction Plan and Procedures – 2008  | All                        |  |                          | Local                    | PU                       | Complete 2008                 | Completed            |
| <b>Previous ES-1</b> | The Town of Lucama will continue to review and revise as necessary the Emergency Response Plan.                                       | All                        | Goals 1.1 & 1.3                              | Low                      | Local                    | TB                       | Complete 2012                 | Completed            |
| <b>Previous ES-2</b> | The Town of Lucama will consider how to improve security around public water wells, pumps stations, and the water treatment facility. | All                        | Goal 1.1                                     | High                     | Local                    | PU                       | 2013-2014                     | Completed            |
| <b>Previous PI-1</b> | Work in conjunction with Wilson County to produce and maintain digital maps, including revisions to flood maps                        | All                        | Goal 1.1                                     | Moderate                 | Local<br>County          | TB<br>Wilson<br>County   | 2014                          | Completed            |

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**Table 6-15: Lucama Mitigation Actions – Ordered by Action #**

| <b>Action #</b> | <b>Lucama Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>                   | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
|-----------------|---|----------------------------|--|--------------------------|--|--------------------------|-------------------------------|----------------------|
| <b>P-2</b>      | Establish a three or more member local Hazard Mitigation Advisory Committee   | All                        | Goal 1.1                                     | Moderate                 | Local                                      | Mayor<br>TB              | 2017                          | New Action Step      |
| <b>ES-3</b>     | Encourage or assist residents through information to sign up for County's emergency warning notification system   | All                        | Goals 1.1 & 1.3                              | Medium                   | Local, State, Federal                      | TA<br>Mayor<br>TB        | 2019                          | New Action Step      |
| <b>PE-1</b>     | Obtain FEMA handouts & make available for residents at Town Hall  | All                        | Goal 1.0                                     | Medium                   | FEMA, Local                                | Town Clerk               | 2018                          | New Action Step      |
| <b>PP-1</b>     | Conduct an internal review and prepare a report regarding critical facilities that:<br><ul style="list-style-type: none"> <li>✓ Evaluates all critical facilities for possible improvements to reduce their exposure to natural hazards</li> <li>✓ Includes findings that will be presented to the elected governing Board</li> </ul> | All                        | Goal 4                                       | High                     | State/<br>federal<br>grant funds,<br>local | TA<br>TB<br>TM           | 2018                          | New Action           |

*Abbreviations: PB – Planning Board, TA – Town Administrator, TM – Town Manager, ZA – Zoning Administrator, TB – Town Board or Commissioners, and PU - Public Utilities*

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**Table 6-16: Saratoga Mitigation Actions – Ordered by Action**

| <b>Action #</b>      | <b>Saratoga Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b>   | <b>Target Completion Date</b> | <b>Status Update</b>  |
|----------------------|---|----------------------------|--|--------------------------|------------------------|----------------------------|-------------------------------|---|
| <b>Previous P-1</b>  | Update and amend the Zoning Ordinance (2014).   | All                        | Goal 1.1                                     | Moderate                 | Local                  | PB<br>TB                   | Completed                     |   |
| <b>Previous NR-1</b> | Amend the Water Shortage Response Plan as necessary (adopted July 2010).                          | Drought                    | Goal 1.1                                     | High                     | Local                  | TB                         | Completed                     | To be updated and approved by July 2015.  |
| <b>Previous NR-2</b> | Zoning and Subdivision Regulations to correspond to new flood maps.                               | All                        | Goal 2.1                                     | Moderate                 | Local                  | TA<br>TB                   | Completed                     |   |
| <b>ES-1</b>          | Encourage or assist residents through information to sign up for County's emergency notifications | All                        | Goals 1.1 & 1.3                              | Medium                   | Local, State, Federal  | TA<br>town clerk, or Mayor | 2019                          | New Action Step   |
| <b>P-2</b>           | Establish or continue a three or more member local HM Committee with private sector participation | All                        | Goal 1.1                                     | Medium                   | Local                  | TB                         | 2016                          | New Action Step:<br>Town Council to appoint committee and facilitate annual meetings. |
| <b>PE-1</b>          | Obtain FEMA Hazard Mitigation related   | All                        | Goal 1.0                                     | Medium                   | FEMA, Local            | TA/TB/TC                   | 2018                          | New Action  |

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| <b>Table 6-16: Saratoga Mitigation Actions – Ordered by Action</b> |  |                            |  |                          |                           |                          |                               |  |
|--|--|----------------------------|--|--------------------------|---------------------------|--------------------------|-------------------------------|--|
| <b>Action #</b>  | <b>Saratoga Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b>    | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>   |
|  | handouts & make available for residents at Town Hall and/or as inserts in Utility Bills  |                            |  |                          |                           |                          |                               |  |
| <b>PP-1</b>  | Install emergency back-up generators at the Lift stations in the event of extended power outages                                       | All                        | Goal 1.3                                     | High                     | Local<br>State<br>Federal | TC                       | Feb. 2015                     | Action step continuing - 4 generators are installed at the lift stations - the 5th one is in process   |
| <b>ES-1</b>  | Install alarm systems and telemetry on the water tanks and existing wells  | All                        | Goal 1.3                                     | High                     | Local<br>State<br>Federal | TC                       | Completed                     | These alarm and telemetry systems (plus back-up power generators) were installed at all water facilities as part of a major water system improvements project in |
| <b>PE-2</b>  | Update Town website with accurate information on disaster preparedness, mitigation suggestions, and current conditions for all hazards | All                        | Goal 1.1                                     | High                     | Local                     | TA<br>TC                 | 2015                          | New Action Step: Adding to Website and available at Town Hall.   |

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**Table 6-16: Saratoga Mitigation Actions – Ordered by Action**

| Action # | Saratoga Actions  | Hazard(s) Addressed | Goal(s) and/or Objective(s) Addressed | Relative Priority | Funding Sources                            | Responsible Party | Target Completion Date | Status Update   |
|----------|---|---------------------|---------------------------------------|-------------------|--|-------------------|------------------------|-----------------|
| PP-2     | Conduct an internal review and prepare a report regarding critical facilities that:<br>✓ Evaluates all critical facilities for possible improvements to reduce their exposure to natural hazards<br>✓ Includes findings that will be presented to the elected governing Board | All                 | Goal 4                                | High              | State/<br>federal<br>grant funds,<br>local | TA<br>TB<br>TM    | 2018                   | New Action Step |

*Abbreviations: PB – Planning Board, ZA – Zoning Administrator, and TB or TC – Town Board or Council or Commissioners*

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| Table 6-17: Sharpsburg Mitigation Actions – Ordered by Action # |  |                     |                                       |                   |                   |                   |                        |   |
|---|--|---------------------|---------------------------------------|-------------------|-------------------|-------------------|------------------------|---|
| Action #  | Sharpsburg Actions   | Hazard(s) Addressed | Goal(s) and/or Objective(s) Addressed | Relative Priority | Funding Source(s) | Responsible Party | Target Completion Date | Status Update   |
| Previous P-1  | Review Floodplain Prevention Ordinance and amend as necessary to be compliant with state model ordinance   | Flood               | Goals 1.1 & 3.2                       | High              | Local             | TC                | 2014                   | Complete  |
| Previous P-2  | Develop a Thoroughfare/ Transportation Plan through local Rural Planning Organization. (Sharpsburg participates in the Rural Planning Organization for this region and NCDOT.) | All                 | Goal 1.1                              | Moderate          | Local/ NCDOT      | TC                | 2012                   | Complete  |
| Previous ES-1   | Identify roads having a problem with High water during Hurricane Floyd and place signs on streets stating "Road Subject to Flooding".  | Flood               | Goals 1.1 & 4.1                       | High              | Local/ NCDOT      | PW NCDOT          | 2018                   | <i>Town coordinates with NCDOT for major street detours, etc.; working with NCDOT for ditch maintenance to reduce localized flooding. <u>Not complete</u> due to lack of funding and workload of employees.</i> |

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| <b>Table 6-17: Sharpsburg Mitigation Actions – Ordered by Action #</b> |  |                            |  |                          |                          |                          |                               |                      |
|--|--|----------------------------|--|--------------------------|--------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Sharpsburg Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
| <b>Previous P-3</b>  | Sharpsburg plans to work with Nash County to produce digital zoning and land use maps.   | All                        | Goals 1.1 & 1.2                              | Moderate                 | County                   | County - Town            | 2010                          | Complete             |
| <b>PP-1</b>  | Conduct an internal review and prepare a report regarding critical facilities that:<br>✓ Evaluates all critical facilities for possible improvements to reduce their exposure to natural hazards<br>✓ Provides final report to the governing Board | All                        | Goals 1.1 & 3.2                              | Moderate                 | Local                    | PW                       | 2018                          | New Action           |
| <b>ES-2</b>  | NCDOT Project to install a road connecting E. Railroad Street to Rock Quarry Road. Enabling emergency vehicles access to entire Town.  | All                        | Goals 1.1 & 4.1                              | Moderate                 | NCDOT/ Local             | NCDOT                    | 2019                          | New Action           |
|  |  |                            |  |                          |                          |                          |                               |                      |
|  |  |                            |  |                          |                          |                          |                               |                      |
|  |  |                            |  |                          |                          |                          |                               |                      |

*Abbreviations: PB – Planning Board, ZA – Zoning Administrator, and TB or TC – Town Board or Council or Commissioners, NCDOT - NC Dept. of Transportation, PW - Public Works*

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| <b>Table 6-18: Sims Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                          |                          |                               |                      |
|--|---|----------------------------|--|--------------------------|--------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Sims Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
| <b>Previous P-1</b>  | Update the Land Use Plan.   | All                        | Goal 1.1                                     | Moderate                 | Local                    | TB                       | 2008                          | Complete             |
| <b>Previous P-2</b>  | Strengthen the Public Water and Sewer Ordinance by adding language that specifically prohibits extending public services and utilities into flood hazard or other environmental sensitive areas to discourage growth. | Flood                      | Goal 2.1                                     | High                     | Local                    | TB                       | 2005                          | Complete             |
| <b>Previous P-3</b>  | Update Zoning and Subdivision Ordinances.   | All                        | Goal 1.1                                     | Moderate                 | Local                    | TB                       | 2008                          | Complete             |
| <b>Previous P-4</b>  | Adopt a revised Flood Damage Prevention Ordinance and revise accordingly as new measures are adopted.   | Flood                      | Goal 1.1                                     | High                     | Local                    | TB                       | 2003                          | Complete             |
| <b>Previous NR-1</b>   | Consider implementing the NC well-head-protection program.  | All                        | Goal 1.1                                     | Moderate                 | Local                    | TB                       | 2007                          | Complete 2014        |
| <b>Previous NR-1</b>   | Continue to revise the Water Shortage Policy as needed.   | All                        | Goals 1.1 & 1.3                              | Moderate                 | Local                    | TB                       |                               | Complete             |

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**Table 6-18: Sims Mitigation Actions – Ordered by Action #**

| <b>Action #</b>      | <b>Sims Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>                   | <b>Responsible Party</b>       | <b>Target Completion Date</b> | <b>Status Update</b>  |
|----------------------|---|----------------------------|--|--------------------------|--|--------------------------------|-------------------------------|---|
| <b>Previous P-4</b>  | Work in conjunction with Wilson County to produce and maintain digital maps, including revisions to floodmaps                               | All                        | Goal 1.1.                                    | Moderate                 | Local                                      | TB<br>Wilson County            |                               | Complete 2013   |
| <b>Previous PE-1</b> | Outreach Project on Hazard Mitigation Strategy Education – Send out flyers and information to the public to educate in case of emergencies. | All                        | Goals 1.1& 1.2                               | High                     | Local                                      | TB                             | 2006                          | Complete  |
| <b>Previous PE-2</b> | Make available educational material on natural hazards and place in Town Hall.  | All                        | Goals 1.1 & 1.2                              | Moderate                 | Local                                      | TB                             |                               | Complete  |
| <b>P-5</b>           | Establish a three or more member local Hazard Mitigation Committee  | All                        | Goal 1.1                                     | Moderate                 | Local                                      | Mayor<br>TB                    | 2017                          | New Action Step   |
| <b>PP-1</b>          | Obtain a generator(s) to provide emergency power for critical town facilities (water well & town hall)                                      | All                        | Goal 4.0                                     | High                     | State/<br>Federal<br>Grant funds,<br>Local | TA                             | 2016                          | New Action Step<br>Need generators for water well & town hall |
| <b>ES-1</b>          | Encourage or assist residents through information to sign up for County's emergency warning notifications                                   | All                        | Goals 1.1 & 1.3                              | Moderate                 | Local, State,<br>Federal                   | TA,<br>town clerk, or<br>Mayor | 2019                          | New Action Step   |

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**Table 6-18: Sims Mitigation Actions – Ordered by Action #**

| <b>Action #</b> | <b>Sims Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
|-----------------|--|----------------------------|--|--------------------------|--------------------------|--------------------------|-------------------------------|----------------------|
| <b>PE-3</b>     | Obtain new FEMA handouts & make available for residents at Town Hall | All                        | Goal 1.0                                     | Medium                   | FEMA, Local              | TC                       | 2018                          | New Action Step      |

*Abbreviations: PB – Planning Board, ZA – Zoning Administrator, and TB or TC – Town Board or Council or Commissioners, TA - Town Administrator, NCDOT - NC Dept. of Transportation, PW - Public Works*

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**Table 6:19: Stantonburg Mitigation Actions – Ordered by Action #**

| <b>Action #</b> | <b>Stantonburg Actions</b>   | <b>Hazards(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>  |
|-----------------|--|-----------------------------|--|--------------------------|--------------------------|--------------------------|-------------------------------|---|
| P-1             | Update and amend the Zoning Ordinance (1985).  | All                         | Goal 1.1                                     | Moderate                 | Local                    | PB<br>TC                 | 2017-2018                     | This update was delayed due to budgetary restraints and other ongoing capital projects.   |
| Previous P-2    | Adopt a revised Flood Damage Prevention Ordinance and revise accordingly as new measures are adopted   | Flood                       | Goal 1.1                                     | High                     | Local                    | TM<br>TC                 | Completed                     | The revised Flood Damage Prevention Ordinance was adopted by the Town Council on March 11, 2013. It will be revised and/or amended as needed in the future. |
| P-3             | Strengthen the Water and Sewer Ordinance by adding language to specifically prohibit extending public services into flood hazard areas and other environmentally sensitive areas to discourage growth. | Flood                       | Goals 3.1, 1.3 & 2.1                         | Moderate                 | Local                    | TM<br>TC                 | 2017-2018                     | This revision was delayed due to budgetary restraints and other ongoing capital projects.   |
| NR-1            | Amend the Water Shortage Response Plan as necessary (adopted April 2004)   | Drought                     | Goal 1.1                                     | High                     | Local                    | TM<br>TC                 | 2017-2018                     | This revision was delayed to allow the completion of two (2) new water supply wells and major renovations to both the                                       |

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**Table 6:19: Stantonburg Mitigation Actions – Ordered by Action #**

| <b>Action #</b>      | <b>Stantonburg Actions</b>   | <b>Hazards(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>            | <b>Responsible Party</b>         | <b>Target Completion Date</b> | <b>Status Update</b>   |
|----------------------|--|-----------------------------|--|--------------------------|-------------------------------------|----------------------------------|-------------------------------|--|
|                      |  |                             |  |                          |                                     |                                  |                               | water distribution system and the water treatment plant.   |
| <b>NR-2</b>          | Update and amend the Wellhead Protection Plan to correspond to new flood maps.   | All                         | Goal 2.1                                     | Moderate                 | Local                               | TM<br>TC                         | 2017-2018                     | This revision was delayed to allow for the completion of two (2) new water supply wells and to allow time for the adoption of the revised Flood Damage Prevention Ordinance.     |
| Previous <b>ES-1</b> | Install emergency back-up generators at the Wastewater Treatment Plant and at the lift stations in the event of extended power outages.                                      | All                         | Goal 1.3                                     | High                     | Local<br>State<br>Federal           | TC                               | Completed                     | These generators were installed as part of a major Wastewater Treatment Plant Improvements project that was completed in July 2014.  |
| Previous <b>ES-2</b> | Install alarm systems and telemetry on the water treatment plant, booster station, water tanks, and existing wells in the event of extended power outages or other failures. | All                         | Goal 1.3                                     | High                     | Local<br>County<br>State<br>Federal | TC<br>County<br>State<br>Federal |                               | These alarm and telemetry systems (plus back-up power generators) were installed at all water facilities as part of a major water system improvements project in September 2013. |
| Previous <b>PI-1</b> | Work in conjunction with Wilson County to produce and maintain digital maps, including revisions to flood maps.  | All                         | Goal 1.1                                     | Moderate                 | Local<br>County                     | Local<br>County                  | 2015-2016                     | Much work has already been completed on this project. It should be completed in the next couple of years.  |

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**Table 6:19: Stantonsburg Mitigation Actions – Ordered by Action #**

| <b>Action #</b> | <b>Stantonsburg Actions</b>  | <b>Hazards(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>    | <b>Responsible Party</b>         | <b>Target Completion Date</b> | <b>Status Update</b> |
|-----------------|--|-----------------------------|--|--------------------------|-----------------------------|----------------------------------|-------------------------------|----------------------|
| <b>P-1</b>      | Update Town website with accurate information on disaster preparedness, mitigation suggestions, and current conditions for all hazards   | All                         | Goal 1.1                                     | High                     | Local                       | TM<br>TC                         | 2015-2016                     | New Action Step      |
| <b>P-2</b>      | Establish a three or more member local Hazard Mitigation Committee   | All                         | Goal 1.1                                     | Moderate                 | Local                       | Mayor<br>TB                      | 2017                          | New Action Step      |
| <b>ES-3</b>     | Encourage or assist residents through information to sign up for County's emergency warning notifications  | All                         | Goals 1.1 & 1.3                              | Moderate                 | Local,<br>State,<br>Federal | TM<br>town<br>clerk, or<br>Mayor | 2019                          | New Action Step      |
| <b>PE-2</b>     | Obtain FEMA handouts & make available for residents at Town Hall   | All                         | Goal 1.0,                                    | Medium                   | FEMA,<br>Local              | TC                               | 2018                          | New Action Step      |
| <b>PP-1</b>     | Conduct an internal review and prepare a report regarding critical facilities that:<br><ul style="list-style-type: none"> <li>✓ Evaluates all critical facilities for possible improvements to reduce their exposure to natural hazards</li> <li>✓ Provides final report to the governing Board</li> </ul> | All                         | Goals 1.1 &<br>3.2                           | Moderate                 | Local                       | PW                               | 2018                          | New Action           |

*Abbreviations: PB – Planning Board, ZA – Zoning Administrator, and TB or TC – Town Board or Council or Commissioners, TA - Town Administrator, TM - Town Manager, PW - Public Works, NCDOT - NC Dept. of Transportation, PW - Public Works*

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| <b>Table 6-20: City of Wilson Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                        |                          |                               |  |  |
|--|---|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|--|--|
| <b>Action #</b>  | <b>Wilson City Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>2014 Update</b>   | <b>2015 Plan Action Notes</b>            |
| <b>P-1</b>   | Floodplain Management:<br>Increase the regulatory flood elevation to 3 feet above base flood elevation.   | Flood                      | Goals 1.1 & 4.2                              | High                     | State SW               | LD SW                    | 2020                          | Completed  | Reworded Action Step P-18 from 2009 Plan |
| <b>P-2</b>   | Floodplain Management:<br>Consider a floodplain/stream modeling program that allows evaluation of flooding potential along streams based upon new developments that occur upstream. | Flood                      | Goal 1.1                                     | Moderate                 | Local State            | SW                       | 2020                          | This has been delayed due to lack of funding. Grants are actively being sought to assist in this goal. New goal date = 2016. |  |
| <b>P-3</b>   | Building Code:<br>Encourage builders to incorporate mitigative measures for disaster resiliency during construction.  | All High Wind              | Goal 1.1                                     | Moderate High            | Local State            | CS                       | 2020                          | Continuing to be ongoing. CS will be discussing mitigation measures at their annual meeting with                             |  |

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| <b>Table 6-20: City of Wilson Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                           |                          |                               |  |   |
|--|---|----------------------------|--|--------------------------|---------------------------|--------------------------|-------------------------------|--|---|
| <b>Action #</b>  | <b>Wilson City Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b>    | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>2014 Update</b>   | <b>2015 Plan Action Notes</b>           |
|  |   |                            |  |                          |                           |                          |                               | contractors.   |   |
| <b>P-4</b>   | Emergency Management Operations: Review the Emergency Management Operational Plan on an annual basis and revise as needed.                    | All                        | Goal 1.1                                     | Moderate                 | Local                     | RS                       | 2020                          | Scheduled for Review Fall of 2014.   |   |
| <b>PP-1</b>  | Capital Improvement Program: Evaluate the feasibility the relocation/elevation/flood proofing needs of designated critical public facilities. | Flood                      | Goal 4.2                                     | Moderate                 | Local<br>Federal          | EN<br>LD<br>UT           | 2020                          | We are still evaluating the feasibility of relocating, elevating, or flood-proofing critical facilities. | Reworded Action Step P-2 from 2009 Plan |
| <b>PP-2</b>  | Repetitive Loss: Wilson seeks funds to buyout repetitive loss properties.   | Flood                      | Goal 3.1                                     | Moderate                 | Local<br>State<br>Federal | PD                       | 2020                          | Acquisition grants are actively being sought to purchase repetitive loss properties.                     |   |

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| <b>Table 6-20: City of Wilson Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                           |                          |                               |   |  |
|--|---|----------------------------|--|--------------------------|---------------------------|--------------------------|-------------------------------|---|--|
| <b>Action #</b>  | <b>Wilson City Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b>    | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>2014 Update</b>  | <b>2015 Plan Action Notes</b>            |
| <b>PP-3</b>  | Preservation:<br>Seek funding for acquisition of properties within the floodplain apply for acquisition funds to purchase other properties flooded. | Flood                      | Goal 4.1                                     | Moderate                 | Local                     | PD<br>SW<br>EN           | 2020                          | Acquisition grants are actively being sought to purchase wetlands, floodplains, and streams for future restoration and preservation | Reworded Action Step P-15 from 2009 Plan |
| <b>NR-1</b>  | Stormwater Management:<br>Acquire easements along drainage features and streams for public maintenance.   | All                        | Goals 1.1 & 4.1                              | Moderate                 | Local<br>State<br>Federal | EN<br>SW<br>PD           | 2020                          | Acquisition grants are actively being sought to purchase wetlands, floodplains, and streams for future restoration and preservation | Reworded Action Step P-7 from 2009 Plan  |
| <b>NR-2</b>  | Restoration Program:<br>Begin design and development of Hominy Creek Water Quality Park &   | All                        | Goals 1.1, 1.2 & 4.1                         | Moderate                 | Local                     | EN SW PD                 | 2020                          | Acquisition grants are actively being sought to purchase  | Reworded Action Step P-10 from 2009 Plan |

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| <b>Table 6-20: City of Wilson Mitigation Actions – Ordered by Action #</b> |  |                            |  |                          |                        |                          |                               |   |   |
|--|--|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|---|---|
| <b>Action #</b>  | <b>Wilson City Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>2014 Update</b>  | <b>2015 Plan Action Notes</b>           |
|  | Greenway Plan.   |                            |  |                          |                        |                          |                               | wetlands, floodplains, and streams for future restoration and preservation  |   |
| <b>ES-1</b>  | Capital Improvement Program:<br>Install monitoring systems for flood waters.   | Flood                      | Goal 1.1                                     | Moderate                 | Local                  | EN<br>SW                 | 2020                          | This has been delayed due to lack of funding. Grants are actively being sought in this goal. New goal date = 2016.                            | Reworded Action Step P-4 from 2009 Plan |
| <b>ES-2</b>  | Natural Gas Infrastructure:<br>Continue to replace aging steel gas facilities with polyethylene that has a longer life span. | All                        | Goal 1.1                                     | High                     | Local                  | PS                       | 2020                          | 25% of the pipes are still to be replaced with plastic. Goal of having all aging steel pipelines in our system replaced with plastic by 2033. |   |

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| <b>Table 6-20: City of Wilson Mitigation Actions – Ordered by Action #</b> |  |                            |  |                          |                        |                          |                               |   |   |
|--|--|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|---|---|
| <b>Action #</b>  | <b>Wilson City Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>2014 Update</b>  | <b>2015 Plan Action Notes</b>           |
| <b>ES-3</b>  | Natural Gas Infrastructure: Continue Cathodic Protection and Leakage surveys to better understand our buried facilities so that trouble spots are recognized | All                        | Goal 1.1                                     | Moderate                 | Local                  | PS                       | 2020                          | Cathodic Protection and Leak Surveys completed annually (within PHMSA regulations specifications). These are used as tools for scheduling the replacement of the aging steel pipelines (P-40) before more serious problems occur. |   |
| <b>S-1</b>   | Stormwater Management: Install detention facilities to mitigate peak flow in the downtown area.  | Flood                      | Goal 1.1                                     | Moderate                 | Local                  | EN<br>SW<br>LD<br>PD     | 2020                          | City peak flow policy continues to go above and beyond state regulatory requirements for all stormwater facilities.   | Reworded Action Step P-6 from 2009 Plan |

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| <b>Table 6-20: City of Wilson Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                        |                          |                               |  |  |
|--|---|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|--|--|
| <b>Action #</b>  | <b>Wilson City Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>2014 Update</b>   | <b>2015 Plan Action Notes</b>  |
| <b>Wilson S-2</b>  | Stormwater Management:<br>Continue improving and maintaining streams throughout the community.                                    | All                        | Goal 1.1                                     | Moderate                 | Local                  | PS<br>SW                 | 2020                          | The city continues to perform stream bank stabilization, debris removal, and vegetation management. Also, the city has implemented Adopt-A-Stream and Environmental Stewardship. | Reworded Action Step P-8 from 2009 Plan  |
| <b>PE-1</b>  | Public Information:<br>Develop a Program for Public Information (PPI).  | All                        | Goals 1.1 & 1.2                              | High                     | Local                  | PD<br>SW                 | 2015                          |  | New Action Step for CRS credit   |
| <b>Previous Wilson P-1</b>   | Capital Improvement Program:<br>Consider wind requirements for all public buildings, as applicable by the NC State Building Code. | Flood                      | Goal 3.1                                     | Moderate                 | State                  | PD CS                    | Deleted                       | Reviewing plans as they come in for compliance with NC Building code. There are no new construction planned in the   | Vague Action Step deleted in favor of more achievable measurable mitigation actions. |

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| <b>Table 6-20: City of Wilson Mitigation Actions – Ordered by Action #</b> |  |                            |  |                          |                        |                          |                               |  |  |
|--|--|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|--|--|
| <b>Action #</b>  | <b>Wilson City Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>2014 Update</b>   | <b>2015 Plan Action Notes</b>  |
|  |  |                            |  |                          |                        |                          |                               | CIP. We are still looking at how to best proceed.  |  |
| <b>Previous Wilson P-3</b>   | Capital Improvement Program:<br>Minimize placing new critical public facilities within the floodplain, unless they are designed to withstand flood damage. | Flood                      | Goals 3.1 & 4.2                              | Moderate                 | Local<br>Federal       | PD<br>LD                 | Deleted                       | We will not be placing new facilities within the floodplain unless they are designed to withstand flood damage.  | Vague Action Step deleted in favor of more achievable measurable mitigation actions. |
| <b>Previous Wilson P-5</b>   | Stormwater Management:<br>Consider requiring retention facilities to hold storm water to allow seepage on site.  | All                        | Goal 1.1                                     | Moderate                 | Local                  | PS<br>SW                 | Deleted                       | Ongoing, - Low Impact Development regulations within the new UDO encourage and require use of facilities that increase infiltration such as bioretention and permeable pavers. | Vague Action Step deleted in favor of more achievable measurable mitigation actions. |
| <b>Wilson P-12</b>   | Wetland Program:<br>Continue to work with  | All                        | Goal 1.1                                     | Moderate                 | Local<br>State         | PS<br>SW                 | Deleted                       | The city continues to  | Duplicative Action Step  |

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| <b>Table 6-20: City of Wilson Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                        |                          |                               |  |  |
|--|---|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|--|--|
| <b>Action #</b>  | <b>Wilson City Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>2014 Update</b>   | <b>2015 Plan Action Notes</b>  |
|  | State and Federal agencies to more aggressively clean and clear out the streams to improve drainage and water flows.                                |                            |  |                          | Federal                |                          |                               | perform stream bank stabilization, debris removal, and vegetation management. Also the city has implemented Adopt-A-Stream and Environmental Stewardship programs. | deleted  |
| <b>Previous Wilson P-13</b>  | Wetland Restoration Program:<br>Where feasible and practical address drainage problems in the streams or drainage facilities within the City's ETJ. | All                        | Goal 1.1                                     | Moderate                 | Local                  | PS<br>SW                 | Deleted                       | The city continues to perform stream bank stabilization, debris removal, and vegetation management. Also the city has implemented Adopt-A-Stream and and Environ-  | Vague Action Step deleted in favor of more achievable measurable mitigation actions. |

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| Table 6-20: City of Wilson Mitigation Actions – Ordered by Action # |  |                     |                                       |                   |                           |                   |                        |  |  |
|---|--|---------------------|---------------------------------------|-------------------|---------------------------|-------------------|------------------------|--|--|
| Action #  | Wilson City Actions  | Hazard(s) Addressed | Goal(s) and/or Objective(s) Addressed | Relative Priority | Funding Sources           | Responsible Party | Target Completion Date | 2014 Update  | 2015 Plan Action Notes   |
|   |  |                     |                                       |                   |                           |                   |                        | mental Stewardship programs.   |  |
| <b>Previous Wilson P-15B</b>  | The City currently has a rating of 7 (ten-highest, one-lowest) under the Community Rating System (CRS). Consideration should be given for more stringent activities. | All                 | Goals 2.2 & 3.2                       | Moderate          | Local                     | PD<br>SW          | Deleted                | A comprehensive internal CRS review is ongoing to identify areas of needed improvement and credit within the new system. | Vague Action Step deleted in favor of more achievable measurable mitigation actions.                 |
| <b>Previous Wilson P-20</b>   | Floodplain Management: Wilson to continue coordination from NCEM and FEMA to secure resources for hazard mitigation activities.                                      | All                 | Goal 1.1                              | Moderate          | Local<br>State<br>Federal | PD                | Deleted                | We will continue to pursue resources as they become available.   | Vague and duplicative Action Step deleted in favor of more achievable measurable mitigation actions. |
| <b>Previous Wilson P-24</b>   | Building Code: Continue to enforce the NC State Building Code, incorporating hazard mitigation   | All                 | Goal 1.1                              | Moderate          | Local<br>State            | CS                | Deleted                | Construction Standards reviews and enforces all applicable   | Vague Action Step deleted in favor of more achievable measurable                                     |

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| <b>Table 6-20: City of Wilson Mitigation Actions – Ordered by Action #</b> |  |                            |  |                          |                        |                          |                               |   |   |
|--|--|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|---|---|
| <b>Action #</b>  | <b>Wilson City Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>2014 Update</b>  | <b>2015 Plan Action Notes</b>   |
|  | measures as applicable.  |                            |  |                          |                        |                          |                               | hazard mitigation measures in accordance with NC State Building Code.   | mitigation actions.   |
| <b>Previous Wilson P-31</b>  | Emergency Operations: Consider construction moratoriums following a flood related disaster.  | Flood                      | Goals 1.1 & 1.2                              | Moderate                 | Local                  | PD                       | Deleted                       | This is still being considered.   | This Action Step was considered and found not to be a realistic possibility and was therefore deleted |
| <b>Previous Wilson P-32</b>  | Repetitive Loss: Wilson to continue to inform citizens of funding opportunities for potential flood buy-outs. Seek funds to buyout | Flood                      | Goal 1.2                                     | Moderate                 | Local                  | PD<br>SW                 | Deleted                       | The city's retrofit identification program and stormwater utility fee credit program encourages and informs citizens of other opportunities for their flood land. | Vague Action Step deleted in favor of more achievable measurable mitigation actions.                  |
| <b>Previous Wilson P-34</b>  | Repetitive Loss Property: Through the Storm Water Management Program insure that the stream channels are maintained to reduce or   | Flood                      | Goal 1.1                                     | Moderate                 | Local                  | SW                       | Deleted                       | The city continues to perform stream bank stabilization, debris removal,  | Duplicative Action Step deleted   |

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| <b>Table 6-20: City of Wilson Mitigation Actions – Ordered by Action #</b>  |   |                            |  |                          |                        |                          |                               |   |                               |
|---|---|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|---|-------------------------------|
| <b>Action #</b>   | <b>Wilson City Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>2014 Update</b>  | <b>2015 Plan Action Notes</b> |
|   | minimize nuisance flooding.   |                            |  |                          |                        |                          |                               | and vegetation management. Also the city has implemented Adopt-A-Stream and Environmental Stewardship programs. |                               |
| <b>Previous Wilson P-35B</b>  | Public Infrastructure: Another substation is under construction. Larger transformer installed in Sub 14 for added capacity. | All                        | Goals 2.1 & 3.1                              | High                     | Local                  | PS                       | Completed                     | Completed   | Completed                     |
| <b>Previous Wilson P-42</b>   | Natural Gas Infrastructure: Install "Tough Book" laptops on all of the division's vehicles.                                 | All                        | Goal 1.1                                     | Moderate                 | Local                  | PS                       | Completed                     | Completed   | Completed                     |
|   |   |                            |  |                          |                        |                          |                               |   |                               |
| <b>Abbreviations: (EN) Engineering, (SW) Stormwater, (PD) Planning and Development Services, (CS) Construction Standards, (LD) Land Development, (RS) Risk Services, (UT) Utilities</b> |   |                            |  |                          |                        |                          |                               |   |                               |

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| <b>Table 6-21: Nash County Mitigation Actions – Ordered by Action #</b> |  |                            |             |                          |                        |                          |                               |  |
|---|--|----------------------------|-------------|--------------------------|------------------------|--------------------------|-------------------------------|--|
| <b>Action #</b>   | <b>Nash County Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>   |
| <b>P-1</b>  | As small area plans are developed, consider clustering options for single family lot development. Encourage conditional use zoning in sensitive areas.   | Flood                      | Goal 3.2    | Moderate                 | Local                  | PD                       | 2011                          | Completed – this is now a common part of development counseling procedures   |
| <b>P-2</b>  | Develop a policy to minimize public services to proposed new structures that will be located in 100-year floodplain areas.   | Flood                      | Goal 2.1    | High                     | Local                  | PD & PUD                 | 2012                          | Completed - Reviewed options and Nash County will not pursue this policy at this time  |
| <b>P-3</b>  | Evaluate benefits of participation in Community Rating System (CRS).   | Flood                      | Goal 2.2    | High                     | Local                  | PD                       | 2014                          | Completed – Nash County will not participate in CRS at this time   |
| <b>P-4</b>  | Continue to require and maintain FEMA elevation certificates for all permits for new buildings or improvements to buildings where any portion of the building lies within the 100-year floodplain and establish a policy to require elevation certificates for new buildings or improvements located within 100' of a 100-year floodplain (CRS 310). | Flood                      | Goal 3.2    | Moderate                 | Local                  | PD                       | 2012                          | Completed – Elevation certificates are required. Policy to require elevation certificates in areas not in hazard area is not currently feasible, but elevation certificates are recommended for all new development on lots where floodplain exists, even if new structure is not in the hazard area |

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**Table 6-21: Nash County Mitigation Actions – Ordered by Action #**

| <b>Action #</b> | <b>Nash County Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal</b>     | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>  |
|-----------------|---|----------------------------|-----------------|--------------------------|------------------------|--------------------------|-------------------------------|---|
| <b>PP-1</b>     | Prioritize repetitive flood loss properties for acquisition and relocation. Seek Federal and State funding (voluntary program (CRS 420/520).  | Flood                      | Goals 4.1 & 4.2 | High                     | FEMA NCEM              | PD                       | 2013                          | Completed – Reached out to RLP property owners in Nash County’s jurisdiction & none expressed interest in voluntary acquisition   |
| <b>PP-2</b>     | Prioritize at-risk properties for elevation in event of another flood disaster (voluntary program) (CRS 420/520).   | Flood                      | Goal 4.1        | High                     | FEMA NCEM              | PD                       | 2014                          | Completed - Identified parcels with residences and businesses in regulated floodplain; monitor changes to flood maps for newly expanded hazard areas                                  |
| <b>PP-3</b>     | Count building improvements cumulatively (maintain permit history so when cumulative improvements equal 50% of building value (substantial improvement)), building must be brought up to flood protection standards for new construction (CRS 430). | Flood                      | Goal 4.1        | Moderate                 | Local                  | PD                       | 2018                          | Partially Completed – new permitting software enables tracking by address/tax ID since mid-2013. Still need to evaluate options for a tracking system                                 |
| <b>PP-4</b>     | Update area-specific mapping data for all hazards and hazard-prone areas, especially wildfires & flood  | All                        | Goals 1.2 & 3.2 | Moderate                 | Local                  | PD                       | 2017                          | Partially Completed - Flood mapping data is updated with newest changes to FIRM panels (2014). Need to identify/confirm dam/reservoir locations noted in this Plan. Other hazards are |

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**Table 6-21: Nash County Mitigation Actions – Ordered by Action #**

| <b>Action #</b> | <b>Nash County Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal</b>     | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>   |
|-----------------|---|----------------------------|-----------------|--------------------------|------------------------|--------------------------|-------------------------------|--|
|                 |   |                            |                 |                          |                        |                          |                               | countywide.  |
| <b>NR-1</b>     | In developing Master Recreation Plan, identify wetland properties that can be incorporated into passive recreation opportunities.   | Flood                      | Goal 3.1        | Low                      | Local                  | P&R & PD                 | 2014                          | P&R Master Plan is completed; does not specify future park sites except in general areas. Detailed consideration is given via P&R and PD serving on review committees for acquisition & design phases of park development. |
| <b>NR-2</b>     | Continue to support NC Sedimentation Control Commission efforts to ensure erosion and sedimentation control measures are properly installed and maintained during construction. | Flood                      | Goal 3.2        | High                     | Local & NCDENR         | PD & UD                  | 2010                          | Complete - Incorporated into development process to require compliance documentation from state agency   |
| <b>NR-3</b>     | Evaluate water conservation policy to ensure adequate protection of water supply.   | Drought                    | Goal 2.3        | High                     | Local                  | UD                       | 2011                          | Complete - Conservation policy on public water system. Water agreement with Wilson established mutual connection between two public water systems for emergency transfer situations  |
| <b>ES-1</b>     | Expand special needs registry to include areas of limited evacuation capabilities   | All                        | Goals 1.1 & 1.3 | High                     | Local                  | EMS                      | 2012                          | Complete - Expanded registry is in place and incorporated in evacuation plans; scheduled reevaluations to occur (plus post disaster)   |

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**Table 6-21: Nash County Mitigation Actions – Ordered by Action #**

| <b>Action #</b> | <b>Nash County Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal</b>     | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>   |
|-----------------|--|----------------------------|-----------------|--------------------------|------------------------|--------------------------|-------------------------------|--|
| ES-2            | Establish predetermined evacuation areas in flood-prone areas  | All                        | Goals 1.1 & 1.3 | High                     | Local                  | EMS                      | 2020                          | Develop a map overlay depicting critical facilities, group homes, etc. and categorize per critical classifications; develop recommendations for protection |
| ES-3            | Improve hazard warning and response plan – warning and evacuating persons out of flood prone or isolated areas, controlling vehicles on evacuation routes, evacuation of hazard materials (CRS 610). | All                        | Goal 1.3        | High                     | Local                  | EMS                      | 2013                          | Complete - with the yearly renewal of Code Red, our mass communications notification system.   |
| ES-4            | Evaluate flood or access problems for critical facilities; develop recommendations for protecting critical facilities. Identify alternate command posts.   | All                        | Goal 1.3        | High                     | Local                  | EMS                      | 2013                          | The first part of this action will be incorporated in ES 2. An alternate Emergency Operations Center has been constructed and is operating.                |
| ES-5            | Establish training for citizens in evacuation procedures   | All                        | Goals 1.2 & 1.3 | High                     | Local                  | EMS                      | 2014                          | Complete – reevaluate periodically to ensure effectiveness and is an ongoing project to educate the citizens of the county.                                |
| ES-6            | Evaluate alternatives for emergency shelter opportunities in the southern Nash County area   | All                        | Goal 4          | High                     | Local, NCEM, FEMA      | EMS & PD                 | 2020                          | New Action   |

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**Table 6-21: Nash County Mitigation Actions – Ordered by Action #**

| <b>Action #</b> | <b>Nash County Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal</b>     | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>   |
|-----------------|---|----------------------------|-----------------|--------------------------|------------------------|--------------------------|-------------------------------|--|
| <b>S-1</b>      | In developing stormwater program, investigate the need for retention/detention basins within specific areas experiencing flooding problems. | Flood                      | Goal 3.2        | Moderate                 | Local                  | PD & UD                  | 2011                          | Complete - No concentrated areas needing community retention basins have been identified in jurisdiction.  |
| <b>S-2</b>      | Expand Emergency Shelter capabilities with the installation of transfer switches at identified shelter sites.                               | All                        | Goal 4          | High                     | Local, NCEM, FEMA      | EMS                      | 2020                          | New action   |
| <b>PI-1</b>     | Continue to provide flood maps for public use, with staff continuing to be available for public assistance.                                 | Flood                      | Goals 1.1 & 1.2 | Moderate                 | Local                  | PD                       | 2011                          | Complete - Updated maps are accessible through state and county websites; County has training program for citizens to learn to use GIS, plus individual assistance during work hours   |
| <b>PI-2</b>     | Continue to advise/assist property owners with how to retrofit homes and businesses to be more disaster resistant.                          | Flood                      | Goal 1.2        | Moderate                 | Local                  | PD                       | 2014                          | Complete- Planning Staff routinely trained in floodplain issues & treatment, enabling individual assistance to the public; County held first annual safety & conservation event in Fall 2014 – future safety booth opportunity |

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**Table 6-21: Nash County Mitigation Actions – Ordered by Action #**

| <b>Action #</b>   | <b>Nash County Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal</b>     | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>   |
|---|---|----------------------------|-----------------|--------------------------|------------------------|--------------------------|-------------------------------|--|
| <b>PI-3</b>   | Work with local real estate association to ensure that potential buyers are aware when a property is exposed to potential flood damage.   | Flood                      | Goal 1.2        | Moderate                 | Local                  | PD                       | 2011                          | Complete - Online GIS maps and periodic training available to real estate agents and citizens/homebuyers, plus individual instruction as needed.   |
| <b>PI-4</b>   | Evaluate processes for disseminating information about voluntary and mandatory water conservation measures to general public  | Drought                    | Goal 2.3        | Moderate                 | Local                  | UD & PD                  | 2012                          | Complete - Nash County website includes voluntary Alerts/Notifications for citizens to sign up, plus Red Alert notices through EMS provide text & phone notification, and website Alerts are prominent on main web page. |
| <b>PI-5</b>   | Develop speakers bureau & presentation/ materials suitable for construction professionals and homeowners regarding fire issues in materials, landscaping, and maintenance of easements & access | Wildfire                   | Goals 1.2 & 4.2 | Moderate                 | Local                  | EMS & PD                 | 2017                          | Partially Complete - Presentation materials for construction, landscaping & easement related hazards still outstanding   |
| <b>P-5</b>  | Establish a three or more member local Hazard Mitigation Committee  | All                        | 1.1             | Moderate                 | Local                  | CC/CM                    | 2017                          | New Action Step  |
| <p><b>Abbreviations: PB - Planning Board, CC - County Commissioners, CM -County Manager, CA - County Administration, ZA – Zoning Administrator, EMS - Emergency Services Director, PD - Planning Director , UD - Utility Director, P&amp;R - Parks &amp; Recreation Director, I - Inspections, NCDENR- NC Department of Environment &amp; Natural Resources, GIS - Geographic Information System, NRCS - United States Dept. of Agriculture Natural Resources Conservation Resources, SW - County Solid Waste Dept.</b></p> |   |                            |                 |                          |                        |                          |                               |  |

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| <b>Table 6-22: Bailey Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                          |                          |                               |   |
|--|---|----------------------------|--|--------------------------|--------------------------|--------------------------|-------------------------------|---|
| <b>Action #</b>  | <b>Bailey Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>  |
| <b>P-1</b>   | Strengthen the Public Water and Sewer Ordinance by adding language that specifically prohibits extending public services and utilities into flood hazard or other environmentally sensitive areas to discourage growth. | Flood                      | Goal 2.1                                     | Moderate                 | Local                    | TB                       | 2017                          | 2017  |
| <b>P-2</b>   | Update Zoning Ordinance and regulations concerning subdivisions.  | All                        | Goal 1.1                                     | Moderate                 | Local                    | PB<br>TB                 | 2020                          | Zoning Ordinance complete but Subdivision Ordinance is not Complete |
| <b>P-3</b>   | Adopt a Flood Damage Prevention Ordinance.  | Flood                      | Goal 1.1                                     | High                     | Local                    | PB<br>TB                 | 2012                          | Complete but not finalized by FEMA                                  |
| <b>NR-1</b>  | Update NC well-head-protection program requirements.  | All                        | Goal 1.1                                     | Moderate                 | Local                    | PW                       | 2010                          | Complete 2013   |
| <b>ES-1</b>  | Identify roads that had a problem with high water during Hurricane Floyd and place signs on streets stating "Road Subject to Flooding".   | Flood                      | Goals 1.1 & 4.1                              | High                     | Local                    | PW<br>NCDOT              | 2011                          | 2017  |
| <b>PI-1</b>  | Consider establishing a town website for public information and emergency preparedness  | All                        | Goal 1.1<br>Goal 1.2                         | Moderate                 | Local                    | TB                       | 2015                          | Completed in 2014   |

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| <b>Table 6-22: Bailey Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |  |                          |                               |                      |
|--|---|----------------------------|--|--------------------------|--|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Bailey Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>                   | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
| <b>P-4</b>   | Establish a three or more member local Hazard Mitigation Committee  | All                        | Goal 1.1                                     | Medium                   | Local                                      | Mayor<br>TB              | 2017                          | New Action           |
| <b>PP-1</b>  | Obtain a generator(s) to provide emergency power for critical town facilities                                       | All                        | Goal 4.0                                     | High                     | State/<br>Federal<br>Grant funds,<br>Local | TA                       | 2016                          | New Action           |
| <b>ES-2</b>  | Encourage or assist residents through information to sign up for the County's emergency warning notification system | All                        | Goals 1.1 & 1.3                              | Medium                   | Local, State,<br>Federal                   | TA<br>TM<br>Mayor<br>TC  | 2019                          | New Action           |
| <b>PE-1</b>  | Obtain FEMA handouts & make available for residents at Town Hall  | All                        | Goal 1.0                                     | Medium                   | FEMA, Local                                | TC                       | 2018                          | New Action           |
|  |   |                            |  |                          |  |                          |                               |                      |
|  |   |                            |  |                          |  |                          |                               |                      |
|  |   |                            |  |                          |  |                          |                               |                      |

*Abbreviations: PB – Planning Board, TA – Town Administrator, TM – Town Manager, ZA – Zoning Administrator, and TC – Town Commissioners, PW - Public Works, NCDOT - NC Dept. of Transportation*

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**Table 6-23: Castalia Mitigation Actions – Ordered by Action #**

| <b>Action #</b> | <b>Castalia Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>                 |
|-----------------|---|----------------------------|--|--------------------------|--------------------------|--------------------------|-------------------------------|--------------------------------------|
| P-1             | Update Town's Zoning & Subdivision Ordinances   | All                        | Goal 1.1                                     | Moderate                 | Local                    | TB                       | 2013                          | Completed                            |
| P-2             | Update Zoning Maps  | All                        | Goal 1.1                                     | Moderate                 | Local                    | TB<br>TC<br>PB           | 2013                          | Completed                            |
| P-3             | Adopt Flood Damage prevention Ordinance   | All                        | Goals 1.1, 3.1 & 3.2                         | Moderate                 | Local                    | TB<br>PB<br>TC           | 2006                          | Completed                            |
| NR-1            | Implement Wellhead Protection Program   | All                        | Goals 1.1 & 1.3                              | High                     | Local                    | TB<br>WO                 | 2015                          | On Going Town is now on County Water |
| ES-1            | Implement Water Shortage Policy Purchase a generator  | All                        | Goals 1.1 & 1.3                              | High                     | Local                    | TB<br>WO<br>TC           |                               | Completed                            |
| PE-1            | Outreach Project on Hazard Mitigation Strategy Education  | All                        | Goals 1.1 & 1.2                              | Moderate                 | Local                    | TB<br>TC                 | 2015                          | Working on face book page            |
| P-4             | Digital zoning maps   | All                        | Goal 1.1                                     | Moderate                 | Local                    | County                   |                               | completed                            |
| P-4             | Establish a three or more member local Hazard Mitigation Committee  | All                        | Goal 1.1                                     | Medium                   | Local                    | Mayor<br>TB              | 2017                          | New Action                           |
| ES-1            | Encourage or assist residents through information to sign up for the County's emergency warning notification system | All                        | Goals 1.1 & 1.3                              | Medium                   | Local, State, Federal    | TA<br>TM<br>Mayor<br>TC  | 2019                          | New Action                           |

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| <b>Table 6-23: Castalia Mitigation Actions – Ordered by Action #</b>   |  |                            |  |                          |                          |                          |                               |                      |
|--|--|----------------------------|--|--------------------------|--------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Castalia Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
| <b>PE-2</b>  | Obtain FEMA handouts & make available for residents at Town Hall   | All                        | Goal 1.0                                     | Medium                   | FEMA, Local              | TC                       | 2018                          | New Action           |
| <b>PP-1</b>  | Conduct an internal review and prepare a report regarding critical facilities that:<br>✓ Evaluates all critical facilities for possible improvements to reduce their exposure to natural hazards<br>✓ Provides final report to the governing Board | All                        | Goals 1.1 & 3.2                              | Moderate                 | Local                    | PW                       | 2018                          | New Action           |
|  |  |                            |  |                          |                          |                          |                               |                      |
|  |  |                            |  |                          |                          |                          |                               |                      |
|  |  |                            |  |                          |                          |                          |                               |                      |
|  |  |                            |  |                          |                          |                          |                               |                      |
| <b>Abbreviations: PB – Planning Board, TA – Town Administrator, TM – Town Manager, ZA – Zoning Administrator, and TC – Town Commissioners, PW - Public Works</b> |  |                            |  |                          |                          |                          |                               |                      |

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| <b>Table 6-24: Dortches Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                          |                          |                               |                      |
|--|---|----------------------------|--|--------------------------|--------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Dortches Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
| <b>P-1</b>   | Update zoning ordinance, including considerations for open space and environmental considerations   | All                        | Goal 1.1                                     | High                     | Local                    | TB<br>PB<br>TS           | 2012                          | Complete 2011        |
| <b>ES-1</b>  | Establish program for evaluation and improvement of critical services (public and private) - roads, bridges, water, sewer, electricity, etc., and critical facilities – fire, rescue, medical, etc. | All                        | Goal 1.1                                     | Moderate                 | Local                    | TS                       | 2009                          | Complete 2012        |
| <b>PE-1</b>  | In compliance with Nash County, the Town of Dortches plans to establish and maintain library of retrofitting techniques and publicize through citizen news bulletins or newsletters.                | All                        | Goal 1.2                                     | High                     | Local                    | TS                       | 2008                          | Complete 2012        |
| <b>P-2</b>   | Dortches plans to work with Nash County to produce digital zoning and land use maps.  | All                        | Goals 1.1 & 3.1                              | Moderate                 | TS County                | TS County                | 2009,                         | Complete 2009        |

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| <b>Table 6-24: Dorchest Mitigation Actions – Ordered by Action #</b> |  |                            |  |                          |  |                          |                               |                      |
|--|--|----------------------------|--|--------------------------|--|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Dorchest Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>                   | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
| <b>PP-1</b>  | Obtain a generator(s) to provide emergency power for critical town facilities  | All                        | Goal 4.0                                     | High                     | State/<br>Federal<br>Grant funds,<br>Local | TA                       | 2009                          | Complete 2005        |
| <b>P-3</b>   | Establish a three or more member local Hazard Mitigation Committee   | All                        | 1.1  | Medium                   | Local                                      | Mayor<br>TB              | 2017                          | New Action           |
| <b>ES-2</b>  | Encourage or assist residents through information to sign up for the County's emergency warning notification system  | All                        | Goals 1.1 & 1.3                              | Medium                   | Local, State,<br>Federal                   | TA<br>TM<br>Mayor<br>TC  | 2019                          | New Action           |
| <b>PE-3</b>  | Obtain FEMA handouts & make available for residents at Town Hall   | All                        | 1.0,   | Medium                   | FEMA, Local                                | TC                       | 2018                          | New Action           |
| <b>PP-2</b>  | Conduct an internal review and prepare a report regarding critical facilities that:<br><ul style="list-style-type: none"> <li>✓ Evaluates all critical facilities for possible improvements to reduce their exposure to natural hazards</li> <li>✓ Provides final report to the governing Board</li> </ul> | All                        | Goals 1.1 & 3.2                              | Moderate                 | Local                                      | PW                       | 2018                          | New Action           |

**Abbreviations: PB – Planning Board, TA – Town Administrator, TM – Town Manager, ZA – Zoning Administrator, and TC – Town Commissioners, PW - Public Works**

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**Table 6-25: Middlesex Mitigation Actions – Ordered by Action #**

| <b>Action #</b>        | <b>Middlesex Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>  | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>   |
|------------------------|--|----------------------------|--|--------------------------|---------------------------|--------------------------|-------------------------------|--|
| P-1                    | Revise our Zoning ordinances   | All                        | Goal 1.1                                     | High                     | Local                     | PD                       | 2016                          | Ongoing; this item was postponed due to other staffing & budget priorities                     |
| ES-1                   | Identify and publicize emergency shelter site location   | All                        | Goals 1.1 & 1.2                              | High                     | Local                     | TC<br>TA                 | 2013                          | Complete   |
| P-2<br>(formerly PI-1) | Middlesex plans to work with Nash County to produce digital zoning and land use maps                 | All                        | Goals 1.1 & 3.1                              | Moderate                 | County                    | County                   | ~2008                         | Complete, digital maps are maintained by Nash County and updated with info from the town staff |
| P-3<br>(formerly PI-2) | Expand the use of new website for public information & emergency updates {www.townofmiddlesexnc.com} | All                        | Goals 1.1 & 1.2                              | High                     | Local                     | TC                       | 2012                          | Website complete and updates are ongoing as needed   |
| P-4                    | Work to adopt a flood plain ordinance  | Flood                      | Goals 3.2 & 4.1                              | High                     | Local                     | TA                       | 2015                          | New Action   |
| PP-4                   | Seek funding to place generators at our lift stations that do not have them                          | All                        | Goals 1.1 & 1.3                              | High                     | Local<br>State<br>Federal | TA<br>TC                 | 2018                          | New Action   |
| P-5                    | Establish a three or more member local Hazard Mitigation Committee                                   | All                        | Goal 1.1                                     | Medium                   | Local                     | Mayor<br>TB              | 2017                          | New Action   |
| ES-2                   | Encourage or assist  | All                        | Goals 1.1 &                                  | Medium                   | Local, State,             | TA                       | 2019                          | New Action   |

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| <b>Table 6-25: Middlesex Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                          |                          |                               |                      |
|---|---|----------------------------|--|--------------------------|--------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>   | <b>Middlesex Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
|   | residents through information to sign up for the County's emergency warning notification system |                            | 1.3  |                          | Federal                  | TM<br>Mayor<br>TC        |                               |                      |
|   |   |                            |  |                          |                          |                          |                               |                      |
|   |   |                            |  |                          |                          |                          |                               |                      |

*Abbreviations: PB – Planning Board, TA – Town Administrator, TM – Town Manager, ZA – Zoning Administrator, and TC – Town Commissioners*

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**Table 6-26: Momeyer Mitigation Actions – Ordered by Action #**

| <b>Action #</b>  | <b>Momeyer Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
|--|--|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|----------------------|
| <b>ES-1</b>  | Establish Early Warning System to ensure adequate evacuation time for major events and evaluate areas with limited evacuation capacity and pursue methods of improving capacity. | All                        | Goal 1.1                                     | High                     | Local                  | TC<br>EMS                | 2009                          | Continuing           |
|  | <i>Encourage Nash County EMS CodeRed phone contact system for localized emergencies; coordinate with Nash EMS for MHP evacuation plan.</i>                                       |                            |  |                          |                        |                          |                               |                      |
| <b>P-1</b>   | Momeyer plans to work with Nash County to produce a digital zoning map.  | All                        | Goal 1.1 & 3.1                               | Moderate                 | County                 | TC<br>County             | 2007-2008                     | Continuing           |
| <b>PP-1</b>  | Purchase Generator for Town  | All                        | Goal 4                                       | Moderate                 | Local                  | Town<br>Council          | 2016/17                       | New Action           |
| <b>PE-1</b>  | Provide residents FEMA handouts  | All                        | Goal 1                                       | High                     | Local                  | Town<br>Council          | 2015                          | New Action           |
| <b>P-2</b>   | Establish a three or more member local Hazard Mitigation Committee   | All                        | Goal 1.1                                     | Medium                   | Local                  | Mayor<br>TB              | 2017                          | New Action           |
| <b>Abbreviations: PB – Planning Board, TA – Town Administrator, TM – Town Manager, ZA – Zoning Administrator, and TC – Town Commissioners, EMS - Emergency Management Director</b> |  |                            |  |                          |                        |                          |                               |                      |

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| <b>Table 2-27: Nashville Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                        |                          |                               |                        |
|---|---|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|------------------------|
| <b>Action #</b>   | <b>Nashville Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>   |
| <b>P-1</b>  | Apply to CRS to continue participation in program (5 year re-application cycle)   | Flood                      | Goal 2.2                                     | Moderate                 | Local                  | ZA                       | approved 10-13-2014           | Complete               |
| <b>P-2</b>  | Update as required by FEMA and/or NCEM the Special Flood Hazard Area Regulations Overlay District to increase protection from flood hazard events (CRS 430)   | Flood                      | Goals 3.1 & 3.2                              | High                     | Local                  | ZA<br>TC<br>PB           | see next column               | Complete (part of CRS) |
| <b>P-3</b>  | Continue to require and maintain FEMA elevation certificates for all permits for new buildings or improvements to buildings where any portion of the building lies within the regulatory floodplain | Flood                      | Goals 2.2 & 3.2                              | High                     | Local                  | ZA<br>TC<br>PB           | see next column               | Complete (part of CRS) |
| <b>NR-1</b>   | Continue to support NC Sedimentation Control Commission efforts to  | Flood                      | Goals 3.1& 3.2                               | High                     | Local/DENR             | ZA                       | Part of Town Ordinance        | Complete               |

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| <b>Table 2-27: Nashville Mitigation Actions – Ordered by Action #</b> |  |                            |  |                          |                        |                          |                               |                      |
|---|--|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>   | <b>Nashville Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
|   | ensure erosion and sedimentation control measures are properly installed and maintained during construction  |                            |  |                          |                        |                          |                               |                      |
| <b>S-1</b>  | Maintain a coordinated debris inspection and removal program to correct problem sites.   | Flood                      | Goals 1.1 & 3.2                              | Moderate                 | Local                  | ZA                       | Part of Town Ordinance        | Complete             |
| <b>S-2</b>  | Establish policy requiring local property owners to maintain ditches in front of property  | Flood                      | Goals 1.1 & 1.2                              | Moderate                 | Local                  | ZA<br>TC                 | see next column               | remove               |
| <b>PP-2</b>   | Conduct an internal review and prepare a report regarding critical facilities that:<br><ul style="list-style-type: none"> <li>✓ Evaluates all critical facilities for possible improvements to reduce their exposure to natural hazards</li> <li>✓ Provides final report to the governing Board</li> </ul> | All                        | Goals 1.1 & 3.2                              | Moderate                 | Local                  | PW                       | 2018                          | New Action           |
| <b>PE-1</b>   | Provide disaster   | All                        | Goals 1.1 &                                  | High                     | Local                  | ZA                       | 2016                          | New action           |

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| <b>Table 2-27: Nashville Mitigation Actions – Ordered by Action #</b>  |  |                            |  |                          |                        |                          |                               |                      |
|--|--|----------------------------|--|--------------------------|------------------------|--------------------------|-------------------------------|----------------------|
| <b>Action #</b>  | <b>Nashville Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b> |
|  | preparedness information in public facility waiting areas          |                            | 1.2  |                          |                        |                          |                               |                      |
| <b>PE-2</b>  | Update website to provide link to FEMA preparedness info           | All                        | Goals 1.1 & 1.2                              | High                     | Local                  | ZA                       | 2016                          | New action           |
| <b>P-4</b>   | Establish a three or more member local Hazard Mitigation Committee | All                        | Goal 1.1                                     | Medium                   | Local                  | Mayor<br>TB              | 2017                          | New Action           |
| <b>Abbreviations: PB – Planning Board, TA – Town Administrator, TM – Town Manager, ZA – Zoning Administrator, and TC – Town Commissioners, PW - Public Works</b> |  |                            |  |                          |                        |                          |                               |                      |

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| <b>Table 6-28: Red Oak Mitigation Actions – Ordered by Action #</b> |  |                            |  |                          |                          |                          |                               |                             |
|---|--|----------------------------|--|--------------------------|--------------------------|--------------------------|-------------------------------|-----------------------------|
| <b>Action #</b>   | <b>Red Oak Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b> | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>        |
| <b>P-1</b>  | Consider implementing a Capital Improvements Program to assist in maintaining critical facilities                                | All                        | Goal 1.1                                     | High                     | Local                    | TB                       | 2012                          | Complete but not in writing |
| <b>P-2</b>  | Consider zoning ordinance changes to anticipate public sewer downtown; incorporate hazard mitigation considerations in revisions | All                        | Goals 1.1, 3.1 & 4.1                         | High                     | Local                    | TB                       | 2011                          | Complete                    |
| <b>ES-1</b>   | Evaluate options for expansion/upgrade of Fire and Rescue facilities to meet future growth needs                                 | All                        | Goals 1.1 & 1.3                              | High                     | Local                    | TB                       | 2013                          | Complete                    |
| <b>PI-1</b>   | Red Oak plans to work with Nash County to produce digital zoning and land use maps.  | All                        | Goal 1.1 & 1.3                               | Moderate                 | County                   | TB                       | 2008                          | Complete                    |
| <b>P-1</b>  | Establish a three or more member local   | All                        | 1.1  | Medium                   | Local                    | Mayor<br>TB              | 2017                          | New Action                  |

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| <b>Table 6-28: Red Oak Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |  |                          |                               |  |
|---|---|----------------------------|--|--------------------------|--|--------------------------|-------------------------------|--|
| <b>Action #</b>   | <b>Red Oak Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Source(s)</b>                   | <b>Responsible Party</b> | <b>Target Completion Date</b> | <b>Status Update</b>   |
|   | Hazard Mitigation Committee   |                            |  |                          |  |                          |                               |  |
| <b>PP-2</b>   | Obtain a generator(s) to provide emergency power for critical town facilities   | All                        | Goal 4.0                                     | High                     | State/<br>Federal<br>Grant funds,<br>Local | TA                       | 2016                          | Complete for Fire Department & Town Hall in 2013 but need to expand for other facilities |
| <b>ES-2</b>   | Encourage or assist residents through information to sign up for "Code Red" or the County's emergency warning notification system | All                        | Goals 1.1 & 1.3                              | Medium                   | Local, State,<br>Federal                   | TA<br>TM<br>Mayor<br>TC  | 2019                          | Complete Code Red System in place  |
| <b>PE-2</b>   | Obtain FEMA handouts & make available for residents at Town Hall  | All                        | Goal 1.0                                     | Medium                   | FEMA, Local                                | TB                       | 2018                          | New Action   |
| <b>P-2</b>  | Research/consider Mitigation Actions in reference to installation of the Atlantic Coast Pipeline                                  | All                        | Goal 1.1 & 1.3                               | High                     | Local                                      | TB                       | 2016                          | New Action   |
|   |   |                            |  |                          |  |                          |                               |  |
|   |   |                            |  |                          |  |                          |                               |  |

*Abbreviations: PB – Planning Board, TA – Town Administrator, TM – Town Manager, ZA – Zoning Administrator, and TC – Town Commissioners*

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| <b>Table 6-29: Spring Hope Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                         |                                      |                               |                      |
|---|---|----------------------------|--|--------------------------|-------------------------|--------------------------------------|-------------------------------|----------------------|
| <b>Action #</b>   | <b>Spring Hope Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b>  | <b>Responsible Party<sup>1</sup></b> | <b>Target Completion Date</b> | <b>Status Update</b> |
| <b>Previous P-1</b>   | Inventory the number of businesses that deal with hazardous materials. Coordinate with Nash EMS.  | All                        | Goal 1.1                                     | Moderate                 | Local                   | FD<br>PW                             | 2011                          | Complete             |
|   | <i>Rescheduled for current cycle</i>  |                            |  |                          |                         |                                      |                               |                      |
| <b>Previous ES-1</b>  | Through cooperative arrangements, implement any necessary and additional security measures for the critical facilities (i.e. lock the ladder at the Elevated Water Tanks, have things such as wells or a water pump enclosed in a fence and monitored). | All                        | Goal 1.1 & 1.3                               | Moderate                 | Local                   | TM<br>PW                             | 2011                          | Complete             |
|   | <i>Rescheduled due to budget &amp; staffing</i>   |                            |  |                          |                         |                                      |                               |                      |
| <b>Previous ES-2</b>  | Develop a system of early and rapid dispatch to fires, including assessment of likely   | Fire                       | Goal 1.1 & 1.2                               | Moderate                 | Local<br>Nash<br>County | FD<br>TM                             | Ongoing                       | Complete             |

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| <b>Table 6-29: Spring Hope Mitigation Actions – Ordered by Action #</b> |   |                            |  |                          |                        |                                      |                               |                      |
|---|---|----------------------------|--|--------------------------|------------------------|--------------------------------------|-------------------------------|----------------------|
| <b>Action #</b>   | <b>Spring Hope Actions</b>  | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b> | <b>Responsible Party<sup>1</sup></b> | <b>Target Completion Date</b> | <b>Status Update</b> |
|   | <p>routes of travel to determine impediments.</p> <p><i>Evaluations ongoing and coordination with Nash EMS as appropriate</i></p>   |                            |  |                          |                        |                                      |                               |                      |
| <b>Previous PI-1</b>  | <p>Explore the possibility of developing an internet-based emergency information website.</p> <p><i>Revise Action to “Expand emergency-based information on website”</i></p> <p><i>Town website established in 2006; also encourage use of CodeRed messaging and Nash County EMS website for major events</i></p> | All                        | Goal 1.2                                     | Moderate                 | Nash County            | TM                                   | Ongoing                       | Complete             |
| <b>Previous PI-1</b>  | <p>Established internal Notification System for water &amp; sewer customers</p>   | All                        | 1.1, 1.3                                     | High                     | Local                  | TB                                   | 2012                          | Complete             |
| <b>ES-1</b>   | <p>Encourage or assist residents through information to sign up for Code Red or County's emergency notifications</p>  | All                        | Goals 1.1 & 1.3                              | Medium                   | Local, State, Federal  | Mayor/TA                             | 2019                          | New Action           |

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| <b>Table 6-29: Spring Hope Mitigation Actions – Ordered by Action #</b>   |  |                            |  |                          |                                   |                                      |                               |   |
|---|--|----------------------------|--|--------------------------|-----------------------------------|--------------------------------------|-------------------------------|---|
| <b>Action #</b>   | <b>Spring Hope Actions</b>   | <b>Hazard(s) Addressed</b> | <b>Goal(s) and/or Objective(s) Addressed</b> | <b>Relative Priority</b> | <b>Funding Sources</b>            | <b>Responsible Party<sup>1</sup></b> | <b>Target Completion Date</b> | <b>Status Update</b>  |
| <b>P-1</b>  | Establish a three or more member local Hazard Mitigation Committee   | All                        | Goal 1.1                                     | Medium                   | Local                             | Mayor/ TB                            | 2017                          | New Action  |
| <b>PE-2</b>   | Obtain FEMA handouts & make available for residents at Town Hall   | All                        | Goal 1.0,                                    | Medium                   | FEMA, Local                       | TB                                   | 2018                          | New Action  |
| <b>PP-2</b>   | Obtain a generator(s) to provide emergency power for critical town facilities ( <i>if known specify which facility</i> ) | All                        | 4.0  | High                     | State/ Federal Grant funds, Local | TA                                   | 2016                          | New Action<br>Need 1 generator in addition to the 2 portable units they have (old) in order to cover all of the Towns Critical Facilities |
| <b>Abbreviations: FD – Fire Department, PB – Planning Board, POL – Town Police, PW – Public Works, TB – Town Board, TC – Town Clerk, TM – Town Manager, BI – Building Inspections, TNC – Town Council</b> |  |                            |  |                          |                                   |                                      |                               |   |

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**C. Community Rating System (CRS)**

**C.1. Introduction**

The Community Rating System (CRS) provides an opportunity for communities to reduce flood insurance premiums for its residents and businesses. In order to reduce premiums a community must carry out or implement specific activities that award credits. These credits are totaled and applied to total number of credits required to meet various community Classifications. There are 10 community Rating System (CRS) Classes. Class 1 requires the most credit points and gives the greatest premium reduction or discount. A community that does not apply for the CRS, or does not obtain the minimum number of credit points, is considered a Class 10 community and receives no discount on premiums. A qualifying community's potential total points, CRS classes for various credit points awarded, and flood insurance premium discounts based upon particular classes and locations within and outside the Special Flood Hazard areas are shown in the following table (Table 6.31).

**Table 6.31**

| <b>COMMUNITY RATING SYSTEM (CRS) CLASSES, CREDIT POINTS, AND PREMIUM DISCOUNTS</b> |                           |  |   |
|--|---------------------------|--|---|
| <b>CRS Class</b>   | <b>Credit Points (cT)</b> | <b>Premium Reduction</b>                   |   |
|  |                           | <b>In Special Flood Hazard Area (SFHA)</b> | <b>Outside Special Flood Hazard Area (SFHA)</b> |
| 1  | 4,500+                    | 45%  | 10%   |
| 2  | 4,000–4,499               | 40%  | 10%   |
| 3  | 3,500–3,999               | 35%  | 10%   |
| 4  | 3,000–3,499               | 30%  | 10%   |
| 5  | 2,500–2,999               | 25%  | 10%   |
| 6  | 2,000–2,499               | 20%  | 10%   |
| 7  | 1,500–1,999               | 15%  | 5%  |
| 8  | 1,000–1,499               | 10%  | 5%  |
| 9  | 500–999                   | 5%   | 5%  |
| 10   | 0–499                     | 0  | 0   |

**DATA SOURCE:** [Coordinator's Manual](#) for the National Flood Insurance Program Community Rating System (FIA-15/2013), Pg 110-3  
 See: [http://www.fema.gov/media-library-data/1406897194816-fc66ac50a3af94634751342cb35666cd/FIA-15\\_NFIP-Coordinators-Manual\\_2014.pdf](http://www.fema.gov/media-library-data/1406897194816-fc66ac50a3af94634751342cb35666cd/FIA-15_NFIP-Coordinators-Manual_2014.pdf)

**NOTES:**  
 Special Flood Hazard Area (SFHA): Zones A, AE, A1–A30, V, V1–V30, AO, and AH  
 Outside the Special Flood Hazard Area (SFHA): Zones X, B, C, A99, AR, and D  
 cT = Total Credits required for a community in the various classes  
 Preferred Risk Policies are not eligible for CRS premium discounts because they already have premiums lower than other policies.  
 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.  
 Some minus-rated policies may not be eligible for CRS premium discounts.  
 Premium discounts are subject to change.

### **D.2. Community Rating System (CRS) Background**

In the Community Rating System flood insurance premium discounts are based upon whether or not a property is in or out of the Special Flood Hazard Area (SFHA), i.e., the zones beginning with the letter A and V as shown on the community's Flood Insurance Rate Map (FIRM). Insurance premium discounts for properties in the SFHA increase according to the community's CRS Class. A community's Class is awarded based upon the number of total credits earned by the community for activities set forth by FEMA that provide credits for a community. The community's final classification is based on the community's total points (symbolized as cT in the CRS calculations in the above table). The discount for properties outside the SFHA is lower for Class 1–8 communities, because premiums in these areas are already relatively low and can be lowered further through the Preferred Risk Policy. Also, most activities undertaken to qualify for those classes are implemented only in the floodplain. Because areas designated as A99 and AR Zones already receive an insurance premium reduction, these zones get the same premium reduction as non-SFHA areas.

### **D.3. Credited Activities for Earning Credits**

There are 19 creditable activities, organized under four categories, which are presented in the following table as presented in the Coordinator's Manual for the National Flood Insurance Program Community Rating System (FIA-15/2013). Credit points are based upon the extent to which an activity advances the three goals of the CRS:

**Goal 1.** Reduce and avoid flood damage to insurable property.

The CRS encourages communities to map and provide regulatory flood data for all their flood hazards. A community's regulatory programs should use this data and it should also be shared with all users and inquirers.

**Goal 2.** Strengthen and support the insurance aspects of the NFIP.

Communities are encouraged to implement mapping and information programs that help assist individual property owners with property risk and reduction of repetitive losses

**Goal 3.** Foster comprehensive floodplain management.

CRS encourages comprehensive floodplain management, including preservation and restoration of natural functions and resources of floodplains.

The Community Rating System has four mitigation categories that support the above goals:

1. Public Information: Series 300;
2. Mapping and Regulations: Series 400;
3. Flood Damage Reduction: Series 500; and
4. Warning and Response: Series 600).

There are a total of eighteen creditable floodplain management activities within these four categories. Points are awarded for achievements related to these eighteen activities that are within the various categories. Based upon these awarded points or credits, there are ten (10) separate CRS Classes available.

Description of the four distinct mitigation category activity areas that support the overall CRS goals and can be utilized to earn CRS credits for a community are as follows:

1. Public Information Activities (300 Series)  
These 300 Series activities credit programs that advise people about the flood hazard, encourage the purchase of flood insurance, and provide information about ways to reduce flood damage. These activities also generate data needed by insurance agents for accurate flood insurance rating. They generally serve all members of the community.
2. Mapping and Regulations (400 Series)  
These 400 Series activities credit programs that provide increased protection to new development. These activities include mapping areas not shown on the FIRM, preserving open space, protecting natural floodplain functions, enforcing higher regulatory standards, and managing stormwater. The credit is increased for growing communities.
3. Flood Damage Reduction Activities (500 Series)  
These 500 Series activities credit programs for areas in which existing development is at risk. Credit is provided for a comprehensive floodplain management plan, relocating or retrofitting floodprone structures, and maintaining drainage systems.
4. Warning and Response (600 Series)  
These 600 Series activities provide credit for measures that protect life and property during a flood, through flood warning and response programs. Also, there are credits for the maintenance of levees and dams and for programs that prepare for their potential failure.

Some CRS activities may be implemented by the state or a regional agency rather than by the community. For example, some states have hazard disclosure laws that are creditable under Activity 340 (Flood Hazard Disclosure). A

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community in those states will receive those credit points when it applies for CRS credit and demonstrates that the law is effectively implemented within its jurisdiction. The following table provides a detailed listing of the various activities and potential credits awarded for CRS activities described in the above descriptions of the four Series.

**Table 6.32**

| <b>CREDIT POINTS AWARDED FOR CRS ACTIVITIES</b> |                                    |                                  |                                  |   |
|---|------------------------------------|----------------------------------|----------------------------------|---|
| <b>CRS Series Categories and Activities</b>     | <b>Maximum Possible Points (1)</b> | <b>Maximum Points Earned (2)</b> | <b>Average Points Earned (3)</b> | <b>Percentage of Communities Credited (4)</b> |
| <b>300 Public Information Activities</b>        |                                    |                                  |                                  |   |
| 310 Elevation Certificates                      | 116                                | 116                              | 45                               | 100%  |
| 320 Map Information Service                     | 90                                 | 70                               | 50                               | 93%   |
| 330 Outreach Projects                           | 350                                | 175                              | 72                               | 89%   |
| 340 Hazard Disclosure                           | 80                                 | 57                               | 19                               | 71%   |
| 350 Flood Protection Information                | 125                                | 98                               | 39                               | 92%   |
| 360 Flood Protection Assistance                 | 110                                | 65                               | 49                               | 41%   |
| 370 Flood Insurance Promotion (5)               | 110                                | 0                                | 0                                | 0%  |
| <b>400 Mapping and Regulations</b>              |                                    |                                  |                                  |   |
| 410 Floodplain Mapping                          | 802                                | 585                              | 64                               | 50%   |
| 420 Open Space Preservation                     | 2,020                              | 1,548                            | 463                              | 70%   |
| 430 Higher Regulatory Standards                 | 2,042                              | 784                              | 213                              | 99%   |
| 440 Flood Data Maintenance                      | 222                                | 171                              | 87                               | 89%   |
| 450 Stormwater Management                       | 755                                | 540                              | 107                              | 84%   |
| <b>500 Flood Damage Reduction Activities</b>    |                                    |                                  |                                  |   |
| 510 Floodplain Mgmt. Planning                   | 622                                | 273                              | 167                              | 46%   |
| 520 Acquisition and Relocation                  | 2,250                              | 1,701                            | 165                              | 24%   |
| 530 Flood Protection                            | 1,600                              | 632                              | 45                               | 12%   |
| 540 Drainage System Maintenance                 | 570                                | 449                              | 212                              | 77%   |
| <b>600 Warning and Response</b>                 |                                    |                                  |                                  |   |
| 610 Flood Warning and Response                  | 395                                | 353                              | 129                              | 37%   |
| 620 Levees (6)                                  | 6                                  | 235                              | 0                                | 00%   |
| 630 Dams (6)                                    | 6                                  | 160                              | 0                                | 00%   |

**DATA SOURCE:** [http://www.fema.gov/media-library-data/1406897194816-fc66ac50a3af94634751342cb35666cd/FIA-15\\_NFIP-Coordinators-Manual\\_2014.pdf](http://www.fema.gov/media-library-data/1406897194816-fc66ac50a3af94634751342cb35666cd/FIA-15_NFIP-Coordinators-Manual_2014.pdf)

**Notes:**

- (1) The maximum possible points are based on the 2013 Coordinator's Manual.
- (2) The maximum points earned are converted to the 2013 Coordinator's Manual from the highest credits attained by a community as of May 2013. Growth adjustments and new credits for 2013 are not included.
- (3) The average points earned are converted to the 2013 Coordinator's Manual, based on communities' credits as of May 2013. Growth adjustments and new credits for 2013 are not included.
- (4) The percentage of communities credited is as of May 2013.
- (5) Activity 370 (Flood Insurance Promotion) is a new activity in 2013. No community has earned these points.
- (6) Activities 620 and 630 were so extensively revised that the old credits cannot be converted to the 2013 Coordinator's Manual.

**D.4. CRS Series Categories and Activities - Details**

More detailed explanations of the four CRS mitigation categories are included in Tables 6-33 – 6-35. For more information and application for a particular community, the Federal Emergency Management Agency Regional Office in Atlanta can be contacted (see Appendix D: State and Federal Resources for contact information).

**D.5. Public Information (Series 300)**

This series credits programs that advise people about flood hazards, flood insurance, and ways to reduce flood damage. These activities also provide data for insurance agents for accurate flood insurance rating. These programs serve all members of the community and work toward all three goals of the CRS. Activities for which credit is given are described in Table 6-32.

**Table 6.33**

| <b>PUBLIC INFORMATION (SERIES 300)</b> |                             |  |
|--|-----------------------------|--|
| <b>Code</b>                            | <b>Activity</b>             | <b>Description</b>   |
| 310                                    | Elevation Certificates      | <ol style="list-style-type: none"> <li>1. Maintain on all new construction and substantial improvements;</li> <li>2. Use FEMA form; and</li> <li>3. Make copies available to public.</li> </ol>  |
| 320                                    | Map Information             | <ol style="list-style-type: none"> <li>1. Consult Flood Insurance Rate Maps (FIRMs) in response to public;</li> <li>2. Advise of requirement for flood insurance;</li> <li>3. Maintain copies of FIRMs;</li> <li>4. Update maps to reflect new subdivisions, changes in corporate limits, and all new FIRM data from flood insurance restudies, map revisions, map amendments, Letters of Map Amendment (LOMA) and Map Revision (LORM); and</li> <li>5. Publicize service annually, keep record of service.</li> </ol> |
| 330                                    | Outreach Projects           | Annually advise public of: <ol style="list-style-type: none"> <li>1. Flood hazards;</li> <li>2. Availability of flood insurance; and</li> <li>3. Flood protection methods.</li> </ol>  |
| 340                                    | Hazard Disclosure           | Disclosure information <ol style="list-style-type: none"> <li>1. Must be volunteered (not in response to a request); or</li> <li>2. Appear on a document, e.g., Multiple Listing Service printout or offer to purchase contract that person sees before committing to purchase property.</li> </ol>  |
| 350                                    | Flood Protection Library    | Local public library <ol style="list-style-type: none"> <li>1. Available to all branches;</li> <li>2. Maintain flood-related documents;</li> <li>3. No credit for keeping in planning office.</li> </ol>   |
| 360                                    | Flood Protection Assistance | Annually publicize flood hazard information available: <ol style="list-style-type: none"> <li>1. Newsletter;</li> <li>2. Telephone book; or</li> <li>3. Other outreach project.</li> </ol>   |

**D.6. Mapping and Regulations (Series 400)**

This series credits programs that provide increased protection to new development. Growing communities have opportunities for additional credit in this category. Activities include mapping areas not shown on the FIRM, preserving open space, enforcing higher regulatory standards, and managing stormwater. These activities work toward the first and second goals of the CRS - damage reduction and accurate insurance rating. Activities for which credit is given are described in Table 6-34.

**Table 6.34**

| <b>MAPPING AND REGULATION (SERIES 400)</b> |                             |  |
|--|-----------------------------|--|
| <b>Code</b>                                | <b>Activity</b>             | <b>Description</b>   |
| 410  | Additional Flood Data       | <ol style="list-style-type: none"> <li>1. Credit for studies conducted outside the Special Flood Hazard Area (SFHA);</li> <li>2. Studies conducted in the SFHA where base flood elevations (BFEs) were not shown on FIRM;</li> <li>3. Re-studying an area shown on the FIRM where new study produced higher BFEs; and</li> <li>4. Studies that were conducted to higher standards than the normal FEMA mapping.</li> </ol> |
| 420  | Open Space Preservation     | <ol style="list-style-type: none"> <li>1. Credit for preserving land in the floodplain as open space through:                             <ol style="list-style-type: none"> <li>a) public ownership; or b) by development regulations that prohibit buildings and filling.</li> </ol> </li> <li>2. Can be used for public parks, private preserves, playing fields, golf courses, etc.</li> </ol>                         |
| 430  | Higher Regulatory Standards | Regulations that require new development to be protected to one or more standards stricter than the NFIP's minimum requirements.   |
| 430LZ                                      | Low-Density Zoning          | <ol style="list-style-type: none"> <li>1. Credit for having at least 5 acres of floodplain in one or more zoning districts that requires a minimum lot size of 1 acre.</li> <li>2. Available for undeveloped land within low-density zoning districts as well as for areas developed in accordance with the density requirements.</li> </ol>   |
| 440  | Flood Data Maintenance      | Credit for keeping floodplain maps and elevation reference marks current, useful and accurate in order to improve local regulations, planning, disclosures, and property appraisals.   |
| 450  | Stormwater Management       | Credits regulation of new development within the watershed (not just the floodplain) to minimize adverse impacts of stormwater runoff on downstream flooding and water quality.  |
| 400SH                                      | Special Hazard Areas        | <ol style="list-style-type: none"> <li>1. 413SH Additional Flood Data in Special Hazard Areas.</li> <li>2. 423SH Open Space Preservation in Special Hazard Areas.</li> <li>3. 433SH Higher Regulatory Standards in Special Hazard Areas.</li> </ol>  |

**D.7. Flood Damage Reduction (Series 500)**

This series credits programs for areas in which existing development is at risk. Credit is provided for a comprehensive floodplain management plan, relocating or retrofitting floodprone structures, and maintaining drainage systems. These activities work toward the first goal of the CRS – damage reduction. Activities for which credit is given are described in Table 6-35.

**Table 6.35**

| <b>FLOOD DAMAGE REDUCTION (SERIES %00)</b> |                                |   |
|--|--------------------------------|---|
| <b>Code</b>                                | <b>Activity</b>                | <b>Description</b>  |
| 500  | Repetitive Loss Areas          | Create outreach project to inform property owners of flood damage prevention methods and flood insurance options.   |
| 510  | Floodplain Management Planning | Expand Hazard Mitigation Plan to meet Section 511 standards if there are repetitive loss areas.   |
| 520  | Acquisition and Relocation     | Credit provided for acquiring, relocating or otherwise clearing buildings out of floodplains. Credit provided only if community also receives credit for vacant lot under Activity 420 Open Space Preservation. |
| 530  | Retrofitting                   | Credit provided for buildings that have been floodproofed, elevated, or otherwise modified to protect them from flood damage.   |
| 540  | Drainage System Maintenance    | Credit for inspecting drainage system, removing debris, correcting drainage problem sites and regulating dumping into the system.   |

**D.8. Flood Preparedness (Series 600)**

This series credits flood for flood warning, levee safety, and dam safety programs. These activities work toward the first and third goals of the CRS – damage reduction and hazard awareness. Activities for which credit is given are described in Table 6-36.

**Table 6.36**

| <b>FLOOD PREPAREDNESS (SERIES 600)</b> |                       |  |
|--|-----------------------|--|
| <b>Code</b>                            | <b>Activity</b>       | <b>Description</b>   |
| 610                                    | Flood Warning Program | Credit for program that provides timely identification of impending flood threats, disseminates warnings to appropriate floodplain occupants, and coordinates flood response activities. |
| 620                                    | Levee Safety          | Credit to communities protected by levees that are properly maintained and operated.   |
| 630                                    | Dam Safety            | Credit for any community in a state with a dam safety program that has submitted the necessary documentation of its program to FEMA. (Note: North Carolina has submitted documentation.) |

#### **D.9. Extra Community Rating System (CrS) Credit For Protecting Floodplain Areas**

The following excerpt is from the Coordinator's Manual for the National Flood Insurance Program Community Rating System (FIA-15/2013) and provided information on extra CRS credit for protecting Floodplain areas beyond first floor elevations requirements or use restrictions in the Floodway. These extra credit opportunities are available to communities that establish educational and outreach programs to help educate and inform the public about the importance of protecting natural floodplain areas, as well as pursue preservation or restoration efforts, provide special GIS mapping and regulations for sensitive natural areas, carry out stormwater management and implement drainage improvement activities.

*Floodplains in riverine and coastal areas perform natural functions that cannot be replicated elsewhere. The CRS provides special credit for community activities that protect and/or restore natural floodplain functions, even though some of the activities may not directly reduce flood losses to insurable buildings. There are many reasons to protect floodplains in their natural state. When kept open and free of development, floodplains provide the necessary flood water conveyance and flood water storage needed by a river or coastal system. When the floodplain is allowed to perform its natural function, flood velocities and peak flows are reduced downstream. Natural floodplains reduce wind and wave impacts and their vegetation stabilizes soils during flooding.*

*Floodplains in their natural state provide many beneficial functions beyond flood reduction. Water quality is improved in areas where natural cover acts as a filter for runoff and overbank flows; sediment loads and impurities are also minimized. Natural floodplains moderate water temperature, reducing the possibility of adverse impacts on aquatic plants and animals.*

*Floodplains can act as recharge areas for groundwater and reduce the frequency and duration of low flows of surface water. They provide habitat for diverse species of flora and fauna, some of which cannot live anywhere else. They are particularly important as breeding and feeding areas.*

*The CRS encourages state, local and private programs and projects that preserve or restore the natural state of floodplains and protect these functions. The CRS also encourages communities to coordinate their flood loss reduction programs with other public and private activities that preserve and protect natural and beneficial floodplain functions. Credits for doing this are found in the following activities:*

- *Activity 320 (Map Information Service)—Credits advising people about areas that should be protected because of their natural floodplain functions.*
- *Activity 330 (Outreach Projects)—Credit is provided for outreach projects that include descriptions of the natural functions of the community's floodplains.*

- *Activity 350 (Flood Protection Information)*—Credit points are available for a website that provides detailed information about local areas that should be protected for their natural floodplain functions and how they can be protected.
- *Activity 420 (Open Space Preservation)*—Extra credit is provided for open space areas that are preserved in their natural state; have been restored to a condition approximating their pre-development natural state; or have been designated as worthy of preservation for their natural benefits, such as being designated in a habitat conservation plan.
- *Activity 430 (Higher Regulatory Standards)*—Regulations that protect natural areas during development or that protect water quality are credited.
- *Activity 440 (Flood Data Maintenance)*—Adding layers to the community’s geographic information system (GIS) with natural floodplain functions (e.g., wetlands, designated riparian habitat, flood water storage areas) is credited.
- *Activity 450 (Stormwater Management)*—Erosion and sediment control, water quality, and low-impact development techniques minimize the impacts of new development. These measures are credited, along with regulations that require the maintenance of natural flow regimes.
- *Activity 510 (Floodplain Management Planning)*—Extra credit is provided for plans that address the natural resources of floodplains and recommend ways to protect them.
- *Activities 520 (Acquisition and Relocation), 530 (Flood Protection), and 540 (Drainage System Maintenance)* credit flood loss reduction measures such as capital improvement programs and drainage improvement projects. No such programs or projects can be credited unless a thorough environmental review is conducted and documented

### **6.3 Implementation/Action Plan**

The responsibility for overseeing the implementation of the actions listed in each local government’s action table lies with each individual county or municipality. For this reason, over the next five years after the adoption of this plan, each jurisdiction will work independently on implementing their mitigation activities. The implementation of specific actions will be through county or municipal departments or individual staff members, as indicated in the Mitigation Action Tables found in the previous subsection “6.2 Local Government Mitigation Actions”. These tables also include a target completion date for each proposed action.

For each county, the County Manager or his/her designee will be responsible for monitoring whether proposed actions are completed by the target completion date; for each municipality, the Mayor or his/her designee will be responsible for

monitoring whether proposed actions are completed. The completion of proposed actions by their target completion date is not a requirement, but whenever a target completion date is not met, in the next plan update, the reason(s) why it was not met need to be indicated (i.e., lack of funding, lack of staffing, other jurisdictional priorities took precedence, a certain disaster occurred within the jurisdiction, etc.).

While each jurisdiction is responsible for the implementation of its own mitigation actions, some amount of coordination will be needed in order to maintain cohesion within the individual counties and the region and to promote awareness of the overall progress among all of the plan's stakeholders. In order to achieve coordination and cohesion, at a minimum, each county will schedule an annual meeting of all the participating jurisdictions within the county, to discuss progress toward implementing mitigation actions and any challenges and opportunities related to hazard mitigation. (Counties are encouraged to meet this requirement by holding joint meetings among multiple counties at the same time/location in order to promote greater cohesion within the region.) In each of the three counties (Edgecombe, Nash, and Wilson) currently included in this plan, the annual meetings will be held at dates and times to be determined. All these annual meetings will be open to the public, and advertized in the same manner that each county publicizes its governing board meetings. At the conclusion of these annual meetings, if any local government believes it would be beneficial to do so, a progress report summarizing the finding of the annual meeting may be prepared and presented to their governing board. A copy of any such report will be available to the public upon request.

In order to ensure that hazard mitigation data, information, goals, and actions are integrated into other plans and documents that are prepared for any participating jurisdictions in this plan, each local government will establish the following policy. Whenever a new or amended comprehensive plan, land use plan, flood damage prevention ordinance, capital improvements plan (or an amendment to any of these) is being considered by a local governing board, the adopted Regional Hazard Mitigation Plan will be reviewed (prior to the adoption of any such plans/ordinances and amendments) to determine what portions of the hazard mitigation plan should be incorporated into these plans/ordinances.

#### **6.4 Potential Funding Sources**

Although in the long term hazard mitigation actions will save money by avoiding the loss of lives and/or property damages, in the short term each action will have an associated cost. The counties and municipalities participating in this Plan will

rely heavily on local funding sources to fulfill most of the plan obligations, however, the counties and municipalities will also seek to access available funds from State and Federal agencies for both pre- and post-disaster activities. A short description of the major disaster assistance programs is included in this subsection on funding sources.

#### **A. Federal Programs**<sup>1</sup>

Among the following potential federal funding sources, the most significant sources of mitigation funding are those that are available from the Federal Emergency Management Agency (FEMA).

##### **Funding Available from FEMA**

FEMA is the lead federal agency responsible for providing technical and financial assistance to both state and local governments for disaster mitigation planning and the implementation of mitigation projects. There are several different mitigation grant programs available from FEMA to the State and to communities in North Carolina as follows:

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

##### **▪ Pre-Disaster Mitigation Program (PDM)**

The Disaster Mitigation Act of 2000 created a national program to provide a funding mechanism that is not dependent on a Presidential disaster declaration. The Pre-Disaster Mitigation (PDM) Program provides funding to states and communities for cost-effective hazard mitigation activities that complement a comprehensive mitigation program and reduce injuries, loss of life, and damage of property, including damage to critical services and facilities. .

The NC Division of Emergency Management (NCDDEM) administers PDM funds. Local governments, state-level agencies, and Indian Tribal governments are eligible to apply to the NCDDEM for PDM assistance. All PDM awardees must be participating in the National Flood Insurance Program if they have been identified through the NFIP as having a Special Flood Hazard Area.

Pre-Disaster Mitigation funds are awarded through a national competition. The funding is based on a 75% federal share plus a 25% non-federal share of costs. The non-federal match can be fully in-kind or cash or a combination of the two. Special accommodations may be made for small impoverished communities who are eligible for 90% federal cost-share.

Multi-hazard mitigation projects must primarily focus on natural hazards but also may address hazards caused by non-natural forces. Funding is restricted to a maximum of \$3 million federal share per project. The following are among eligible mitigation projects:

- Acquisition or relocation of hazard-prone property for conversion to open space in perpetuity;
- Structural and non-structural retrofitting of existing buildings and facilities (including designs and feasibility studies when included as part of the construction project) for wildfire, seismic, wind or flood hazards (i.e., elevation, flood proofing, storm shutters, hurricane clips);
- Minor structural hazard control or protection projects that may include vegetation management, stormwater management (i.e., culverts, floodgates, retention basins), or shoreline/landslide stabilization; and
- Localized flood control projects, such as certain ring levees and floodwall systems, that are designed specifically to protect critical facilities and that do not constitute a section of a larger flood control system.

To be eligible for PDM funding, mitigation projects must be technically feasible and ready to implement. Engineering designs, if applicable, must be included in the application to allow FEMA to assess the effectiveness and feasibility of the proposed project.

▪ **Flood Mitigation Assistance Program (FMA)**

FEMA's Flood Mitigation Assistance Program provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP).

Such activities include:

- Elevation of insured structures.
- Acquisition of insured structures and real property.
- Relocation or demolition of insured structures.
- Dry flood proofing of insured structures.
- Minor, localized structural projects that are not fundable by state or federal programs.

The Flood Mitigation Assistance Program (FMA) was established by the National Flood Insurance Reform Act of 1994. FMA is a pre-disaster grant program.

The goals of FMA are to:

1. Reduce the number of repetitively damaged structures and the associated claims on the National Flood Insurance Program.
2. Encourage long-term, comprehensive mitigation planning.
3. Respond to the needs of communities participating in the NFIP to expand their mitigation activities beyond floodplain development review and permitting.
4. Complement other federal and state mitigation programs with similar, long-term mitigation goals.

These grants are available for planning assistance to identify flood risks and actions to reduce that risk, to provide a process for approving flood mitigation plans, and to provide grants to implement measures to decrease flood losses. FMA is a cost-share program. FEMA may contribute up to 75 percent of the total eligible costs. At least 25 percent of the total eligible costs must be provided by a nonfederal source. Of this 25 percent, no more than half may be provided as in-kind contributions from third parties.

▪ **Hazard Mitigation Grant Program (HMGP)**

The Hazard Mitigation Grant Program (HMGP) was created by Congress in November 1988 to assist states and local communities in implementing long-term mitigation measures following a Presidential disaster declaration. Eligibility for funding under the HMGP is limited to state and local governments, certain private non-profit organizations or institutions that serve a public function, Indian tribes and authorized tribal organizations. Applicants must work through the NCDDEM, since the State is responsible for setting priorities for funding and administering the program.

The State, with local input, is responsible for identifying and selecting hazard mitigation projects. Projects are to be identified through the hazard mitigation planning process, and must be consistent with the State Hazard Mitigation Plan. Projects may also be identified by other (local multi-jurisdictional/regional) mitigation plans, or by recommendations of the Hazard Mitigation Survey Teams that are activated by the State and FEMA immediately following a disaster declaration. Local participation in identification of potential mitigation proposals can be through a regional Council of Governments (COG), a regional planning agency, a local government, or local emergency management office.

The HMGP can be used to fund projects to protect either public or private property, so long as the projects in question fit within the state and local government's overall mitigation strategy for the disaster area, and comply with program guidelines. Some types of projects that may be eligible include:

- Acquisition of hazard-prone property
- Retrofitting existing buildings and facilities
- Elevation of flood prone structures
- Vegetative management/soil stabilization
- Infrastructure protection measures
- Stormwater management
- Minor structural flood control projects
- Post-disaster code enforcement activities
- Development or improvement of warning systems
- Development of state or local standards to protect buildings from future damages.

All communities must be in good standing with the National Flood Insurance Program (NFIP) in order to receive HMGP funds. FEMA can fund up to 75% of eligible project costs, and the State or local share (25%) can be cash or in-kind services or materials. The State of North Carolina currently provides the 25 percent non-federal share for local governments for all HMGP project grants.

FEMA has established a policy to set aside up to 5 percent of the total HMGP funds available for hazard mitigation measures that are difficult to evaluate against traditional program cost-effectiveness criteria. Projects eligible for the set-aside must be identified in the State's Hazard Mitigation Plan and fulfill the State's goal to reduce or prevent future loss of life or injury and damage to property. The types of projects that can be funded under this 5 percent policy include:

- Research
- Hazard warning systems
- Hazard mitigation plans
- Geographic Information Systems
- Data collection for mitigation activities
- Public awareness or education campaigns.

▪ **Public Assistance (PA) Program (Section 406) – Federal Emergency Management Agency**

The Public Assistance (PA) Program provides funding to local governments and non-profit organizations following a Presidential disaster declaration. Funds may be used for mitigation activities in conjunction with the repair, replacement, and restoration of damaged facilities and infrastructure.

Four categories of assistance are available after a major disaster declaration:

- *Debris removal* provides 75 percent of funds to state or local governments or private non-profit organizations to eliminate threats to life, public health, or property. Debris may be removed from private property when in the public interest;
- *Emergency work* or protective measures to eliminate threats to life, public safety, or property. Includes ensuring emergency access; removal of public health and safety hazards; demolition of structures; establishment of emergency communication links; emergency public transportation;
- *Repair, restoration, relocation, or replacement* of damaged facilities to return public and non-profit facilities to their pre-disaster condition. Grantees must comply with certain insurance purchase requirements;
- *Community disaster loans* to units of local government that lose a substantial part of their tax base because of a disaster.

Under the PA program, the cost of bringing a facility up to current codes, specifications and standards is an eligible cost. The Public Assistance program also authorizes funding for appropriate cost-effective hazard mitigation measures related to damaged public facilities. The Regional Director may authorize hazard mitigation measures that are not required by codes, specifications and standards if the measures are in the public interest, fulfilling the following criteria:

- The mitigation measures must substantially alleviate or eliminate recurrence of the damage done to the facility by the disaster;
- The measures are feasible from the standpoint of sound engineering and construction practices;
- The measures are cost-effective in terms of the life of the structure, anticipated future damages, and other mitigation alternatives.
- Floodplain management and applicable environmental regulations are met.

Communities can use the hazard mitigation planning process to identify potential mitigation measures for funding under the Public Assistance Program. The Hazard Mitigation Survey Team or Interagency Hazard Mitigation Team can be particularly useful in this regard. In addition, the Damage Survey Reports used by inspectors to make site-specific recommendations for repairs following a disaster can also serve to identify mitigation opportunities.

- **Repetitive Flood Claims (RFC) Program**

The RFC program's purpose is to reduce or eliminate the long term risk of flood damage to structures insured under the National Flood Insurance Program (NFIP) that have had one or more claim payment(s) for flood damages. The goal of the program is to provide funds to State and local communities to reduce the loss of life and property from future natural hazard events.

Project proposals will be considered for acquisition, structure demolition, or structure relocation with the property deed restricted for open space uses in perpetuity. All properties must be insured at the time of the application. The RFC cost-share requirement is up to 100% Federal (no non-Federal match requirement).

- **Severe Repetitive Loss (SRL) Program**

The SRL program's purpose is to reduce or eliminate the long term risk of flood damage to severe repetitive loss residential properties and the associated drain on the National Flood Insurance Fund (NFIF) from such properties. The goal of the program is to provide funds to State and local communities to reduce the loss of life and property from future natural hazard events.

Priorities for this program are the mitigation of activities that reduce or eliminate the long-term risk of flood damage to severe repetitive loss properties. State emergency management agencies or a similar State office (i.e., the office that has primary emergency management or floodplain management responsibility and federally recognized Indian tribal governments are eligible to be the applicant.

Project grants for flood mitigation activities are available for acquisition, structure demolition, or structure relocation with the property deed

restricted for open space uses in perpetuity; elevation of structures; dry flood proofing of historic structures; minor physical localized flood control projects; and Mitigation Reconstruction (demolition and rebuilding of structures). All properties must be insured at the time of the application.

There is a reduced match (10% non-Federal) allowed for States with approved State mitigation plans meeting hazard mitigation planning requirements. North Carolina is able to participate in the 90/10 cost share due to its Severe Repetitive Loss Strategy.

### **Potential Funding from the Environmental Protection Agency (EPA)**

- **Clean Water Act (Section 319) Grants**  
Funds are awarded to the States to implement State non-point source programs pursuant to Section 319(h) of the Clean Water Act. These grants can be used for funding non-structural watershed resource restoration activities that include wetlands and other aquatic habitat. Typically the State makes a portion of these funds available to local governments on a competitive grant basis. The State (or local government) must meet a 40 percent match in funding. Only certain restoration activities are fundable: those that control non-point source pollution and that are within the scope of the State program (i.e., wetland restoration would be fundable; relocation of structures would not be fundable).

### **Potential Funding from the U.S. Army Corps of Engineers**

- **Aquatic Ecosystem Restoration**  
The major objective of the Aquatic Ecosystem Restoration program (Section 206 of the Water Resources Development Act of 1996) is to carry out aquatic ecosystem restoration projects that will improve the quality of the environment, are in the public interest, and are cost-effective. The program focuses on designing and implementing engineering solutions that restore degraded ecosystems to a more natural condition. The Corps will carry out the study and implement the project in conjunction with a non-Federal sponsor.  
State, tribal, or *local governments* are eligible for the program. Non-federal interests must contribute 35 percent of the cost of construction, and 100 percent of the cost of operation, maintenance, replacement, and rehabilitation.

➤ Beneficial Uses of Dredged Material

The objective of Section 204 of the Water Resources Development Act of 1992, as amended, is to provide for projects that protect, restore, and create aquatic and ecologically related habitats, including wetlands, in conjunction with dredging an authorized Federal navigation project. The projects may be used in connection with post-flood dredging of navigation projects to create, restore, or protect wetlands. Implementation of these projects requires close coordination with planned dredging schedules, which can be difficult in an emergency situation.

The Corps will carry out the study and implement the project in conjunction with a non-Federal sponsor. Native American, State or *local governments* with the capabilities to meet the cost sharing requirements are eligible for the program. Non-Federal sponsors are responsible for 25 percent of the incremental project cost over the cost of the dredging in the most cost effective way consistent with economic, engineering, and environmental criteria. This includes any necessary lands, easements, rights-of-way, and relocations, and 100 percent of the incremental cost of operation, maintenance, replacement, and rehabilitation.

➤ Floodplain Management Services

The objective of the Floodplain Management Services program (Section 206 of the 1960 Flood Control Act, as amended) is to foster public understanding of the options for dealing with flood hazards and promote prudent use and management of the Nation's floodplains through technical assistance and planning guidance. State, regional, and *local governments*, Native American tribes, and other non-Federal public agencies are eligible to receive assistance from the program without charge. Implementation costs for proposed measures are 100 percent non-Federal, absent eligibility or authorization for another Corps program. The program is not intended to be a substitute for other Corps planning activities. All requesters are encouraged to furnish available field data, maps, historical flood information and the like, to help reduce the cost of services.

The program provides the following types of assistance:

- *General Technical Services*. The program develops or interprets site-specific data on floodplain patterns. It also provides technical

information on natural and cultural floodplain resources, and flood loss potentials before and after the use of floodplain management.

- *General Planning Guidance.* On a larger scale, the program provides assistance and guidance through studies on all aspects of floodplain management planning, including the possible impacts of plain land use changes on the he physical, socio-economic, and environmental conditions of the floodplain. Studies can range from helping a community identify present or future floodplain areas and related problems, to a broad assessment of which of the various remedial measures may be effectively used. Some of the most common types of studies include:
  - ◇ Floodplain Delineation/Flood Hazard Evaluation Studies
  - ◇ Dam Break Analysis Studies
  - ◇ Hurricane Evacuation Studies
  - ◇ Flood Warning/Preparedness Studies
  - ◇ Regulatory Floodway Studies
  - ◇ Comprehensive Floodplain Management Studies
  - ◇ Flood Damage Reduction Studies
  - ◇ Urbanization Impact Studies
  - ◇ Stormwater Management Studies
  - ◇ Flood Proofing Studies
  - ◇ Inventory of Flood Prone Structures
- *NFIP Assistance.* The program provides guidance and assistance for meeting standards of the National Flood Insurance Program and for conducting workshops and seminars on non-structural floodplain management measures, such as flood proofing.
- *Guides, Pamphlets, and Supporting Studies.* The Program enables studies to be conducted to improve methods and procedures for mitigating flood damages. It also can be used for preparing guides and pamphlets on flood proofing techniques, floodplain regulations, floodplain occupancy, natural floodplain resources, and other related aspects of floodplain management.

➤ Nonstructural Alternatives to Structural Rehabilitation of Damaged Flood Control Works

The objective of this Nonstructural Alternatives to Structural Rehabilitation of Damaged Flood Control Works (FCW) program is to provide for a nonstructural alternative to the structural rehabilitation of flood control works damaged in floods or coastal storms. Assistance is provided in the form of direct planning and construction assistance. No

grants or loans are provided. States, tribes, and *other political entities* are eligible to participate if there is a non-Federal sponsor or other Federal agency.

The Corps may fund 100 percent of the project costs, up to a projected specific cap. Costs above the Corps cap are the responsibility of other participating state, tribal, *local*, and/or Federal agencies. The program is not a stand-alone program. It is available only for eligible flood control works, and only at the request of the non-Federal sponsor. It is intended to encourage non-Federal sponsors of flood control works to restore natural floodplains, provide or restore floodways, and reduce future flood damages and associated FCW repair costs. Habitat restoration is recognized as being a significant benefit that can be achieved, and this may be a significant component of a project, but is not considered to be a principal purpose under this program.

➤ Planning Assistance to States (& Others)

The objective of Section 22 of the Water Resources Development Act (WRDA) of 1974, as amended, is to provide authority for the Corps of Engineers to assist the states, tribes, *local governments* and other non-Federal entities in the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources. By providing technical and planning assistance, the Program can help governments plan non-traditional strategies. Types of studies conducted in recent years under the program include the following:

- Water Supply and Demand Studies
- Water Quality Studies
- Environmental Conservation/Restoration Studies
- Wetlands Evaluation Studies
- Dam Safety/Failure Studies
- Flood Damage Reduction Studies
- Floodplain Management Studies
- Coastal Zone Management/Protection Studies
- Harbor/Port Studies

Federal allotments for each state or tribe from the nation-wide appropriation are limited to \$500,000, but typically are much less. Studies are cost-shared on a 50 percent Federal—50 percent non-Federal basis. Typical studies are only planning level of detail; they do

not include detailed design for project construction. Most studies become the basis for state or tribal and local planning decisions.

### **Potential Funding from the Natural Resources Conservation Service**

❖ **Emergency Watershed Protection Program (EWP)**

The EWP provides assistance to reduce hazards to life and property in watersheds damaged by severe natural events. Emergency work includes establishing quick vegetative cover on denuded land, sloping steep land, and eroding banks; opening dangerously restricted channels; repairing diversions and levees; and other emergency work. The emergency area need not be declared a national disaster area to be eligible for technical and financial assistance. Emergency watershed protection is applicable to small scale localized disasters as well as disasters of national magnitude.

The Food and Agriculture Improvement and Reform Act (Farm Bill) of 1996 contains language that authorizes the purchase of floodplain easements as an emergency measure under the EWP. The purchase of floodplain easements can retire land from frequent flooding to preclude Federal disaster payments, retire land to allow levee stand backs, or limit the use of the land. This new tool provides an opportunity to purchase easements when the long-term cost of the easement is less than repeated repairs to the same land.

Areas eligible for floodplain easement purchase include non-urban lowlands, which are predominantly cropland, grazing land, hayland, or forest land, that lie adjacent to channels of a river, streams, watercourse, lake or ocean and have been subject to flood damage. Funds from the EWP are provided through emergency supplemental appropriations only. The Federal share is 100 percent of the easement value and the administrative cost associated with obtaining the easement; 100 percent of technical assistance; and 75 percent of other eligible measures.

Following Hurricane Floyd, the NRCS obligated funds under the Emergency Watershed Protection Program for technical and financial assistance to implement flood water mitigation and stream restoration projects in *Princeville*, North Carolina.

❖ **Watershed Protection and Flood Prevention Program**

The short-term objectives of the Watershed Protection and Flood Prevention Program are to provide technical assistance in planning works of improvement to protect, develop, and utilize the land and water resources in small watersheds under 250,000 acres in size. Conservation land treatment, structural, and nonstructural measures are used to address the program purposes of watershed protection, flood prevention, and agricultural and nonagricultural water management. Application of conservation land treatment measures to upstream watersheds is the main feature that separates this program from others. Nonstructural measures will be preferred. The program emphasizes planning through interdisciplinary teams which include the sponsors, other agencies, and environmental groups in all stages of plan development.

Watershed projects must address one or more of the purposes authorized by PL 83-566 to solve problems and needs that are beyond the capability of individual landowners. Projects must be sponsored by entities legally organized under state law, or any Indian tribe or tribal organization, having authority to carry out, operate, and maintain works of improvement. For plans that incorporate structural or nonstructural measures, sponsors must have the power of eminent domain and the authority to levy taxes or use other adequate funding sources to finance their share of the project cost and all operation, maintenance, and replacement costs of works of improvement.

Cost-sharing requirements vary according to the nature of the project. Following Hurricane Floyd, the NRCS expended funds from the Watershed and Flood Prevention Operations program for stream bed debris removal, “snag and drag” in North Carolina.

**Potential Funding from the US Farm Service Agency**

The USDA Farm Service Agency (FSA) provides numerous types of assistance to farmers following natural disasters, including loans, grants, and technical assistance.

○ **Emergency Loans for Farming Operations**

Upon a Presidential disaster declaration, the Farm Service Agency makes direct loans and technical assistance to established family farmers, ranchers, and aquaculture operators to cover losses resulting from disasters. Loan funds can be used for farm operations and other

items necessary to return the disaster victim's farming operations to a financially sound basis as soon as possible, so that the victim can obtain credit from private sources.

- Emergency Haying and Grazing Assistance/ Livestock Feed Programs  
The FSA makes direct payments to help livestock producers in approved counties when the growth and yield of hay and pasture have been substantially reduced because of a widespread natural disaster. The FSA provides emergency feed assistance in the form of direct payments or donations for the preservation and maintenance of eligible livestock to eligible livestock owners who have suffered a substantial loss of livestock feed normally produced on the farm because of a natural disaster.
- Emergency Conservation Program  
The FSA makes direct payments to enable farmers to perform emergency conservation measures to control wind erosion on farmlands; to rehabilitate farmlands damaged by wind erosion, floods, hurricanes, or other natural disasters; and to carry out emergency water conservation or water-enhancing measures during times of severe drought.
- Farm Operating Loans/Farm Ownership Loans  
The FSA makes loans to pay operating expenses, refinance debts, purchase livestock and farm equipment, and make minor improvements to buildings and real estate. Direct loans, guaranteed/insured loans, and technical assistance are made available to family-sized farmers unable to obtain credit from other sources. The FSA makes loans to assist farmers to develop, construct, improve, or repair farm homes, farms, and service buildings; to drill wells, and otherwise improve farm water supplies; and to make other necessary improvements. Direct loans, guaranteed/insured loans, and technical assistance are made available to family-sized farmers unable to obtain credit from other sources.
- Crop Insurance: Catastrophic Risk Protection Coverage  
The FSA makes direct payments of insurance claims to reimburse insured producers for losses of crops that contribute ten percent or more of the total expected value of all crops grown in the country. Producers of insurable crops must purchase Catastrophic Risk

Protection Coverage on each crop of economic significance to be eligible for other USDA programs.

- Non-insured Crop Disaster Assistance Programs  
The FSA makes direct payments to producers for crops not covered by catastrophic risk protection for crop yield losses caused by a natural disaster. Non-insured Crop Disaster Assistance coverage includes commercial crops grown for food or fiber for which the catastrophic risk protection plan of insurance is not available. It includes floriculture, ornamental nurseries, Christmas trees, turfgrass sod, and industrial crops.
  
- Soil and Water Loans  
The FSA makes loans to develop wells, improve water supplies, build dikes, terraces, waterways, and other erosion-control structures. Loan funds may also be used to construct and repair ponds, tanks, ditches, and canals for irrigation. Direct loans, guaranteed/insured loans, and technical assistance is available to owners of family-sized farms unable to obtain credit from other sources.

**Potential Funding from the Department of Housing and Urban Development (HUD)**

- Community Development Block Grant (CDBG) Entitlement Communities Program  
The CDBG entitlement program annually allocates funds to metropolitan cities and urban counties to develop viable urban communities by providing decent housing, a suitable living environment, and by expanding economic opportunities, principally for low- and moderate-income persons. Entitlement areas include cities with populations of 50,000 or more (such as Rocky Mount) and counties with populations of 200,000 or more. Within the area of this Plan, only the City of Rocky Mount currently qualifies for this program, although the City of Wilson is expected to be eligible in the near future.
  
- Community Development Block Grant (CDBG) State Administered Program  
The purpose of the CDBG State Administered Program is to develop viable urban communities by providing decent housing, a suitable living environment, and by expanding economic opportunities, principally for low- and moderate-income persons. Participating states have three

major responsibilities: formulating community development objectives; deciding how to distribute funds among communities in non-entitlement areas; and ensuring that recipient communities comply with applicable state and Federal laws and requirements. In North Carolina, the State Administered CDBG Program is administered by the Division of Community Assistance, Department of Commerce.

Funds may be used by non-entitlement communities for a wide range of activities, including:

- Acquisition of real property
- Clearance
- Relocation
- Housing rehabilitation
- Public services
- Public facilities and improvements (such as water and sewer facilities, streets, and neighborhood centers)
- Micro-enterprise assistance
- Homeownership assistance
- Special economic development activities

Generally speaking, non-entitlement areas are cities with populations of less than 50,000 and counties with populations of less than 200,000, which would currently include all the jurisdictions in the planning area, except for the City of Rocky Mount. Non-entitlement communities include those units of general local government which do not receive CDBG funds directly from HUD as part of the entitlement program (Entitlement Cities and Urban Counties).

HUD has statutory authority to waive certain requirements for activities designed to address damage from presidentially declared disasters. Local governments have the responsibility to consider local needs, prepare grant applications for submission to the State, and carry out the funded community development activities. Local governments must comply with Federal and State requirements.

- HOME Investment Partnership Program  
The major objective of the HOME Program is to produce affordable housing by providing formula grants to states, local governments, urban counties and consortia for permanent and transitional housing for low-income persons.

The HOME Program can be used to provide assistance in floodplain management areas. HOME funds can assist renters, new homebuyers, and existing homeowners with acquisition, new construction, rehabilitation, and tenant-based rental assistance.

All states as well as Metropolitan cities, urban counties, and consortia (contiguous units of local government) are eligible to become participating jurisdictions in the HOME program. Additional special set-asides of funds are made for insular areas.

Funds are made available by formula to states and local governments. In FY 1993 a supplemental allocation of \$50 million was made available to states and local governments affected by the Midwest floods. A 25% match is required. The match may be waived due to fiscal distress or in Presidentially-declared disaster areas. To receive HOME funds, a jurisdiction must prepare, and HUD must approve, a Consolidated Plan. Shortly after HOME funds become available each year, HUD will inform participating jurisdictions of funds available. HUD has statutory authority to waive certain requirements for activities designed to address damage from Presidentially-declared disasters.

HOME funds may not be used for public housing modernization, tenant subsidies for certain mandated purposes under Section 8, matching funds under Federal programs, Annual Contributions contracts, activities under the low-Income Housing Preservation Acts of 1987 and 1990 (except for priority purchasers), and operating subsidies for rental housing. Funds also may not be used to fund a reserve account for replacement of a project reserve account for unanticipated increases in operation costs.

For regular HOME funds to be used in disaster areas, HUD will provide a series of waivers to expedite the use of funds and will also consider other waivers that may be requested by affected jurisdictions.

- **Public Housing Modernization Reserve for Disasters and Emergencies**  
The objective of the Public Housing Modernization Reserve for Disasters and Emergencies is to meet the modernization need of public housing agencies resulting from disasters and emergencies. The Program provides funding in the form of grants to public housing agencies (PHAs) for modernization needs, such as elevation and floodproofing resulting from disasters. Funding is provided to PHAs

only to the extent that their modernization needs are in excess of their insurance coverage or other Federal assistance.

At the beginning of each fiscal year, HUD sets aside a reserve amount of no more than \$75 million from annual appropriations and unused prior year reserves. To qualify for assistance, the disaster must pertain to an extraordinary event affecting only one or a few PHAs, such as an earthquake or hurricane, including any disaster declared by the President (or any event which HUD determines would qualify for a Presidential declaration if it were on a larger scale).

A PHA (including a designated MOD-Troubled PHA) is eligible to apply for and receive funds from the reserve regardless of the availability of other modernization funds or reserves, but only to the extent that its needs are in excess of its insurance coverage or other Federal assistance. A PHA is not required to have an approved Comprehensive Plan to obtain funds from the Reserve.

There are no cost-sharing requirements or repayment requirements. To obtain funding from the reserve, a PHA must submit a request, in form prescribed by HUD, which demonstrates that the PHA meets the eligibility requirements. HUD will immediately process a request for such assistance and if it determines the request meets the eligibility requirements, HUD will approve the request, subject to the availability of funds in the reserve.

- Section 108 Loan Guarantee Program  
The objective of the Section 108 Loan Guarantee Program is to provide loan guarantees to public entities for community and economic development.  
Guaranteed loan funds can be used to finance:
  - Acquisition of real property;
  - Relocation of property, homeowners, and businesses;
  - Rehabilitation of publicly-owned real property, including repair and reconstruction of levees, and renovation or reconstruction of public utilities (e.g., water and sewer systems);
  - Housing rehabilitation, including elevation of properties; and
  - Economic development

The loan guarantee assistance is available for states to use in non-entitlement communities, and for use by entitlement communities. There is no cost-sharing requirement. The maximum repayment period for a Section 108 loan is twenty years. Waivers which apply to the CDBG program could also apply to the Section 108 Program.

- Single Family Home Mortgage Insurance for Disaster Victims Section 203(h)

The objective of the Single Family Home Mortgage Insurance for Disaster Victims Program is to provide mortgage insurance for individuals to purchase a new principal residence after being displaced by a disaster. Federal Housing Administration (FHA) mortgage insurance helps lenders reduce their exposure to risk of default, allowing them to make more money available for home financing.

The Section 203(h) program supports relocation of residences outside the floodplain by providing assistance in the form of mortgage insurance, targeting individuals who are disaster victims and want to purchase a home. Borrowers must meet standard Federal Housing Administration (FHA) credit qualifications. Borrower's previous residence must have been destroyed or damaged by a federally-declared disaster event to such an extent that reconstruction or replacement is necessary. The borrower may be the owner of the property or a renter of the property destroyed.

The borrower is eligible for 100% financing under Section 203(h) and no down payment is required, with up to 30 years for repayment.

#### **Small Business Administration Disaster Assistance Program - U.S. Small Business Administration**

The Small Business Administration (SBA) Disaster Assistance Program provides low-interest loans to businesses following a Presidential disaster declaration. The loans target businesses with repair and replacement of uninsured property damages including real estate, machinery and equipment, inventory, and supplies. Businesses and non-profit organizations are eligible.

#### **Community Development Block Grants - U.S. Department of Housing and Urban Development**

The Community Development Block Grant (CDBG) program assists communities in rehabilitating substandard dwelling structures and in

expanding economic opportunities, primarily for low-to-moderate-income families. However, as a result of a Presidential disaster declaration, CDBG funds may be used for long-term needs such as acquisition, reconstruction, and redevelopment of disaster-affected areas.

In addition, the *Catalogue of Federal Domestic Assistance Programs* (CFDA) is a collection of federal programs, projects, services, and activities that provide assistance or benefits to the American public. Available federal assistance includes grants, loans, loan guarantees, services, and other types of support. The online document is available at <http://aspe.os.dhhs.gov/cdfa>.

### **Pipeline Hazardous Material Safety**

Grants are available for technical assistance through the US Department of Transportation Pipeline and Hazardous Material Safety Administration (See: <http://primis.phmsa.dot.gov/comm/DamagePreventionGrantsToStates.htm>):

*PHMSA's Technical Assistance Grants (TAG) program offers new opportunities to strengthen the depth and quality of public participation in pipeline safety matters. TAG program awards enable communities and groups of individuals to obtain funding for technical assistance in the form of engineering or other scientific analysis of pipeline safety issues and help promote public participation in official proceedings. For purposes of grants eligibility, communities are defined as cities, towns, villages, counties, parishes, townships, and similar governmental subdivisions, or consortia of such subdivisions. A nongovernmental group of individuals is eligible for a grant under the TAG program if its members are affected or potentially affected individuals who are incorporated as a non-profit organization in the state where they are located.*

(For more information on schedules and grant funding see: <http://www.grants.gov/web/grants/view-opportunity.html?oppld=141534>)

## **B. State Programs**

### **NC Floodplain Mapping Program (NCFMP)**

The State of North Carolina, through the Federal Emergency Management Agency's Cooperating Technical Community partnership initiative, has been designated as a Cooperating Technical State (CTS). As a CTS, the State assumes primary ownership and responsibility for Flood Insurance Rate Maps (FIRMs) for all North Carolina communities. The Statewide Floodplain Mapping Initiative project includes conducting flood hazard analysis and producing updated, digital FIRMs (DFIRMs).

The State began the Flood Mapping Program with the Cape Fear, Lumber, Neuse, Pasquotank, Tar-Pamlico, and White Oak river basins in December 2000. These six river basins account for approximately one-half of the area of the State, impact 48 counties and 334 incorporated municipalities, and encompass over 21,000 miles of streams and rivers. The remainder of the state was divided into two mapping regions, to follow the Phase 1 river basins.

The new Digital Flood Insurance Rate Maps (DFIRMs) are designed to view digitally on a computer within a Geographic Information System (GIS). Digital flood maps are composites of base data, topographic data and flood layers which can be overlain with local parcel information or other data to more easily determine if a house or other property is or will be located in a Special Flood Hazard Area or floodway. If consistently used by communities for floodplain management, this information should help to dramatically reduce future flood losses in North Carolina. A variety of flood mapping information can be found at [www.ncfloodmaps.com](http://www.ncfloodmaps.com) or [fris.nc.gov](http://fris.nc.gov).

**NC Rural Economic Development Center, Inc.**

The Rural Center's mission is "to develop, promote and implement sound economic strategies to improve the quality of life of rural North Carolinians. We serve the state's 85 rural counties, with a special focus on individuals with low to moderate incomes and communities with limited resources." In order to carry out this mission the Rural Center performs a variety of institutional roles as set forth on their current web site:<sup>1</sup>

- 1. The Rural Center develops policy options that can help rural North Carolina. These options are presented by center board members and staff through testimony before the North Carolina General Assembly and at public hearings and speeches; meetings with top decision makers; outreach to local groups; and a range of public media.*
- 2. Through research the Rural Center develops effective strategies for rural improvements. Each year the Rural Center identifies specific issues for in-depth exploration by center staff, who work in concert with local, state and national experts on research initiatives. To ensure practical results for its research, the Rural Center chooses strategies that hold particular promise for rural development and field tests them*

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<sup>1</sup> See: [http://www.ncruralcenter.org/index.php?option=com\\_content&view=article&id=146:atc-roles&catid=50](http://www.ncruralcenter.org/index.php?option=com_content&view=article&id=146:atc-roles&catid=50)

at sites throughout the state. The demonstrations are carried out with partners in a range of community settings. The center particularly favors models that are transportable or have potential for replication in other rural communities. In addition to its own work, the center provides financial support through grant programs to other organizations in order to test innovative ideas. The center also provides state and local leaders with accurate information on which to base their decisions. The Rural Center collects and analyzes data from a range of national and state sources and uses this data to construct a statistical profile of rural North Carolina, which it translates into a variety of consumable reports and visual presentations.

3. The Center believes that successful communities are those that can shape their own futures. However, many rural communities, suffering from a history of under-investment, require special resources to compete in today's global economy and to sustain growth over time. To assist these communities the Rural Center operates a set of unique programs that provide resources in the following ways.
  - The center's Institute for Rural Entrepreneurship stimulates and supports the development of small and medium enterprises and fosters the creation of a strong business climate in North Carolina's 85 rural counties.
  - The Microenterprise Loan Program helps individuals become self-sufficient through self-employment and growth of very small businesses and the Small Business Credit Initiative expands credit options through traditional lenders and invests in growing businesses through established venture funds.
4. The center also operates several programs whose purpose is to help rural communities and their organizations achieve high-quality growth and development. For example, the Center's Water and Sewer Grants Programs support planning and development of public infrastructure to generate economic growth and to address critical clean water needs. The Building Reuse and Restoration Program assists communities in preparing vacant buildings for reuse by new and expanding businesses. The Community Development Grants Program supports CDC growth and programming in minority communities. The Agricultural Advancement Consortium works to improve the long-term vitality of North Carolina farms through research and advocacy.
5. Many of the Rural Center's local program partners are organizations that are just getting started or ones that have operated with limited

*resources in the past. To give these organizations the best chance at success, the center provides technical assistance and training in areas ranging from program development to fiscal management. The center also serves as an unofficial referral service to help rural leaders and groups identify technical assistance from other sources.*

Lastly, the Center has a Leadership Program to help individuals increase knowledge of economics and community development by conducting an annual Rural Economic Development Institute. Also, the Center shares information with rural leaders through a variety of media.

### **Clean Water Management Trust Fund (CWMTF)**

The Clean Water Management Trust Fund (CWMTF) was created in 1996 for the purpose of making grants to local governments, state agencies, and conservation non-profit organizations to help finance projects that protect the surface waters in North Carolina. The CWMTF will fund projects that 1) enhance or restore degraded waters; 2) protect unpolluted waters; and/or 3) contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits, (4) provide buffers around military bases to protect the military mission, (5) acquire land that represents the ecological diversity of North Carolina, and (6) acquire land that contributes to the development of a balanced State program of historic properties.

Some important changes to the Clean Water Management Trust Fund were made by the General Assembly and the Governor through the passage of the 2013-2014 budget. Here is a brief summary:

- The Natural Heritage Trust Fund has been repealed and the CWMTF has been authorized to acquire lands with ecological, cultural and historic significance to the State of North Carolina.
- The CWMTF has been authorized to provide buffers around military bases.
- The CWMTF is no longer authorized to make grants to fund wastewater improvement or conventional stormwater projects. These programs will be administered by the new Division of Water Infrastructure and the State Water Infrastructure Authority.
- The CWMTF has been moved into the Department of Environment and Natural Resources.

- The CWMTF is now appropriated recurring funds and in addition receives a portion of the special registration fee for personalized and some specialty license plates.
- The number of board members has been reduced from 21 to 9 members. (<http://www.cwmtf.net/#home.html>)

### **N.C. Division of Water Infrastructure**

The recent creation of the Division of Water Infrastructure (<http://portal.ncdenr.org/web/wi/>) consolidated key infrastructure funding programs previously administered by the Division of Water Quality, Division of Water Resources, and Department of Commerce. The funding programs that are currently available are as follow:

- **Clean Water State Revolving Funds (CWSRF)**

Under the CWSRF, Congress provides the states with grant funds to establish revolving loan programs to assist in the funding of wastewater treatment facilities and projects associated with estuary and nonpoint source programs. These funds could be used to relocate, repair, or replace wastewater treatment plants damaged by flooding.

The states are required to provide 20% matching funds. In North Carolina, these funds are made available to municipalities, counties, conservation districts, and other public agencies at one-half (1/2) of the market rate for a period of up to 20 years. The actual term of the loan is determined by the State Treasurer's Office. For a summary of the entire process, click on this link:

[http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=187e4e62-b845-4a4e-bc80-7b15c7fa3d25&groupId=14655572](http://portal.ncdenr.org/c/document_library/get_file?uuid=187e4e62-b845-4a4e-bc80-7b15c7fa3d25&groupId=14655572).

- **Water Infrastructure Program (WIP)**

- **State Drinking Water and Wastewater Reserves (established under NCGS 159G)**

These reserve accounts include the following grant programs:

- **Technical Assistance Grants (TAGs)**

Drinking water TAGs are for the purpose of determining the best way to correct deficiencies in a public water system that does not comply with State law or the rules adopted to implement the law. (NCGS 159G-34.(a)(3))

Wastewater TAGs are for the purpose of determining the best way to correct deficiencies in a system or treatment plant that is not in

compliance with permit limits, or is experiencing operational problems and is at risk of violating permit limits. (NCGS 159G-33.(a)(3))

➤ **High Unit Cost Grants (HUCs)**

HUCs are grants for the purpose of constructing critical water infrastructure. To be eligible for consideration for a HUC, the applicant's residential customer's annual average water and/or sewer bill must be over the HUC threshold of 1.5% of Median Household Income (MHI) for both or 0.75% of MHI for either water or sewer service in accordance with NCGS 159G-20(10).

**Drinking Water State Emergency Loan (SEL)**

To fund drinking water capital projects that protect public health, North Carolina makes loans at one-half of the market rate for a period of up to 20 years. An administrative or departmental funding fee of 2.50% is charged for this service and made payable upon award of funding according to NCGS 159G-24(a). The actual term of the loan is determined by the State Treasurer's Office. All funded projects must address a threat to public health (as described in the [15A NCAC 01J](#) rules that implement the founding statute [NCGS 159G](#)).

Under NCGS 159G-34(a)(4), “an emergency loan is available to an applicant in the event the Secretary certifies that either a serious public health hazard or a drought emergency related to the water supply system is present or imminent in a community.”

Under NCGS 159G-31, applicants must be either a local government unit or a nonprofit water corporation in order to be eligible.

Under 15A NCAC 01J .2001(c), the SEL program can fund only the most cost-effective solution to a documented public health problem. Therefore, the applicant must document both the existence of the problem and the costs of alternatives to address it, typically in the Preliminary Engineering Report, or 'PER.' In particular, the PER must explicitly discuss the 'do-nothing' or 'no-build' alternative.

**Drinking Water State Revolving Fund (DWSRF)**

To fund drinking water capital projects that protect public health, North Carolina makes loans at one-half (1/2) of the market rate for a period of up to 20 years. The actual term of the loan is determined by the State Treasurer's Office. An administrative funding fee of 2.00% is charged and

made payable upon award of funding according to 15A NCAC 01N .0203. All funded projects must address a threat to public health (as described in [15A NCAC 01N](#) and the [Operating Agreement](#)).

Since the DWSRF is federally-seeded, the loans are subject to additional federal regulations regarding [environmental review](#), [outreach for disadvantaged business enterprises](#), [payroll \(Davis Bacon and related Acts\)](#), etc.

**Community Development Block Grants - CDBG (for Infrastructure Projects)**

Eligibility for the CDBG and the requirements are set forth by the North Carolina Department of Environment and Natural Resources' (NC DENR) Community Development Block Grant Infrastructure (CDBG-I) program. In 2013, the North Carolina General Assembly allocated Community Development Block Grant funds to the Infrastructure program, and transferred the funds to the North Carolina Department of Environment and Natural Resources' Division of Water Infrastructure to administer. The purpose of these funds is to construct public water and sewer infrastructure to mitigate public and environmental health problems in areas where the percentage of low to moderate income persons is at least 51 percent. (For information see: <http://portal.ncdenr.org/web/wi/cdbg>.)

**Water Resources Development Grant Program - NC Department of Environment and Natural Resources, Division of Water Resources**

The Water Resources Development Grant Program funds can be used as the non-Federal share of water resources development projects. Eligible projects include 1) general navigation projects; 2) recreational navigation projects; 3) flood control and water drainage projects; 4) stream restoration; 5) protection of privately owned beaches with public access; 6) land acquisition and facility development for water-based recreation; and 7) aquatic weed control projects.

**NC Natural Heritage Trust Fund**

The NC Natural Heritage Trust Fund was a supplementary funding source for state agencies to acquire and protect the State's ecological diversity and cultural heritage and to inventory the natural areas of the State. This fund was established in 1987 by the NC General Assembly and was funded by portions of the annual state deed excise stamp tax revenues and personalized license plate sales. Approximately \$12 million was available to

the fund each year for purposes of acquiring natural lands for state parks, preserves, wildlife conservation areas, coastal reserves, natural and scenic rivers, historic site properties, and other outdoor recreation and natural areas. The fund's enabling legislation was repealed in 2013, but key provisions of the mission were incorporated into the Clean Water Management Trust Fund (CWMTF). The result of the legislation was a merger of the two trust funds. (See the subsection on the CWMTF for more details.)

### **NC Parks and Recreation Trust Fund (NCPARTF)**

The NC Parks and Recreation Trust Fund was established in 1993 and is funded by 75% of the annual state deed excise stamp tax revenues. State parks receive 65%; local parks, 30%; beaches & waterfronts, 5%; and administration, 3%. Approximately \$22 million is available each year. The program is managed by the Board of the Parks & Recreation Authority and the Division of Parks & Recreation (DPR) in DENR.

Since 1995, local governments have submitted 549 applications requesting over \$76 million for capital improvements and land acquisition. The Parks & Recreation Authority has approved 226 projects for a total of \$33.7 million. Over 1400 acres have been added to local parks. The Authority has approved 140 state park land acquisition and facility projects for a total of \$71.7 million. PARTF has funded the addition of 8,466 acres to the State Park System. (<http://ils.unc.edu/parkproject/partfund>).

### **Land and Water Conservation Fund (LWCF)**

The Land and Water Conservation Fund was established in 1964 to provide for funding for federal land acquisition and to provide matching grants for state and local governments to acquire parkland. The federal government allocated \$2.9 million to North Carolina for this program in fiscal year 2002-03 with 60% being reserved for local governments and the remaining 40% for State government.

### **National Recreation Trails Program**

The National Recreation Trails Program provides funds to federal, state and local governments and for non-profit organizations for the acquisition of land for trails, and for the development and maintenance of a trail system. The State of North Carolina was allocated \$1.1 million in fiscal year 2002-03 from this program which is managed by the US Department of Transportation.

**Conservation Trust for North Carolina**

For more than 20 years, the Conservation Trust for North Carolina (CTNC) has worked with local land trusts, landowners, communities, and government agencies to protect the State's natural treasures, so that all North Carolinians can enjoy safe drinking water, clean air, fresh local foods, and recreational opportunities, for generations to come. Since its inception, the CTNC has distributed over \$14 million in grants from foundations, government agencies, and CTNC's own funds to land trusts to support their work. In 1983, North Carolina became the first state to establish a state income tax credit for landowners who donated their land for conservation purposes. The program was a huge success. As of December 31, 2012, 238,000 acres had been protected using the tax credit, with an estimated donated land value of more than \$1.3 billion. Unfortunately, the tax credit was terminated by the NC General Assembly in July 2013 as part of broader tax reform measures, effective December 31, 2013.

[\(http://www.ctnc.org/about/\)](http://www.ctnc.org/about/)

**North Carolina Agricultural Development & Farmland Preservation Trust Fund**

The NC Agricultural Development & Farmland Preservation Trust Fund (NC ADFP) was established in by the NC General Assembly. The purpose of the fund is to support the farming, forestry, and horticulture communities within the agriculture industry by:

- Assisting in the preservation of NC's agricultural economy by providing grants to county governments and non-profit organizations for conservation easements, agricultural plans and development projects.
- Encouraging the preservation of qualifying agricultural, horticultural and forestlands to foster the growth, development and sustainability of family farms.
- Prioritizing grant funding for maximum match resource utilization from private, local and federal constituent partners.

The legislation also established a Trust Fund Advisory Committee to advise the NC Commissioner of Agriculture on the prioritization and allocation of funds, the development of criteria for awarding funds, program planning, and other areas for the growth and development of family farms in North Carolina. In the fall of 2006, the Trust Fund awarded its first grants to support projects aimed at agricultural development and farmland preservation. Since that time, the NC ADFP Trust Fund has preserved 8,584 acres of farm and forest

lands. The ADFP Trust Fund will preserve another 1,918 acres by 2014 based on current contract schedules.

To date, ADFP Trust Fund grant recipients have secured over \$29 million in matching funds. ADFP Trust Fund grant recipients anticipate over \$7 million in matching funds by 2014.

[www.ncadfp.org](http://www.ncadfp.org)

**C. Local Sources**

Local governments (counties and municipalities) depend upon local property taxes as their primary source of revenue. Property taxes are typically used to finance services that must be available and delivered on a routine basis to the general public, e.g., counties – social services, schools, etc.; municipalities – water, sewer, solid waste management. If local budgets allow, these funds can also be used for other purposes in the general public interest which would include programs to further hazard mitigation planning. Local funds are most effective when used as local match for Federal and State grant programs.

**D. Non-Governmental Sources**

Another potential but typically less available source of funds for implementing local hazard mitigation projects are monetary contributions from non-governmental organizations such as private sector companies, churches, charities, community relief funds, the Red Cross, hospitals, land trusts and other non-profit organizations interested in the environment or the plight of persons affected by disasters.

## **SECTION 7: PLAN MAINTENANCE**

Periodic monitoring and evaluating of the Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan are required to ensure that the goals and objectives are kept current and that implementation of mitigation actions included in Section 6:



Mitigation Strategies are being accomplished. The Hazard Mitigation Plan may also be revised following a disaster declaration, to address specific issues and circumstances arising from the event. Lastly, updating the Plan at least once every five years is necessary to ensure that the Plan is in full compliance with applicable State and FEMA regulations.

### **7.1 MONITORING AND EVALUATING THE PLAN**

Plan monitoring involves tracking the implementation of the plan over time. Evaluating involves assessing the effectiveness of the plan at achieving its stated purpose and goals.

Since the last individual county hazard mitigation plans in the three-county region were updated in 2010 and 2011, there have been a few meetings/coordination efforts at the county level in order to monitor and/or evaluate the effectiveness of those plans. A summary of those meetings/efforts is listed as follows by each county:

- Edgecombe County held an annual meeting in the fall of 2012 with its staff, and invited representatives from each of the municipalities included in its former plan, to evaluate the progress of mitigation actions and to determine if there were any issues that needed to be addressed. No concerns were identified at that meeting. No additional meetings were held between 2012 until the start of the current regional hazard mitigation planning process.
- Nash County held no annual meeting in 2012 and no report information was collected. In the spring of 2013, information on the progress of implementing mitigation actions was collected from jurisdictions within the county and was consolidated for those communities that responded. The consolidated information was then sent to those communities for reporting to their boards. A copy of the 2013 progress report is included in Appendix G: Plan Maintenance (Section 7) Documents. Follow-up with

## N.E.W. REGIONAL HAZARD MITIGATION PLAN 2015-2020

the remaining communities that did not initially respond lagged due to staffing and workload, and a final progress report was not presented to the Nash County Commissioners. During the fall/winter of 2014 – a review of the current/new mitigation actions was carried out by all jurisdictions for this 2015 three-county regional hazard mitigation plan. The review included reports on current plan actions and updates/submittal of new actions for inclusion in the new plan. The results of the review will be presented to the Nash Commissioners in the summer of 2015 as part of the adoption process for this new three-county regional plan.

- Wilson County did not hold any annual meetings between 2011 and 2013 due to the logistics of getting all the local jurisdictions together at one time. In December of 2011 they did contact all the participating municipalities and requested that they submit damages that they had incurred as a result of hazards that occurred during 2011. (A copy of the email that was sent to the local jurisdictions is included in Appendix G: Plan Maintenance (Section 7) Documents.) The local governments were also asked at the same time to review the current plan and determine if any amendments to the plan were needed. None of the municipalities expressed a desire to amend the plan.

Because the County performs building inspections for the small municipalities within the County, they have access to building permit application data relating to damage resulting from hazards. This data showed that there were 14 building permits issued in 2011, which were in response to damages that resulted from hazard events. These permits included unincorporated areas in the Wilson County and the small towns with the county. The Town of Lucama also reported that Hurricane Irene on 8/27/11 caused downed trees that resulted in 230 cubic yards of vegetative debris that was collected.

In order to carry out the required functions of monitoring and evaluating this 2015 three-county regional plan, the Emergency Management Director/Coordinator for each county will be responsible for having a discussion on the implementation of the NEW Hazard Mitigation Plan in at least one of their county emergency management meetings each year after plan adoption. This annual meeting will include a discussion on progress toward the overall purpose and goals of the Regional Hazard Mitigation Plan, an opportunity to submit comments and an evaluation of implementation progress, including progress on specific hazard mitigation actions for each jurisdiction. Prior to each annual hazard mitigation meeting, notification will be given to both the public and the

members of the three-county Mitigation Advisory Committee (MAC) that their participation is encouraged. Every local government will be expected to send a representative to each annual meeting held within their county. Members of local hazard mitigation committees are encouraged to attend these annual meetings. (Once the process of beginning the required five-year update of the Plan has begun, regional meetings of the Mitigation Advisory Committee (MAC) will be allowed to take the place of the county-level annual meetings.)

The Emergency Management Director/Coordinator for each county may submit a report to their County Board of Commissioners, following each annual meeting, if they determine that such report would be beneficial and appropriate. The report would summarize the annual meeting, the county and municipal-level progress of implementing the NEW Hazard Mitigation Plan, and any recommendation for action by the County Board. (Worksheet 7.1 in [FEMA's Local Mitigation Planning Handbook](#) may be used for this purpose.)

The annual meetings will provide an opportunity for each local government representative to share information on progress made within their jurisdiction and to learn about the progress taking place within other jurisdictions within their county.

The annual meetings will also provide an opportunity for any member of the general public to learn about the progress taking place within their county, to comment on the implementation of the N-E-W Hazard Mitigation Plan, and/or comment on hazard mitigation issues in general.

A hazard mitigation/emergency management meeting will also take place following any disaster event to review issues and circumstances that resulted from such an event.

Overall, these meetings will ensure that the Plan is continuously reviewed to address the needs of each of the three counties, their incorporated municipalities, and the public.

## **7.2 UPDATING THE PLAN**

Updating means reviewing and revising the plan at least once every 5 years to reflect changes in development, progress in local mitigation efforts, and changes in priorities. In order to have sufficient time for the update process to take place, sometime within the 2<sup>nd</sup> year after this plan is adopted, Nash County or one of the other counties to be included in the updated plan (as mutually agreed upon

## [N.E.W. REGIONAL HAZARD MITIGATION PLAN 2015-2020](#)

among the counties) will inquire with the NC Division of Emergency Management (NCEM) regarding the availability of grant funding for the plan update. Within the 3<sup>rd</sup> year after this plan is adopted, , Nash County



or one of the other counties to be included in the updated plan (as mutually agreed upon among the counties) will schedule a meeting of the regional MAC to begin the update process (unless instructed otherwise by NCEM). At the time of this first meeting, the MAC will begin to identify how, when, and by whom the plan will be updated.

In addition to the required 5-year plan update process, the MAC can also establish procedures for updating the plan following a disaster event or concurrent with the development of a recovery or post-disaster redevelopment plan.

In updating this plan, issues that would typically be evaluated include the following: new development in identified hazard areas; increase in exposure to hazards; increase or decrease in capability to address hazards; and changes to federal or state legislation. The five-year review would also consider the items associated with the annual review described above.

The plan update process provides officials of participating counties and municipalities with an opportunity to evaluate those actions that have been successful and to explore the possibility of documenting potential losses avoided due to the implementation of specific mitigation measures. The plan update process also provides the opportunity to address mitigation actions that may not have been successfully implemented as assigned.

Upon completion of the five-year review and/or update/amendment process, the Hazard Mitigation Plan will be submitted to the State Hazard Mitigation Officer at the North Carolina Division of Emergency Management (NCDEM) for final review and approval in coordination with the Federal Emergency Management Agency (FEMA).

### **7.3 PUBLIC INVOLVEMENT**

Public participation is an integral component to the mitigation planning process and will continue to be essential as this Plan is implemented and evaluated over time. Stakeholders, other interested parties and the general public will be notified of the review process and have the opportunity to comment on the five-year plan review/update. Notification methods and efforts to



involve the public will include inviting the public and members of the Mitigation Advisory Committee (MAC) to each annual meeting.

### **7.4 PLAN AMENDMENT PROCESS**

Upon the initiation of any amendments to this plan, prior to the required five-years update process, each county, will forward information on proposed changes to all interested parties within their county including, but not limited to, all directly affected departments, residents, and businesses of participating counties and municipalities. Information will also be forwarded to the North Carolina Division of Emergency Management. This information will be disseminated in order to seek input on the proposed amendment(s) for no less than a 45-day review and comment period.

At the end of the 45-day review and comment period, the proposed amendment and all comments will be forwarded to the MAC for final consideration. The MAC will review the proposed amendment along with the comments received from other parties, and if acceptable, the MAC will submit a recommendation for the approval and adoption of changes to this Plan.

In determining whether to recommend approval or denial of a Plan amendment request, the following factors will be considered by the MAC:

- Errors, inaccuracies or omissions made in the identification of issues or needs in the Plan;
- Identification of new issues or needs that are not adequately addressed in the Plan; and
- A change in information, data, or assumptions from those on which the Plan is based.

## [N.E.W. REGIONAL HAZARD MITIGATION PLAN 2015-2020](#)

Upon receiving the recommendation from the MAC and prior to adoption of the Plan, each participating jurisdiction will hold a public meeting or hearing, as required. The governing body of each participating jurisdiction will review the recommendation from the MAC while taking into consideration the factors listed above and any oral or written comments received at the various public meetings/hearings. Following that review, the governing bodies will take one of the following actions:

- Adopt the proposed amendment as presented;
- Adopt the proposed amendment with modifications;
- Refer the amendment request back to the MAC for further revision; or
- Defer the amendment request back to the MAC for further consideration and/or additional meetings.

In order to have a FEMA approved Hazard Mitigation Plan, all participating jurisdictions recognize the importance of prompt review and approval of the required five-year updated plan and any other plan amendments, and therefore will schedule their review to meet NCEM and FEMA requirements.



**Nash County**  
**Commissioner's Agenda Information Sheet**  
**Date: Monday, May 7, 2012**

page 1 of 3  
Attachments: yes

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**Item:** Grant for Nash-Edgecombe-Wilson Hazard Mitigation Plan  
**Initiated By:** Patsy McGhee, M.R.P., Organizational Development Director  
**Action Proposed:** Authorize Submission of a Grant Application

**Description:**

The Disaster Mitigation Act of 2000 and NC Senate Bill 300 require each local government to have an approved Hazard Mitigation Plan, and update it every 5 years, to be able to apply for federal and state funding following declaration of a disaster. The counties of Nash, Edgecombe, and Wilson and their 25 municipalities propose to incorporate 3 county plans into 1 regional plan.

Nash, Edgecombe, and Wilson counties have all had 2 previous plans. Updated Hazard Mitigation Plans are due May 10, 2016 for Nash County, August 12, 2016 for Edgecombe County, and September 15, 2015 for Wilson County. The earlier Wilson County date would drive the due date for the regional plan.

The Wooten Company prepared the 1<sup>st</sup> Nash County Hazard Mitigation Plan (adopted 9/13/04) at a cost of \$40,000; all municipalities were included, except Rocky Mount (which prepared its own plan). Nash County Planning Staff prepared the 2<sup>nd</sup> Nash County Hazard Mitigation Plan (adopted 1/1/2011 and approved by FEMA 5/16/2011); again all municipalities were included, except Rocky Mount. (The State required municipalities to participate in a county plan and Rocky Mount participated in Edgecombe County's.) The Upper Coastal Plain Council of Governments would prepare the 3<sup>rd</sup> plan. The COG has considerable experience in coordinating with the 28 local governments in our 3 counties, and in preparing regional plans, including Hazard Mitigation Plans.

In February, we submitted a Letter of Interest to the NC Division of Emergency Management for a \$70,000 grant to fund 100% of a regional Hazard Mitigation Plan. (The State required a minimum of three counties.) In late March, we were invited to submit a Grant Application. The grant would allow the counties to save considerably in staff time and in their budgets. Nash County would act as the lead jurisdiction, which primarily entails managing grant finances. The 3 counties are gathering signatures from the mayors on the required "Agreement to participate in a Regional Hazard Mitigation Plan for Nash, Edgecombe, & Wilson Counties". All of Nash County's local governments have signed its Agreement (attached), and Wilson and Edgecombe Counties are close to obtaining all of the required signatures on their Agreements. Priority in awarding grants will be given to Hurricane Irene-impacted areas. The grant could take up to a year to be officially approved by FEMA. The plan would then take 12-18 months to prepare. So, we could finish just a little ahead of schedule and at considerable savings.

**Recommended Action:** Authorize submission of a grant application and designate Nash County as the lead agent for a Nash-Edgecombe-Wilson Counties Regional Hazard Mitigation Plan.

AGREEMENT TO PARTICIPATE IN A REGIONAL HAZARD MITIGATION PLAN  
FOR  
NASH, EDGECOMBE, & WILSON COUNTIES

Billy Morgan  
Nash County

Donald B. Steel  
Town of Nashville

Owen Strickland  
Town of Bailey

Walter L. Weston  
Town of Red Oak

Ellen Drake Leonard  
Town of Castalia

David W. Combs  
City of Rocky Mount

Kirby B. Brown  
Town of Dortches

Shelia R. Williams  
Town of Sharpsburg

Luther A. Lewis  
Town of Middlesex

H. W. [Signature]  
Town of Spring Hope

Kenneth Lee [Signature]  
Town of Momeyer

Estes B. Pett  
Town of Whitakers

**Proposal for Development of a Regional Hazard Mitigation Plan  
For  
Nash, Edgecombe, & Wilson Counties**

As a result of the Disaster Mitigation Act of 2000 and NC Senate Bill 300 each local government including counties, cities, towns, and villages are required to have an approved Hazard Mitigation Plan in order to apply for hazard mitigation funding. The types of plans throughout North Carolina vary from multi-jurisdictional plans, town plans, city plans, and some village plans. North Carolina has approximately 180 hazard mitigation plans that must be updated every five years.

The counties of Nash, Edgecombe, and Wilson and their incorporated jurisdictions propose to develop a regional hazard mitigation plan. Nash County has agreed to act as the lead jurisdiction in this process which will primarily entail managing the finances of the grant should it be awarded. This plan would incorporate 3 multi-jurisdictional hazard mitigation plans into 1 regional plan. However, this application is affirmed by all of the jurisdictions listed below and thus has been signed by members of each jurisdiction that have the authority to act on behalf of their respective community. The participating jurisdictions are as follows:

Nash County

- Town of Bailey
- Town of Castalia
- Town of Dortches
- Town of Middlesex
- Town of Momeyer
- Town of Nashville
- Town of Red Oak
- City of Rocky Mount\*
- Town of Sharpsburg\*
- Town of Spring Hope
- Town of Whitakers\*

Edgecombe County

- Town of Conetoe
- Town of Leggett
- Town of Macclesfield
- Town of Pinetops
- Town of Princeville
- City of Rocky Mount\*
- Town of Sharpsburg\*
- Town of Speed
- Town of Tarboro
- Town of Whitakers\*

Wilson County

- Town of Black Creek
- Town of Elm City
- Town of Lucama
- Town of Saratoga
- Town of Sharpsburg\*
- Town of Sims
- Town of Stantonburg
- City of Wilson

Note: \* indicates municipal boundaries span more than one county.  
The Town of Whitakers spans Nash & Edgecombe Counties.  
The City of Rocky Mount spans Nash & Edgecombe Counties.  
The Town of Sharpsburg spans Nash, Edgecombe & Wilson Counties.

Nash County has the planning responsibility for Sharpsburg & Whitakers.  
Edgecombe County has the planning responsibility for Rocky Mount.

**A RESOLUTION OF THE  
NASH COUNTY BOARD OF COMMISSIONERS  
DESIGNATING THE COUNTY MANAGER AND COUNTY FINANCE OFFICER  
AS PRIMARY AND SECONDARY AGENTS FOR THE  
REGIONAL HAZARD MITIGATION PLAN GRANT**

**WHEREAS**, the Disaster Mitigation Act of 2000 and NC Senate Bill 300 require each local government to have an approved Hazard Mitigation Plan, and update it at least every five years, in order to be able to apply for federal and state funding following declaration of a disaster; and,

**WHEREAS**, Nash County submitted a Letter of Interest to the North Carolina Department of Public Safety, Division of Emergency Management, and has subsequently been invited to submit an application for a grant from the Federal Emergency Management Agency to fund preparation of a regional Hazard Mitigation Plan; and,

**WHEREAS**, the counties of Nash, Edgecombe, and Wilson and their twenty-five municipalities propose to incorporate three county plans into one regional plan;

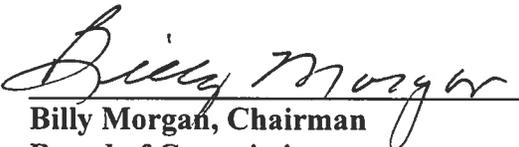
**NOW, THEREFORE, BE IT RESOLVED BY THE GOVERNING BODY OF NASH COUNTY, THAT:** The County Manager and County Finance Officer will serve as the primary and secondary agents and are hereby authorized to execute and file applications for federal and/or state assistance on behalf of Nash County for the purpose of obtaining certain state and federal financial assistance under the Robert T. Stafford Disaster Relief & Emergency Assistance Act, (Public Law 93-288 as amended) or as otherwise available.

**BE IT FURTHER RESOLVED THAT:** The above named agents are authorized to represent and act for Nash County in all dealings with the State of North Carolina and the Federal Emergency Management Agency for all matters pertaining to such disaster assistance required by the grant agreements and the assurances printed on the Designation of Applicant's Agent form.

**BE IF FINALLY RESOLVED THAT** the above-named agents are authorized to act severally.

**This resolution duly approved on the 7<sup>th</sup> day of May 2012 and noted in the minutes of the regular meeting of the Board of Commissioners of Nash County, North Carolina.**

Nash County, North Carolina

  
**Billy Morgan, Chairman  
Board of Commissioners**

**ATTEST:**

  
**Janice Evans  
Clerk to the Board of Commissioners**

# Mitigation Actions Meeting: NEW MAC Full Committee

Attendance Sheet

2014-Oct-21

10 a.m.

|    | Name (Printed)   | Organization;<br>Title-Position  | Name of the Mitigation<br>Actions <u>contact</u> for your<br>jurisdiction |
|----|------------------|--|---|
| 1  | Kurt Lintelman   | GIS Programmer   | City of Wilson  |
| 2  | Josh Juwils      | Planner, City of Wilson, NC  | Janet Holland   |
| 3  | Janet Holland    | land Dev't Mgr.<br>City of Wilson                                      | Janet Holland   |
| 4  | Mark A. Rogerson | Edgecombe count<br>Dept. Dir. F.M.                                     | Mark Rogerson   |
| 5  | Zach Musgrave    | Edgecombe Co<br>GIS  |   |
| 6  | Ron Pace         | Town Commissioner<br><del>TOWN MANAGER</del>                           | Karen Hendricks<br>TOWN MOMEYER   |
| 7  | Becky Smith      | Town Clerk   | Becky Smith<br>Town of Bailey   |
| 8  | Tommy Hawkins    | MAYOR  | SARATOGA  |
| 9  | Gary W Davis     | Town Manager   | Stantonsburg  |
| 10 | Tom Anderson     | TOWN CLERK   | Leggett   |
| 11 | GARY SKELTON     | MAYOR  | Leggett   |
| 12 | Dolan Atkinson   | MAYOR  | TAMMY TOWN Admin-<br>LUCAMA   |
| 13 | Daryl Norris     | Stormwater Specialist<br>Floodplain Admin                              | City of Wilson <sup>Janet</sup> Holland                                   |
| 14 | Byron Ellis      | TOWN MANAGER<br>TOWN OF PRINCEVILLE                                    | Byron Ellis   |
| 15 | JIM BRADSHAW     | REGION L-UPPER CATAWBA<br>PLANNING COUNCIL OF NC<br>COMMITTEE PLANNING | N/A   |

# Mitigation Actions Meeting: NEW MAC Full Committee

## Attendance Sheet, continued

|    | Name (Printed)       | Organization;<br>Title-Position             | Name of the Mitigation<br>Actions contact for your<br>jurisdiction |
|----|----------------------|---|--|
| 16 | TINA M. PRICE        | Planner I / Code Enforcement                | Brian Hassell, Planning Director<br>Town of Nashville              |
| 17 | Robert Smith         | Town of Sharpsburg<br>public works Director | Robert Smith - Director<br>Town of Sharpsburg                      |
| 18 | Brian Sullivan       | Asst. public works director                 | Brian Sullivan Asst. Director<br>Town of Sharpsburg                |
| 19 | Luther H. Lewis Jr.  | Town of Middlesex<br>Mayor / Town Adm.      | Luther H. Lewis Jr.<br>luluhog@TownofMiddlesex.com                 |
| 20 | Juan Parker          | Town of WhiteHors<br>Admin.                 | Juan Parker<br>townofwhitehors@aol.com                             |
| 21 | Josh Edmondson       | Town of Tarboro                             | Josh Edmondson<br>Planning Director<br>jedmondson@tarboro-nc.com   |
| 22 | Patsy McGehee        | Nash County                                 | Asst to Co. Mgr<br>Patsy.meghee@nashcountync.gov                   |
| 23 | Wyatt McGehee        | UCPROG                                      | NA   |
| 24 | Jonathan Russell     | Town of Elm City<br>Town Administrator      | Jonathan Russell<br>jrusell@townofelmcity.com                      |
| 25 | Nancy Nixon          | Nash County                                 | <del>Nancy Nixon</del> Patsy<br><del>Nash County</del> McGehee     |
| 26 | Mark M. Johnson      | Wilson County<br>Planning Director          | Mark Johnson<br>mmjohnson@wilson-co.com                            |
| 27 | BARBARA<br>HIGH TYRE | Town of Red Oak                             | hightyre@aol.com   |
| 28 | James E. Alston      | Town of Castalia                            | alston.james15@jcho.com  |
| 29 | JoSeth Bocook        | City of Rocky Mount                         | joseth.bocook@rockymountnc.gov                                     |
| 30 | Roberta J mercer     | Speed NC                                    |  |

# Mitigation Actions Meeting: NEW MAC Full Committee

## Attendance Sheet, continued

|    | Name (Printed)   | Organization;<br>Title-Position | Name of the Mitigation<br>Actions <u>contact</u> for your<br>jurisdiction |
|----|------------------|---------------------------------|---|
| 31 | Wilbert Harrison | Mayor<br>Town of Speed          | Wilbert Harrison  |
| 32 | Dwayne Jones     | Wilson County<br>Planner I      | Mark Johnson  |
| 33 | John Mello       | NCEM                            | N/A   |
| 34 |                  |                                 |   |
| 35 |                  |                                 |   |
| 36 |                  |                                 |   |
| 37 |                  |                                 |   |
| 38 |                  |                                 |   |
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| 44 |                  |                                 |   |
| 45 |                  |                                 |   |



**11/18/2014 Mitigation Strategy Update 1 p.m. Conference Call**  
 (Make-Up for Local Governments Not Attending 10/21/14 Meeting at Nash Co.)

| Phone                   | Attended | Town of                      | Name                       | Title                        | Mailing Address                           | Email                           |
|-------------------------|----------|------------------------------|----------------------------|------------------------------|---|---------------------------------|
| (252) 296-8358          | 1        | <b>Black Creek</b>           | Mack Smith                 | Mayor                        | P.O. Box 8, Black Creek, NC 27813         | cdougherty@townofblackcreek.org |
| (252) 823-1043          | 1        | <b>Conetoe</b>               | Linda Ingram               | Mayor                        | P.O. Box 268, Conetoe, NC 27819           | ingramlas@aol.com               |
| (252) 443-9131          | 2        | <b>Dortches</b>              | Gerald Batts & Kirby Brown | Town Administrator & Mayor   | 3057 Town Hall Rd., Rocky Mount, NC 27804 | townofdortches@embarqmail.com   |
| (252) 827-4823          | 1        | <b>Macclesfield</b>          | Cynthia Buck               | Town Clerk                   | P.O. Box 185, Macclesfield, NC 27828      | cbuck30@embarqmail.com          |
| (252) 827-4435          | 1        | <b>Pinetops</b>              | Brenda Harrell             | Assnt. Town Admn.            | P.O. Drawer C, Pinetops, NC 27864         | bharrell@pinetopsnc.com         |
| (252) 237-4226          | 1        | <b>Sims</b>                  | Dana Hewett                | Town Mayor/<br>Administrator | P.O. Box 151, Sims, NC 27880              | townofsims@embarqmail.com       |
| (252) 478-5186 ext. 225 | 1        | <b>Spring Hope</b>           | John Holpe                 | Town Manager                 | P.O. Box 87, Spring Hope, NC 27882        | 'jholpe@springhope.net'         |
| (252) 234-5965          | 1        | <b>UCPCOG</b>                | Ron Townley                | N/A                          | N/A                                       | wmcghee@ucpcog.org              |
| (919) 825-2334          | 2        | <b>DEM &amp; Nash County</b> | John Mello & Patsy McGhee  | N/A                          | N/A                                       | john.mello@ncdps.gov            |

1-800-615-2900, then 8577163.

Note: Beforehand, on 11/6/2014, we emailed, plus printed & mailed, a copy of John Mello's presentation to all listed above, so they could have it during the Conference Call.

**NASH-EDGECOMBE-WILSON (N.E.W.)  
MITIGATION ADVISORY COMMITTEE (Big MAC)  
MEETING AGENDA**



Nash County Administration Building  
County Commissioners Meeting Room  
**Friday, January 16, 2015**  
**2-4 p.m.**



Before: **Cover** Vote

**I. Welcome** – Patsy McGhee, Nash County (5)

**II. Introductions** (10)

**III. Meeting Purpose, Time-Check, & Ground Rules**

**III.** – Ron Townley, [Upper Coastal Plain](#) COG (10)

**IV. Background** – Patsy McGhee, Nash County (5)

**V. Presentation of Regional Hazard Mitigation Plan** (45)

– Ron Townley & Wyatt McGhee, UCPCOG

A. Review of Sections

B. Review of Needs from Partners

**VI. Current Status & Timeline, Approval & Adoption Process** (30)

**V.** – Ron Townley & Patsy McGhee ([1530](#))

~~**VI. Presentation of Regional Hazard Mitigation Plan** (45)~~

~~– Ron Townley & Wyatt McGhee, UCPCOG~~

~~A. Review of Sections~~

~~B. Needs from Partners~~

~~**VII. Approval & Adoption Process** – Patsy McGhee (15)~~

~~A. Committee Approval of Plan~~

~~B. NC DEM Approval~~

~~C. FEMA Approval~~

~~D. Adoption by Local Governments~~

~~**VIII. VII. Next Steps** (10)~~

~~**IX. VIII. Committee Action** (5)~~

(Note: We were unable to meet on Wednesday, January 14, 2015 due to a freezing rain event.)



(Note: We were unable to meet on Wednesday, January 14, 2015 due to a freezing rain event.)

# Nash-Edgecombe-Wilson (NEW) Mitigation Advisory Committee (Big MAC)

Project: Regional Hazard Mitigation Plan  
 Facilitator: Upper Coastal Plain COG  
 Place/Room: Nash County Commissioners Meeting Room

Date: Friday, 1/16/2015  
 Time: 2-4 p.m.

| PRINT NAME         | ORGANIZATION        | TITLE   | PHONE          | EMAIL                          |
|--------------------|---------------------|---|----------------|--------------------------------|
| 1. Ron Townley     | UCPCOG              | Director<br>Planning                          | 234-5465       | rtownley@ucpcog.org            |
| 2. Becky Smith     | Town of Bailey      | Town Clerk                                    | 235-4911       | bsmith@baileyga.com            |
| 3. Wyatt McGee     | UCPCOG              |   |                |                                |
| 4. Elaine Saunders | Town of Sarcoga     | Commissioner                                  | 238-3487       |                                |
| 5. Tommy Hawkins   | Town of Sarcoga     | Mayor   | 238-3487       |                                |
| 6. Debbie Vick     | Edgecombe City      | Planner II                                    | 641-4802       |                                |
| 7. Gary Skelton    | Mayor of Leggett    | Mayor   | 823-3278       | gskelton@embargo.net           |
| 8. Daryl Norris    | City of Wilson      | Stormwater Specialist                         | 296-3305       | dnorris@uscnc.org              |
| 9. Josh Junius     | City of Wilson      | Planner                                       | 399-2387       | jjunius@wilsonnc.org           |
| 10. Kirby Brown    | Town of Dorchester  | Mayor   | 813-0865       |                                |
| 11. Angie Elliott  | Town of Castalia    | Town Clerk                                    | 459-3668       | townofcastalia@centurylink.net |
| 12. Anthony Pruitt | Town of Sargents    | Chief   | 478-5184       | apruitt@sargentsga.com         |
| 13. Allen Proctor  | Town of Sargents    | Sgt.  | 478-5184       | sproctor@sargentsga.com        |
| 14. Luther Lewis   | Town of Middlesex   | Mayor   | 252-230-2209   | lthomas@middlesexnc.com        |
| 15. JoBeth Bocoak  | City of Rocky Mount | Sr. Planner                                   | 252-972-1179   |                                |
| 16. Greg Betha     | Town of Pridges     | Adm   | (252) 877-4435 | gbetha@pridgesga.com           |
| 17. Brian Hassell  | Nashville           | Planning Director                             | 459-4511       |                                |
| 18. Jordan High    | Red Oak             | Comm.   | 577-9295       | hightyre@aol.com               |
| 19. Josh Edmondson | Taboro              |   | 641-4246       |                                |
| 20. Nancy Nixon    | Nash Co.            | Planning Dir.                                 | 252-459-1210   |                                |
| 21. Brent Fisher   | Nash Co             | EM  | 459-1204       |                                |
| 22. Tammy Keeler   | Kilcama             | Town Admin by proxy (Nash Co. - Patsy McEhee) |                |                                |

# Nash-Edgecombe-Wilson (NEW) Mitigation Advisory Committee (Big MAC)

Project: Regional Hazard Mitigation Plan

Date: Friday, 1/16/2015

Facilitator: Upper Coastal Plain COG

Time: 2-4 p.m.

Place/Room: Nash County Commissioners Meeting Room

| PRINT NAME           | ORGANIZATION | TITLE                  | PHONE          | EMAIL                         |
|----------------------|--------------|------------------------|----------------|-------------------------------|
| 1. Patsy King McShee | Nash Co.     | Assnt. to the Co. Mgr. | (252) 462-2434 | patsy.mcgree@nashcountync.gov |
| 2. Janet B. Holland  | Wilson       | Magn. Land Dev.        | (252) 399-2215 | jtholland@wilsonnc.           |
| 3. Gary W. Davis     | Stantonsburg | Town Manager           | 252-238-3600   | gdavis@townofstantonsb.       |
| 4. Dwayne Jones      | Wilson Co.   | Planner                | 252-399-2780   | dwjones@wilsonco              |
| 5. SCOTT ROGERS      | NASH Co.     | Em Deputy Dir.         | 459-1214       | scott.rogers@nashco           |
| 6. Brian Hassell     | Nashville    | Planning Director      | 459-4611       |                               |
| 7.                   |              |                        |                |                               |
| 8.                   |              |                        |                |                               |
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| 22.                  |              |                        |                |                               |

# Nash Edgecombe Wilson Mitigation Advisory Committee Meeting

January 16, 2015

Commissioners' Meeting Room, Nash County Administration Building  
2-4 p.m.

## **Members Present:**

(See Attached Sign-in Sheet)

### UCPCOG Staff Present:

Ron Townley (Director of Planning & Development Services),  
Wyatt McGhee (Land Use/Environmental Planner), Jim Bradshaw (Contract Planner)

## **MINUTES**

### 1. Welcome:

With the unavoidable absence of Zee Lamb (Nash County Manager), Patsy K. McGhee, (Assistant to the County Manager) welcomed all participants to the meeting

### 2. Introduction:

Ron Townley (Director for UCPCOG Planning and Development Services) introduced himself and then gave everyone present the opportunity to introduce themselves. He then gave a brief overview of the Hazard Mitigation planning process and the Mitigation Advisory Committee (MAC).

Patsy McGhee briefly described the history of the planning effort for the Nash-Edgecombe-Wilson Hazard Mitigation Plan required by FEMA:

- Opportunity to pursue three-county regional Hazard Mitigation planning grant
- FEMA requires a current Hazard Mitigation Plan in order to remain eligible for disaster funding and some ongoing emergency management funding
- Joint jurisdictional planning more economical and supported by State
- Project cost: 75% funded by FEMA and 25% funded by State
- With Nash County as lead county, Grant Agreement between UCPCOG and Nash County for three county plan approved Fall of 2012
- In early 2013, new State Government temporarily stopped work on the Plan to resolve State related problems
- First meeting of this Committee held May 2013
- State requested planning effort be accelerated in September 2014 to meet submission schedule

- Grant opportunity to add two more counties (Halifax & Northampton) to the regional HM plan has been in process for many months and is expected to be approved by the State sometime in the future
- Shared UCPCOG web-based "dropbox" created in late 2014 to allow all communities opportunities to review and suggest changes to the draft Plan

### 3. Purpose of Meeting

Ron Townley and Patsy McGhee provided additional details about the schedule and Plan purpose:

- Emphasized the massive work effort under way to produce the Plan and the resulting draft Plan Sections available for review and comment in the shared UCPCOG "dropbox" for all communities
- Discussed schedule and deadlines that are driven by CRS communities with Wilson's Plan approval required in August 2015, and the various time periods for the State review (submission in early February) and FEMA review adjusted accordingly during first part of 2015 to insure timely completion/approval by mid August for all communities (or at least one community)
- Emphasized importance of Plan as opportunity to link potential grant funds to needed action steps and insuring that all Action Steps are in the Plan to help recognize funding needs
- Emphasized that as new revisions to various Sections are prepared the "dropbox" is used to promptly share the new revisions with all jurisdictions

### 4. Presentation of the draft Regional Hazard Mitigation Plan

Ron Townley and Wyatt McGhee (UCPCOG) presented each draft Section of the Plan using a large overhead projection showing all of the current shared document Sections in the "dropbox". During the discussion of each Section, committee members were provided an opportunity to comment or provide additional information on each Section and comments are as follows:

- **Section 1:**
  - No comments
- **Section 2:**
  - City of Wilson representative commented on different population data for the city on pages 20 and 21 in a table and in the text - need to resolve
- **Section 3:**
  - City of Wilson representative commented that more was needed on the actual planning process and how the plan was developed not simply to reiterate the activities

- City of Wilson representative urged that the Section about the planning process needed to be written from the perspective of the Committee and not the perspective of the UCPCOG
- Leggett representative indicated that it was better to have more information than less
- City of Wilson representative requested that the time sequence in this section be reviewed to insure that everything is correct
- **Section 4:**
  - City of Wilson representative commented on the following items:
    - Description of Police and Fire Departments were too similar
    - the word "capabilities" was overused and not an adequate word for some functions
    - the disaster cycle diagram in Section 4.2 was different than the one in Section 1 and suggested that the one on Section 1 be utilized in Section 4
    - in Table 4.3, line 15, it was requested that the entry be modified to reflect that the City of Wilson does have a communications center
  - Wilson County representative commented that the County does have a Solid Waste Management Plan
  - Rocky Mount representative indicated that Sharpsburg is in three counties, not just two
  - Saratoga representative questioned "no response" and missing data regarding their town (**See Note\* on the last page**)
- **Section 5:**
  - City of Wilson representative recommended that table on calculated potential fog deaths be removed (paragraph is sufficient) - possibly replace with picture; the consensus of the MAC was to remove this table
  - City of Wilson representative recommended that the major storm identified as "Fran" be included with major storms as well as storms within 75 miles)
  - The consensus of the MAC was that the listing of Critical Facilities should be in the Appendix instead of Section 5
- **Section 6:**
  - City of Wilson representative indicated that CRS Communities need to provide a Mitigation Action for each FEMA category, whereas only two "all hazards" Mitigation Action activities had to be provided for non-CRS communities
  - Sample Mitigation Actions prepared by UCPCOG were recommended for all communities, as follows, so no community would be without Mitigation Actions and sufficient Mitigation Actions would be included:

- Continue or establish Hazard Mitigation Advisory Committees in all jurisdictions
    - Obtain an emergency generator(s) for critical facilities, and/or conduct a review and prepare a report on critical facilities improvements to help reduce potential impact of natural hazards
    - Consider Warning-Notification System in place of or in addition to sirens
    - Obtain FEMA Hazard Mitigation materials and distribute to citizens
  - City of Wilson representative indicated that merely providing information to residents about an existing emergency warning system could be a Mitigation Action activity
  - City of Wilson representative advised removing the on conservation grants fund from the funding sources list due to lack of grant availability
- **General Comments:**
  - City of Wilson representative indicated that they had no interest in commitment to an annual regional meeting for this committee following plan approval as set forth in Section 7 due to funding availability and other considerations. After some discussion, the consensus of the MAC was to include annual County-level HM plan meetings, but not a regional meeting
  - Nash County representative indicated that there are quarterly meetings of the local emergency management personnel, which may be helpful in meeting HM plan meeting requirements
  - City of Wilson representative asked whether an Executive Summary would be included with the HM plan. It was agreed that an Executive Summary is needed for distribution to all governmental boards to assist them in understanding the Plan prior to adoption.
  - City of Wilson representative asked whether public notification is required before adoption of the plan. The consensus was that although public meeting advertisements may not be required prior to adoption (except for CRS communities that must have a public meeting two weeks prior to adoption), some notification should be provided. Ron Townley indicated that the UCPCOG can help provide regional notification via its website.
  - City of Wilson representative indicated that they need until January 23, 2015 to complete their review of the draft plan.
  - Town of Middlesex representative suggested that the MAC conditionally approve the draft plan, subject to the UCPCOG making any necessary revisions based on local government comments that are being submitted.
  - City of Wilson representative indicated that they are not ready to support a conditional approval of the Plan, as there are significant revisions (edits)

that need to be made to Section 3 (Planning Process) and Section 7 (Plan Maintenance)

- Ron Townley requested all jurisdictions provide their county/community seals for inclusion in the Plan

- **Approved Schedule:**

After additional discussion, a City of Wilson representative made a motion, which was seconded by a Town of Stantonburg representative, and unanimously agreed to by the MAC members present that the following schedule be followed for the MAC approval of the draft Regional HM Plan:

- January 23, 2015 - Reviews by local jurisdictions must be completed and comments submitted to the UCPCOG by this date;
- January 28, 2015 – UCPCOG to complete final edits and place final draft HM Plan for Nash, Edgecombe, and Wilson Counties in shared "DropBox" by this date;
- January 30, 2015 – A majority of the members on the committee can electronically approve the Nash, Edgecombe, Wilson Regional Hazard Mitigation Plan by this date;
- February 2, 2015 – UCPCOG to submit MAC approved HM Plan to NCEM by this date.

**\*NOTE: for Section 4:**

In order to prepare **Section 4**, a Capability Assessment Worksheet 4.1 provided by FEMA was utilized. The tables in **Section 4** provides information on the various Capabilities of all jurisdictions, and along with existing UCPCOG data, the information required for these tables was data supplied by the various Jurisdictions utilizing Worksheet 4.1 Capability Assessment Worksheet. A contract employee for the UCPCOG assisted various jurisdictions in the gathering of this information. However, if a community did not fill out each question or left blanks in the response column for various questions, then the jurisdiction's response for a particular assessment question was consider a "No Response" and so noted on the final table (or tables) in **Section 4** as "NR". All jurisdictions should review these tables, and if additional information is available to replace a "NR" response for certain questions, then the jurisdiction should make copies of the tables with errors and submit any changes to the UCPCOG (Wyatt McGhee [[wmcghee@ucpcog.org](mailto:wmcghee@ucpcog.org)] or Ron Townley [[rtownley@ucpcog.org](mailto:rtownley@ucpcog.org)]) in order to provide revised information to replace a No Response (NR). Also, a community can directly contact Jim Bradshaw at 399-3839 or Wyatt McGhee at 234-5968 to discuss any changes to NR responses or missing or incorrect data.

**Nash County**  
**Commissioner's Agenda Information Sheet**  
**Date: Tuesday, February 4, 2013**

Page 1 of 6  
Attachments: Yes

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**Item:** Hazard Mitigation Plan

**Initiated By:** Patsy McGhee, M.R.P., Organizational Development Director

**Action Proposed:** Approve Grant Project Ordinance and Award Contract

**Description:**

Nash County is required to complete a Hazard Mitigation Plan every five years in order to be able to obtain state and federal financial and other assistance following disaster declarations.

With assistance from the Upper Coastal Plain Council of Governments, we:

- became aware of a federal/state 100% grant in early 2012 for "regional" hazard mitigation plans (with regional meaning that a minimum of three counties needed to be included); and,
- contacted all 28 local governments in Nash, Edgecombe and Wilson counties – which signed agreements indicating they wished to participate in a regional plan; and,
- submitted a letter of interest in February 2012 for a \$70,000 grant to fund a regional plan; and,
- submitted a grant application in June 2012; and,
- received an Award Letter in September 2012 and a Grant Agreement in December 2012 for a Nash/Edgecombe/Wilson Regional Hazard Mitigation Plan.

Nash County is the sub-grantee/lead agency, but planners, emergency management personnel, and representatives of all 28 local governments will participate in preparing the regional plan. As the lead agency, Nash County is responsible for grant compliance. We plan to rely on the COG to prepare the regional plan, coordinate with the 28 local governments, hold meetings, prepare reports and reimbursement requests, and generally help Nash County complete the Scope of Work on schedule and within budget.

All three counties have had two previous plans. Nash County's next plan would be due 5/10/2016, Edgecombe County's next plan would be due 8/12/16, and Wilson County's plan would be due 9/15/2015. With a Nash/Edgecombe/Wilson Regional Hazard Mitigation Plan, the earlier Wilson County deadline will determine our schedule. Our Grant Agreement Scope of Work shows that our plan will be completed in 24 months – so by February 2015, which is in plenty of time to meet the three counties' deadlines.

The attached Grant Project Ordinance shows \$70,000. Expenses would be paid on a reimbursement basis as work is completed.

**Recommended Action:**

We recommend that the Board approve the Grant Project Ordinance and authorize the County Manager to enter into a contract with the Upper Coastal Plain Council of Governments for the Nash/Edgecombe/Wilson Regional Hazard Mitigation.

Attachments: Grant Project Ordinance  
Award Letter  
Grant Agreement Letter

**NASH COUNTY HAZARD MITIGATION PLAN GRANT  
GRANT PROJECT ORDINANCE**

Be it ordained by the Nash County Board of Commissioners that, pursuant to Section 13.2 of Chapter 159 of the General Statutes of North Carolina, the following Grant Project Ordinance is hereby adopted:

Section 1. The project authorized is the Hazard Mitigation Plan Grant described in the work statement contained in Hazard Mitigation Grant Program (HMGP) DR-4019-007 with the Federal Emergency Management Agency (FEMA) . This project is more familiarly known as the Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan.

Section 2. The officers of this unit are hereby directed to proceed with the grant project within the terms of the grant documents, the rules and regulations of the N. C. Division of Emergency Management and the Federal Emergency Management Agency.

Section 3. The following revenues shall be received to complete this project:

|                         |                    |
|-------------------------|--------------------|
| Hazard Mitigation Grant | <u>\$70,000.00</u> |
|-------------------------|--------------------|

Section 4. The following amounts shall be expended for the project:

|                        |                    |
|------------------------|--------------------|
| Hazard Mitigation Plan | <u>\$70,000.00</u> |
|------------------------|--------------------|

Section 5. The Finance Officer is hereby directed to maintain within the Grant Project Fund sufficient specific detailed accounting records to provide the accounting to the grantor agency required by the Grant Agreement and Federal and State regulations.

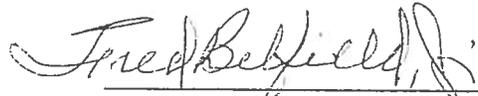
Section 6. Funds shall be requisitioned from the State after submission of documentation to the County. Disbursement of funds shall be made by the County upon actual receipt of invoice from the vendor. Compliance with all federal and state procurement regulations is required.

Section 7. The Finance Officer shall report on the financial status of each project element in Section 4 and on the total grant revenues received or claimed.

Section 8. The Budget Officer is directed to include a detailed analysis of past and future costs and revenues on this grant project ordinance during every budget submission made to this Board.

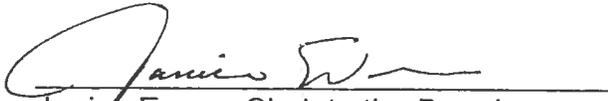
Section 9. Copies of this Grant Project Ordinance shall be made available to the Budget Officer and the Finance Officer for direction to administer this project.

Adopted this 4th day of February 2013.



Fred Belfield, Jr., Chairman

ATTEST:



Janice Evans, Clerk to the Board

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



**FEMA**

September 25, 2012

H. Douglas Hoell, Director  
North Carolina Division of Emergency Management  
4238 Mail Service Center  
Raleigh, North Carolina 27699-4238

Attention: Chris Crew

Reference: Hazard Mitigation Grant Program (HMGP) DR-4019-007,  
Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan

Dear Mr. Hoell:

I am pleased to inform you that the project referenced above has been approved for \$70,000.00 with a Federal share of \$52,500.00. The project non-federal share of \$17,500.00 is provided by the North Carolina Division of Emergency Management.

The following is the approved Statement of Work (SOW) for the above referenced project as approved in the application:

The counties of Nash, Edgecombe and Wilson and their 25 incorporated jurisdictions propose to develop a Regional Hazard Mitigation Plan. This plan will incorporate three multi-jurisdictional hazard mitigation plans into one regional plan. The three counties (each with an approved and adopted Multi-jurisdictional Mitigation plan) shall collaborate to develop a Regional Hazard Mitigation Plan. This plan will be adopted by each county and by each constituent municipality prior to September 15, 2015 to remain in compliance with the local hazard mitigation planning standards contained in 44 CFR 201.6 as required by the Federal Emergency Management Agency (FEMA) and the North Carolina Division of Emergency Management (NCEM).

FEMA will not establish activity completion timeframes for individual subgrants. The period of performance of the grant award will be three years from the date of the final subgrant award made under DR-4019. Please refer to Part VI Award Administration Information in the HMA Unified Guidance for further information on period of performance.

This project must adhere to all program guidelines established for the Hazard Mitigation Grant Program.

Please refer the subgrantee to the State HMGP Administrative Plan for project cost overrun regulations. If project costs exceed the amount originally funded and additional federal funds are needed, the subgrantee must contact the Governor's Authorized Representative (GAR). The GAR will evaluate requests for cost overruns and submit to the Regional Administrator written documentation of cost overrun eligibility. Cost overruns shall meet Federal regulations set forth in 44 CFR 206.438(b).

The State HMGP administrative plan defines the procedure whereby the GAR may advance portions of the approved Federal share to the subgrantee. Upon completion of the HMGP project, the subgrantee's closeout reimbursement for the final Federal share of eligible project costs must be submitted to the Regional Administrator for review and determination.

Quarterly progress reports for HMGP projects are required. Please include this HMGP project in your future quarterly reports.

The National Environmental Policy Act (NEPA) stipulates that additions or amendments to a HMGP subgrantee SOW may have to be reviewed by all State and Federal agencies participating in the NEPA process.

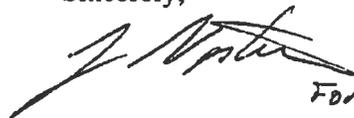
The State (grantee) must obtain prior approval from the Federal Emergency Management Agency (FEMA) before implementing changes to the approved project SOW. Per the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments:

- A change in the scope of work must be approved by FEMA in advance regardless of the budget implications.
- The grantee must notify FEMA as soon as significant developments become known, such as delays or adverse conditions that might raise costs or delay completion, or favorable conditions allowing lower cost or earlier completion. Any extensions of the POP must be submitted to FEMA 60 days prior to the expiration date.

The obligation report is enclosed for your records. Management and environmental reports are available in NEMIS. The obligated funds are available for withdrawal from Smartlink on sub-account number: 4019DRNCP00000005.

If you have any questions, please contact Victor Geer of my staff at (770) 220-5659.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Bell". To the right of the signature, the initials "FDR" are written in a smaller, less distinct hand.

Jacky Bell, Chief  
Hazard Mitigation Assistance Branch  
Mitigation Division

Enclosure



**North Carolina Department of Public Safety**  
**Emergency Management**

Beverly Eaves Perdue, Governor  
Reuben F. Young, Secretary

H. Douglas Hoell, Jr., Director

December 17, 2012

Mr. Robert M. Murphy  
County Manager  
Nash County  
120 W. Washington Street  
Nashville, NC 27856

Dear Mr. Murphy:

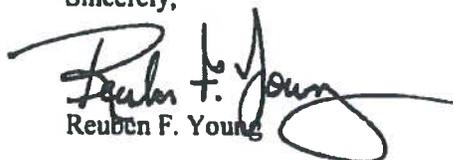
The Federal Emergency Management Agency (FEMA) approved your Hazard Mitigation Grant Program grant for the Nash Edgecombe Wilson Regional Hazard Mitigation Plan with Nash serving as the lead county (sub-grantee). Your total grant amount is \$70,000 and is comprised of both federal (75%) \$52,500 and non-federal (25%) \$17,500 matching funds. Your project number is HMGP DR-4019-007.

Enclosed are two original copies of the Grant Agreement. Please sign both original agreements **on the signature page and Attachment C**, and have your signature witnessed on the signature page. To expedite processing, please return these documents by overnight mail to Joyce Holley, Hazard Mitigation, North Carolina Division of Emergency Management, 4105 Reedy Creek Road, Raleigh, NC 27607. The overnight mail charges are reimbursable as a project administrative cost.

After Chief Deputy Secretary Gerald A. Rudisill, Jr. signs both original agreements, we will forward one copy of the fully executed contract to you for your records. Please do not incur any expenses for this grant until you receive the fully executed agreement.

We look forward to working with you.

Sincerely,

  
Reuben F. Young

RFY/jjm

Enclosures

**MAILING ADDRESS:**  
4238 Mail Service Center  
Raleigh NC 27699-4238  
[www.nccm.org](http://www.nccm.org)



**OFFICE LOCATION:**  
4105 Reedy Creek Road  
Raleigh, NC 27607-3371  
Telephone: (919) 825-2500  
Fax: (919) 715-9191

An Equal Opportunity Employer

**Nash County**  
**Commissioner's Agenda Information Sheet**  
**Date: Monday, December 1, 2014**

Page 1 of 1  
Attachment: Yes

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**Item:** Hazard Mitigation Plan

**Initiated By:** Patsy McGhee, M.R.P., Assistant to the County Manager

**Action Proposed:** Adopt Updated Designation of Applicant's Agent Form

**Description:**

Nash County is the grant recipient for the "Nash-Edgecombe-Wilson Regional Hazard Mitigation Plan", funded by the North Carolina Division of Emergency Management (DEM) and the Federal Emergency Management Agency (FEMA). Cost reports for reimbursement of expenses to Nash County require the signature of the named primary or secondary agent. You may recall that the Board adopted a resolution May 7, 2012, as required by DEM, already designating the position of county manager as the primary agent and designating the position of county finance officer as the secondary agent. In February 2014, the Board updated the form to change the primary agent from the former county manager's name to the new county manager's name. At this time, Nash County is required to update the "Designation of Applicant's Agent" form to show the new finance officer's name as the secondary agent – plus if there is a change in the chairman or vice chairman, then we must also include that information as well. Following the Board's approval of this routine matter, we will change the names associated with those positions and submit that revised form, with appropriate signatures, to DEM.

**Recommended Action:**

We recommend that the Board approve the revised "Designation of Applicant's Agent" form.

Attachments: Designation of Applicant's Agent Form

**RESOLUTION  
DESIGNATION OF APPLICANT'S AGENT  
North Carolina Division of Emergency Management**

|  |                             |
|--|-----------------------------|
| Organization Name (hereafter named Organization):<br>Nash County   | Disaster Number:<br>DR-4019 |
| Applicant's State Cognizant Agency for Single Audit purposes (If Cognizant Agency is not assigned, please indicate):<br>NC Department of Public Safety |                             |
| Applicant's Fiscal Year (FY) Start<br>2014   | Month: 7 Day: 1             |
| Applicant's Federal Employer's Identification Number:<br>56-6000323  |                             |
| Applicant's Federal Information Processing Standards (FIPS) Number:<br>37127   |                             |

| PRIMARY AGENT   | SECONDARY AGENT   |
|---|---|
| Agent's Name<br>Zee B. Lamb   | Agent's Name<br><del>Lynne A. Hobbs</del> Donna Wood                                |
| Organization<br>Nash County   | Organization<br>Nash County   |
| Official Position<br>County Manager   | Official Position<br>County Finance Officer   |
| Mailing Address<br>120 W. Washington St.<br>City, State, Zip<br>Nashville, NC 27856 | Mailing Address<br>120 W. Washington St.<br>City, State, Zip<br>Nashville, NC 27856 |
| Daytime Telephone<br>(252) 459-9800   | Daytime Telephone<br>(252) 459-9802   |
| Facsimile Number<br>(252) 459-9817  | Facsimile Number<br>(252) 459-9817  |
| Pager or Cellular Number<br>(252) 801-1478  | Pager or Cellular Number<br>N/A   |

BE IT RESOLVED BY the governing body of the Organization (a public entity duly organized under the laws of the State of North Carolina) that the above-named Primary and Secondary Agents are hereby authorized to execute and file applications for federal and/or state assistance on behalf of the Organization for the purpose of obtaining certain state and federal financial assistance under the Robert T. Stafford Disaster Relief & Emergency Assistance Act, (Public Law 93-288 as amended) or as otherwise available. BE IT FURTHER RESOLVED that the above-named agents are authorized to represent and act for the Organization in all dealings with the State of North Carolina and the Federal Emergency Management Agency for all matters pertaining to such disaster assistance required by the grant agreements and the assurances printed on the reverse side hereof. BE IT FINALLY RESOLVED THAT the above-named agents are authorized to act severally.

PASSED AND APPROVED this ~~1st~~ ~~3rd~~ day of ~~February~~ <sup>December</sup> 20 ~~14~~

| GOVERNING BODY                                   | CERTIFYING OFFICIAL                     |
|--|---|
| Name and Title<br>? Fred Belfield, Jr., Chairman | Name<br>Janice Evans                    |
| Name and Title<br>? Billy Morgan, Vice Chairman  | Official Position<br>Clerk to the Board |
| Name and Title                                   | Daytime Telephone<br>(252) 459-9800     |

**CERTIFICATION**

I, Janice Evans (Name) duly appointed and Clerk to the Board (Title) of the Governing Body, do hereby certify that the above is a true and correct copy of a resolution passed and approved by the Governing Body of Nash County (Organization) on the 1st ~~3rd~~ day of December ~~February~~.

Date: 1-Dec ~~3-Feb-14~~ Signature: 

**RESOLUTION**  
**DESIGNATION OF APPLICANT'S AGENT**  
**North Carolina Division of Emergency Management**

|  |                             |
|--|-----------------------------|
| Organization Name (hereafter named Organization):<br>Nash County   | Disaster Number:<br>DR-4019 |
| Applicant's State Cognizant Agency for Single Audit purposes (If Cognizant Agency is not assigned, please indicate):<br>NC Department of Public Safety |                             |
| Applicant's Fiscal Year (FY) Start<br>2014   | Month: 7 Day: 1             |
| Applicant's Federal Employer's Identification Number:<br>56-6000323  |                             |
| Applicant's Federal Information Processing Standards (FIPS) Number:<br>37127   |                             |

| PRIMARY AGENT   | SECONDARY AGENT   |
|---|---|
| Agent's Name<br>Zee B. Lamb   | Agent's Name<br>Donna Wood  |
| Organization<br>Nash County   | Organization<br>Nash County   |
| Official Position<br>County Manager   | Official Position<br>County Finance Officer   |
| Mailing Address<br>120 W. Washington St.<br>City, State, Zip<br>Nashville, NC 27856 | Mailing Address<br>120 W. Washington St.<br>City, State, Zip<br>Nashville, NC 27856 |
| Daytime Telephone<br>(252) 459-9800   | Daytime Telephone<br>(252) 459-9802   |
| Facsimile Number<br>(252) 459-9817  | Facsimile Number<br>(252) 459-9817  |
| Pager or Cellular Number<br>(252) 801-1478  | Pager or Cellular Number<br>N/A   |

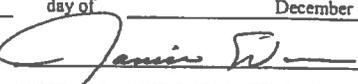
BE IT RESOLVED BY the governing body of the Organization (a public entity duly organized under the laws of the State of North Carolina) that the above-named Primary and Secondary Agents are hereby authorized to execute and file applications for federal and/or state assistance on behalf of the Organization for the purpose of obtaining certain state and federal financial assistance under the Robert T. Stafford Disaster Relief & Emergency Assistance Act, (Public Law 93-288 as amended) or as otherwise available. BE IT FURTHER RESOLVED that the above-named agents are authorized to represent and act for the Organization in all dealings with the State of North Carolina and the Federal Emergency Management Agency for all matters pertaining to such disaster assistance required by the grant agreements and the assurances printed on the reverse side hereof. BE IT FINALLY RESOLVED THAT the above-named agents are authorized to act severally.

PASSED AND APPROVED this 1<sup>st</sup> day of December 20 14

| GOVERNING BODY  | CERTIFYING OFFICIAL                     |
|---|---|
| Name and Title<br><br>Fred Belfield, Jr., Chairman | Name<br>Janice Evans                    |
| Name and Title<br>Billy Morgan, Vice Chairman   | Official Position<br>Clerk to the Board |
| Name and Title  | Daytime Telephone<br>(252) 459-9800     |

**CERTIFICATION**

I, Janice Evans (Name) duly appointed and Clerk to the Board (Title) of the Governing Body, do hereby certify that the above is a true and correct copy of a resolution passed and approved by the Governing Body of Nash County (Organization) on the 1<sup>st</sup> day of December

Date: 1-Dec-14 Signature: 

**NASH-EDGECOMBE-WILSON  
MITIGATION ADVISORY COMMITTEE (NEW MAC)  
AGENDA for CORE TEAM INITIAL MEETING**

**Nash County Administrative Building  
County Commissioners' Conference Room  
Tuesday, May 28, 2013  
10:00 a.m.**

- I. Welcome** – Patsy K. McGhee, Nash County
  
- II. Introductions** – Wyatt McGhee, Upper Coastal Plain Council of Govts
  
- III. Background** – Patsy K. McGhee, Nash County
  
- IV. State Comments** – John Mello, NC Div of Emergency Management
  
- V. Planning Process** – Wyatt McGhee, Upper Coastal Plain Council of Govts
  - A. Organization (NEW MAC Core Team/Full Committee)
  - B. Timeline (1/17/2015 document completion)
  - C. Review of Current County Hazard Mitigation Plans
  - D. What Will We Need From You?
  - E. Future Meetings
  
- VI. Next Meeting & Adjournment**

# NEW MAC Core Group: Kick-off Meeting

## Attendance Sheet

2013-May-28

|   | Name (Printed)      | Organization;<br>Title-Position   | Phone # (best # to reach you) |
|---|---------------------|---|-------------------------------|
| C | 1 Patay McThee CFM  | Nash County - Assnt. to the Co. Mgt<br>Other: Nashville Plan. Bd. Chair | (252) 462-2434 (6)            |
|   | 2 Felicia Daniels   | NC Emergency Mgmt<br>Hazard Mitigation Planner                          | 919-825-2324                  |
| O | 3 John Mello        | NC EM/HAZARD<br>Mitigation Planner                                      | 919-825-2334                  |
| C | 4 Daryl Norris      | City of Wilson<br>Stormwater Env. Spec.                                 | 252-296-3305                  |
| C | 5 Brian Hassell     | Edge. Co.<br>Planning Dept.   | (252) 641-7808                |
| C | 6 Scott Rogers      | NASH COUNTY<br>Emergency MGT.   | 252-459-1214                  |
| C | 7 Josh Edmondson    | Town of Tarboro   | 252-641-4249                  |
| C | 8 Nancy Nixon       | Nash Co. Planning<br>Director   | 252-459-1210                  |
| O | 9 Tommy Jones       | Nash Co. Planning   | 252-459-1686                  |
| C | 10 Joseph Bocook    | City of Rocky Mount<br>Senior Planner                                   | 252-972-1179                  |
| O | 11 Adam Tyson       | Nash County; Planner  | 252-459-1212                  |
| O | 12 Alan Byrd        | NCEM<br>Area 7 Coordinator  | 919-427-7248                  |
| C | 13 Kathy Garner     | City of Wilson<br>Senior Planner  | 252-399-2216                  |
| C | 14 Dwayne Jones     | Wilson County Planning<br>Planner I, C20                                | 252-399-2782                  |
| F | 15 Wyatt McOhee CFM | Upper Coastal Plain COG<br>Land Use-Env Planner                         | (252) 903-2134 (mobile)       |

**NASH-EDGECOMBE-WILSON-HALIFAX-NORTHAMPTON  
MITIGATION ADVISORY COMMITTEE  
AGENDA for CORE TEAM MEETING**

**Whitakers Town Hall  
Commissioners' Room  
Friday, September 26, 2014  
10:00 a.m.**

- I. Welcome & Introductions** – Wyatt McGhee, Upper Coastal Plain COG
- II. Approval of Agenda**
- III. Review of EM Representatives Recommendations (August Meeting)**
- IV. Critical Facilities Definition** – review & approve
- V. Critical Facilities Maps** – review, update, consensus
  - A. Review of Organization:** Regional, County, Municipal
  - B. Size:** 22"x17" foldout proposed
  - C. County maps:** 2 for each County (Public Safety/Health related & Utility-Infrastructure related)
- VI. Critical Facilities** – to include in Plan (refer to revised table)
  - A. Classify as Critical or Other (non-critical) Facility**
  - B. Classify Critical Facilities (Regional or County/Municipal)**
  - C. Clarify Items to Include in Plan Table(s)** – see draft table
- VII. Assignments** – information needed from counties/municipalities
- VIII. Other Items**
- IX. Next Steps & Adjournment**

# NEWHNA MAC Core Group: Critical Facilities Meeting

## Attendance Sheet

2014-Sep-26

|    | Name (Printed)   | Organization;<br>Title-Position              | Contact Info (Phone #/Email)<br>if recently revised |
|----|------------------|--|---|
| 1  | LYNN MANNING     | HALIFAX COUNTY<br>Emergency Mgmt Coordinator | 252 583-2031<br>MANNINGL@HALIFAXNC.COM              |
| 2  | Ronnie Storey    | Northampton EM                               | 252-578-5139<br>Ronnie.Storey@nhcnc.net             |
| 3  | Mark A. Rogerson | Edgecombe County EM<br>Deputy Director       | 252-641-7806<br>mark.rogerson@co.edgecombe.nc.us    |
| 4  | Dwayne Jones     | Wilson County Planning                       | djones@wilson-co.com                                |
| 5  | Janet Holland    | City of Wilson<br>Land Development Mgr.      | jholland@wilsonnc.org<br>(252) 399-2215             |
| 6  | Josh Jurius      | City of Wilson<br>Planner                    | jjurius@wilsonnc.org<br>(252) 399-2387              |
| 7  | Brent Fisher     | NASH COUNTY<br>Asst. Director FIRE/EM        | 252-459-1204<br>brent.fisher@washcountync.gov       |
| 8  | Patsy McGhee     | Nash Co. - <sup>Asst. to</sup> the Co. Mgr.  | patsy.mcgee@washcountync.gov                        |
| 9  | Nancy Nixon      | Nash Co. - Planning                          | nancy.nixon@washcountync.gov                        |
| 10 | Gwen Parker      | Town of Whitakers                            | townofwhitakers@A&L.com                             |
| 11 | Ken Townsley     | UCP COG                                      |   |
| 12 | Wyatt McGhee     | " "  |   |
| 13 |                  |  |   |
| 14 |                  |  |   |
| 15 |                  |  |   |

**NASH-EDGECOMBE-WILSON  
MITIGATION ADVISORY COMMITTEE (NEW MAC)  
AGENDA for FULL COMMITTEE INITIAL MEETING**

**Booker T Washington Theater, Rocky Mount  
Tuesday, June 25, 2013  
10:00 a.m.**

- I. Welcome** – Patsy K. McGhee, Nash County
  
- II. Introductions** – Wyatt McGhee, Upper Coastal Plain Council of Govts
  
- III. Background** – Patsy K. McGhee, Nash County
  
- IV. State Comments** – John Mello & Alan Byrd,  
NC Div of Emergency Management
  
- V. Planning Process** – Wyatt McGhee, Upper Coastal Plain Council of Govts
  - A. Organization (NEW MAC Core Team/Full Committee)
  - B. Timeline (1/17/2015 document completion)
  - C. Review of Current County Hazard Mitigation Plans
  - D. Draft HM Plan Outline
  - E. What Will We Need From You?
  - F. Future Meetings
  
- VI. Next Meeting & Adjournment**

# NEW MAC Full Committee: Kick-off Meeting

## Attendance Sheet

2013-Jun-25

|    | Name (Printed)  | Organization;<br>Title-Position        | Email address;<br>Phone #                 |
|----|-----------------|--|---|
| 1  | Thomas Hawkins  | Town of Saratoga                       | aSaratogaTownH@NCR.com                    |
| 2  | Elaine Saunders | Town of Saratoga                       | aSaratogaTownH@NCR.com                    |
| 3  | GERALD BATS     | TOWN OF DORTCHES<br>TOWN ADMINISTRATOR | TOWN OF DORTCHES<br>② EMBARD@MAIL.COM     |
| 4  | Kirby Brown     | TOWN OF DORTCHES<br>MAYOR              | ↑   |
| 5  | Tracy Sullivan  | Town of Sharpburg<br>Town Clerk        | Tracy.Clerk@SharpburgNC.com               |
| 6  | JAMES ALSTON    | Town of Castalia<br>Commissioner       | Alston James 15@Yahoo.com                 |
| 7  | Josh Edmondson  | Planning Director, Town of Tarboro     | jedmondson@tarboro-nc.com                 |
| 8  | Brian Hassell   | Planning Director, Edge Co.            | brian.hasselto.co.edg@combsnc             |
| 9  | Gwen Parker     | Town of Whitakers                      | TownofWhitakers@AOL.com                   |
| 10 | Tommy Jones     | Nash County                            | Tommy.Jones@NashCountyNC.gov              |
| 11 | JoSeth Bacook   | City of Rocky Mount                    | joseth.bacook@rockymountnc.gov            |
| 12 | Becky Smith     | Town of Bailey                         | TownofBailey@embardmail.com               |
| 13 | Wyatt McGhee    | UCPCOG                                 | wmcghee@ucpcog.org<br>252-234-5968        |
| 14 | Patsy McGhee    | Nash Co.                               | patsy.mcghee@nashcountync.gov<br>904-2180 |
| 15 | John Holpe      | Town of Spring Hope                    | Jholpe@SpringHope.net                     |

# NEW MAC Full Committee: Kick-off Meeting

## Attendance Sheet, continued

|    | Name (Printed)                    | Organization;<br>Title-Position                      | Email address;<br>Phone #                           |
|----|-----------------------------------|--|---|
| 16 | Kathy Garner                      | City of Wilson<br>Senior Planner                     | Kgarner@wilsonnc.org<br>(252)399-2216               |
| 17 | John Mello                        | NC Emergency Management<br>Mitigation Planner        | john.mello@ncdps.gov<br>919-825-2334                |
| 18 | Gene Foxworth                     | Town of Nashville<br>Planning + Development Director | eugene.foxworth@townofnashville.org<br>252-459-4511 |
| 19 | Daryl Norris                      | City of Wilson<br>Stormwater Specialist              | dnorris@wilsonnc.org<br>252-296-3305                |
| 20 | "Lu Haevy"<br>Luther H. Lewis Jr. | Town of <u>Maya</u><br>MIDDLESEX                     | luhaevy@252-230-2267<br>Town of Middlesex, N.C. ca  |
| 21 |                                   |  |   |
| 22 |                                   |  |   |
| 23 |                                   |  |   |
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## **APPENDIX A: ADOPTION RESOLUTIONS**

## **APPENDIX B: DEFINITIONS**

### **Best Management Practices (BMPs)**

A structural or nonstructural management based practice used singularly or in combination to reduce non-point source inputs to receiving waters in order to achieve water quality protection goals.

### **BFE - Base Flood Elevation**

The elevation associated with the flood having a one-percent annual chance of being equaled or exceeded in any given year.

### **Built-Upon Area**

Built-upon areas shall include that portion of a development project that is covered by impervious or partially impervious cover including buildings, pavement, gravel areas, recreation facilities, etc. Wooden slatted decks and the water area of a swimming pool are considered pervious.

### **Cluster Subdivision**

A subdivision in which lots are grouped or “clustered” on a subdivision site to allow open space use of other parts of the site, as designed and approved in accord with cluster subdivision standards.

### **Critical Area**

The land in a water supply watershed which is adjacent and draining to the water source, where it is most important to filter out potential pollutants.

### **CRS – Community Rating System**

The Community Rating System (CRS) provides opportunities to reduce flood insurance premiums by going above and beyond the National Flood Insurance Program (NFIP) minimum standards for floodplain regulation. The objective of the CRS is to reward communities for what they are doing, as well as to provide an incentive for new flood protection activities. The reduction in the insurance premiums is in the form of a CRS classification. There are 10 classes, each providing an additional 5% premium rate reduction for properties in a mapped floodplain. A community’s class is based on the number of credit points it receives for floodplain management activities. A community that does not apply for the CRS is a Class 10 community.

### **Detention**

Surface collection, storage, and distribution of stormwater runoff for the purposes of compensating for increased runoff volume and decreased travel time associated with an increase in impervious surfaces over the contributing catchment, and to allow for the settling-out of pollutants borne by the runoff.

### **Development**

Any land-disturbing activity that changes the amount of impervious surface or partially impervious surface coverage on the land, or that otherwise decreases the infiltration of precipitation into the soil.

## **Disaster/Emergency**

Any hurricane, tornado, storm, flood, high water, wind driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, drought, fire, explosion or other catastrophe in any part of the United States which, in the determination of the President, caused damage of sufficient severity and magnitude to warrant major disaster assistance under P.L. 93-288, above and beyond emergency services by the federal government, to supplement the efforts and available resources of the state, local government and disaster relief organization in alleviating damage, loss, hardship or suffering.

## **Drainageway**

Any stream, watercourse, channel, ditch, or similar physiographic feature draining water from the land.

## **EMS**

Emergency Medical Services - Local medical response teams, usually rescue squads or local ambulance services, which provide medical services during a disaster.

## **EOC**

Emergency Operations Center - A protected site from which government officials and emergency response personnel exercise direction and control in an emergency. The emergency Communications Center (ECC) is normally an essential part of the EOC.

## **EOP**

Emergency Operations Plan - A brief, clear and concise description of action to be taken or instruction to be given to those concerned during a specific emergency. The plan will state the method or scheme for coordinated action based on pre-determined assumptions, objectives and capabilities.

## **EPA - U.S. Environmental Protection Agency**

### **ETJ – Extraterritorial Jurisdiction**

That area of land outside and beyond the corporate limits of a municipality over which the municipality has planning and zoning jurisdiction.

## **FEMA**

Federal Emergency Management Agency - A federal agency tasked with national disaster and emergency preparedness and response. FEMA also deals in temporary emergency housing, training of state and local emergency response personnel and funding of preparedness projects and functions.

## **FEMA Flood Zones**

**Zone A** - Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study (FIS) by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs (base flood elevations) or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.

**Zone AE and A1-A30** - Zones AE and A1-A30 are the flood insurance rate zones that correspond to the 100-year floodplains that are determined in the FIS by detailed methods. In most

instances, BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

**Zone AH** - Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding with a constant water-surface elevation (usually areas of ponding) where average depths are between 1 and 3 feet. The BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

**Zone AO** - Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. The depth should be averaged along the cross section and then along the direction of flow to determine the extent of the zone. Average flood depths derived from the detailed hydraulic analyses are shown within this zone. In addition, alluvial fan flood hazards are shown as Zone AO on the FIRM. Mandatory flood insurance purchase requirements apply.

**Zone AR** - Zone AR is the flood insurance rate zone used to depict areas protected from flood hazards by flood control structures, such as a levee, that are being restored. FEMA will consider using the Zone AR designation for a community if the flood protection system has been deemed restorable by a Federal agency in consultation with a local project sponsor; a minimum level of flood protection is still provided to the community by the system; and restoration of the flood protection system is scheduled to begin within a designated time period and in accordance with a progress plan negotiated between the community and FEMA. Mandatory purchase requirements for flood insurance will apply in Zone AR, but the rate will not exceed the rate for unnumbered A zones if the structure is built in compliance with Zone AR floodplain management regulations.

For floodplain management in Zone AR areas, elevation is not required for improvements to existing structures. However, for new construction, the structure must be elevated (or floodproofed for non-residential structures) such that the lowest floor, including basement, is a maximum of 3 feet above the highest adjacent existing grade if the depth of the base flood elevation (BFE) does not exceed 5 feet at the proposed development site. For infill sites, rehabilitation of existing structures, or redevelopment of previously developed areas, there is a 3 foot elevation requirement regardless of the depth of the BFE at the project site. The Zone AR designation will be removed and the restored flood control system shown as providing protection from the 1% annual chance flood on the NFIP map upon completion of the restoration project and submittal of all the necessary data to FEMA.

**Zone A99** - Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplains that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No BFEs or depths are shown within this zone. Mandatory flood insurance purchase requirements apply.

**Zone D** - The Zone D designation is used for areas where there are possible but undetermined flood hazards. In areas designated as Zone D, no analysis of flood hazards has been conducted. Mandatory flood insurance purchase requirements do not apply, but coverage is available. The flood insurance rates for properties in Zone D are commensurate with the uncertainty of the flood risk.

**Zone V** - Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no BFEs are shown within this zone. Mandatory flood insurance purchase requirements apply.

**Zone VE** - Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone. Mandatory flood insurance purchase requirements apply.

**Zone X** – Zone X is the flood insurance rate zone that correspond to areas outside the 100-year floodplains. (Zone X is used on new and revised maps in place of Zones B and C.)

**Zone X500** – Zone X500 identifies an area inundated by 500-year flooding; an area inundated by 100-year flooding with average depths of less than 1 foot or an area protected by levees from 100-year flooding.

### **Flood or Flooding**

A general and temporary condition of partial or complete inundation of normally dry land areas from: 1) the overflow of inland or tidal waters; and 2) the unusual and rapid accumulation of runoff of surface waters from any source.

### **Flood Hazard Boundary Map (FHBM)**

An official map issued by the Federal Emergency Management Agency (FEMA), where the boundaries of the areas of special flood hazard have been defined as Zone A.

### **Flood Insurance Rate Map (FIRM)**

An official map on which the Federal Emergency Management Agency (FEMA) has delineated both the areas of special flood hazard and the risk premium zones applicable to a community.

### **Floodway**

The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

### **Mitigation**

Any activity that actually eliminates or reduces the probability of a disaster occurrence, or reduces the effects of a disaster. Mitigation includes such actions as zoning and land use management, safety and building codes, flood proofing of buildings and public education.

### **National Warning System (NAWAS)**

The federal warning system used to disseminate warnings of imminent natural disaster or enemy attack into a regional warning system which passes it to the state warning points for action.

### **National Weather Service (NWS)**

A federal agency tasked with forecasting weather and providing appropriate warning of imminent natural disaster such as hurricane, tornados, tropical storms, etc.

### **NCDEM or NCEM**

North Carolina Division of Emergency Management - The North Carolina state agency tasked with protecting the general public from the effects of natural or man-made disasters.

### **NCDENR - North Carolina Department of Environment and Natural Resources**

## **NCDC - National Climatic Data Center Storm Events Database**

<http://www4.ncdc.noaa.gov/cgi-win/wwcgl.dll?wwEvent~Storms>)

The Storm Events Database is updated on a monthly basis and is usually 90-120 days behind the current month. All of the data is received from the National Weather Service and is made available as soon as possible. The National Climatic Data Center Storm Events Database contains data from the following sources:

- 1) All Weather Events from 1993 - 1995, as entered into Storm Data (except 6/93 - 7/93, which is missing; no latitude/longitude).
- 2) All Weather Events from 1996 - current, as entered into Storm Data (including latitude/longitude).
- 3) Additional data from the Storm Prediction Center including tornadoes (1950-1992); thunderstorm winds (1955-1992); and hail 1955-1992

## **NFIP – National Flood Insurance Program**

Communities who participate in the NFIP must adopt and enforce floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes Federally-backed flood insurance available to homeowners, renters, and business owners in these communities. Community participation in the NFIP is voluntary.

## **Nonpoint Source Pollution**

Pollution that enters waters from dispersed sources (such as surface runoff) rather than from a point source (e.g. pipe).

## **Recovery**

Activities which involve assistance to enhance the return of the community to normal or near-normal conditions. Short-term recovery returns vital life-support systems to minimum operating standards. Long-term recovery may continue for a number of years after a disaster and seeks to return life to normal or improved levels. Recovery activities include temporary housing, loans or grants, disaster unemployment insurance, reconstruction and counseling programs.

## **Response**

Activities that occur immediately before, during, and directly after an emergency or disaster. Activities involve lifesaving actions such as, the activation of warning systems, manning the EOCs, implementation of shelter or evacuation plans and search and rescue.

## **Retention**

Surface collection, storage, and reduction of stormwater runoff for the purpose of providing infiltration of the runoff into the soil.

## **Runoff**

That portion of rainfall or other precipitation that is not absorbed by the soil, but rather flows across the ground surface and drains to a water body.

## **Severe Repetitive Loss**

Severe Repetitive Loss is generally defined as a residential property, insured by NFIP, that has experienced one of the following situations: 2 or more claim payments (building only) totaling more than the market value of the house, or 4 claim payments of at least \$5,000 (building and contents). More specific details can be found at the Severe Repetitive Loss Program website.

## **Severe Repetitive Loss Program (SLR)**

<http://www.fema.gov/government/grant/srl/index.shtm>

The Severe Repetitive Loss Program, authorized in 2004 by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004, provides funding to reduce or eliminate long term risk of flood damages for residential structures insured under the NFIP.

## **SHELDUS – Spatial Hazard Events and Losses Database for the United States**

[http://go2.cla.sc.edu/hazard/db\\_registration](http://go2.cla.sc.edu/hazard/db_registration)

SHELDUS is a geo-referenced data set providing county-level data on natural hazard events and losses from 1960 to 2000. Hazard types covered in the data base include avalanches, coastal hazards, drought, earthquakes, flooding, fog, hail, heat, hurricane/tropical storms, landslides, lightning, severe storms/thunderstorms, tornadoes, tsunamis/seiches, volcanoes, wildfires, wind hazards, and winter weather. According to the SHELDUS website, this is the most comprehensive database of natural hazard events and losses available.

SHELDUS culls data from repositories such as the National Climatic Data Center Storm Data and the Council of National Seismic Systems. Variables include county name, state, Federal Information Processing Standard (FIPS) code, date, event type, property losses (in unadjusted dollars), crop losses (in unadjusted dollars), injuries, and deaths.

Only those events that generated more than \$50,000 in losses are included in the database. For events that covered multiple counties, the dollar losses, deaths, and injuries were equally divided among the counties. Where dollar loss estimates were provided in a range (e.g., \$50,000 to \$100,000), the lowest value in the range of the category was used. This results in the most conservative estimate of losses during the time period.

## **USGS – United States Geological Survey**

### **Watershed**

The land area that drains runoff to a surface water body or watercourse. Also called a drainage basin, a watershed includes hills, lowlands, and the body of water into which the runoff drains.

### **Watershed Best Management Practice (BMP)**

A recognized method, activity, device, maintenance procedure, or other management practice used singularly or in combination to minimize the amount of nonpoint source pollution entering surface waters.

### **Watershed or Riparian Buffer**

An undisturbed area of natural vegetation adjacent to a drainageway, watercourse, or water impoundment within a watershed through which stormwater runoff is intended to flow in a diffuse manner so that it does not become channelized and infiltration of runoff and filtering of pollutants can take place.



## **APPENDIX G: PLAN MAINTENANCE (Section 7)**

## **APPENDIX H: MAPS**

## Mark M. Johnson

---

**From:** Mark M. Johnson  
**Sent:** Wednesday, December 28, 2011 11:42 AM  
**To:** 'elmcity@nc.rr.com'; 'lucama@cocentral.com'; 'asaratogatown@nc.rr.com';  
'vlucas@townofstantonsburg.com'; 'Kathy Garner'; 'Barbara Aycock'  
**Subject:** Hazard Mitigation Report  
**Attachments:** Wilson County Section IV\_2010.pdf

As part of our 2010 Hazard Mitigation Plan, I am requesting that you email me any damages recorded during 2011, resulting from natural hazards.

Please take time to review Section IV-B of the plan, to determine from your perspective if there is a need to amend the plan at this time. All participating jurisdictions should have the plan on c/d. I attached Section IV-B to this e-mail.

Thanks

# ***EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS***

## **D. Mitigation Actions**

The Nash County Mitigation Action Plan is depicted in Table II-1. These are the mitigation actions that are to be undertaken by the County as the lead agency with the municipalities serving in a supporting role where appropriate. Each municipality also has a separate, specific set of mitigation actions that will be undertaken at the municipal level. Municipal Mitigation Action Plans are shown in alphabetical order in Tables II-2 through II-11.

Mitigation actions were developed and prioritized by the departmental staff responsible for implementation of the specific action. Each department categorized actions as low, moderate or high priority based on assessment of the need for the specific action, the projected cost of implementation, the potential beneficial effects from implementation of the action, and available funding sources. The implementation years – between 2010 and 2015 – were also determined by the responsible departments using projected resources (personnel, vehicles, etc.) and operating funds. As discussed under Study Conclusions, the planning team determined that some potential actions were more appropriately addressed at the State level due to long established priorities and responsibilities assumed by the State of North Carolina.

Individual staff departments were responsible for determining:

1. Cost effectiveness, i.e., do returns or savings produced by implementation of the action outweigh the cost of implementation?
2. Environmental impact, i.e., are actions designed to protect environmentally fragile areas as natural stormwater storage areas? and
3. Technical feasibility, i.e., can the action be undertaken by the Town using current staff and local funds, State, or Federal funds, or do other funding sources need to be identified?

In developing actions, the County and municipalities relied on the following six mitigation policy categories provided by FEMA:

1. Prevention (P) Measures  
Preventive measures are intended to keep hazard problems from getting worse. They are particularly effective in reducing a community's future vulnerability, especially in areas where development has not occurred or where capital improvements have not been substantial. Examples of prevention measures include:
  - (a) Comprehensive land use planning
  - (b) Zoning regulations
  - (c) Subdivision regulations
  - (d) Open space preservation
  - (e) Building code
  - (f) Floodplain development regulations
  - (g) Stormwater management
2. Property Protection (PP) Measures  
Property protection measures protect existing structures by modifying the building to withstand hazardous events, or removing structures from hazardous locations. Examples of property protection measures include:
  - (a) Building relocation
  - (b) Acquisition and clearance
  - (c) Building elevation
  - (d) Barrier installation

## ***EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS***

- (e) Building retrofit
  
- 3. Natural Resource (NR) Protection  
Natural resource protection activities reduce the impact of natural hazards by preserving or restoring natural areas and their mitigative functions. Such areas include floodplains, wetlands, and dunes. Parks, recreation or conservation agencies and organizations often implement these measures. Examples include:
  - (a) Wetland protection
  - (b) Habitat protection
  - (c) Erosion and sedimentation control
  - (d) Best management practices (BMPs)
  - (e) Stream dumping
  - (f) Forestry practices
  
- 4. Emergency Services (ES) Measures  
Although not typically considered a mitigation technique, emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. Examples include:
  - (a) Hazard warning system
  - (b) Emergency response plan
  - (c) Critical facilities protection
  - (d) Health and safety maintenance
  - (e) Post-disaster mitigation
  
- 5. Structural Projects (S)  
Structural mitigation projects are intended to lessen the impact of a hazard by modifying the environmental natural progression of the hazard event. The projects are usually designed by engineers and managed or maintained by public works staff. Examples include:
  - (a) Reservoirs, retention and detention basins
  - (b) Levees and floodwalls
  - (c) Channel modifications
  - (d) Channel maintenance
  
- 6. Public Information Activities (PI) Activities  
Public information and awareness activities are used to advise residents, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques that the public can use to protect themselves and their property. Examples of measures to education and inform the public include:
  - (a) Map information
  - (b) Outreach projects
  - (c) Library
  - (d) Technical Assistance
  - (e) Real estate disclosure
  - (f) Environmental education

***EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR  
UPDATE & REVIEW BY JURISDICTIONS***

**Mitigation Action Tables - Explanation of Columns and Acronyms**

**Columns**

**Action #**

Action # corresponds to FEMA mitigation policy categories listed above.

**Action**

Description of action to be undertaken. Where applicable, CRS category is referenced (Nash County and Town of Nashville). Note: An explanation of CRS activities is included in Table II-12 – II-15.

**Notes**

Additional information about Action, including changes, progress and other pertinent information

**Status**

Identifies status of action using the following codes:

N = New (not included in the previous plan),

E = Existing (included in previous plan but not completed),

C = Complete (completed during the previous plan cycle)

**Hazard**

Hazard which the action addresses.

**Objective(s) Addressed**

Reference to the numbered objective which the action supports.

**Relative Priority**

Low, moderate or high priority for funding and implementation.

**Funding Sources**

State and Federal sources of funds are noted, where applicable.

**Responsible Party**

Staff department responsible for undertaking the action. Note: The Nash County Board of Commissioners and the individual Town boards have ultimate authority to approve any policy, program or regulation revisions.

**Acronyms**

CRS – Community Rating System

EMS - Nash County Emergency Management Services

FEMA - Federal Emergency Management Agency

GIS - Nash County Geographic Information Services

NCDENR - North Carolina Department of Environment and Natural Resources

NCDOT - North Carolina Department of Transportation

NCEM - North Carolina Division of Emergency Management

NRCS - Natural Resource Conservation Services

P&D - Nash County Planning and Development Department

UD - Nash County Utilities Department

**Target Completion Date**

Date by which the action should be completed. In the case of completed actions, this is the date the action was completed.

**EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS**

**Table II-1: Nash County Mitigation Actions – Progress Spring 2013**

Purple – completed 2011

Green – completed by 2012-2013

Red – completed 2014

Blue – completed 2015

| Action #                           | Nash County Actions  | Status | Hazard | Objective(s) Addressed | Relative Priority | Funding Sources | Responsible Party | Target Completion Date |
|------------------------------------|--|--------|--------|------------------------|-------------------|-----------------|-------------------|------------------------|
|                                    | Notes  |        |        |                        |                   |                 |                   |                        |
| <b>Prevention Actions</b>          |  |        |        |                        |                   |                 |                   |                        |
| P-1                                | As small area plans are developed, consider clustering options for single family lot development. Encourage conditional use zoning in sensitive areas.   | E      | Flood  | 3.2                    | Moderate          | Local           | P&D               | Ongoing                |
|                                    | <i>County encourages use of permanent conservation easements (natural areas) in new developments to facilitate stormwater and hazard mitigation.</i>   |        |        |                        |                   |                 |                   |                        |
| P-2                                | Develop a policy to minimize public services to proposed new structures that will be located in 100-year floodplain areas.   | E      | Flood  | 2.1                    | High              | Local           | P&D<br>UD         | 2013                   |
|                                    | <i>Rescheduled for this plan period. County will consider options related to water system expansions</i>   |        |        |                        |                   |                 |                   |                        |
| P-3                                | Evaluate benefits of participation in Community Rating System (CRS).   | E      | Flood  | 2.2                    | High              | Local           | P&D               | 2013                   |
|                                    | <i>Rescheduled for current plan period due to staffing changes</i>   |        |        |                        |                   |                 |                   |                        |
| P-4                                | Continue to require and maintain FEMA elevation certificates for all permits for new buildings or improvements to buildings where any portion of the building lies within the 100-year floodplain and establish a policy to require elevation certificates for new buildings or improvements located within 100' of a 100-year floodplain (CRS 310). | E      | Flood  | 3.2                    | Moderate          | Local           | P&D               | 2014                   |
|                                    | <i>Certificate requirement is ongoing within FP; reconsider requiring elevation certificate for new construction close to existing floodplain or within 500 year floodplain. Develop strategy for obtaining any missing certificates.</i>  |        |        |                        |                   |                 |                   |                        |
| <b>Property Protection Actions</b> |  |        |        |                        |                   |                 |                   |                        |
| PP-1                               | Prioritize repetitive flood loss properties for acquisition and relocation. Seek Federal and State funding (voluntary program (CRS 420/520)).  | E      | Flood  | 4.1<br>4.2             | High              | FEMA<br>NCEM    | P&D               | 2013                   |
|                                    | <i>Contacted/attempted contact of two RLP property owners; neither expressed interested in acquisition.</i>  |        |        |                        |                   |                 |                   |                        |
| PP-2                               | Prioritize at-risk properties for elevation in event of another flood disaster (voluntary program) (CRS 420/520).  | E      | Flood  | 4.1<br>4.2             | High              | Local<br>FEMA   | P&D               | 2011                   |

**EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS**

| Action #                                   | Nash County Actions   | Status | Hazard  | Objective(s) Addressed | Relative Priority | Funding Sources | Responsible Party | Target Completion Date |
|--|---|--------|---------|------------------------|-------------------|-----------------|-------------------|------------------------|
|  | Notes   |        |         |                        |                   |                 |                   |                        |
|  | <i>Mapped property locations with habitable structures built prior to 1984 (tax data). Add properties built more recently but not with current freeboard requirements (no elevation certificates)</i>   |        |         |                        |                   | NCEM            |                   |                        |
| PP-3                                       | Count building improvements cumulatively (maintain permit history so when cumulative improvements equal 50% of building value (substantial improvement)), building must be brought up to flood protection standards for new construction (CRS 430). | E      | Flood   | 4.1                    | Moderate          | Local           | P&D               | 2014                   |
|  | <i>Permitting Software change in process; will reevaluate tracking options after conversion</i>   |        |         |                        |                   |                 |                   |                        |
| PP-4                                       | Update area-specific mapping data for all hazards and hazard-prone areas, especially wildfires & flood  | N      | All     | 1.2, 3.1               | Moderate          | Local           | P&D               | 2011                   |
|  |   |        |         |                        |                   |                 |                   |                        |
| <b>Natural Resource Protection Actions</b> |   |        |         |                        |                   |                 |                   |                        |
| NR-1                                       | In developing Master Recreation Plan, identify wetland properties that can be incorporated into passive recreation opportunities.   | E      | Flood   | 3.1                    | Low               | Local           | P&D<br>P&R        | Ongoing                |
|  | <i>Considered in case-by-case evaluation of park siting, to minimize intrusion into wetlands or to utilize conservation easements for both stormwater and hazard mitigation purposes</i>  |        |         |                        |                   |                 |                   |                        |
| NR-2                                       | Continue to support NC Sedimentation Control Commission efforts to ensure erosion and sedimentation control measures are properly installed and maintained during construction.   | E      | Flood   | 3.2                    | High              | Local<br>NCDENR | P&D<br>UD         | Ongoing                |
|  |   |        |         |                        |                   |                 |                   |                        |
| NR-3                                       | Evaluate water conservation policy to ensure adequate protection of water supply.   | N      | Drought | 2.3                    | High              | Local           | UD                | 2013                   |
|  |   |        |         |                        |                   |                 |                   |                        |
| <b>Emergency Services</b>                  |   |        |         |                        |                   |                 |                   |                        |
| ES-1                                       | Ensure adequate evacuation time in case of major hazard event. Amend as “Expand special needs registry to include areas of limited evacuation capabilities”   | E      | All     | 1.1<br>1.3             | High              | Local           | EMS               | 2012                   |
|  | <i>CodeRed program activated for automated telephone warning systems directly to citizens.</i>  |        |         |                        |                   |                 |                   |                        |
| ES-2                                       | Evaluate areas with limited evacuation capacity and pursue methods for improving capacity. Amend as “Establish  | E      | All     | 1.1<br>1.3             | High              | Local           | EMS               | 2013                   |

**EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS**

| Action #                             | Nash County Actions  | Status | Hazard | Objective(s) Addressed | Relative Priority | Funding Sources | Responsible Party | Target Completion Date |
|--------------------------------------|--|--------|--------|------------------------|-------------------|-----------------|-------------------|------------------------|
|                                      | Notes  |        |        |                        |                   |                 |                   |                        |
|                                      | predetermined evacuation areas in floodprone areas”  |        |        |                        |                   |                 |                   |                        |
| ES-3                                 | Improve hazard warning and response plan – warning and evacuating persons out of flood prone or isolated areas, controlling vehicles on evacuation routes, evacuation of hazard materials (CRS 610).   | E      | All    | 1.3                    | High              | Local           | EMS               | Ongoing                |
|                                      | <i>Activated CodeRed automated phone messaging system; EMS working with Forest Service &amp; local Fire departments for pre-fire planning efforts in subdivisions abutting woodlands and educating local fire departments about minimizing wildfire damage in residential areas.</i> |        |        |                        |                   |                 |                   |                        |
| ES-4                                 | Evaluate flood or access problems for critical facilities; develop recommendations for protecting critical facilities. Identify alternate command posts.   | E      | All    | 1.3                    | High              | Local           | EMS               | 2013                   |
|                                      | <i>Currently studying options for alternate Emergency Operations Center location for Nash County.</i>  |        |        |                        |                   |                 |                   |                        |
| ES-5                                 | Establish training for citizens in evacuation procedures   | N      | All    | 1.2                    | High              | Local           | EMS               | 2014                   |
|                                      |  |        |        | 1.3                    |                   |                 |                   |                        |
| <b>Structural Projects</b>           |  |        |        |                        |                   |                 |                   |                        |
| S-1                                  | In developing stormwater program, investigate the need for retention/detention basins within specific areas experiencing flooding problems.  | E      | Flood  | 3.2                    | Moderate          | Local           | P&D<br>UD         | Ongoing                |
|                                      | <i>Potential public and/or private property retrofits are identified annually for current stormwater program.</i>  |        |        |                        |                   |                 |                   |                        |
| <b>Public Information Activities</b> |  |        |        |                        |                   |                 |                   |                        |
| PI-1                                 | Continue to provide flood maps for public use with staff continuing to be available for public assistance.   | E      | Flood  | 1.1                    | High              | Local           | P&D               | Ongoing                |
|                                      | <i>Floodmaps online at state and county GIS websites; county provides training for citizens in using website plus individual responses to questions</i>  |        |        | 1.2                    |                   |                 |                   |                        |
| PI-2                                 | Continue to advise/assist property owners with how to retrofit homes and businesses to be more disaster resistant.   | E      | Flood  | 1.2                    | Moderate          | Local           | P&D               | Ongoing                |
|                                      | <i>Ongoing; new staff to attend flood hazard training sessions</i>   |        |        |                        |                   |                 |                   |                        |

**EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS**

| Action # | Nash County Actions   | Status | Hazard   | Objective(s)<br>Addressed | Relative<br>Priority | Funding<br>Sources | Respon-<br>sible Party | Target<br>Com-<br>pletion<br>Date      |
|----------|---|--------|----------|---------------------------|----------------------|--------------------|------------------------|--|
|          | Notes   |        |          |                           |                      |                    |                        |  |
| PI-3     | Work with local real estate association to ensure that potential buyers are aware when a property is exposed to potential flood damage.   | E      | Flood    | 1.2                       | Moderate             | Local              | P&D                    | Online access & training 2008; Ongoing |
|          | <i>Online GIS maps and training available to real estate agents and citizens/homebuyers, plus individual instructions as needed.</i>  |        |          |                           |                      |                    |                        |  |
| PI-4     | Evaluate processes for disseminating information about voluntary and mandatory water conservation measures to general public  | N      | Drought  | 2.3                       | Moderate             | Local              | UD<br>P&D              | 2012                                   |
|          |   |        |          |                           |                      |                    |                        |  |
| PI-5     | Develop speakers bureau & presentation/ materials suitable for construction professionals and homeowners regarding fire issues in materials, landscaping, and maintenance of easements & access | N      | Wildfire | 1.2<br>4.2                | Moderate             | Local              | EMS                    | 2012                                   |
|          | <i>Postpone to later in program – 2014-15</i>   |        |          |                           |                      |                    |                        |  |

Source: Nash County.

Status abbreviations: N = New, E = Existing

**EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS**

**Table II-2: Town of Bailey Mitigation Actions – Progress Spring 2013**

| Action #    | Town of Bailey Actions  | Status | Hazard | Objective(s) Addressed | Relative Priority | Funding Sources | Responsible Party <sup>1</sup> | Target Completion Date |
|-------------|---|--------|--------|------------------------|-------------------|-----------------|--------------------------------|------------------------|
| Bailey P-1  | Strengthen the Public Water and Sewer Ordinance by adding language that specifically prohibits extending public services and utilities into flood hazard or other environmentally sensitive areas to discourage growth. | E      | Flood  | 2.1                    | Moderate          | Local           | TB                             | 2015                   |
|             | <i>Rescheduled until sewer rehabilitation project is underway</i>   |        |        |                        |                   |                 |                                |                        |
| Bailey P-2  | Update Zoning Ordinance and regulations concerning subdivisions.  | E      | All    | 1.1                    | Moderate          | Local           | PB<br>TB                       | 2011- 2012             |
|             | <i>Postponed due to budget &amp; staff shortages</i>  |        |        |                        |                   |                 |                                |                        |
| Bailey P-3  | Adopt a Flood Damage Prevention Ordinance.  | E      | Flood  | 1.1                    | High              | Local           | PB<br>TB                       | 2011- 2012             |
|             | <i>Will consider during zoning ordinance update</i>   |        |        |                        |                   |                 |                                |                        |
| Bailey PP-1 | Require that structures built in the 100-year floodplain be elevated 1 or 2 feet above base flood elevation.  | E      | Flood  | 1.1                    | Moderate          | Local           | PW                             | 2011- 2012             |
|             | <i>Will consider as part of flood ordinance /zoning update; Bailey currently has not SFHA</i>   |        |        |                        |                   |                 |                                |                        |
| Bailey NR-1 | Update NC well-head-protection program requirements.  | E      | All    | 1.1                    | Moderate          | Local           | PW                             | 2010                   |
|             | <i>In Process</i>   |        |        |                        |                   |                 |                                |                        |
| Bailey ES-1 | Identify roads that had a problem with high water during Hurricane Floyd and place signs on streets stating "Road Subject to Flooding".   | E      | Flood  | 1.1<br>4.1             | High              | Local           | PW<br>NCDOT                    | 2011                   |
|             | <i>NCDOT reworking some ditches to improve flow; Requests for signage to follow those improvements</i>  |        |        |                        |                   |                 |                                |                        |
| ES-2        | Implement a property address review program to identify & correct conflicts   | N      | All    | 1.1<br>1.3             | Moderate          | Local           | TB                             | 2013                   |
|             |   |        |        |                        |                   |                 |                                |                        |
| Bailey PI-1 | Consider establishing a town website for public information and emergency preparedness  | N      | All    | 1.1<br>1.2             | Moderate          | Local           | TB                             | 2015                   |

<sup>1</sup> Abbreviations: TB – Town Board; PB – Planning Board; PW – Public Works.

Status abbreviations: N = New, E = Existing

Source: Town of Bailey.

**EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS**

**Table II-3: Town of Castalia Mitigation Actions – Progress Spring 2013**

| Action #      | Town of Castalia Actions  | Status | Hazard | Objective(s) Addressed | Relative Priority | Funding Sources | Responsible Party <sup>1</sup> | Target Completion Date |
|---------------|---|--------|--------|------------------------|-------------------|-----------------|--------------------------------|------------------------|
| Castalia P-1  | Update the Town's Zoning and Subdivision Ordinances.  | E      | All    | 1.1                    | Moderate          | Local           | TB<br>PB                       | 2011                   |
|               | <i>Update in progress</i>   |        |        |                        |                   |                 |                                |                        |
| Castalia P-2  | Update the Town's Zoning Maps.  | E      | All    | 1.1                    | Moderate          | Local           | TB<br>PB<br>TC                 | 2011                   |
|               | <i>Nash County maintains digital maps with updates &amp; input from town (2008); revisions will follow ordinance update as needed</i>       |        |        |                        |                   |                 |                                |                        |
| Castalia NR-1 | Implement a Wellhead Protection Program.  | E      | All    | 1.1<br>2.1             | Moderate          | Local           | TB<br>WO                       | 2013                   |
|               | <i>Postponed due to staffing changes; consulted with NC rural Water Assn on plan options</i>  |        |        |                        |                   |                 |                                |                        |
| Castalia PI-1 | Outreach Project on Hazard Mitigation Strategy Education – Send out flyers and information to the public to educate in case of emergencies. | E      | All    | 1.1<br>1.2             | Moderate          | Local           | TB<br>TC                       | 2008                   |
|               | <i>Coverage in periodic town newsletter as article topic; additional info available if needed</i>   |        |        |                        |                   |                 |                                |                        |

Abbreviations: TB – Town Board, PB – Planning Board, TC – Town Clerk, WO – Water Operator, M – Mayor, and FD – Fire Department.

Status abbreviations: N = New, E = Existing

Source: Town of Castalia

**EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS**

**Table II-4: Town of Dortches Mitigation Actions – Progress Spring 2013**

| Action #      | Town of Dortches Actions  | Status | Hazard | Objective(s) Addressed | Relative Priority | Funding Sources | Responsible Party <sup>1</sup> | Target Completion Date |
|---------------|---|--------|--------|------------------------|-------------------|-----------------|--------------------------------|------------------------|
| Dortches P-1  | Update zoning ordinance, including considerations for open space and environmental considerations   | N      | All    | 1.1                    | High              | Local           | TB, PB<br>TS                   | 2012                   |
| Dortches ES-1 | Establish program for evaluation and improvement of critical services (public and private) - roads, bridges, water, sewer, electricity, etc., and critical facilities – fire, rescue, medical, etc.<br><i>Capital Improvements budget included in annual budget considerations; 2010 budget includes capital fund for critical services. Generators and alarms installed at sewer pump stations and a generator at Town Hall.</i> | E      | All    | 1.1                    | Moderate          | Local           | TS                             | 2009                   |
| Dortches PI-1 | In compliance with Nash County, the Town of Dortches plans to establish and maintain library of retrofitting techniques and publicize through citizen news bulletins or newsletters.<br><i>Maintaining library of information; publicized through new website beginning January 2008</i>  | E      | All    | 1.2                    | High              | Local           | TS                             | 2008                   |
| Dortches PI-3 | Dortches plans to work with Nash County to produce digital zoning and land use maps.<br><i>Nash County maintains digital zoning maps with input &amp; updates from town staff.</i>  | E      | All    | 1.1<br>3.1             | Moderate          | TS<br>County    | TS<br>County                   | 2009,<br>Ongoing       |

<sup>1</sup> Abbreviations: PB – Planning Board, TB – Town Board, TS – Town Staff, FD – Fire Department.  
Source: Town of Dortches

Status abbreviations: N = New, E = Existing, C = Complete

**EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS**

**Table II-5: Town of Middlesex Mitigation Actions – Progress Spring 2013**

| Action #       | Town of Middlesex Actions   | Status | Hazard | Objective(s) Addressed | Relative Priority | Funding Sources | Responsible Party <sup>1</sup> | Target Completion Date |
|----------------|---|--------|--------|------------------------|-------------------|-----------------|--------------------------------|------------------------|
| Middlesex P-1  | Several of the Zoning Ordinances are outdated and need revising, and more stringent laws will need to be implemented to take care of building in floodplains. | E      | All    | 1.1                    | High              | Local           | PD                             | 2013                   |
|                | <i>Postponed due to staffing &amp; budget</i>   |        |        |                        |                   |                 |                                |                        |
| Middlesex ES-1 | Identify and publicize emergency shelter site location  | N      | All    | 1.1                    | High              | Local           | TC<br>PD                       | 2013                   |
|                |   |        |        | 1.2                    |                   |                 |                                |                        |
| Middlesex PI-1 | Middlesex plans to work with Nash County to produce digital zoning and land use maps.   | E      | All    | 1.1                    | Moderate          | County          | County                         | 2008,<br>Ongoing       |
|                | <i>Digital zoning maps maintained by Nash County with input/updates from Town staff</i>   |        |        | 3.1                    |                   |                 |                                |                        |
| Middlesex PI-2 | Expand use of new website for public information & emergency updates ( <a href="http://www.townofmiddlesexnc.com">www.townofmiddlesexnc.com</a> )             | N      | All    | 1.1                    | High              | Local           | TC                             | 2012                   |
|                |   |        |        | 1.2                    |                   |                 |                                |                        |

<sup>1</sup> Abbreviations: PD – Planning Department, PU – Public Utilities, TC – Town Clerk, POL – Police Department, Source: Town of Middlesex

Status abbreviations: N = New, E = Existing

**EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS**

**Table II-6: Town of Momeyer Mitigation Actions – Progress Spring 2013**

| Action #     | Town of Momeyer Actions  | Status | Hazard | Objective(s) Addressed | Relative Priority | Funding Sources | Responsible Party <sup>1</sup> | Target Completion Date |
|--------------|--|--------|--------|------------------------|-------------------|-----------------|--------------------------------|------------------------|
| Momeyer ES-1 | Establish Early Warning System to ensure adequate evacuation time for major events and evaluate areas with limited evacuation capacity and pursue methods of improving capacity. | E      | All    | 1.1                    | High              | Local           | TC EMS                         | 2009                   |
|              | Encourage Nash County EMS CodeRed phone contact system for localized emergencies; coordinate with Nash EMS for MHP evacuation plan.  |        |        |                        |                   |                 |                                |                        |
| Momeyer PI-1 | Momeyer plans to work with Nash County to produce a digital zoning map.  | E      | All    | 1.1                    | Moderate          | County          | TC County                      | 2007-2008              |
|              | Digital maps maintained by Nash County with input/updates from Town staff  |        |        | 3.1                    |                   |                 |                                |                        |

Abbreviations: TCO – Town Council, EMS – Emergency Management Services, TC – Town Clerk, PB – Planning Board, CPD - County Planning Department,

Status abbreviations: N = New, E = Existing

Source: Town of Momeyer

**EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS**

**Table II-7: Town of Nashville Mitigation Actions – Progress Spring 2013**

| Action #       | Town of Nashville Actions  | Status | Hazard | Objective(s) Addressed | Relative Priority | Funding Sources | Responsible Party <sup>1</sup> | Target Completion Date |
|----------------|--|--------|--------|------------------------|-------------------|-----------------|--------------------------------|------------------------|
| Nashville P-1  | Apply to CRS to continue participation in program. (5-year re-application cycle)   | E      | Flood  | 2.2                    | Moderate          | Local           | PD                             | Next review 2013       |
|                | <i>Successful completion of CRS compliance review (2008) – resulting in higher rating group</i>  |        |        |                        |                   |                 |                                |                        |
| Nashville P-2  | Update as required by FEMA and/or NCEM the Special Flood Hazard Area Regulations Overlay District to increase protection from flood hazard events (CRS 430).   | E      | Flood  | 3.1<br>3.2             | High              | Local           | TC<br>PB<br>PD                 | Ongoing                |
|                | <i>Current freeboard is 2' above BFE</i>   |        |        |                        |                   |                 |                                |                        |
| Nashville P-3  | Continue to require and maintain FEMA elevation certificates for all permits for new buildings or improvements to buildings where any portion of the building lies within the regulatory floodplain (CRS 310). | E      | Flood  | 2.2<br>3.2             | High              | Local           | TC<br>PB<br>Nash PD            | Ongoing                |
|                |  |        |        |                        |                   |                 |                                |                        |
| Nashville NR-1 | Continue to support NC Sedimentation Control Commission efforts to ensure erosion and sedimentation control measures are properly installed and maintained during construction.                                | E      | Flood  | 3.1<br>3.2             | High              | Local<br>NCDENR | PD                             | Ongoing                |
|                |  |        |        |                        |                   |                 |                                |                        |
| Nashville S-1  | Maintain a coordinated debris inspection and removal program to correct problem sites.   | E      | Flood  | 1.1<br>3.2             | Moderate          | Local           | PW                             | Ongoing                |
|                |  |        |        |                        |                   |                 |                                |                        |
| Nashville S-2  | Establish policy requiring local property owners to maintain ditches in front of property  | N      | Flood  | 1.1<br>1.2             | Moderate          | Local           | TC<br>PW                       | 2013                   |
|                |  |        |        |                        |                   |                 |                                |                        |

<sup>1</sup> Abbreviations: PB – Planning Board, PD – Planning Department, PW – Public Works, TC – Town Clerk, TM – Town Manager  
 Status abbreviations: N = New, E = Existing, C = Complete  
 Source: Town of Nashville

**EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS**

**Table II-8: Town of Red Oak Mitigation Actions – Progress Spring 2013**

| Action #     | Town of Red Oak Actions   | Status | Hazard | Objective(s) Addressed | Relative Priority | Funding Sources | Responsible Party <sup>1</sup> | Target Completion Date |
|--------------|---|--------|--------|------------------------|-------------------|-----------------|--------------------------------|------------------------|
| Red Oak P-1  | Consider implementing a Capital Improvements Program to assist in maintaining critical facilities   | N      | All    | 1.1                    | High              | Local           | TB                             | 2012                   |
| Red Oak P-2  | Consider zoning ordinance changes to anticipate public sewer downtown; incorporate hazard mitigation considerations in revisions  | N      | All    | 1.1, 3.1<br>4.1        | High              | Local           | TB                             | 2011                   |
| Red Oak ES-1 | Evaluate options for expansion/upgrade of Fire and Rescue facilities to meet future growth needs  | N      | All    | 1.1<br>1.3             | High              | Local<br>State  | TB<br>FD                       | 2013                   |
| Red Oak PI-1 | Red Oak plans to work with Nash County to produce digital zoning and land use maps.<br><i>Digital zoning maps are maintained by Nash County, with input/updates from town officials</i> | E      | All    | 1.1<br>3.1             | Moderate          | County          | County                         | 2008                   |

<sup>1</sup> Abbreviations: TB – Town Board

Status abbreviations: N = New, E = Existing

Source: Town of Red Oak

**EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS**

**Table II-9: Town of Sharpsburg Mitigation Actions – Progress Spring 2013**

| Action #        | Town of Sharpsburg Actions  | Status | Hazard | Objective(s) Addressed | Relative Priority | Funding Sources | Responsible Party <sup>1</sup> | Target Completion Date |
|-----------------|---|--------|--------|------------------------|-------------------|-----------------|--------------------------------|------------------------|
| Sharpsburg P-1  | Review Floodplain Prevention Ordinance and amend as necessary to be compliant with state model ordinance  | E      | Flood  | 1.1<br>3.2             | High              | Local           | TC                             | 2014                   |
|                 |   |        |        |                        |                   |                 |                                |                        |
| Sharpsburg P-2  | Develop a Thoroughfare/ Transportation Plan through local Rural Planning Organization   | E      | All    | 1.1                    | Moderate          | Local           | TC                             | 2012                   |
|                 | Sharpsburg participates in the Rural Planning Organization for this region  |        |        |                        |                   |                 |                                |                        |
| Sharpsburg ES-1 | Identify roads having a problem with High water during Hurricane Floyd and place signs on streets stating "Road Subject to Flooding".   | E      | Flood  | 1.1<br>4.1             | High              | Local           | PW<br>NCDOT                    | 2011                   |
|                 | <i>Town coordinates with NCDOT for major street detours, etc.; working with NCDOT for ditch maintenance to reduce localized flooding</i>  |        |        |                        |                   |                 |                                |                        |
| Sharpsburg PI-1 | Sharpsburg plans to work with Nash County to produce digital zoning and land use maps.  | E      | All    | 1.1<br>1.2             | Moderate          | County          | County -<br>Town               | Ongoing                |
|                 | <i>Digital zoning maps are maintained by Nash County, with input/updates from town officials. Town works with Edgecombe &amp; Wilson Counties to update mapping for those areas</i> |        |        |                        |                   |                 |                                |                        |

<sup>1</sup> Abbreviations: PW – Public Works, PU – Public Utilities, POL – Police Department, TC – Town Council  
Source: Town of Sharpsburg

Status abbreviations: N = New, E = Existing

**EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS**

**Table II-10: Town of Spring Hope Mitigation Actions – Progress Spring 2013**

| Action #         | Town of Spring Hope Actions  | Status | Hazard | Objective(s) Addressed- | Relative Priority | Funding Sources         | Responsible Party <sup>1</sup> | Target Completion Date |
|------------------|--|--------|--------|-------------------------|-------------------|-------------------------|--------------------------------|------------------------|
| Spring Hope P-1  | Inventory the number of businesses that deal with hazardous materials. Coordinate with Nash EMS.<br><i>Rescheduled for current cycle</i>   | E      | All    | 1.1                     | Moderate          | Local                   | FD<br>PW                       | 2011                   |
| Spring Hope ES-1 | Through cooperative arrangements, implement any necessary and additional security measures for the critical facilities (i.e. lock the ladder at the Elevated Water Tanks, have things such as wells or a water pump enclosed in a fence and monitored).<br><i>Rescheduled due to budget &amp; staffing</i> | E      | All    | 1.1<br>1.3              | Moderate          | Local                   | TM<br>PW                       | 2011                   |
| Spring Hope ES-2 | Develop a system of early and rapid dispatch to fires, including assessment of likely routes of travel to determine impediments.<br><i>Evaluations ongoing and coordination with Nash EMS as appropriate</i>   | E      | Fire   | 1.1<br>1.2              | Moderate          | Local<br>Nash<br>County | FD<br>TM                       | Ongoing                |
| Spring Hope PI-1 | Explore the possibility of developing an internet-based emergency information website. <i>Revise Action to “Expand emergency-based information on website”</i><br><i>Town website established in 2006; also encourage use of CodeRed messaging and Nash County EMS website for major events</i>            | E      | All    | 1.2                     | Moderate          | Nash<br>County          | TM                             | Ongoing                |

<sup>1</sup> Abbreviations: FD – Fire Department, PB – Planning Board, POL – Town Police, PW – Public Works, TB – Town Board, TC – Town Clerk, TM – Town Manager, BI – Building Inspections, TNC – Town Council  
Status abbreviations: N = New, E = Existing

Source: Town of Spring Hope

**EXCERPT FROM 2010 REGIONAL HAZARD MITIGATION PLAN –FOR UPDATE & REVIEW BY JURISDICTIONS**

**Table II-11: Town of Whitakers Mitigation Actions – Progress Spring 2013**

| Action #       | Town of Whitakers Actions   | Status | Hazard | Objective(s) Addressed | Relative Priority | Funding Sources | Responsible Party <sup>1</sup> | Target Completion Date |
|----------------|---|--------|--------|------------------------|-------------------|-----------------|--------------------------------|------------------------|
| Whitakers P-1  | Update zoning and subdivision regulations<br><i>Adopted December 2005</i>   | E      | Flood  | 1.1                    | Moderate          | Local           | PB<br>TB                       | 2005                   |
| Whitakers P-2  | Continue to utilize Capital Improvement Program incorporate stormwater needs<br><i>Town upgraded to 10" water lines from the Bloomer Hill community to the Town to improve fire protection; and installed 17 new fire hydrants in town, replacing 50 year old equipment .</i> | E      | All    | 1.1                    | Moderate          | Local           | TB                             | Ongoing                |
| Whitakers P-3  | Work with NCDOT & RPO to identify long term solutions to localized flooding on US 301., with implementation strategy  | N      | Flood  | 1.1                    | High              | Local           | RPO<br>TB<br>NCDOT             | 2012                   |
| Whitakers ES-1 | Prepare plan for re-routing traffic in town when flooding occurs (US 301 and Edgecombe sites)   | N      | Flood  | 1.1                    | Moderate          | Local           | TB &<br>NCDOT                  | 2010                   |
| Whitakers PI-1 | Continue to work with Nash and Edgecombe Counties to maintain digital zoning and land use maps.   | E      | All    | 1.1<br>1.2             | Moderate          | County          | County -<br>Town               | Ongoing                |
| Whitakers PI-2 | Update and correct address maps for emergency notifications to the public   | N      | All    | 1.1<br>1.2             | Moderate          | Local           | TB<br>NCDOT                    | 2011                   |

<sup>1</sup> Abbreviations: PB – Planning Board, TB – Town Board, PW – Public Works Status abbreviations: N = New, E = Existing

Source: Town of Whitakers

Additional action: Adopted a water shortage policy for utilities customers for protection of water supply.

## Critical Facilities

### UCPCOG Phone Calls to Local Government Jurisdictions to Discuss/Obtain/Update Their Local Information

| <b>Jurisdiction Name</b> | <b>Person Contacted</b>           | <b>Date of Phone Call(s)</b> |
|--------------------------|-----------------------------------|------------------------------|
| Black Creek, Town of     | Greg Gates, PW-Utilities Director | 2014-12-08                   |
| Middlesex, Town of       | LuHarvey Lewis, Mayor             | 2014-12-08                   |
| Saratoga, Town of        | Brenda Wilson, Clerk              | 2014-12-5 & 9                |
| Sharpsburg, Town of      | Tracy Sullivan, Clerk             | 2014-12-30                   |
| Sims, Town of            | Dana Hewett, Mayor                | 2014-12-04                   |
| Whitakers, Town of       | Gwen Parker, Administrator        | 2014-12-18                   |

Note: this table does not include any of the many email interactions that took place.

## APPENDIX D: ASSESSMENT OF COMMUNITY CAPABILITIES (Section 4)

### Community Capabilities:

#### UCPCOG Phone Calls to Local Government Jurisdictions to Discuss/Obtain/Update Their Local Information

| <b>Jurisdiction Name</b> | <b>Person Contacted</b>           | <b>Date of Phone Call(s)</b> |
|--------------------------|-----------------------------------|------------------------------|
| Black Creek, Town of     | Cindy Dougherty, Clerk            | 2014-12-18                   |
| Castalia, Town of        | Angie Elliot, Clerk               | 2014-12-18                   |
| Conetoe , Town of        | Linda Ingram, Mayor               | 2014-12-11 & 18              |
| Elm City, Town of        | Jonathan Russell, Administrator   | 2015-1-9                     |
| Leggett, Town of         | Tommy Anderson, Clerk             | 2014-12-10                   |
| Lucama, Town of          | Tammy Keesler, Administrator      | 2014-12-4 & 19               |
| Macclesfield, Town of    | Cynthia Buck, Clerk               | 2014-12-8                    |
| Momeyer, Town of         | Karen Hendricks, Clerk            | 2015-1-9                     |
| Pinetops, Town of        | Greg Bethea, Administrator        | 2014-12-9                    |
| Princeville              | Byron Ellis                       | 2014-12-9                    |
| Red Oak, Town of         | Barbara High Tyre, Council Member | 2014-12-22                   |
| Saratoga, Town of        | Brenda Wilson, Clerk              | 2014-12-19                   |
| Sharpsburg, Town of      | Tracy Sullivan, Clerk             | 2014-12-4                    |
| Sharpsburg, Town of      | Lenessa Hawkins, Finance Director | 2014-12-9                    |
| Sims, Town of            | Dana Hewitt, Mayor                | 2014-12-29                   |
| Speed, Town of           | Wilbert Harrison, Mayor           | 2014-12-9                    |
| Whitakers, Town of       | Gwen Parker, Administrator        | 2014-12-4 & 19               |

## APPENDIX F: MITIGATION STRATEGIES (Section 6)

### Mitigation Actions

#### UCPCOG Phone Calls to Local Government Jurisdictions to Discuss/Obtain/Update Their Local Information

| <b>Jurisdiction Name</b> | <b>Person Contacted</b>                      | <b>Date of Phone Call</b> |
|--------------------------|--|---------------------------|
| Bailey, Town of          | Becky Smith, Clerk                           | 2015-1-20                 |
| Black Creek, Town of     | Cindy Dougherty, Clerk                       | 2015-1-12                 |
| Conetoe , Town of        | Linda Ingram, Mayor                          | 2015-1-21                 |
| Dortches, Town of        | Gerald Batts, Administrator/Clerk            | 2015-1-21                 |
| Elm City, Town of        | Jonathan Russell, Administrator              | 2015-1-23                 |
| Leggett, Town of         | Gary Skelton, Mayor<br>Tommy Anderson, Clerk | 2014-12-11,<br>2015-1-12  |
| Lucama, Town of          | Tammy Keesler, Administrator                 | 2015-1-16                 |
| Macclesfield, Town of    | Cynthia Buck, Clerk                          | 2015-1-15                 |
| Nash County              | Nancy Nixon, Planning Director               | 2015-1-21                 |
| Pinetops, Town of        | Greg Bethea, Administrator                   | 2015-1-12                 |
| Princeville, Town of     | Byron Ellis, Manager                         | 2015-1-16                 |
| Red Oak, Town of         | Barbara High Tyre, Council Member            | 2015-1-20                 |
| Sharpsburg, Town of      | Tracy Sullivan, Clerk                        | 2015-1-22                 |
| Sims, Town of            | Dana Hewett, Mayor                           | 2015-1-23                 |
| Speed, Town of           | Wilbert Harrison, Mayor                      | 2015-1-16                 |
| Spring Hope, Town of     | John Holpe, Manager                          | 2015-1-27                 |
| Tarboro, Town of         | Josh Edmondson, Planning Director            | 2014-10-30                |
| Whitakers, Town of       | Gwen Parker, Administrator                   | 2014-12-03;<br>2015-01-26 |

**Table E.1**

**Critical Facility Types for the NEW Regional HMP**

|   | Category | County designations<br>(CF, O, n/a) |                 |        | Utility-Infrastructure Related                                    | Category | County designations<br>(CF, O, n/a) |        |         |
|---|----------|-------------------------------------|-----------------|--------|---|----------|-------------------------------------|--------|---------|
|   |          | Nash                                | Edgec           | Wilson |   |          | Nash                                | Edgec  | Wilson  |
| <b>Public Safety/Health Related (including Law Enf, Medical)</b>  |          |                                     |                 |        |   |          |                                     |        |         |
| Emergency Operations Centers (including mobile command posts)     | R        | CF                                  | CF              | CF     | Highways, major   | R        | CF                                  | CF     | CF      |
| 911 Centers (including backup locations)                          | R        | CF                                  | CF              | CF     | Communications towers (VIPER)                                     | R        | CF (2)                              | CF (3) | CF (??) |
| Hospitals   | R        | CF                                  | CF              | CF     | Water/Sewer Treatment Plants                                      | R        | CF                                  | CF     | CF      |
| Central Receiving/Distribution Points (for Disaster Recovery)     | R        | CF                                  | CF              | CF     | Airports/heliports  | R        | CF                                  | CF     | CF      |
| Shelters (CRES <sup>1</sup> )                                     | R        | CF                                  | CF              | CF     | Cable Systems, govt (GreenLight only)                             | C/M      | n/a                                 | n/a    | CF      |
| Correctional Facilities (Jails/Juvenile Detention/Prisons)        | C/M      | CF                                  | CF              | CF     | Communications towers (cell, radio)                               | C/M      | CF                                  | CF     | CF      |
| EMS Facilities-Vehicles   | C/M      | CF                                  | CF              | CF     | Dams (for water supply waterbodies only)                          | C/M      | CF                                  | n/a    | CF      |
| Fire Stations-Vehicles  | C/M      | CF                                  | CF              | CF     | Electric distribution systems (substations, etc)                  | C/M      | CF                                  | CF     | CF      |
| Forestry Facilities (US &/or NC)                                  | C/M      | CF                                  | CF              | CF     | Levees (for flood damage protection; in Princeville & Speed only) | C/M      | n/a                                 | CF     | n/a     |
| Fueling Stations, govt general                                    | C/M,O    | O                                   | CF <sup>2</sup> | O      | Natural Gas distribution systems                                  | C/M      | CF                                  | CF     | O       |
| Fueling Stations, NCDOT   | C/M      | CF                                  | CF              | CF     | Public Works/Maintenance Facilities (DOT, County, Municipal)      | C/M      | CF                                  | CF     | CF      |
| Government Offices/City-Town Halls                                | C/M      | CF                                  | CF              | CF     | Sewer distribution systems (lift stations)                        | C/M      | CF                                  | CF     | CF      |
| Health Depts  | C/M      | CF (2)                              | CF              | CF     | Telephone Systems (Rocky Mount hub only)                          | C/M,O    | CF                                  | CF     | O       |
| NC Highway Patrol Offices-Vehicles                                | C/M,O    | CF                                  | CF              | CF     | Water distribution systems (pump stations)                        | C/M      | CF                                  | CF     | CF      |
| Nursing Homes/Assisted Living Facilities (special needs shelters) | C/M      | CF                                  | CF              | CF     | Water Towers/Tanks/Storage Tanks                                  | C/M      | CF                                  | CF     | CF      |
| Police Stations-Vehicles  | C/M      | CF                                  | CF              | CF     | Wells (public water supply wells only)                            | C/M      | CF                                  | CF     | CF      |
| Shelters (permanent, emergency) <sup>3</sup>                      | C/M      | CF                                  | CF              | CF     |   |          |                                     |        |         |
| Sheriffs Offices-Vehicles   | C/M      | CF                                  | CF              | CF     |   |          |                                     |        |         |
| Urgent Care Facilities  | C/M,O    | O                                   | n/a             | O      |   |          |                                     |        |         |

Notes: CF=critical facility, O=other, R=regional, C/M=county/municipal

<sup>1</sup> CRES (Coastal Region Evacuation and Sheltering)

<sup>2</sup> County School Bus Facility

<sup>3</sup> Actual shelter locations in most cases will not be determined until an emergency situation is eminent/occurring