

Unifour Regional Hazard Mitigation Plan

Alexander County, Burke County, Caldwell County, Catawba County

Prepared by:

Unifour Hazard Mitigation Planning Committee

With Professional Planning Assistance from

AECOM

FINAL DRAFT

February 2014

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Acknowledgements

This regional hazard mitigation plan was made possible through the dedicated efforts of each participating jurisdiction, stakeholders, members of the public, and the project consultant. Detailed information about the planning process and individual participation can be found in the *Planning Process* section of this document.

Participating county and municipal jurisdictions are listed here in alphabetical order by county.

Alexander County
Town of Taylorsville

Burke County
Town of Connelly Springs
Town of Drexel
Town of Glen Alpine
Town of Hildebran
City of Morganton
Town of Rutherford College
Town of Valdese

Caldwell County
Town of Cajah's Mountain
Village of Cedar Rock
Town of Gamewell
Town of Granite Falls
Town of Hudson
City of Lenoir
Town of Rhodhiss
Town of Sawmills

Catawba County
Town of Brookford
Town of Catawba
City of Claremont
City of Conover
City of Hickory
Town of Long View
Town of Maiden
City of Newton

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Section 1: Introduction

This section provides a general introduction to the Unifour Regional Hazard Mitigation Plan. It consists of the following five subsections:

1.1 Background
1.2 Purpose and Vision
1.3 Scope
1.4 Authority
1.5 Plan Overview

1.1 Background

Natural hazards, such as floods, tornadoes, and severe winter storms are a part of the world around us. Their occurrence is natural and inevitable, and there is little we can do to control their force and intensity. We must consider these hazards to be legitimate and significant threats to human life, safety, and property.

The Unifour Region, which is comprised of Alexander, Burke, Caldwell, and Catawba counties, is vulnerable to a wide range of natural hazards. These hazards threaten the life and safety of the Region's residents, and have the potential to damage or destroy both public and private property and disrupt the local economy and overall quality of life.

While the threat from hazardous events may never be fully eliminated, there is much we can do to lessen their potential impact upon our community and our citizens. By minimizing the damaging effects of natural hazards upon our built environment, we can prevent such events from resulting in disasters. The concept and practice of reducing risks to people and property from known hazards is generally referred to as hazard mitigation. Hazard mitigation is defined by the Federal Emergency Management Agency (FEMA) as, "Any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards."

Hazard mitigation techniques include structural measures and non-structural measures. Structural measures include activities such as strengthening or protecting buildings and infrastructure from the destructive forces of potential hazards. Non-structural measures include activities such as the adoption of sound land use policies and the creation of public awareness programs. It is widely accepted that the most effective mitigation measures are implemented at the local government level, where decisions on the regulation and control of development are ultimately made. A comprehensive mitigation approach addresses hazard vulnerabilities that exist today and in the foreseeable future. Therefore it is essential that projected patterns of future development are evaluated and considered in terms of how that growth will increase or decrease overall hazard vulnerability in the planning area.

One of the most effective means that a community can use to implement a comprehensive approach to hazard mitigation is to develop, adopt, and update as needed, a local hazard mitigation plan. A mitigation plan establishes the broad local vision and guiding principles for reducing hazard risk, and further proposes specific mitigation actions to eliminate or reduce identified vulnerabilities.

The Unifour Regional Hazard Mitigation Plan (hereinafter referred to as "Hazard Mitigation Plan" or "Plan") is an effective means to incorporate hazard mitigation principles and practices into the

routine government activities and functions of the four counties and 24 municipalities participating in this Plan. At its most inner core, the Plan recommends specific actions to protect our built environment from the forces of nature and to protect the residents of the Unifour Region from losses to those hazards that pose the greatest risk. These mitigation actions go beyond simply recommending structural solutions to reduce existing vulnerability, such as elevation, retrofitting, and acquisition projects. Local policies on community growth and development, incentives for natural resource protection, and public awareness and outreach activities are examples of other actions considered to reduce the Unifour Region's future vulnerability to identified hazards.

The Plan is designed to be a living document, with implementation and evaluation procedures included to help achieve meaningful objectives and successful outcomes over time.

Disaster Mitigation Act of 2000

In an effort to reduce the Nation's mounting natural disaster losses, the U.S. Congress passed the Disaster Mitigation Act of 2000 (DMA 2000) to amend the Robert T. Stafford Disaster Relief and Emergency Assistance Act by invoking new and revitalized approaches to mitigation planning. Section 322 of the Act emphasizes the need for state and local government entities to closely coordinate on mitigation planning activities, and makes the development of a hazard mitigation plan a specific eligibility requirement for any local government applying for federal mitigation grant funds. Communities with an adopted and federally approved hazard mitigation plan thereby become pre-positioned and more apt to receive available mitigation funds before and after the next declared disaster.

This Plan was prepared in coordination with FEMA and the North Carolina Division of Emergency Management (NCEM) to ensure that it meets all applicable planning requirements. This includes conformance with FEMA's latest *Local Mitigation Planning Handbook* (released March 2013) and *Local Mitigation Plan Review Guide* (released October 2011). A *Local Hazard Mitigation Plan Update Checklist*, found in Appendix B, provides a summary of FEMA and NCEM's current minimum standards of acceptability and notes the location within the Plan where each planning requirement is met.

1.2 Purpose and Vision

The general purpose of this Hazard Mitigation Plan is:

- To protect life and property by reducing the potential for future damages and economic losses that result from natural hazards;
- To qualify for additional grant funding, in both the pre-disaster and post-disaster environment;
- To speed recovery and redevelopment following future disaster events;
- To sustain and enhance existing governmental coordination in the Unifour Region and demonstrate a firm local commitment to hazard mitigation principles; and
- To comply with federal and state requirements for local hazard mitigation plans.

A Unifour Hazard Mitigation Planning Committee was created, consisting of representatives from each of the 28 participating jurisdictions, to develop a regional plan. This committee established a vision statement to help guide the regional planning process and to give all of the participating jurisdictions a common focal point for discussion, coordination, and development of the Plan:

Vision Statement

"Through a coordinated regional planning effort, create and implement an effective hazard mitigation plan that will identify and prioritize risk reduction measures for natural hazards in order to protect the health, safety, quality of life, environment, and economy of the Unifour area."

1.3 Scope

This Hazard Mitigation Plan will be updated and maintained to continually address those hazards determined to be of high and moderate risk through the detailed vulnerability assessment for the Unifour Region (see Section 4: *Risk Assessment*). Other hazards that pose a low or negligible risk will continue to be evaluated during future updates to the Plan, but they may not be fully addressed until they are determined to be of high or moderate risk to the Unifour Region.

The geographic scope (i.e., the "planning area") for the Plan includes all incorporated and unincorporated areas of Alexander, Burke, Caldwell, and Catawba counties. This includes the following 28 local government jurisdictions:

Alexander County
- Town of Taylorsville

Burke County
- Town of Connelly Springs
- Town of Drexel
- Town of Glen Alpine
- Town of Hildebran
- City of Morganton
- Town of Rutherford College
- Town of Valdese

Caldwell County
- Town of Cajah's Mountain
- Village of Cedar Rock
- Town of Gamewell
- Town of Granite Falls
- Town of Hudson
- City of Lenoir
- Town of Rhodhiss
- Town of Sawmills

Catawba County
- Town of Brookford
- Town of Catawba
- City of Claremont
- City of Conover
- City of Hickory
- Town of Long View
- Town of Maiden
- City of Newton

These 28 participating jurisdictions have previously been covered under four separate county level plans. The decision was made to create one regional mitigation plan in order to accomplish the following planning goals:

- Support a more holistic regional planning effort, taking into account shared concerns and shareable resources;
- Conform to NCEM's preference for regional hazard mitigation planning in the state; and
- Leverage available funding and resources for mitigation planning.

1.4 Authority

This Hazard Mitigation Plan has been adopted by all participating counties in accordance with the authority and police powers granted to counties as defined by the State of North Carolina (N.C.G.S., Chapter 153A). This Hazard Mitigation Plan has also been adopted by all participating incorporated municipal jurisdictions under the authority granted to cities and towns as defined by the State of

North Carolina (N.C.G.S., Chapter 160A). Copies of all local resolutions to adopt the Plan are included in Appendix A.

This Plan was developed in accordance with current state and federal rules and regulations governing local hazard mitigation plans. The Plan shall be monitored and updated on a routine basis to maintain compliance with the following legislation:

- Section 322, Mitigation Planning, of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000 (P.L. 106-390) and by FEMA's Interim Final Rule published in the Federal Register on February 26, 2002, at 44 CFR Part 201.
- North Carolina General Statutes, Chapter 166A: North Carolina Emergency Management Act, as amended by Senate Bill 300: An Act to Amend the Laws Regarding Emergency Management as Recommended by the Legislative Disaster Response and Recovery Commission (2001).

1.5 Plan Overview

This Hazard Mitigation Plan is divided into eight major sections, each of which is described briefly below. The Plan also includes several appendices for additional or supplemental items not included in the main body of the Plan, including copies of local adoption resolutions (Appendix A), a completed *Local Hazard Mitigation Plan Update Checklist* (Appendix B), Public Outreach Strategy (Appendix C), public participation survey results (Appendix D), copies of meeting agendas, sign-in sheets, and PowerPoint slides (Appendix E), etc.

This *Introduction* (Section 1) provides background on hazard mitigation planning and the Disaster Mitigation Act of 2000, and defines the purpose, scope, and authority of the Plan as adopted by all participating jurisdictions. It also provides the following outline of each section making up the Plan.

The *Planning Process*, found in Section 2, fully documents the process by which the Unifour Region prepared this regional hazard mitigation plan as an update to its four existing county level plans. This includes a description of the key steps involved in the processes followed, who was involved (i.e., the members of the Hazard Mitigation Planning Committee) and full descriptions of community meetings and workshops, how the public and other stakeholders were notified and involved, and how each of the municipal jurisdictions participated in the process.

The *Planning Area Profile*, located in Section 3, describes the general makeup of the Unifour Region, including its counties and local municipalities, including relevant geographic, demographic, and economic characteristics. In addition, building characteristics and land use patterns are discussed along with general historical disaster data. This baseline information provides context for the region-wide planning area and thereby assists the planning team in recognizing the social, environmental, and economic factors that ultimately play a role in determining community vulnerability to natural hazards.

The *Risk Assessment*, found in Section 4, serves to identify, analyze, and assess the Unifour Region's overall risk to natural hazards. The *Risk Assessment* also attempts to define any hazard risks that may uniquely or exclusively affect the individual municipal jurisdictions. The *Risk Assessment* builds on available historical data from past hazard occurrences, establishes detailed profiles for each

hazard, and culminates in a hazard risk ranking based on conclusions about the frequency of occurrence, spatial extent, and potential impact of each hazard. In essence, the information generated through the *Risk Assessment* serves a critical function as communities seek to determine the most appropriate mitigation actions to pursue and implement—enabling communities to prioritize and focus their efforts on those hazards of greatest concern and those structures or areas facing the greatest risk(s).

The *Capability Assessment*, located in Section 5, provides a comprehensive examination of the Unifour Region and the participating municipalities' capacity to implement meaningful mitigation strategies and identifies existing opportunities to increase and enhance that capacity. Specific capabilities addressed in this section include planning and regulatory capability, staff, and organizational (administrative) capability, technical capability, fiscal capability, and political capability. Information was obtained through the use of detailed survey questionnaires for local officials and an inventory and analysis of existing plans, ordinances, and relevant documents. The purpose of this assessment is to identify any existing gaps, weaknesses, or conflicts in programs or activities that may hinder mitigation efforts, and to identify those activities that should be built upon (such as participation in the National Flood Insurance Program) in establishing a successful and sustainable community hazard mitigation program. The *Community Profile*, *Risk Assessment*, and *Capability Assessment* collectively serve as a basis for determining the goals for the Hazard Mitigation Plan, each contributing to the development, adoption, and implementation of a meaningful *Mitigation Strategy* that is based on accurate background information.

The *Mitigation Strategy*, found in Section 6, consists of regional goal statements as well as specific mitigation actions for each local government jurisdiction participating in the planning process, along with a set of regional mitigation actions to be implemented by the Unifour Hazard Mitigation Planning Committee. The *Mitigation Strategy* provides the foundation for detailed *Mitigation Action Plans*, found in Section 7, that link specific mitigation actions for each jurisdiction to locally assigned implementation mechanisms and target completion dates. Together, these sections are designed to make the Plan both strategic (through the identification of long-term goals) and also functional through the identification of short-term and immediate actions that will guide day-to-day decision-making and project implementation.

In addition to the identification and prioritization of possible mitigation projects, emphasis is placed on the use of program and policy alternatives to help make the Unifour Region less vulnerable to the damaging forces of nature while improving the economic, social, and environmental health of the community. The concept of multi-objective planning was emphasized throughout the planning process, particularly in identifying ways to link hazard mitigation policies and programs with complimentary community goals related to housing, economic development, downtown revitalization, recreational opportunities, transportation improvements, environmental quality, land development, and public health and safety.

The *Plan Maintenance Procedures*, found in Section 8, includes the measures each participating jurisdiction will take to ensure the Plan's continuous long-term implementation. The procedures also include the manner in which the Plan will be regularly evaluated and updated to remain a current and meaningful planning document.

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Section 2: Planning Process

This section of the Plan describes the mitigation planning process undertaken by the Unifour Region in preparing the Hazard Mitigation Plan. It consists of the following eight subsections:

2.1 Overview of Hazard Mitigation Planning
2.2 History of Hazard Mitigation Planning in the Unifour Region
2.3 Preparing the Regional Plan
2.4 Unifour Hazard Mitigation Planning Committee
2.5 Meetings and Workshops
2.6 Involving the Public
2.7 Involving Stakeholders
2.8 Documentation of Plan Progress

2.1 Overview of Hazard Mitigation Planning

Local hazard mitigation planning is the process of organizing community resources, identifying and assessing hazard risks, and determining how to best minimize or manage those risks. This process results in a hazard mitigation plan that identifies specific mitigation actions, each designed to achieve short-term planning objectives as well as a long-term community vision. To ensure the functionality of each mitigation action, responsibility is assigned to a specific individual, department, or agency along with a schedule for its implementation. Plan maintenance procedures are established for the routine monitoring of implementation progress, as well as the evaluation and enhancement of the mitigation plan itself. These plan maintenance procedures ensure that the Plan remains a current, dynamic, and effective planning document over time.

Mitigation planning offers many benefits, including:

- Saving lives and property;
- Saving money;
- Speeding recovery following disasters;
- Reducing future vulnerability through wise development and post-disaster recovery and reconstruction;
- Expediting the receipt of pre-disaster and post-disaster grant funding; and
- Demonstrating a firm commitment to improving community health and safety.

Typically, mitigation planning is described as having the potential to produce long-term and recurring benefits by breaking the repetitive cycle of disaster loss. A core assumption of hazard mitigation is that pre-disaster investments will significantly reduce the demand for post-disaster assistance by lessening the need for emergency response, repair, recovery, and reconstruction. Furthermore, mitigation practices will enable local residents, businesses, and industries to re-establish themselves in the wake of a disaster, getting the community economy back on track more quickly and with less interruption.

The benefits of mitigation planning go beyond solely reducing hazard vulnerability. Measures such as the acquisition or regulation of land in known hazard areas can help achieve multiple community

goals, such as preserving open space, maintaining environmental health, and enhancing recreational opportunities. Thus, it is vitally important that any local mitigation planning process be integrated with other concurrent local planning efforts, and any proposed mitigation strategies must take into account other existing community goals or initiatives that will help complement or hinder their future implementation.

2.2 History of Hazard Mitigation Planning in the Unifour Region

Each of the four counties participating in this Plan, along with their incorporated municipal jurisdictions, had a previously approved hazard mitigation plan in place prior to this regional planning effort. The FEMA approval dates for each of these plans, along with a list of their participating municipalities, are listed below.

- *Alexander County and Town of Taylorsville Multi-Jurisdiction Hazard Mitigation Plan* (September 2009)
    - Alexander County
    - Town of Taylorsville

- *Burke County Hazard Mitigation Plan* (December 2009)
    - Burke County
    - Town of Connelly Springs
    - Town of Drexel
    - Town of Glen Alpine
    - Town of Hildebran
    - City of Morganton
    - Town of Valdese
    - Rutherford College

- *Caldwell County Multi-Jurisdictional Hazard Mitigation Plan* (December 2010)
    - Caldwell County
    - Town of Cajah's Mountain
    - Village of Cedar Rock
    - Town of Gamewell
    - Town of Granite Falls
    - Town of Hudson
    - City of Lenoir
    - Town of Rhodhiss
    - Town of Sawmills

- *Catawba County Multi-Jurisdictional Hazard Mitigation Plan* (June 2010)
    - Catawba County
    - Town of Brookford
    - Town of Catawba
    - City of Claremont
    - City of Conover
    - City of Hickory
    - Town of Long View
    - Town of Maiden
    - City of Newton

Each of the plans listed above was developed using the multi-jurisdictional mitigation planning process recommended by FEMA. For this regional plan, all of the jurisdictions listed above have agreed to merge, update, and expand their existing mitigation planning content as part of one new regional format. No new jurisdictions have joined the planning process since the plans above were adopted and all of the jurisdictions that participated in previous planning efforts have agreed to participate in this regional planning effort. The specific process of moving forward with one regional approach is described in more detail in the following subsections.

2.3 Preparing the Regional Plan

Hazard mitigation plans are required by FEMA to be updated every five years in order for the jurisdictions covered under them to remain eligible for federal mitigation and public assistance funding. To simplify and enhance planning efforts for the jurisdictions in the Unifour Region, Alexander, Burke, Caldwell, and Catawba counties made the decision to move forward with the creation of the Unifour Regional Hazard Mitigation Plan. This regional approach allows resources to be shared amongst the participating jurisdictions and eases the administrative duties of all of the participants by combining the four existing county level plans, and the requirements for the five-year plan update, into one coordinated regional planning process.

To help prepare the Unifour Regional Hazard Mitigation Plan, AECOM was hired as a consultant to provide professional mitigation planning services. To meet requirements of the NFIP's Community Rating System, the region ensured that the planning process was facilitated under the direction of a professional planner, Mr. Darrin R. Punchard, AICP, from AECOM who served as the project manager for this project.

Per the contractual scope of work, the consultant team followed the mitigation planning process recommended by FEMA and recommendations provided by North Carolina Division of Emergency Management (NCEM) mitigation planning staff. The *Local Hazard Mitigation Plan Update Checklist*, found in Appendix B, provides a detailed summary of FEMA's current minimum standards of acceptability for compliance with DMA 2000 and notes the location where each requirement is met within this Plan. These standards are based upon FEMA's Interim Final Rule as published in the Federal Register on February 26, 2002 in Part 201 of the Code of Federal Regulations (CFR). The planning team used FEMA's *Local Mitigation Planning Handbook* (released March 2013) for reference as they completed the Plan.

Although each participating jurisdiction had already developed a plan in the past, the combination of the four plans into one regional plan still required the making of some plan update revisions. Since all sections of the regional plan are technically new, plan update requirements do not apply. However, since this is the first regional mitigation plan amongst the participating jurisdictions, key elements from the previous approved plans are referenced throughout the document (e.g., existing mitigation actions) and required a discussion of changes made. For example, all of the risk assessment elements needed to be updated to include most recent information and any data that was standardized across the regional planning area. It was also necessary to formulate a single set of goals for the region along with a special set of regional mitigation actions. The *Capability Assessment* (Section 5) includes updated information for all of the participating jurisdictions and the *Mitigation Action Plan* section (Section 7) provides implementation status updates for all of the actions identified in the previous plans.

The process used to prepare this Plan included six major steps that were completed over the course of approximately six months beginning in July 2013. Each of these planning steps (illustrated in **Figure 2.1**) resulted in critical work products and outcomes that collectively make up the Plan.

Figure 2.1: Mitigation Planning Process for the Unifour Region



2.4 Unifour Hazard Mitigation Planning Committee

In order to guide the development of this Plan, the Unifour counties (Alexander County, Burke County, Caldwell County, and Catawba County) created the Unifour Hazard Mitigation Planning Committee (HMPC). This committee represented a community based planning team made up of representatives from various county departments and municipalities and other key stakeholders identified to serve as critical partners in the planning process. In addition, several members of the Western Piedmont Council of Governments (WPCOG) actively participated in the planning process and allowed the HMPC to use their facilities and other resources throughout the duration of the project.

Beginning in July 2013, the planning committee members engaged in regular discussions as well as local meetings and planning workshops to discuss and complete tasks associated with preparing the Plan. This working group coordinated on all aspects of plan preparation and provided valuable input to the process. In addition to regular meetings, committee members routinely communicated and were kept informed through an email distribution list.

Specifically, the tasks assigned to the Unifour Hazard Mitigation Planning Committee included:

- Participate in hazard mitigation planning committee meetings and workshops (described in more detail in subsection 2.5);
- Provide best available data as required for the *Risk Assessment* portion of the Plan;
- Complete the *Local Capability Assessment Survey* and provide copies of any mitigation or hazard-related documents for review and incorporation into the Plan;
- Support the development of the *Mitigation Strategy* portion of the Plan, including the design and adoption of a regional vision statement, regional mitigation goal statements, and regional mitigation actions;
- Review the existing mitigation actions from each county's previous plan, provide an update on those previously adopted mitigation actions, and propose new mitigation actions for their department/agency for incorporation into the new regional Plan;
- Review and provide timely comments on all study findings and draft plan deliverables; and
- Support the adoption of the Unifour Regional Hazard Mitigation Plan.

Table 2.1 lists the members of the HMPC who were responsible for participating in the development of the Plan. Committee members are generally listed by jurisdiction in Table 2.1 for ease of organizing and presenting the information but it should be noted that the committee worked extremely well as one regional unit thinking beyond traditional jurisdictional boundaries to focus on the mitigation planning issues and tasks at hand. It is also important to note that some planners affiliated with the WPCOG represented multiple jurisdictions.

Table 2.1: Members of the Unifour Regional Hazard Mitigation Planning Committee

Jurisdiction or Agency	Representative	Department, Title, or Role
ALEXANDER COUNTY		
Alexander County	Russell Greene (County Lead)	Emergency Services Director
	Seth Harris	Planner
Town of Taylorsville	Jon Pilkenton	WPCOG Planner
BURKE COUNTY		
Burke County	Michael Long (County Lead)	Emergency Management Director
	Scott Carpenter	Planning Director
	Brock Hall	Community Development
	Ashley Simmons	Health Department Preparedness Coordinator
Town of Connelly Springs	Tamara Brooks	Town Clerk
Town of Drexel	Sherri Bradshaw	Town Manager
Town of Glen Alpine	Jerry Causby	Fire Chief
Town of Hildebran	Jon Pilkenton	WPCOG Planner
City of Morganton	Lee Anderson	Director of Development and Design Services
Town of Rutherford College	Elinor Hiltz	WPCOG Planner
	Johnny Wear	WPCOG Planner
Town of Valdese	Charles Watts	Fire Chief/Emergency Management
	Laurie LoCicero	WPCOG Planner
CALDWELL COUNTY		
Caldwell County	Kenneth Teague (County Lead)	Emergency Management Director
	Chase Keller	Emergency Management Intern
	Jami Bentley	Health Department
Town of Cajah's Mountain	Connie South	Town Manager
Village of Cedar Rock	Jon Pilkenton	WPCOG Planner
Town of Gamewell	Jon Pilkenton	WPCOG Planner
Town of Granite Falls	Greg Wilson	Planner
Town of Hudson	Jon Pilkenton	WPCOG Planner
City of Lenoir	Jenny Wheelock	Planning Director
	Craig Adams	Code Enforcement Officer
	Jared Wright	Stormwater Administrator
Town of Rhodhiss	Barbara Harmon	Town Manager
	Jimmy Drum	Deputy Chief
Town of Sawmills	Elinor Hiltz	WPCOG Planner
	Johnny Wear	WPCOG Planner
CATAWBA COUNTY		
Catawba County	Mary George (County Co-Lead)	Assistant Planning Director
	Karyn Yaussy (County Co-Lead)	Emergency Management Coordinator
Town of Brookford	Marshall Eckerd	Town Manager
Town of Catawba	Shelley Stevens	WPCOG Planner
City of Claremont	Laurie LoCicero	WPCOG Planner
City of Conover	Lance Hight	Planning Director

Jurisdiction or Agency	Representative	Department, Title, or Role
City of Hickory	Cal Overby	Principal Planner
	Steve Moore	Deputy Fire Chief
Town of Long View	Charles Mullis	Planner
	Eric Shepherd	Fire Chief
Town of Maiden	Travis Ramsey	Planner
City of Newton	Alex Fulbright	Assistant Planning Director
OTHER STAKEHOLDERS		
American Red Cross	Charles Avery	Regional Disaster Program Manager
	Mike Townsend	Regional Disaster Program Specialist
Caldwell County Schools	Jeff Church	Assistant Superintendent
Caldwell Memorial Hospital	Kimberly Edmisten	Representative
Catawba Valley Medical Center	Mike Helton	Emergency Management Coordinator
Duke Energy	George Galleher	Hydro Operations Engineer
	Robin Nicholson	District Manager
Frye Regional Medical Center	Mark Robinson	Emergency Preparedness
State of North Carolina	David Wright	NC Forest Service
Additional WPCOG Staff	John Marshall	Planning Director
	Kelly Larkins	Transportation Planner
PROJECT CONSULTANTS		
AECOM	Darrin Punchard	Project Manager
	Mike Robinson	Mitigation Planner
	William Hague	GIS Analyst

Multi-jurisdictional Participation

The Unifour Regional Hazard Mitigation Plan includes four counties and 24 incorporated municipalities. To satisfy multi-jurisdictional participation requirements, each county and its participating jurisdictions were required to perform the following tasks:

- Participate in mitigation planning meetings and workshops;
- Complete the *Local Capability Assessment Survey*;
- Provide an update on previously adopted mitigation actions;
- Review drafts of the Unifour Regional Hazard Mitigation Plan; and
- Adopt their updated local *Mitigation Action Plan*.

Each jurisdiction participated in the planning process and each jurisdiction has developed and adopted a local *Mitigation Action Plan* unique to that jurisdiction which will be updated over time per the *Plan Maintenance Procedures* described in Section 8.

2.5 Meetings and Workshops

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

The following is a summary of the key meetings and workshops held by the HMPC during the development of the Plan. In many cases, routine discussions and additional meetings were held by local staff to accomplish planning tasks specific to their department or agency. For example, completing the *Local Capability Assessment Survey* or seeking approval of specific mitigation actions for their department or agency to undertake and include in their *Mitigation Action Plan*. Public meetings are summarized in subsection 2.6.

All of the meetings described below were held at the Western Piedmont Council of Governments (WPCOG) facility at 1880 Second Ave NW in the City of Hickory.

HMPC Meeting #1
Project Kickoff (July 9, 2013)
The Project Kickoff meeting was initiated by Mary George, Catawba County Assistant Planning Director, and was led by Darrin Punchard, AICP (AECOM Project Manager), and Mike Robinson, CFM (AECOM Lead Planner). This meeting consisted of a detailed overview of the project, a review and discussion of the four previous county level mitigation plans, an explanation of the process to be followed for updating and integrating the content from the four previous county plans, an open discussion session, and an explanation of next steps.

The meeting began with a brief welcome and opportunity for each of the 39 attendees to introduce themselves to the group. Particular emphasis was placed on identifying what jurisdiction or organization each participant was there to represent, as there were representatives from the 28 participating jurisdictions, the WPCOG, other state and local stakeholders, and AECOM. As part of this recognition process, a spreadsheet was passed around for representatives to designate one "Designated Local Jurisdiction Lead" to serve as a primary point of contact for each participating jurisdiction for the duration of the project.

The project overview consisted of an explanation of the purpose of the planning process and the concept of creating a regional hazard mitigation plan to build upon and essentially replace the four previous county level mitigation plans. It also covered the geographic scope of the project, the proposed schedule for the project, and a detailed breakdown of the key project tasks. The roles and responsibilities for AECOM, Catawba County as the lead local agency, and for all participating jurisdictions were also covered. These roles and responsibilities were presented as follows:

- AECOM
    - Oversee, manage, and document the completion of all key project tasks
    - Monthly progress reports

- Catawba County
    - Serving as lead coordinating agency
    - Designation of local project manager

    - Assistance with the collection of documents, data, and other information
    - Logistics for project meetings
    - Hosting and managing project website
    - Responding to general questions or inquiries from the public or stakeholders
    - Coordinating with participating jurisdictions

- All participating jurisdictions
    - Designate local jurisdiction lead
    - Attend Hazard Mitigation Planning Committee meetings
    - Coordination between counties, municipalities, and local stakeholders
    - Data collection and information sharing
    - Mitigation strategy development (*Mitigation Action Plans*)
    - Assist with public outreach
    - Review and comment on draft plan materials

The review of the four previous county level plans included a comparison of the hazards addressed in each previous county plan, the types of maps that were included in each of the previous county plans, and the structure and content of the mitigation strategy section in each previous county plan. Initial discussions were held to begin to decide how these items should be addressed in the new regional plan format.

A discussion was also facilitated to discuss ways that existing resources could be leveraged, such as existing plans, studies, and reports; existing data and information; local knowledge sharing; and other resources. Three primary planning resources were also introduced to the HMPC at this time: the *Local Mitigation Planning Handbook*, *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards*, and *Integrating Hazard Mitigation Into Local Planning*, all recent publications from FEMA providing mitigation planning guidance.

Emphasis was also placed on the need for effective communication throughout the duration of the project. This included an overview of the planning team's organization and the idea that municipal jurisdictions would coordinate first through their Designated Local Jurisdiction Lead who would in turn coordinate with the Designated Local Jurisdiction Lead for that county, who would in turn coordinate with the overall local project leads, Mary George and Karyn Yaussy with Catawba County. Active participation and responsiveness were also stressed in light of the aggressive schedule to complete the plan in the desired timeframe.

A detailed discussion also centered on GIS data collection needs and the process to be followed for collecting and submitting the needed data (which was to follow the chain of communication described in the paragraph above). Emphasis was placed on the need for the GIS data to be submitted in a readily usable format and to be the best data readily available.

The committee was also given an overview of a Public Outreach Strategy that would be developed between HMPC Meeting #1 and HMPC Meeting #2. The goals of the Public Outreach Strategy were stated as:

- Generate public interest;
- Solicit citizen input; and
- Engage additional partners in the planning process.

Specific opportunities for public participation were identified as being two in-person open public meetings, the creation of a public project information website, a web-based public participation survey, and use of social media (Facebook, Twitter, RSS, and other various options). It was also decided that a project information fact sheet would be developed as well (see Appendix F).

During the open discussion session, the following talking points were covered by the group: potential opportunities and synergies; potential barriers or impediments; and other local issues, concerns, or ideas.

Next steps were defined as assignment of Designated Local Jurisdiction Leads (to be completed as soon as possible); data collection (to be completed by July 31, 2013); finalize Public Outreach Strategy (to be completed by July 30, 2013); prepare preliminary risk assessment decisions, analysis, and map templates (to be completed by July 30, 2013); and prepare for HMPC Meeting #2 (to be held July 30, 2013).

A copy of the agenda and sign-in sheet for this meeting are included in Appendix E.

HMPC Meeting #2
Public Outreach Strategy (July 30, 2013)
The Public Outreach Strategy meeting was initiated by Mary George, Catawba County Assistant Planning Director, and was led by Mike Robinson, CFM (AECOM Lead Planner) with assistance from William Hague (AECOM GIS Specialist). This meeting consisted of a detailed overview of the final draft Public Outreach Strategy, a hazard identification exercise, recommendations for the *Risk Assessment*, an overview of the *Local Capability Assessment Survey* and *Safe Growth Survey*, discussion of a regional vision statement and mitigation goals, an update on data collection progress, an open discussion session, and an explanation of next steps.

The meeting began with a brief welcome and opportunity for each of the 21 attendees to introduce themselves to the group. (Attendance at the July 30 meeting was lower than the first meeting because many committee members were responding to recent flash flooding in the planning area.)

A printed handout containing the final draft Public Outreach Strategy was distributed to the committee and a review of the document was provided via PowerPoint. The strategy (found in Appendix C) follows the outline presented at the first meeting in terms of goals, outreach opportunities, etc.

Additional details were provided regarding the two proposed in-person open public meetings:

- Public meetings would be scheduled at two key points during the project timeline: following completion of the draft risk and capability assessments and following completion of the draft plan;
- The primary purpose of the meetings would be to inform the public on the process and current status of the regional planning process and to gain input to the process during the drafting stage and prior to plan completion and approval; and
- AECOM would prepare presentations and handout materials to help facilitate two-way communication with public meeting attendees and would also have plotter-sized maps, videos, and other resources available for discussion with meeting attendees.

An update was also given on the public project information website proposed at the first meeting. At the time of the July 30 meeting, the website was live and already contained the final project information fact sheet; contacts, task lists, meeting slides, and handouts for the planning committee; existing plan documents; planning guidance and resources; social media integration; and project contact information. The URL for the project information website is http://www.catawbacountync.gov/emergencyServices/hazard/regionalPlan.asp.

The project information fact sheet was also presented to the group and additional opportunities were discussed for disseminating the fact sheet to the public. The fact sheet contains an overview of the regional mitigation planning effort; an explanation of the planning process including the six main planning steps of public outreach, risk assessment, capability assessment, mitigation strategy development, plan maintenance, and plan adoption; project leadership; project schedule; and contact information.

Another significant topic covered at the meeting was the online public participation survey (https://www.surveymonkey.com/s/unifourhazardsurvey).[1] At the time of the second meeting, screen mock-ups were shown to the group along with several sample questions. It was explained that the survey would go live around August 13, 2013 and would remain open until November 15, 2013. The survey was hosted by AECOM using the SurveyMonkey web hosting service. The primary purpose of the survey was to solicit input from any interested parties in the planning area. The survey also offered individuals that were unable to attend the in-person meetings the opportunity to participate in the planning process. Information from the online survey allows the project team to better understand the types of hazards that most concern the public and the mitigation actions that are of particular interest. The survey was made accessible through hyperlinks posted on the project information website and circulated via email, Facebook, newspaper articles, etc. Additionally, hard copies of the survey would be distributed at the first in-person public meeting on October 1, 2013. The feedback received was ultimately evaluated and incorporated into the HMPC's decision making process and the final plan. Bi-weekly updates on the survey results were submitted to Mary George and Karyn Yaussy as the local project managers from mid-August to mid-November and responses were reviewed periodically to check for consistency with the development of various sections of the Plan.

Attendees were asked to participate in an exercise called "Mayor for the Day" in which each committee member was given $20 in pretend currency (divided into one $10, one $5, and five $1's). Committee members were then asked to "spend" their limited funds on mitigation actions designed to address the natural hazards of most concern to them. The natural hazards were represented by a row of cups each labeled with the name of a natural hazard likely to be addressed in the regional plan. The results of this exercise are as follows:

- Flood $167
- Tornado $58
- Erosion $50
- Winter Weather $49
- Drought/Extreme Heat $31
- Wildfire $30

[1] The online survey was closed on November 15, 2013. This hyperlink is provided for documentation and reference purposes only as the link will no longer access the survey. A complete list of questions and responses can be found in Appendix D.

- Thunderstorm $25
- Hurricane $12
- Dam/Levee Failure $9
- Landslide $5
- Lightning $3
- Hail $2
- Earthquake $0
- Nor'easter $0

The *Local Capability Assessment Survey* (found in Appendix G) was distributed to the HMPC and explained. Essentially, the *Local Capability Assessment Survey* is designed to capture indicators of local capability in the following categories: planning and regulatory capability, administrative and technical capability, fiscal capability, education and outreach capability, political capability, and self assessment. The Designated Local Jurisdiction Lead was given approximately three weeks to complete the survey and return it to Mary George with Catawba County. Results of this survey are presented in the *Capability Assessment* section (Section 5) and Appendix G.

The *Safe Growth Survey* (found in Appendix H) was distributed to the HMPC and explained. Essentially, the *Safe Growth Survey* is designed to capture indicators of safe growth policy in the following categories: comprehensive planning (land use, transportation, environmental management, and public safety), zoning ordinances, subdivision regulations, capital improvement programming and infrastructure policies, and other indicators. The Designated Local Jurisdiction Lead was given approximately three weeks to complete the survey and return it to Mary George with Catawba County. Results of this survey were taken into account by members of the HMPC as they reviewed, revised, and crafted their 2014 *Mitigation Action Plans*.

A suggestion was made by AECOM to develop a regional vision statement to help define the new regional plan. General thoughts about a vision statement that were shared as part of the presentation included that a vision statement:

- Captures the overall purpose of the planning process;
- Expresses the outcome that the participating jurisdictions seek to accomplish as the plan is implemented;
- Helps drive the planning process;
- Unites the planning team around a common purpose;
- Provides a foundation for the rest of the planning process; and
- Communicates the reason for the plan to stakeholders, elected officials, and the public.

The first draft of the vision statement shared with the HMPC was:

"Through a cohesive regional planning effort, create and implement an effective hazard mitigation plan that will identify and reduce risk to natural hazards in order to protect the health, safety, quality of life, environment and economy of the Unifour area."

Based on discussion and input from the HMPC, a final draft vision statement was developed as shown in the *Introduction* section. This final draft vision statement is as follows:

"Through a coordinated regional planning effort, create and implement an effective hazard mitigation plan that will identify and prioritize risk reduction measures for natural hazards in order to protect the health, safety, quality of life, environment, and economy of the Unifour area."

A discussion also followed on mitigation goal development. A matrix was presented to the group comparing the types of mitigation strategy outlines used in the counties' four previous hazard mitigation plans, highlighting similarities and differences in the four plans. For example, some county plans had extra layers of objectives, strategies, or implementation plans that the other county plans did not have. This was the beginning of a discussion on standardizing the counties' existing content into a new agreed upon outline for the regional plan.

An update was given on the GIS data collection effort and a reminder of the upcoming deadline was provided. Other topics covered included early drafts of sample map templates to be used for the *Risk Assessment* and a review of available planning guidance and resources.

The meeting ended with open discussion and a list of next steps, which consisted of the following: final data collection (to be completed by July 31, 2013); development of draft risk assessment results (to be completed by October 1, 2013); development of draft capability assessment results (to be completed by October 1, 2013); and scheduling of HMPC Meeting #3 (to be held in the form of a 4-hour Mitigation Strategy Workshop on October 1, 2013).

HMPC Meeting #3
Mitigation Strategy Workshop (October 1, 2013)

The Mitigation Strategy Workshop was initiated by Mary George, Catawba County Assistant Planning Director, and was led by Mike Robinson, CFM (AECOM Lead Planner) with assistance from William Hague (AECOM GIS Specialist). This meeting consisted of a detailed overview of the draft risk assessment and draft capability assessment results, an update on public outreach, discussion of the regional vision statement, an exercise to formulate regional mitigation goals and regional mitigation actions, and an explanation of next steps.

The meeting began with a brief welcome and opportunity for each of the 23 attendees to introduce themselves to the group.

The meeting continued with an overview of the draft risk assessment findings. The hazards addressed included: flood; erosion; dam/levee failure; drought/extreme heat; thunderstorm, lightning, and hail; tornado; winter weather; hurricane and tropical storm; landslide; earthquake; sinkhole; and wildfire. For each hazard the following information was shared: hazard maps, tables of at-risk buildings and infrastructure, and historical hazard occurrences. Complete inventories and maps were shown for demographic data, parcels and buildings, critical facilities, infrastructure elements, high potential loss properties, and historic properties. The technical information shared during this portion of the presentation is too extensive to share in this section. Copies of the PowerPoint slides are available in Appendix E and the final results of the risk assessment are shown in the *Risk Assessment* section (Section 4).

The next portion of the presentation consisted of an overview of the draft capability assessment findings. Participation from the *Local Capability Assessment Survey* was 100% (28 out of 28 surveys returned). The results centered on findings in the areas of planning and regulatory capability, administrative and technical capability, fiscal capability, education and outreach capability, political capability, and a community self assessment. The point system and overall capability assessment

score for the Region were presented to the group along with a ranking of local capability by jurisdiction. All of this information is presented in its final form in the *Capability Assessment* section (Section 5).

An update on the Public Participation Survey was also provided just prior to a working lunch being served. At the time of the meeting, 160 online surveys had been started and preliminary notes and indications from these surveys were presented to the group. In general, the input being provided by the public was consistent and in-line with the discussions and decisions being made by the HMPC. A reminder was also issued that the first public meeting would be held that evening (October 1, 2013) at the WPCOG facility where the workshop was currently being held.

HMPC Meeting #4
Presentation of Draft Mitigation Plan (December 10, 2013)
The Presentation of Draft Mitigation Plan meeting was initiated by Mary George, Catawba County Assistant Planning Director, and was led by Mike Robinson, CFM (AECOM Lead Planner) and Darrin Punchard, AICP (AECOM Project Manager). This meeting consisted of a high-level walkthrough of the working draft Hazard Mitigation Plan including all of its sections, instructions for the committee's review and comment period, results of the public participation survey, an interactive Mitigation Action Plan exercise, discussion of plan maintenance procedures, an open discussion session, and an explanation of next steps. In addition, a special presentation was made by the Oxford Elementary School titled *Nature's Fury*. This presentation consisted of ideas and recommendations from the school children on a traffic warning device and system for flooded roads.

The portion of the presentation covering a walkthrough of the working draft plan document consisted of an overview of the plan's organization (i.e., table of contents), a brief status update on each section, an explanation of the review and comment process, suggested areas of focus for the committee members, availability of the review files on the project information website, and instructions for submitting review comments by Friday, December 20 if possible.

For the Mitigation Action Plan exercise, participants were asked to pair up with others from their jurisdiction and/or county, to review the *Mitigation Strategy* section of the Plan including regional mitigation goals (provided as a handout), to review the 2014 mitigation actions for their jurisdiction, to review the status of the 2009 mitigation actions for their jurisdiction, make any additional changes that may be needed, and pose questions to the group about mitigation actions they were unsure of.

Some of the questions asked regarding plan maintenance procedures included the following:

- Who will be the lead agency for future mitigation planning meetings, updates, progress reports, etc.?
- What will be the schedule for any ongoing meetings of the HMPC, prior to the next 5-year plan update? (Such as annual meetings, bi-annual meetings, "as-needed" meetings, etc.)
- To what extent will you seek to integrate the regional plan with other local plans, policies and programs? (Such as comprehensive plans, land use plans, emergency operations plans, etc.)
- What other implementation strategies can you use?
- What criteria will be used for 5-year plan updates?

- What kind(s) of reporting procedures would you like to adopt?
- How will you keep the public involved?
- How will you keep stakeholders involved?

Responses and decisions based on these questions are reflected in the *Plan Maintenance Procedures* section (Section 8).

The discussion of next steps consisted of another reminder regarding the review/comment period and deadline, an explanation that the next version of the plan document would be considered a final draft based on the committee's review comments, an overview of the upcoming State and FEMA plan review process, and local adoption procedures and expectations.

2.6 Involving the Public

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

Public involvement in the development of the Unifour Regional Hazard Mitigation Plan was sought using various methods including open public meetings, an interactive public information website, a project information fact sheet with contact information, a public participation survey, and by making copies of draft Plan documents available for public review on county websites and at government offices. Public meetings were held at two distinct periods during the planning process: (1) during the drafting stage of the Plan; and (2) upon completion of a final draft Plan, but prior to official plan approval and adoption. These public meetings were held at a central location to the planning area to ensure that citizens from each of the four participating counties had reasonable access to the opportunity to participate in-person in the planning process. The public participation survey (discussed in greater detail in subsection 2.6.1) was made available online via the project information website, each county's website, through web links forwarded via email and newspaper articles, Facebook, Twitter, etc., and in hardcopy form at the first public meeting.

Public Meeting #1
Public Meeting #1 was held from 5 p.m. to 8 p.m. on Tuesday, October 1, 2013 at the WPCOG facility. Four "stations" were set up for members of the public to browse through with two County staff, two COG staff, and two AECOM staff to host the stations and "float" as needed. Station #1 consisted of a kiosk presenting a background video on "what is mitigation?" Station #2 consisted of a set of full color, plotter-sized maps of the planning area showing various hazard zones for discussion. Station #3 provided print copies of the Public Participation Survey for members of the public to complete that night. Station #4 consisted of a kiosk presenting a background video on flood insurance. This public meeting was attended by one member of the public and one newspaper reporter.

Public Meeting #2
Public Meeting #2 was held from 4 p.m. to 7 p.m. on Tuesday, December 10, 2013 at the WPCOG facility. Four "stations" were set up for members of the public to browse through with two County staff, two COG staff, and two AECOM staff to host the stations and "float" as needed. Station #1 consisted of a kiosk presenting a background video on "what is mitigation?" Station #2 consisted of a set of full color, plotter-sized maps of the planning area showing various hazard zones for discussion. Station #3 provided print copies of the *Mitigation Strategy* section of the Plan and *Mitigation Action Plans* for each participating jurisdiction for members of the public to review and comment on. (Printed comment forms were provided for the public to leave comments on.) Station #4 consisted of a kiosk presenting a background video on flood insurance. This public meeting was attended by three members of the public. No substantial comments were received.

2.6.1 Public Participation Survey

The Unifour Natural Hazard Mitigation Public Participation Survey was made available on August 13, 2013 and remained available until November 15, 2013 per the Public Outreach Strategy. During this time, 178 surveys were started and 148 surveys (83.1%) were completed.[2] Five additional surveys were submitted on hand-written forms and manually entered into the online system. The complete results of the survey can be found in a summary report found in Appendix D. Charts and figures are also provided in the PowerPoint file for Meeting #4 (found in Appendix E).

The following list is a high-level summary of the dominant responses obtained from the survey.

- 77.1% said they have been personally impacted by a disaster.
- When asked how concerned they are about the possibility of their community being impacted by natural hazards, the top three concerns were severe thunderstorms, severe winter storms, and flooding, in that order.
- When asked which category of community assets are the most *susceptible* to natural hazards, most respondents chose cultural and historic resources.
- When asked how *important* each type of community asset is to them, the top three answers were hospitals and medical care facilities, fire stations, and police stations, in that order.
- When asked which type(s) of mitigation actions are most important to them, most respondents said protecting critical facilities.
- When asked which category(ies) of mitigation techniques are most important to them, most respondents said actions relating to emergency services.
- 63.5% of respondents said that the best way for them to receive information related to natural hazards and hazard mitigation is via the Internet.
- 91.9% said they are interested in making their home or neighborhood more hazard resistant.
- 86.6% said their home is not located in the floodplain.

[2] It appeared that the incomplete surveys were close to being completely filled out, and that the respondents that did not "complete" the survey probably closed their browser window without clicking the final button to conclude the process. This is important to note as the 30 incomplete surveys still contributed to the process by providing valuable information even if they were technically "incomplete."

- 88.5% said they do not carry flood insurance.
- 56.2% said they have lived in the Unifour area 20+ years.
- 90.3% said they own their home.
- 90.4% live in a single-family home.

The results of the survey were presented to members of the HMPC at HMPC Meeting #4 so that public opinion could be factored into final changes and additions to each jurisdiction's *Mitigation Action Plan*.

2.7 Involving Stakeholders

The Unifour Hazard Mitigation Planning Committee included a variety of stakeholders beyond the representatives from each participating jurisdiction. These included representatives from the American Red Cross, Duke Energy, Frye Regional Medical Center (FRMC), and the State of North Carolina Forest Service. Input from additional stakeholders, including neighboring communities, was welcomed through the open public meetings and online survey. If any additional stakeholders representing other agencies and organizations participated through the Public Participation Survey, that information is unknown due to the anonymous nature of the survey.

2.8 Documentation of Plan Progress

Progress in hazard mitigation planning for the participating jurisdictions in the Unifour Region is documented in this plan update. Since hazard mitigation planning efforts officially began in the participating counties with the development of the initial hazard mitigation plans in the early 2000s, many mitigation actions have been completed and implemented in the participating jurisdictions. These actions will help reduce the overall risk to natural hazards for the people and property in the Unifour Region. The actions that have been completed are documented in the Mitigation Action Plans found in Section 7.

In addition, community capability continues to improve with the implementation of new plans, policies, and programs that help to promote hazard mitigation at the local level. The current state of local capabilities for the participating jurisdictions is captured in Section 5: *Capability Assessment*. The participating jurisdictions continue to demonstrate their commitment to hazard mitigation and hazard mitigation planning and have proven this by reconvening the Hazard Mitigation Planning Committee to update and combine the previous hazard mitigation plans into this new regional plan and by continuing to involve the public in the hazard mitigation planning process.

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Section 3: Planning Area Profile

This section provides a general overview of the Unifour Region which has been defined as the planning area for this Plan. It consists of the following four subsections:

3.1 Geography and the Environment
3.2 Population and Demographics
3.3 Housing, Infrastructure, and Land Use
3.4 Employment and Industry

3.1 Geography and the Environment

The Unifour Region is comprised of the four counties in the Catawba Valley region of western North Carolina: Alexander County, Burke County, Caldwell County, and Catawba County. The Unifour Region is the same as the "Hickory-Lenoir-Morganton Metropolitan Statistical Area" as defined by the U.S. Census Bureau. A map profiling the planning area is shown in **Figure 3.1**.

Table 3.1 shows total land and water area for the four counties and for the Unifour Region as a whole.

Table 3.1: Total Land and Water Area for the Unifour Region

County	Total Land Area (In Square Miles)	Total Water Area (In Square Miles)	Total Area (In Square Miles)
Alexander	260	3	263
Burke	507	8	515
Caldwell	472	3	474
Catawba	400	14	414
TOTAL UNIFOUR	**1,639**	**28**	**1,666**

Source: U.S. Census Bureau, 2010.

Alexander County's main geographic feature is the Brushy Mountains, a deeply eroded spur of the Blue Ridge Mountains to the west. They rise from 300 to 1,000 feet above the surrounding countryside, and dominate the county's northern horizon. The highest point in Alexander County is Hickory Knob with an elevation of 2,560 feet above sea level. Barrett Mountain, an isolated mountain ridge, is located in the western portion of the county. The remainder of Alexander County's terrain consists of gently rolling countryside.

The varied landscape of Burke County ranges from the Blue Ridge escarpment to the rolling plains of the western piedmont. Table Rock, a prominent peak in Burke County in the east rim of Linville Gorge, is part of the Pisgah National Forest and has been described as "the most visible symbol in the region." The county has abundant natural resources including South Mountains State Park, Pisgah National Forest and the Linville Gorge Wilderness Area, the Catawba River, the Johns River, the Henry River, Table Rock Mountain, the Blue Ridge Parkway, and the 3,000-acre expansion of the Lake James State Park. These natural resources offer excellent recreational opportunities and attract visitors from across the southeastern United States.

Figure 3.1: Planning Area Profile Map



Caldwell County is divided into three distinct geographic sections: the Blue Ridge Mountains, which dominate the northern and western parts of the county; the gently rolling Piedmont country in the middle and southern parts of the county; and the Brushy Mountains, an isolated remnant of the Blue Ridge Mountains. The Brushy Mountains run across much of Caldwell County's eastern section. Hibriten Mountain, located within the city limits of Lenoir, the county's largest city, marks the western end of the Brushy Mountain range. In the western part of the county is the Wilson Creek area.

Catawba County is located in the foothills of the Blue Ridge Mountains. It is located in the region referred to as the Upper Piedmont Plateau, more commonly known as the "foothills." The elevation of the county averages 995 feet with a range from a high of 1,780 feet at Bakers Mountain in the west-central portion of the county to a low of 705 feet where the Catawba River leaves the county. The county's landscape can be described as "rolling" with fairly broad ridges and some short steep slopes. Geologically, Catawba County lies within the Inner Piedmont Belt comprised mostly of metamorphic and intrusive rocks. About 45.5% of the county's acreage is wooded, of which 98% is privately owned.

The Catawba River, which is influential to all four counties in the planning area, begins in the Blue Ridge Mountains and flows 225 miles into Lake Wateree in South Carolina. The river is an extraordinary eco-system that provides habitat for 50 fish species, 160 bird species, and 120 tree species. The river also serves as a source of electric power, provides recreational opportunities for residents and tourists, and is one of the major economic foundations of the region. It transects Burke County, creates the southern borders of Caldwell and Alexander counties, and the northern and eastern borders of Catawba County.

3.2 Population and Demographics

Catawba County has the largest population of the four participating counties and the City of Hickory is the largest city located within the planning area. Several participating jurisdictions experienced a decrease in population between 2000 and 2010. The Town of Catawba experienced the largest percentage decrease of -15.75% (from a 2000 population of 698 to a 2010 population of 603). The Town of Rhodhiss experienced the largest percentage increase with an increase of 65.79% (from a 2000 population of 366 to a 2010 population of 1,070). Population counts from the U.S. Census Bureau for 1990, 2000, and 2010 for each of the participating counties and jurisdictions are presented in **Table 3.2**.

Table 3.2: Population Counts for Participating Jurisdictions

Jurisdiction	1990 Census Population	2000 Census Population	2010 Census Population	% Change 2000-2010
Alexander County (Unincorporated Area)	**25,457**	**31,804**	**35,100**	**9.39%**
Taylorsville	2,087	1,799	2,098	14.25%
Subtotal Alexander	*27,544*	*33,603*	*37,198*	*9.66%*
Burke County (Unincorporated Area)	**49,109**	**59,746**	**59,578**	**-0.28%**
Connelly Springs	1,389	1,814	1,669	-8.69%
Drexel	1,760	1,938	1,858	-4.31%
Glen Alpine	1,060	1,090	1,517	28.15%
Hildebran	1,363	1,472	2,023	27.24%
Morganton	15,875	17,310	16,918	-2.32%

Jurisdiction	1990 Census Population	2000 Census Population	2010 Census Population	% Change 2000-2010
Valdese	4,002	4,485	4,490	0.11%
Rutherford College	1,186	1,293	1,341	3.58%
Subtotal Burke	*75,744*	*89,148*	*90,912*	*1.94%*
Caldwell County (Unincorporated Area)	**36,172**	**41,003**	**43,501**	**5.74%**
Cajah's Mountain	2,540	2,683	2,823	4.96%
Cedar Rock	280	315	300	-5.00%
Gamewell	3,431	3,644	4,051	10.05%
Granite Falls	3,904	4,612	4,722	2.33%
Hudson	3,094	3,078	3,776	18.49%
Lenoir	16,278	16,793	18,228	7.87%
Rhodhiss	321	366	1,070	65.79%
Sawmills	4,689	4,921	5,240	6.09%
Subtotal Caldwell	*70,709*	*77,415*	*83,029*	*6.76%*
Catawba County (Unincorporated Area)	**62,571**	**75,145**	**83,533**	**10.04%**
Brookford	431	434	382	-13.61%
Catawba	580	698	603	-15.75%
Claremont	1,037	1,060	1,352	21.60%
Conover	5,564	6,667	8,165	18.35%
Hickory	29,474	37,222	40,010	6.97%
Long View	4,365	4,722	4,871	3.06%
Maiden	3,191	3,177	3,310	4.02%
Newton	11,199	12,560	12,968	3.15%
Subtotal Catawba	*118,412*	*141,685*	*154,358*	*8.21%*
TOTAL UNIFOUR	**292,409**	**341,851**	**365,497**	**6.47%**

Source: U.S. Census Bureau.

Based on the 2010 Census, the median age for residents of the participating counties ranges from 39 to 41 years. The racial characteristics of the participating counties are presented in **Table 3.3**. Generally, whites make up the vast majority of the population of the Region, accounting for almost 89% percent of the Region's population.

Table 3.3: Demographics of Participating Counties

County	White Persons	Black Persons	Other Race	Persons of Hispanic Origin*
Alexander	91.6%	5.7%	2.7%	4.3%
Burke	86.7%	6.8%	6.5%	5.7%
Caldwell	92.2%	5.1%	2.7%	4.8%
Catawba	85.3%	8.7%	6.0%	8.5%

Source: U.S. Census Bureau, 2010.
**Hispanics may be of any race, so also are included in applicable race categories.*

3.3 Housing, Infrastructure, and Land Use

3.3.1 Housing

According to the U.S. Census Bureau, there are 163,144 housing units in the Unifour Region, most of which are single family homes (according to the 2010 census). Housing information for the four participating counties is presented in **Table 3.4**. As shown in the table, Catawba County has the highest number of housing units compared to the other counties. Alexander County has the least. In terms of median home value, Catawba County has the highest and Caldwell County has the lowest.

Table 3.4: Housing Characteristics

County	Housing Units (2011)	Median Home Value (2007-2011)
Alexander	16,341	$121,400
Burke	41,040	$110,500
Caldwell	37,841	$106,800
Catawba	67,922	$129,000
TOTAL/AVERAGE UNIFOUR	**163,144**	**$116,925**

Source: U.S. Census Bureau, 2010.

3.3.2 Infrastructure

Major roads in the planning area include I-40, US 64, US 70, US 221, US 321, NC 10, NC 16, NC 18, NC 90, NC 114, NC 126, NC 127, NC 150, NC 181, and NC 268. Hickory Regional Airport is the primary commercial aviation airport in the region. It was served by commercial airlines until 2005.

National protected areas in the planning area include Blue Ridge Parkway and Pisgah National Forest.

Colleges and universities in the planning area include Appalachian Center at Hickory, Appalachian Center at Lenoir, Appalachian Center at Morganton, Catawba Valley Community College Alexander Campus, Catawba Valley Community College in Hickory, Gardner-Webb University Hickory Center, Lenoir-Rhyne University in Hickory, N.C. Center for Engineering Technologies, and Western Piedmont Community College in Morganton.

3.3.3 Land Use

Current land use in Alexander County can be characterized as being mainly "residential" or "vacant." Given the county's rural and agricultural history, these land use patterns are not surprising. Unlike other counties in the Unifour Region, Alexander County is the only county with a single municipality. Taylorsville, the County seat, is the center of its local government services and its low population also reflects the county's rural heritage. The vast majority of land in Alexander County is devoted to residential uses. Of the nearly 160,800 acres in the county, 96% is occupied by residential uses or is vacant and could be used for residential purposes. To state the opposite, only slightly more than 1,000 of the county's 24,300 land parcels are designated for uses other than residential, mostly industrial or commercial. In terms of future land use in Alexander County, future

policy makers should continue to think about the amount of land currently zoned residential, especially in the RA-20 Zoning District and used primarily for agriculture. These parcels represent land that could potentially be subdivided into residential uses in the coming decades. While market forces basically drive these decisions, existing data provides some indication of development pressures across the Unifour Region.

Growth and development in Burke County is predominantly located around the incorporated areas along the I-40 corridor. There is also a growing trend of second home development in the area around Lake James and the Jonas Ridge Community in the northwest portion of the county. Small area plans have been completed for the I-40 corridor and for the watershed around Lake James. In some cases, growth and development result in the alteration of natural topographic features that, in turn, affect the extent of flooding and the boundary of the floodplain.

In terms of undeveloped land in Caldwell County that could potentially be developed for allowable uses, there are approximately 149,140 undeveloped acres currently zoned as residential, 1,060 undeveloped acres zoned commercial, 1,255 undeveloped acres zoned industrial, and 51,400 undeveloped acres zoned for other land use types. This is a total of 202,855 undeveloped acres that could be developed and that could potentially be located in various hazard areas.

While Catawba County is becoming more developed and more urban in nature, it still consists of a large amount of rural and farm lands. As described in Catawba County's Farm & Food Sustainability Plan (2013), Catawba County has a cropland acreage of approximately 36,600 acres with 14,100 acres of woodland. The total "farmland" of 71,906 acres represents approximately 28 percent of the county's land area. These non-urban uses represent approximately 210 square miles; roughly half of the county. Furthermore, nearly half of the county's population is now located within incorporated areas. These numbers all seem to paint a picture of a changing county; one with a generous amount of rural, undisturbed land and at the same time one with a number of emerging centers of human activity. Catawba County has seven small area plans that were completed from 2000 to 2005 which serve as County long-range plans. All have a goal of rural preservation which came from citizen input during a series of community meetings.

3.4 Employment and Industry

The Hickory area in Catawba County is home to many leading manufacturers of furniture, fiber optic cable, and pressure-sensitive tape. It is estimated that 60% of the nation's furniture used to be produced within a 200-mile radius of the City of Hickory. Forty percent of the world's fiber optic cable is made in the Hickory area. The Hickory area is additionally known as a datacenter corridor and is home to large datacenters operated by Apple and Google. Hickory is the retail hub of the foothills and Unifour Region, and is home to the largest shopping mall in the region, Valley Hills Mall.

Section 4: Risk Assessment

This section comprises the risk assessment portion of the Unifour Regional Hazard Mitigation Plan, including identification of hazards, hazard profiling and analysis, and assessment of vulnerability. It consists of the following six subsections:

4.1 Overview
4.2 Hazard Selection
4.3 Methodologies and Assumptions
4.4 Inventory of Community Assets
4.5 Hazard Profiles, Analysis, and Vulnerability
4.6 Conclusions on Hazard Risk

4.1 Overview

A risk assessment is performed to determine the potential impacts of hazards on the people, built and natural environments, and economy of a given planning area. The *Risk Assessment* provides the foundation for the rest of the mitigation planning process, which is focused on identifying and prioritizing actions to reduce risk to hazards. In addition to informing the *Mitigation Strategy*, the *Risk Assessment* can also be used to establish emergency preparedness and response priorities, for land use and comprehensive planning, and for decision making by elected officials, city and county departments, businesses, and organizations in the community.

A typical risk assessment consists of three primary components. Some form of hazard identification process needs to take place, followed by a detailed profiling of the hazards that will be addressed in the plan. Then the profiled hazards are assessed to determine the vulnerability of the planning area to each hazard being addressed. It is also important to document key details regarding the methodologies and assumptions used to perform the risk assessment, the asset inventories used to perform the risk assessment, and finally conclusions on hazard risk. The conclusions on hazard risk essentially consist of a prioritized ranking of hazards of concern.

4.2 Hazard Selection

The Unifour Region is vulnerable to a wide range of natural hazards that threaten life and property. Current regulations and interim guidance under the Disaster Mitigation Act of 2000 (DMA 2000) require, at a minimum, an evaluation of a full range of natural hazards.[1]

Upon a thorough review of the full range of natural hazards covered in the existing mitigation plans for the four participating counties in the Unifour area, the hazards suggested under FEMA mitigation planning guidance, and the hazards addressed in the North Carolina State Hazard Mitigation Plan, the participating jurisdictions in the Unifour Region have identified 12 hazards that are to be addressed in the Unifour Regional Hazard Mitigation Plan. These hazards were identified through an extensive process that included input from Unifour Hazard Mitigation Planning Committee (HMPC) members.

[1] An evaluation of human-caused hazards (e.g., technological hazards, terrorism, etc.) is permitted, though not required, for plan approval. The Unifour Region has chosen to focus solely on natural hazards for the purposes of this plan, except where technological hazards directly relate to a natural hazard (for example, a hazardous materials facility located in a mapped floodplain).

Table 4.1 lists the full range of natural hazards initially considered for inclusion in the Plan. This table includes a total of 16 individual hazards and documents the evaluation process used for determining which of the initially identified hazards were considered significant enough for further evaluation in the *Risk Assessment*. For each hazard considered, the table indicates whether or not the hazard was identified as a significant hazard to be assessed further, how this determination was made, and why this determination was made. The table works to summarize not only those hazards that were identified (and why) but also those that were not identified (and why not).

Table 4.1: Documentation of the Hazard Selection Process

Natural Hazard Considered	Was this hazard considered significant/appropriate enough to be addressed in the plan at this time?	How was this determination made?	Why was this determination made?
ATMOSPHERIC HAZARDS			
Hail	Yes, grouped with the thunderstorm hazard.	By consensus of the Unifour HMPC.	The threat of property damage from hail is of sufficient concern to warrant study.
Hurricane/Tropical Storm	Yes	By consensus of the Unifour HMPC.	Despite the inland location of the planning area, hurricanes and tropical storms are of sufficient concern to warrant study.
Lightning	Yes, grouped with the thunderstorm hazard.	By consensus of the Unifour HMPC.	The threat of property damage or loss of life from lightning is of sufficient concern to warrant study.
Nor'easter	No	By consensus of the Unifour HMPC.	No nor'easters are known to have significantly impacted the planning area in recent history.
Thunderstorm	Yes	By consensus of the Unifour HMPC.	The threat of damage from thunderstorms is of sufficient concern to warrant study.
Tornado	Yes	By consensus of the Unifour HMPC.	The threat of damage and loss of life from tornadoes is of sufficient concern to warrant study.
Winter Weather	Yes	By consensus of the Unifour HMPC.	The threat of damage and loss of life from winter weather is of sufficient concern to warrant study.
HYDROLOGIC HAZARDS			
Dam/Levee Failure	Yes	By consensus of the Unifour HMPC.	The threat of damage and loss of life from the failure of a dam or levee is of sufficient concern to warrant study.

Natural Hazard Considered	Was this hazard considered significant/appropriate enough to be addressed in the plan at this time?	How was this determination made?	Why was this determination made?
Drought/Extreme Heat	Yes	By consensus of the Unifour HMPC.	The threat of damage and loss of life from the drought and extreme heat hazard is of sufficient concern to warrant study.
Erosion	Yes	By consensus of the Unifour HMPC.	The threat of damage from erosion is of sufficient concern to warrant study.
Flood	Yes	By consensus of the Unifour HMPC.	The threat of damage and loss of life from flooding is of sufficient concern to warrant study.
GEOLOGIC HAZARDS			
Earthquake	Yes	By consensus of the Unifour HMPC.	Even though the threat of damaging earthquake activity in the planning area is relatively low, the threat of damage and loss of life from earthquakes within the state is of sufficient enough concern to warrant study.
Landslide	Yes	By consensus of the Unifour HMPC.	The threat of damage and loss of life from landslides is of sufficient concern to warrant study.
Sinkholes	Yes	By consensus of the Unifour HMPC.	Due to local concerns and recent occurrences.
OTHER HAZARDS			
Climate Change	Yes, but as a sub-factor of other hazards.	By consensus of the Unifour HMPC.	Prevailing thoughts are that it is more appropriate to address climate change in light of how it can exacerbate the effects of other natural hazards rather than addressed as a hazard in and of itself.
Wildfire	Yes	By consensus of the Unifour HMPC.	The threat of damage and loss of life from wildfires is of sufficient concern to warrant study.

The final list of hazards to be presented in the Plan, as agreed upon by the HMPC, is as follows:

Hydrologic Hazards (Water Hazards)

- Flood
- Erosion
- Dam/Levee Failure
- Drought/Extreme Heat

Atmospheric Hazards (Severe Storms)

- Thunderstorm, Lightning, and Hail
- Tornado
- Winter Weather
- Hurricane and Tropical Storm

Geologic Hazards

- Landslide
- Earthquake
- Sinkhole

Other Hazards

- Wildfire

This list is repeated at the beginning of subsection 4.5.

Another consideration in the selection of the hazards to be addressed in the Plan is the history of major disaster declarations in the planning area. According to the FEMA Disaster Declarations web page, there have been 40 major disaster declarations issued in the state of North Carolina since 1954. Twelve of these declarations involved one or more of the counties included in the planning area (**Table 4.2**).

Table 4.2: Major Disaster Declarations for Alexander, Burke, Caldwell, and Catawba Counties from 1954 to 2013

Event	Declaration Date	Declaration Number	County(s) in the Planning Area Declared
Tornadoes	04/12/1974	DR-428	Burke, Caldwell
Severe Storms and Flooding	11/09/1977	DR-542	Burke, Caldwell, Catawba
Tornadoes	05/10/1989	DR-827	Catawba
Hurricane Hugo	09/25/1989	DR-844	Alexander, Burke, Caldwell, Catawba
Blizzard of '96	01/13/1996	DR-1087	Alexander, Burke, Caldwell, Catawba
Storms/Flooding	02/23/1996	DR-1103	Alexander, Burke, Caldwell, Catawba
Severe Ice Storm	12/12/2002	DR-1448	Alexander, Burke, Caldwell, Catawba
Tropical Storm Frances	09/10/2004	DR-1546	Alexander, Burke, Caldwell, Catawba
Hurricane Ivan	09/18/2004	DR-1553	Burke, Caldwell
Severe Winter Storms and Flooding	02/02/2010	DR-1871	Burke, Caldwell
Severe Storms, Flooding, Landslides, and Mudslides	09/25/2013	DR-4146	Burke, Caldwell
Severe Storms, Flooding, Landslides, and Mudslides	10/29/2013	DR-4153	Catawba

Source: Federal Emergency Management Agency.

As shown in Table 4.2, the earliest major disaster declaration to occur in the planning area was in 1974. The last were in 2013. The 12 major disaster declarations shown above cover the hazards of flood, hurricane/tropical storm, severe storms, severe winter weather, and tornado relevant to the planning area. This history of disaster declarations is consistent with the hazards identified by the HMPC to be addressed in the Plan.

4.3 Methodologies and Assumptions

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

The following list provides key points by hazard type that are relevant to understanding the risk assessment presented in this section:

Flood

- Pre-FIRM[2] buildings have been selected as a subset of at-risk buildings following the assumption that structures built prior to the community joining the National Flood Insurance Program (NFIP) are likely to be at greater risk than post-FIRM buildings.
- If the NFIP entry date for a given community is between January and June, buildings constructed the same year as the entry date are considered to be post-FIRM (e.g., if the NFIP entry date is 02/01/1991, buildings constructed in 1990 and before are pre-FIRM. Buildings constructed from 1991 to the present are post-FIRM.). If the NFIP entry date is between July and December, then the following year applies for the year built cut-off (e.g., if the NFIP entry date is 12/18/2007, buildings constructed in the year 2007 and before are pre-FIRM, 2008 and newer are post-FIRM).
- Effective FEMA DFIRM data was used for the flood hazard areas. Flood zones used in the analysis consist of Zone AE (1-percent-annual-chance flood), Zone AE Floodway, and the 0.2-percent-annual-chance flood hazard area.
- Building footprints were received from all four participating counties. To refine the results, footprints with an area less than 500 square feet were excluded from the analysis. To determine if a building is in a hazard area, the building footprints were intersected with each of the mapped hazard areas. If a building intersects two or more hazard areas (such as the 1-percent-annual-chance flood zone and the 0.2-percent-annual-chance flood zone), it is counted as being in the hazard area of highest risk.
- Parcels were received from all four participating counties. The parcel data provided building value and year built. Building value was used to determine the value of buildings at risk. Year built was used to determine if the building was constructed prior to or after the community had joined the NFIP and had an effective FIRM and building codes enforced.

[2] A Flood Insurance Rate Map (FIRM) is the official map of a community on which is delineated both the special hazard areas and the risk premium zones applicable to the community.

- Census blocks and Summary File 1 from the 2010 Census were used to determine population at risk. This included the total population, as well as the vulnerable elderly and children age groups. To determine population at risk, the census blocks were intersected with the hazard area. To better determine the actual number of people at risk, the intersecting area of the census block was calculated and divided by the total area of the census block to determine a ratio of area at risk. This ratio was applied to the population of the census block. For example, a census block has a population of 400 people. Five percent of the census block intersects the 1-percent-annual-chance flood hazard area. The ratio estimates that 20 people are then at risk within the 1-percent-annual-chance flood hazard area (5% of the total population for that census block).
- Limitations: There can be multiple buildings located on one parcel. However, the parcel only provides one value for building value and year built, and it is not known from the provided data if the building value is cumulative or for the primary structure on the parcel. For the analysis, building value was only counted once per parcel, regardless of the number of structures. This was done to prevent grossly over-estimating the value of buildings at risk. For example, a parcel has three buildings with a value of $300,000. If two of those buildings intersect the 1-percent-annual-chance flood hazard area, the assumed building value at risk is $300,000 not $600,000. Even though only two out of three buildings are at risk, there is no way to determine the individual value of each building, so the building value for the whole parcel is counted. The value at risk is also the value of the entire building, and does not take into account flood damage based on elevation, number of floors, or value of contents.

Lightning

- Based on NCDC data, the number of cloud-to-ground lightning flashes was calculated for each day, month, and year as well as for the 1986-to-present period of record. Additionally, the number of flashes was calculated for each hour and summarized by month, year, and period of record. Grids were created to show only positive polarity flashes for all time periods. The summary grids are defined as a 4 km Albers Equal Area grid, fit to the continental United States. The data was re-sampled to 150-meter cells using bilinear interpolation (for cartographic purposes).
- Average annual lightning strikes are the 25-year-average of annual average lightning strikes from 1987-2012. Accuracy depends on the distribution of lightning detection sensors which is unknown.

Wildfire

- Wildfire hazard areas were determined using the Wildland Fire Susceptibility Index (WFSI).
    - Areas with a WFSI value of 0.01 – 0.05 were considered to be at moderate risk.
    - Areas with a WFSI value greater than 0.05 were considered to be at high risk.
    - Areas with a WFSI value less than 0.01 were considered to not be at risk.
- The WFSI data used for the wildfire risk analysis is a value between 0 and 1. It was developed consistent with the mathematical calculation process for determining the probability of an acre burning. The WFSI integrates the probability of an acre igniting and the expected final fire size based on the rate of spread in four weather percentile categories into a single measure of wildland fire susceptibility. Due to some necessary assumptions, mainly fuel homogeneity, it is not the true probability. But since all areas of the state have this value determined consistently, it allows for comparison and ordination of areas of the state as to the likelihood of an acre burning.

- Building footprints were received from all four participating counties. To refine the results, footprints with an area less than 500 square feet were excluded from the analysis. To determine if a building is in a hazard area, the building footprints were intersected with each of the hazard areas. If a building intersects two or more hazard areas, it is considered to be in the hazard area of highest risk.
- Parcels were received from all four participating counties. This data provided building value and year built. Building value was used to determine the value of buildings at risk.
- Census blocks and Summary File 1 from the 2010 Census were used to determine population at risk. This included the total population, as well as the vulnerable elderly and children age groups. To determine population at risk, the census blocks were intersected with the hazard area. To better determine the actual number of people at risk, the intersecting area of the census block was calculated and divided by the total area of the census block to determine a ratio of area at risk. This ratio was applied to the population of the census block. For example, a census block has a population of 400 people. Five percent of the census block intersects a high wildfire hazard area. The ratio estimates that 20 people are at risk within that hazard area (5% of the total population for that census block).
- There can be multiple buildings on one parcel. However, the parcel only provides one value for building value and year built, and it is not known from the provided data if the building value is cumulative or for the primary structure on the parcel. For the analysis, building value was only counted once per parcel, regardless of the number of structures. This was done to prevent grossly over-estimating the value of buildings at risk. For example, a parcel has three buildings with a value of $300,000. If two of those buildings intersect the high risk area, the assumed building value at risk is $300,000 not $600,000. Even though only two out of three buildings are at risk, there is no way to determine the individual value of each building, so the building value for the whole parcel is counted. The value at risk is also the value of the entire building, and does not take into account the value of contents.

Winter Weather

- Winter storm maps are an interpolation of recorded values (historical maximums and 30-year-average) derived from individual point locations.

Definitions for Descriptors Used for Probability of Future Hazard Occurrences

- Unlikely: Less than 1% annual probability
- Possible: Between 1 and 10% annual probability
- Likely: Between 10 and 100% annual probability
- Highly Likely: 100% annual probability

4.4 Inventory of Community Assets

Each participating jurisdiction assisted in the identification of assets to be used for analysis to determine what assets may be potentially at risk to the hazards covered in the Plan. These assets are defined broadly as anything that is important to the function and character of the community. For the purposes of this *Risk Assessment*, the individual types of assets include:

- Population
- Parcels and Buildings

- Critical Facilities
- Infrastructure
- High Potential Loss Properties
- Historic Properties

Although all assets may be affected by certain hazards (such as hail or tornadoes), some assets are more vulnerable because of their location (e.g., the floodplain), certain physical characteristics (e.g., slab-on-grade construction), or socioeconomic uses (e.g., major employers). The following subsections document the numbers and values used for the *Risk Assessment*.

4.4.1 Population

The population counts shown in **Table 4.3** are derived from 2010 census data and include a breakdown of two subpopulations assumed to be at greater risk to natural hazards than the "general" population: elderly (ages 65 and older) and children (under the age of 5). **Figure 4.1** shows population density per square mile, along with the distribution of potentially at-risk populations, across the planning area.

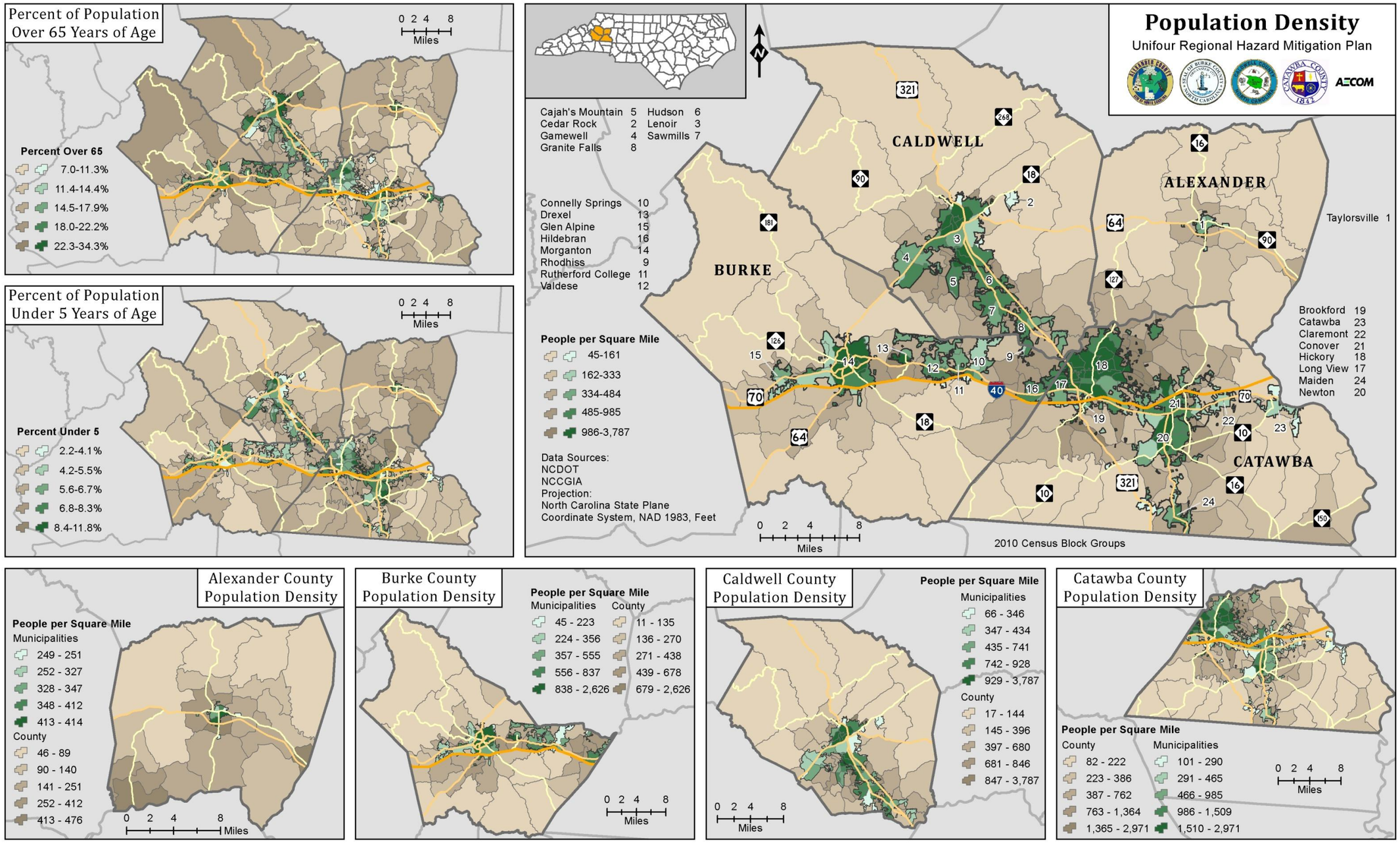
Table 4.3: Population Counts with Vulnerable Population Breakdown

Jurisdiction	2010 Census Population	Elderly (Age 65 and Over)	Children (Age 5 and Under)
Alexander County (Unincorporated Area)	**35,100**	**5,102**	**2,055**
Taylorsville	2,098	525	154
Subtotal Alexander	*37,198*	*5,627*	*2,209*
Burke County (Unincorporated Area)	**59,578**	**8,865**	**3,085**
Connelly Springs	1,669	289	86
Drexel	1,858	398	94
Glen Alpine	1,517	255	104
Hildebran	2,023	398	118
Morganton	16,918	3,079	1,150
Valdese	4,490	900	265
Rutherford College	1,341	234	78
Subtotal Burke	*90,912*	*14,673*	*5,068*
Caldwell County (Unincorporated Area)	**43,501**	**6,141**	**2,264**
Cajah's Mountain	2,823	519	184
Cedar Rock	300	93	7
Gamewell	4,051	625	215
Granite Falls	4,722	667	332
Hudson	3,776	655	204
Lenoir	18,228	3,373	1,109
Rhodhiss	1,070	149	67
Sawmills	5,240	697	302
Subtotal Caldwell	*83,029*	*12,816*	*4,645*

Jurisdiction	2010 Census Population	Elderly (Age 65 and Over)	Children (Age 5 and Under)
Catawba County (Unincorporated Area)	**83,533**	**11,124**	**4,809**
Brookford	382	72	18
Catawba	603	130	27
Claremont	1,352	196	77
Conover	8,165	1,389	563
Hickory	40,010	5,733	2,719
Long View	4,871	770	343
Maiden	3,310	456	208
Newton	12,968	2,056	955
Subtotal Catawba	*154,358*	*21,773*	*9,670*
TOTAL UNIFOUR	**365,497**	**54,889**	**21,592**

Source: U.S. Census Bureau.

Figure 4.1: Population Density in the Unifour Region



4.4.2 Parcels and Buildings

The parcel counts, building counts, and building values shown in **Table 4.4** represent the built environment inventories used for the analyses included in the *Risk Assessment*. In order to provide a more accurate reflection of buildings that contain livable space and/or commercial, industrial, or other uses, all building footprints less than 500 square feet have been eliminated from the counts and analysis.

Table 4.4: Parcel and Building Counts and Values by Jurisdiction

Jurisdiction	Parcel Count	Building Count	Building Value
Alexander County (Unincorporated Area)	**22,700**	**26,193**	**$1,347,565,360**
Taylorsville	1,276	1,324	$135,674,552
Subtotal Alexander	*23,976*	*27,517*	*$1,483,239,912*
Burke County (Unincorporated Area)	**40,817**	**32,482**	**$2,104,478,844**
Connelly Springs	1,238	859	$58,744,312
Drexel	866	766	$77,219,195
Glen Alpine	945	723	$58,307,152
Hildebran	1,069	1,056	$93,714,888
Morganton	7,818	7,265	$991,355,959
Valdese	2,806	2,071	$246,727,313
Rutherford College	796	712	$60,761,106
Subtotal Burke	*56,355*	*45,934*	*$3,691,308,769*
Caldwell County (Unincorporated Area)	**30,345**	**26,119**	**$1,593,124,250**
Cajah's Mountain	1,359	1,330	$112,893,800
Cedar Rock	230	140	$37,048,600
Gamewell	1,976	2,047	$125,991,900
Granite Falls	2,609	1,995	$269,868,250
Hudson	1,943	1,664	$244,247,500
Lenoir	10,001	8,602	$1,090,178,404
Rhodhiss	199	482	$7,519,100
Sawmills	2,443	2,607	$161,156,400
Subtotal Caldwell	*51,530*	*44,986*	*$3,662,721,835*
Catawba County (Unincorporated Area)	**51,668**	**55,194**	**$4,943,884,600**
Brookford	288	295	$15,166,700
Catawba	569	463	$50,115,900
Claremont	964	819	$193,177,000
Conover	4,383	3,945	$698,896,200
Hickory	17,953	16,241	$3,249,206,200
Long View	2,241	2,614	$175,341,400
Maiden	2,040	1,944	$210,768,400
Newton	6,473	6,358	$847,798,000
Subtotal Catawba	*87,132*	*87,873*	*$10,481,702,043*
TOTAL UNIFOUR	**218,993**	**206,310**	**$19,318,972,559**

Source: Participating jurisdictions.

4.4.3 Critical Facilities

Table 4.5 shows counts of critical facilities under a variety of categories attributed to each participating jurisdiction.

Table 4.5: Critical Facilities Counts by Jurisdiction

Jurisdiction	Day Care	EMS	EOCs	Fire Stations	Govt. Buildings	Hospitals	Law Enforce-ment	Schools	Senior Care	Shelters
Alexander County (Unincorporated Area)	**8**	**1**	**0**	**9**	**6**	**0**	**0**	**9**	**3**	**9**
Taylorsville	5	1	1	1	15	0	2	2	2	2
Subtotal Alexander	*25*	*2*	*1*	*10*	*21*	*1*	*2*	*10*	*5*	*11*
Burke County (Unincorporated Area)	**27**	**2**	**0**	**17**	**7**	**0**	**0**	**12**	**6**	**12**
Connelly Springs	-	0	0	1	-	0	***	0	0	0
Drexel	-	0	0	1	-	0	1	1	1	2
Glen Alpine	-	1	0	1	-	0	1	1	0	1
Hildebran	-	1	0	1	-	0	***	1	1	1
Morganton	-	2	1	3	-	1	4	11	5	10
Valdese	3	1	0	2	1	1	1	3	1	1
Rutherford College	-	0	0	2	-	1	***	3	0	1
Subtotal Burke	-	*7*	*1*	*27*	-	*2*	*7*	*30*	*14*	*28*
Caldwell County (Unincorporated Area)	**26**	**1**	**0**	**6**	-	**0**	**0**	**11**	**1**	**12**
Cajah's Mountain	0	1	0	1	1	0	0	0	1	0
Cedar Rock	0	0	0	0	0	0	0	0	0	0
Gamewell	7	1	0	1	1	0	0	2	0	2
Granite Falls	6	1	0	1	1	0	1	2	1	2
Hudson	5	1	0	1	1	0	2	5	0	3
Lenoir	24	1	2	3	11	1	2	6	7	7
Rhodhiss	0	0	0	2	0	0	1	0	0	0
Sawmills	6	0	0	1	1	0	0	1	0	2

Jurisdiction	Day Care	EMS	EOCs	Fire Stations	Govt. Buildings	Hospitals	Law Enforce-ment	Schools	Senior Care	Shelters
Subtotal Caldwell	*74*	*6*	*2*	*15*	*16*	*1*	*6*	*27*	*10*	*28*
Catawba County (Unincorporated Area)	**54**	**4**	**0**	**17**	**1**	**0**	**1**	**18**	**1**	**19**
Brookford	0	0	0	0	1	0	1	0	0	0
Catawba	3	1	0	1	1	0	1	1	0	1
Claremont	4	0	0	1	1	0	1	1	0	2
Conover	12	0	0	3	1	0	1	1	4	1
Hickory	39	1	1	7	1	2	1	9	8	12
Long View	5	0	0	1	1	0	1	2	0	2
Maiden	5	0	0	2	1	0	1	3	0	2
Newton	17	1	1	3	1	0	2	5	3	6
Subtotal Catawba	*139*	*7*	*1*	*31*	*9*	*2*	*9*	*40*	*16*	*45*
TOTAL UNIFOUR	**238**	**22**	**5**	**85**	**46**	**6**	**26**	**107**	**45**	**112**

Source: Numbers in black supplied by participating jurisdictions. Numbers in orange derived from alternate sources via NC OneMap.
**** A facility exists but a GPS point location for GIS analysis is not currently available.*

Figures 4.2 through **4.5** show the general locations of critical facilities across the planning area by county.

Figure 4.2: Critical Facilities Locations in Alexander County

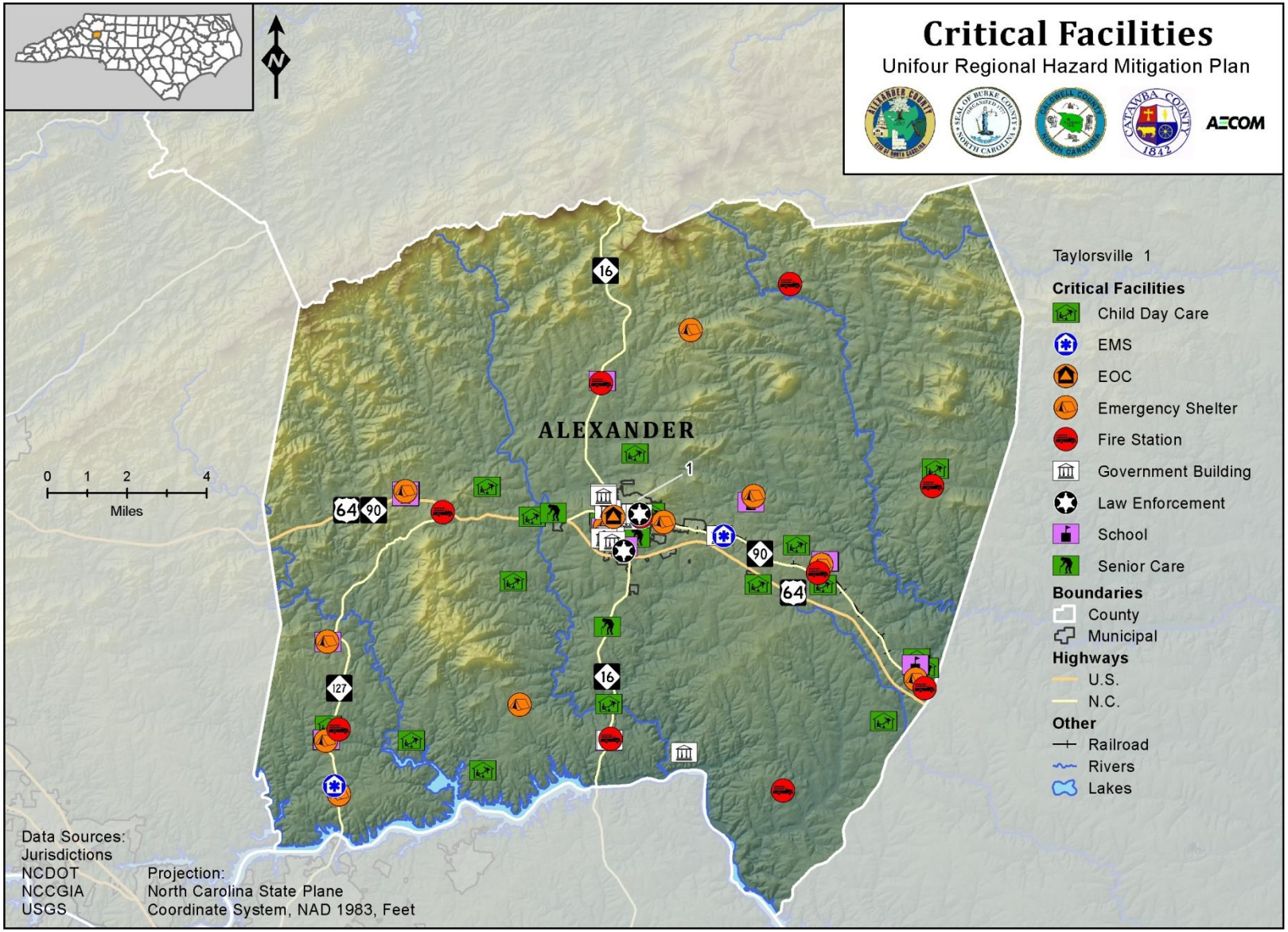


Figure 4.3: Critical Facilities Locations in Burke County

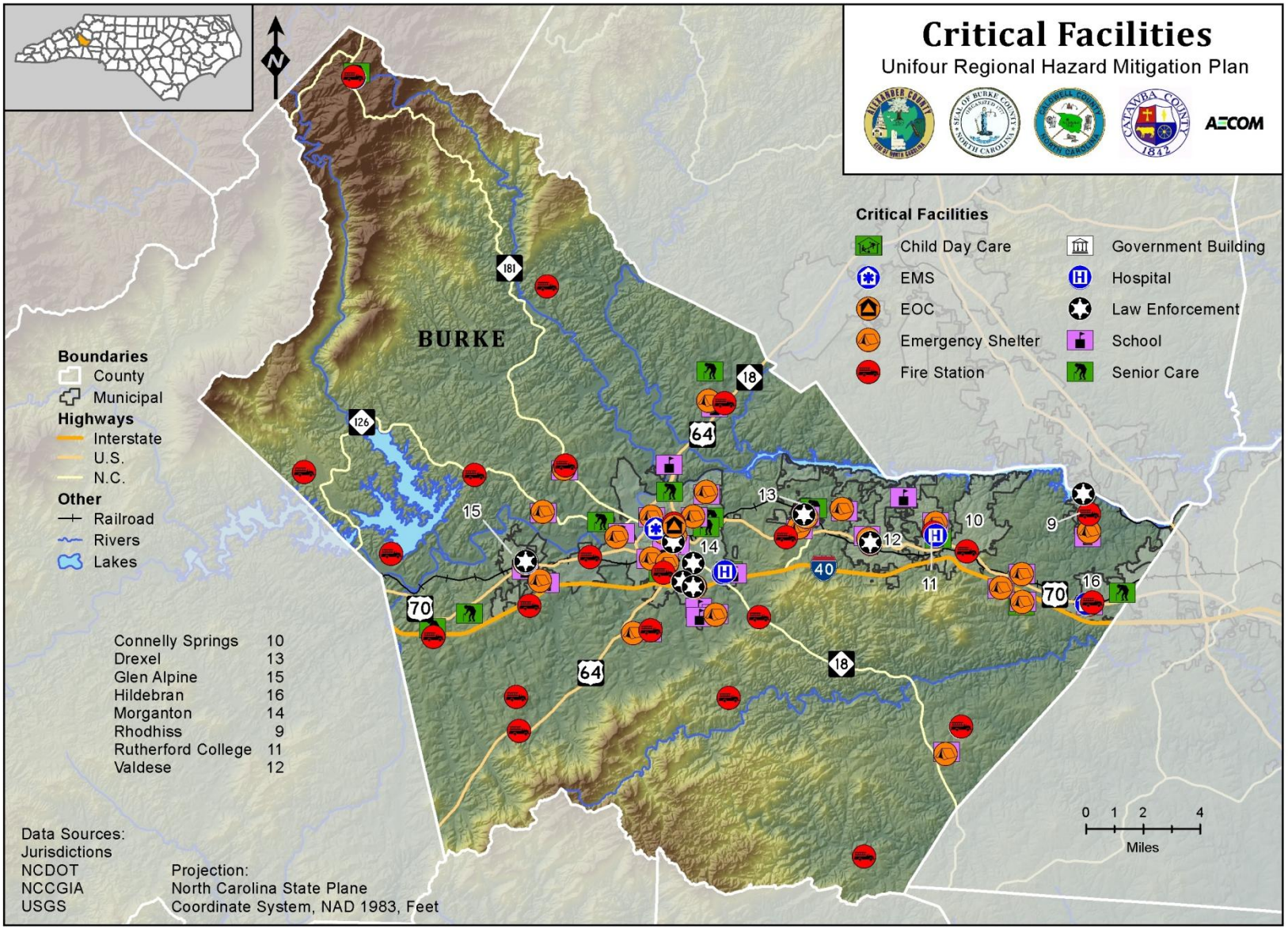


Figure 4.4: Critical Facilities Locations in Caldwell County

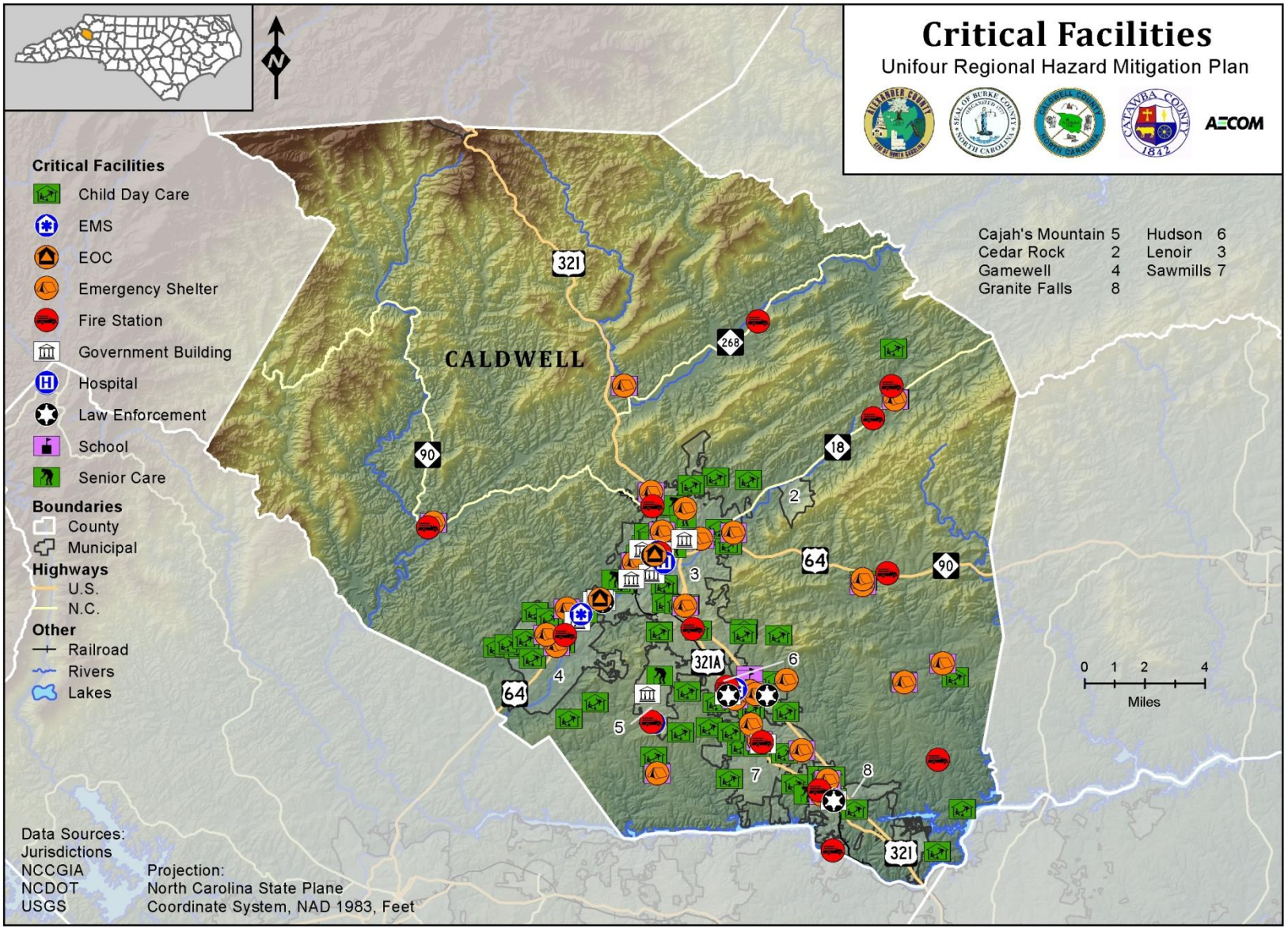
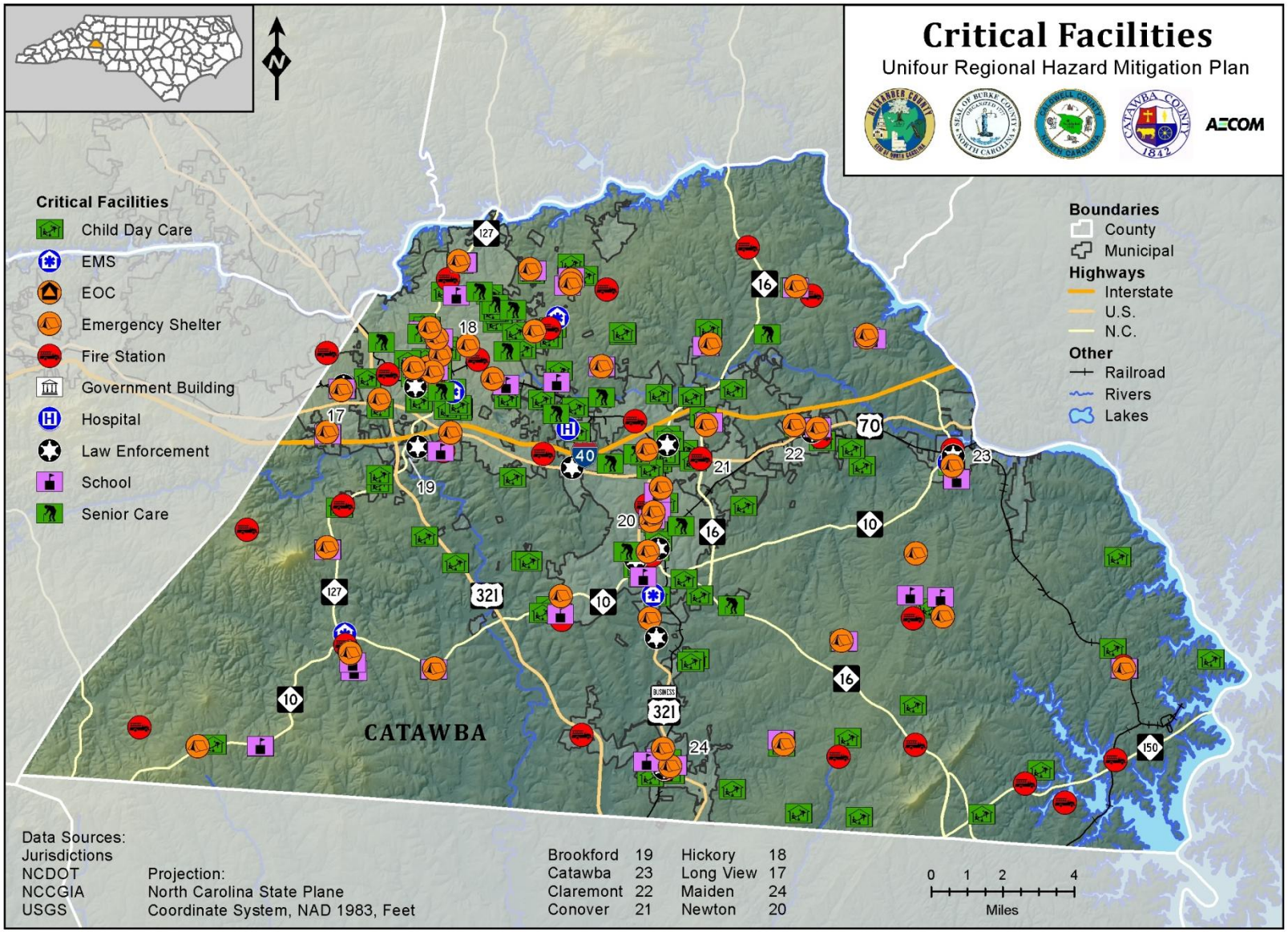


Figure 4.5: Critical Facilities Locations in Catawba County



4.4.4 Infrastructure

Certain infrastructure elements as shown in **Table 4.6** were identified for analysis. These include major roads[3], railroads, power plants, water/wastewater facilities, and water/wastewater lines.

Table 4.6: Infrastructure Counts and Measurements (in Miles) by Jurisdiction

Jurisdiction	Major Roads	Railroad[4]	Power Plants	Water/Wastewater Facilities[5]	Water/Wastewater Lines
Alexander County (Unincorporated Area)	**51.8**	**8.0**	**0**	**0**	**384.6**
Taylorsville	4.3	1.7	0	1	43.5
Subtotal Alexander	*56.1*	*9.7*	*0*	*2*	*428.1*
Burke County (Unincorporated Area)	**139.5**	**18.0**	**1**	**1**	**362.8**
Connelly Springs	2.1	1.8	0	0	8.2
Drexel	0.6	1.0	0	0	30.2
Glen Alpine	1.2	1.3	0	0	15.6
Hildebran	1.9	1.9	0	0	34.6
Morganton	31.4	7.7	0	2	307.2
Valdese	2.5	0.6	0	2	103.2
Rutherford College	3.2	2.5	0	0	21.1
Subtotal Burke	*182.4*	*34.8*	*1*	*5*	*882.9*
Caldwell County (Unincorporated Area)	**95.8**	**1.5**	**1**	**2**	**317.6**
Cajah's Mountain	0.0	0.0	0	0	31.1
Cedar Rock	0.0	0.0	0	0	6.3
Gamewell	3.2	0.0	0	0	9.8
Granite Falls	6.1	3.2	0	1	96.2
Hudson	7.5	2.5	0	0	72.9
Lenoir	21.2	12.1	0	3	337.1
Rhodhiss	0.0	0.6	0	1	8.6
Sawmills	4.4	2.4	0	0	20.1
Subtotal Caldwell	*138.2*	*22.3*	*1*	*7*	*891.3*
Catawba County (Unincorporated Area)	**119.2**	**41.3**	**2**	**-**	**-**
Brookford	1.6	0.0	0	-	-
Catawba	2.3	5.1	0	-	-
Claremont	2.6	3.9	0	-	-
Conover	17.8	9.1	0	-	-
Hickory	32.2	11.7	0	4	1,417

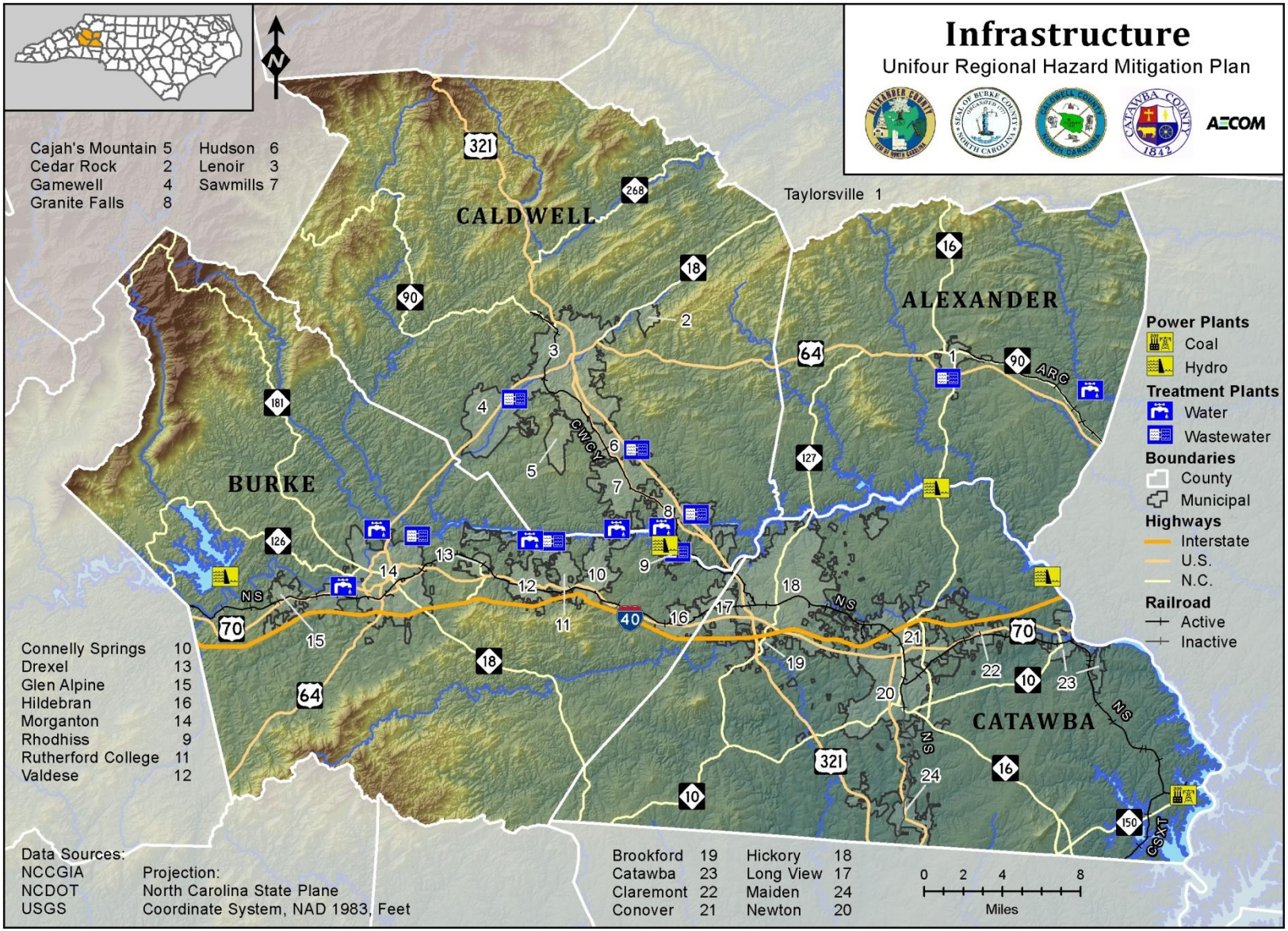
[3] The major roads and railroads accounted for in this table are the same as those depicted on the "Community Profile" map found in Section 2.
[4] Does not include inactive/abandoned railroads.
[5] Water and wastewater facilities and lines data were not made publicly available for Catawba County for the purposes of the Plan, including most of the incorporated municipalities within the county.

Jurisdiction	Major Roads	Railroad[4]	Power Plants	Water/Wastewater Facilities[5]	Water/Wastewater Lines
Long View	5.0	2.2	0	-	11.1
Maiden	6.0	0.0	0	-	-
Newton	14.6	4.9	0	-	-
Subtotal Catawba	*201.3*	*78.2*	*2*	-	-
TOTAL UNIFOUR	**578.0**	**141.8**	**4**	**-**	**-**

Source: NCDOT, USGS, participating jurisdictions.

Figure 4.6 shows the general locations of infrastructure elements across the planning area.

Figure 4.6: Infrastructure Locations



4.4.5 High Potential Loss Properties

Table 4.7 shows counts of high potential loss properties attributed to each participating jurisdiction. **Figure 4.7** shows the general locations of these properties across the planning area.

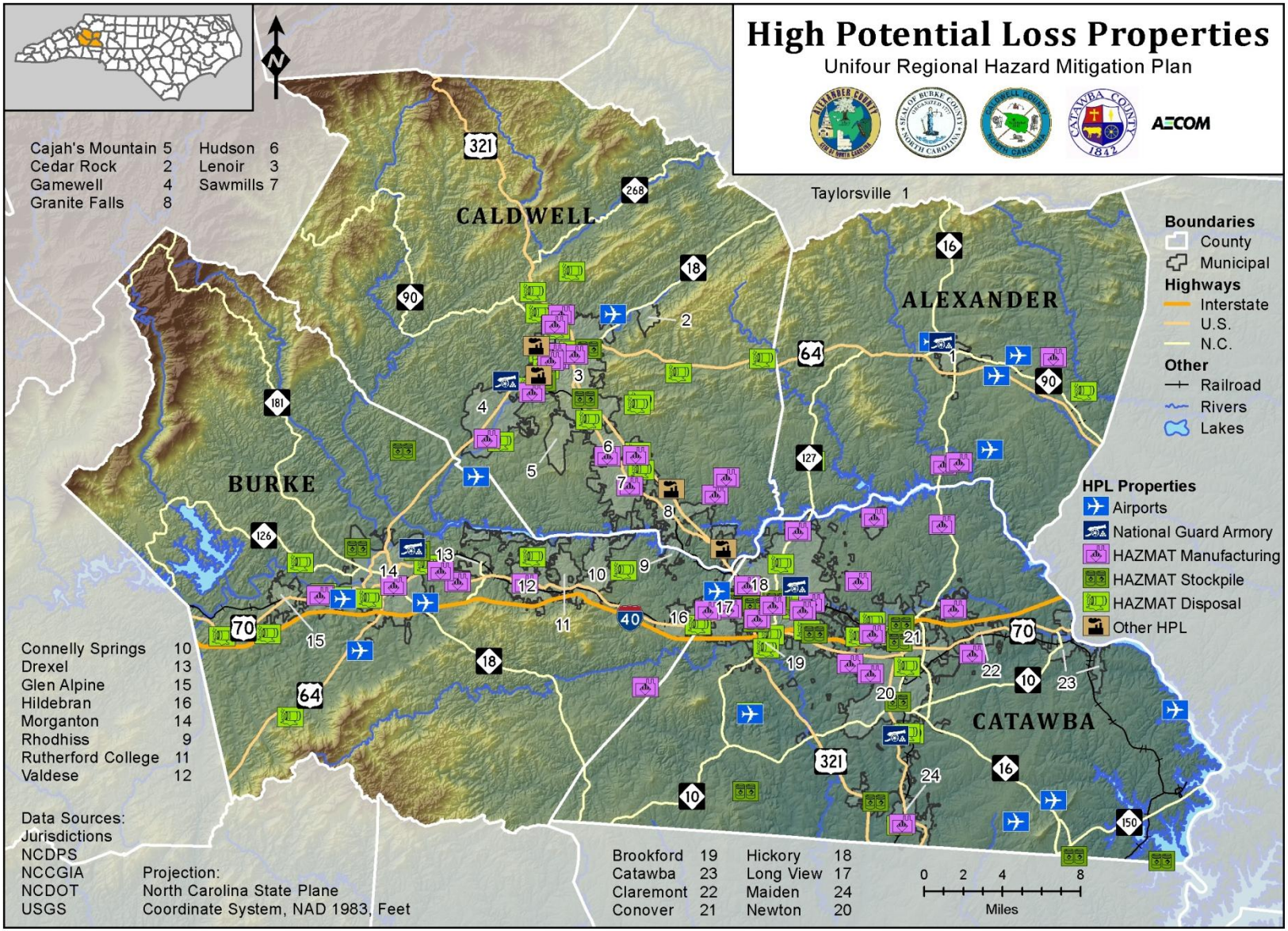
Table 4.7: High Potential Loss Properties by Jurisdiction

Jurisdiction	Airports	Dams[6]	Military Facilities	Hazardous Materials Sites	Other[7]
Alexander County (Unincorporated Area)	**4**	**42**	**1**	**6**	**-**
Taylorsville	0	1	0	0	-
Subtotal Alexander	*4*	*43*	*1*	*6*	-
Burke County (Unincorporated Area)	**2**	**37**	**0**	**9**	**-**
Connelly Springs	0	0	0	0	-
Drexel	0	0	0	0	-
Glen Alpine	0	0	0	0	-
Hildebran	0	0	0	1	-
Morganton	1	6	1	10	-
Valdese	0	0	0	2	-
Rutherford College	0	0	0	0	-
Subtotal Burke	*3*	*43*	*1*	*22*	-
Caldwell County (Unincorporated Area)	**2**	**32**	**0**	**7**	**-**
Cajah's Mountain	0	0	0	0	-
Cedar Rock	0	0	0	0	-
Gamewell	0	2	0	2	-
Granite Falls	0	1	0	0	1
Hudson	0	0	0	3	-
Lenoir	0	4	1	24	2
Rhodhiss	0	0	0	0	-
Sawmills	0	1	0	2	-
Subtotal Caldwell	*2*	*40*	*1*	*38*	*3*
Catawba County (Unincorporated Area)	**4**	**74**	**0**	**5**	**-**
Brookford	0	1	0	2	-
Catawba	0	2	0	0	-
Claremont	0	0	0	1	-
Conover	0	1	0	8	-
Hickory	1	5	1	23	1
Long View	0	0	0	3	-
Maiden	0	2	0	3	-
Newton	0	2	1	5	-
Subtotal Catawba	*5*	*87*	*2*	*50*	*1*
TOTAL UNIFOUR	**14**	**213**	**5**	**116**	**4**

Source: Local sources and NCGIA.

[6] Locations of dams are provided in the dam failure section and are not shown on the following map.
[7] This category consists of a variety of facilities specified by participating jurisdictions.

Figure 4.7: Locations of High Potential Loss Properties



4.4.6 Historic Properties

Historic property counts including districts, buildings, and other cultural resources as shown in **Table 4.8** were derived from a combination of sources consisting of the National Register of Historic Places (National Park Service) and participating jurisdictions.

Table 4.8: Historic Property Counts by Jurisdiction

Jurisdiction	Districts	Buildings	Other
Alexander County (Unincorporated Area)	**0**	**1**	**0**
Taylorsville	0	0	0
Subtotal Alexander	*0*	*1*	*0*
Burke County (Unincorporated Area)	**0**	**8**	**1**
Connelly Springs	0	0	0
Drexel	0	0	0
Glen Alpine	0	0	0
Hildebran	0	0	0
Morganton	9	25	1
Valdese	0	2	0
Rutherford College	0	0	0
Subtotal Burke	*9*	*35*	*2*
Caldwell County (Unincorporated Area)	**2**	**7**	**0**
Cajah's Mountain	0	0	0
Cedar Rock	0	0	0
Gamewell	0	0	0
Granite Falls	0	1	0
Hudson	0	0	0
Lenoir	1	44	0
Rhodhiss	0	0	0
Sawmills	0	0	0
Subtotal Caldwell	*3*	*52*	*0*
Catawba County (Unincorporated Area)	**6**	**21**	**1**
Brookford	0	0	0
Catawba	1	0	0
Claremont	0	0	0
Conover	1	1	1
Hickory	7*	467**	0
Long View	0	1	0
Maiden	0	2	0
Newton	3	7	0
Subtotal Catawba	*18*	*499*	*2*
TOTAL UNIFOUR	**30**	**587**	**4**

Source: Jurisdictions and National Register of Historic Places.
**GIS data is only currently available for 5 of the 7 districts in the City of Hickory.*
***GIS data is only available for 15 of the 320 nationally recognized structures and the 147 locally recognized structures (467 total) in the City of Hickory. Many of these buildings are assumed to be within the 7 districts.*

4.5 Hazard Profiles, Analysis, and Vulnerability

As stated in subsection 4.2, the following hazards are addressed in this *Risk Assessment* and are presented in the following order in the subsections to follow:

Hydrologic Hazards (Water Hazards)
- Flood
- Erosion
- Dam/Levee Failure
- Drought/Extreme Heat

Atmospheric Hazards (Severe Storms)
- Thunderstorm, Lightning, and Hail
- Tornado
- Winter Weather
- Hurricane and Tropical Storm

Geologic Hazards
- Landslide
- Earthquake
- Sinkhole

Other Hazards
- Wildfire

4.5.1 Hydrologic Hazards (Water Hazards)

Hydrologic hazards are essentially "water-based" hazards that include flood, erosion, dam/levee failure, and drought/extreme heat. It is important to note that some hydrologic hazards result from the activity of atmospheric hazards, such as thunderstorms producing large amounts of rain, etc.

4.5.1.1 Flood

Flood Hazard Description

Flooding is the most frequent and costly natural hazard in the United States, a hazard that has caused more than 10,000 deaths since 1900. Nearly 90% of presidential disaster declarations result from natural events where flooding was a major component.

Riverine flooding is generally the result of excessive precipitation. The severity of a flooding event is typically determined by a combination of several major factors, including: stream and river basin topography and physiography; precipitation and weather patterns; recent soil moisture conditions; and the degree of vegetative clearing and impervious surface. Riverine floods can be long-term events that may last for several days.

Most flash flooding is caused by slow-moving thunderstorms in a local area or by heavy rains associated with hurricanes and tropical storms. However, flash flooding events may also occur from a dam or levee failure within minutes or hours of heavy amounts of rainfall, or from a sudden release of water held by a retention basin or other stormwater control facility. Although flash

flooding occurs most often along mountain streams, it is also common in urbanized areas where much of the ground is covered by impervious surfaces.

The periodic flooding of lands adjacent to rivers, streams, and shorelines (land known as floodplain) is a natural and inevitable occurrence that can be expected to take place based upon established recurrence intervals. The recurrence interval of a flood is defined as the average time interval, in years, expected between a flood event of a particular magnitude and an equal or larger flood. Flood magnitude increases with increasing recurrence intervals, and floodplains are designated by the frequency of the flood that is large enough to cover them. For example, the 10-year floodplain will be inundated by the 10-year flood and the 100-year floodplain by the 100-year flood. Another way of expressing the flood frequency is the chance of occurrence in a given year, which is the percentage of the probability of flooding each year. For example, the 100-year flood has a 1-percent-annual-chance of occurring in any given year. The 500-year flood has a 0.2-percent-annual-chance of occurring in any given year.

Flood Hazard Analysis

There are numerous rivers and streams flowing through the planning area. When heavy or prolonged rainfall events occur, these rivers and streams are susceptible to some degree of flooding. There have been a number of past flooding events throughout the planning area, ranging widely in terms of location, magnitude, and impact. The most frequent flooding events have been localized in nature, resulting from heavy rains in a short period of time over urbanized areas that are not able to adequately handle stormwater runoff. These events typically do not threaten lives or property and do not result in emergency or disaster declarations, therefore historical data is limited to the larger, most notable events.

Location Within the Planning Area

Figures 4.8 through **4.36** show the boundaries of the floodway, 1-percent-annual-chance and 0.2-percent-annual-chance floods, based on effective DFIRM data as of August 2013. These are the three mapped flood hazard areas used as the basis for this analysis.

Extent (Magnitude and Severity)

This regional hazard analysis focuses on the three flood hazard extents shown in Figures 4.8 through 4.36: the floodway, the 1-percent-annual-chance flood (100-year return period) and the 0.2-percent-annual-chance flood (500-year return period).

Historical Occurrences

The following historical occurrences ranging from 1993 to the present have been identified based on the National Climatic Data Center (NCDC) Storm Events database (**Table 4.9**). It should be noted that only those historical occurrences listed in the NCDC database are shown here and that other, unrecorded or unreported events may have occurred within the planning area during this timeframe.

Figure 4.8: Flood Hazard Areas in the Unifour Region



Figure 4.9: Flood Hazard Areas in Alexander County

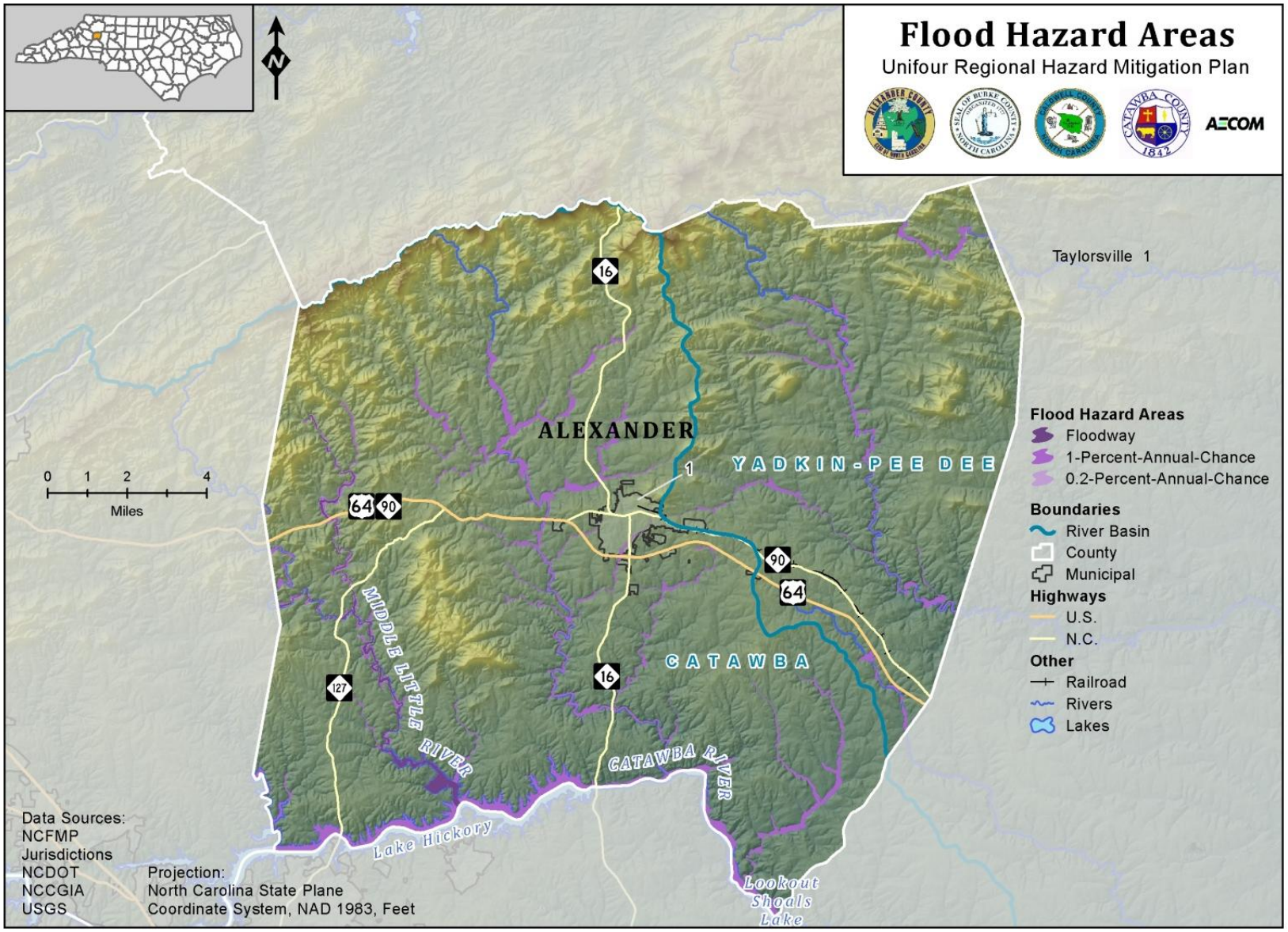


Figure 4.10: Flood Hazard Areas in the Town of Taylorsville

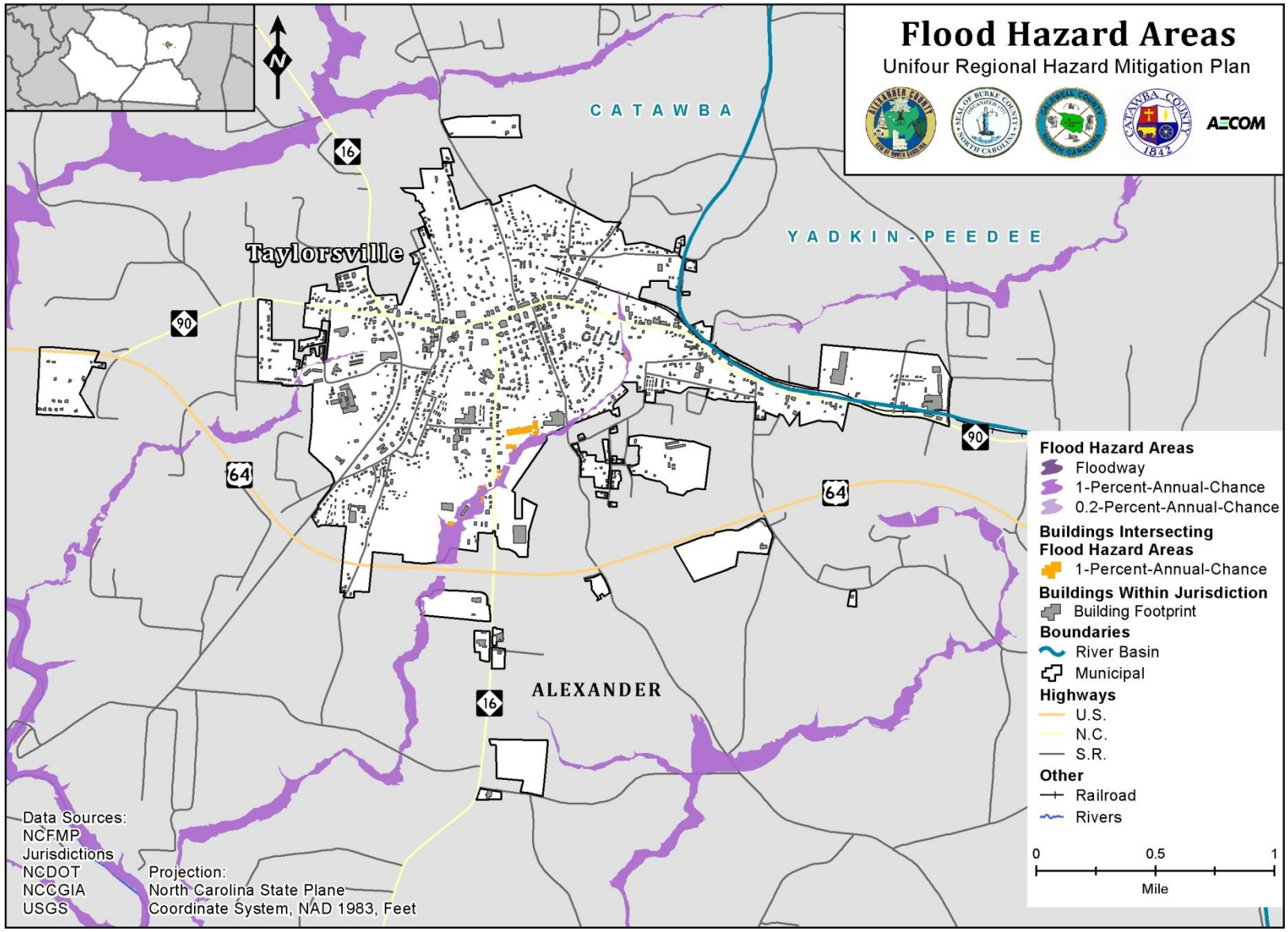


Figure 4.11: Flood Hazard Areas in Burke County

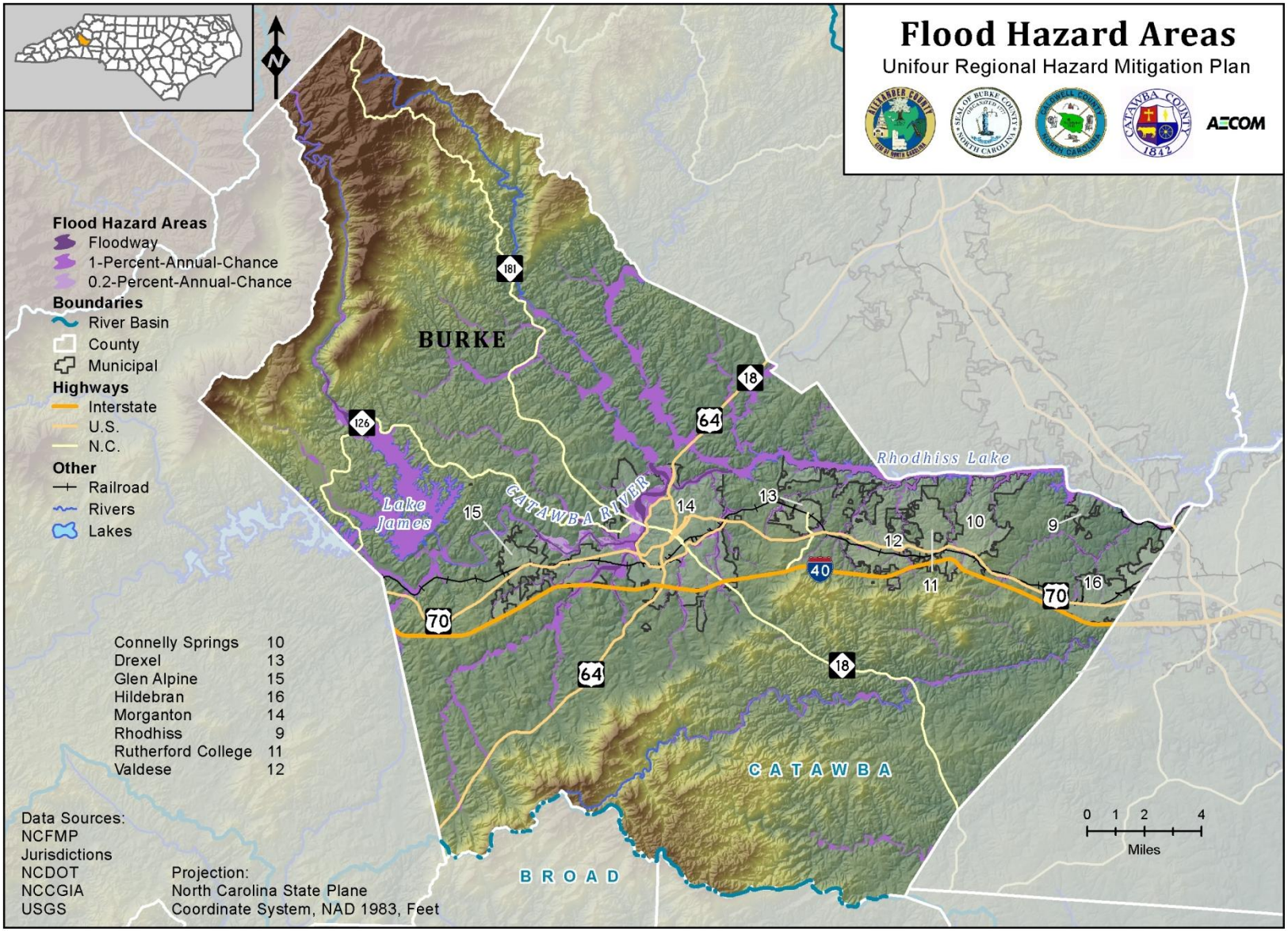


Figure 4.12: Flood Hazard Areas in the Town of Connelly Springs

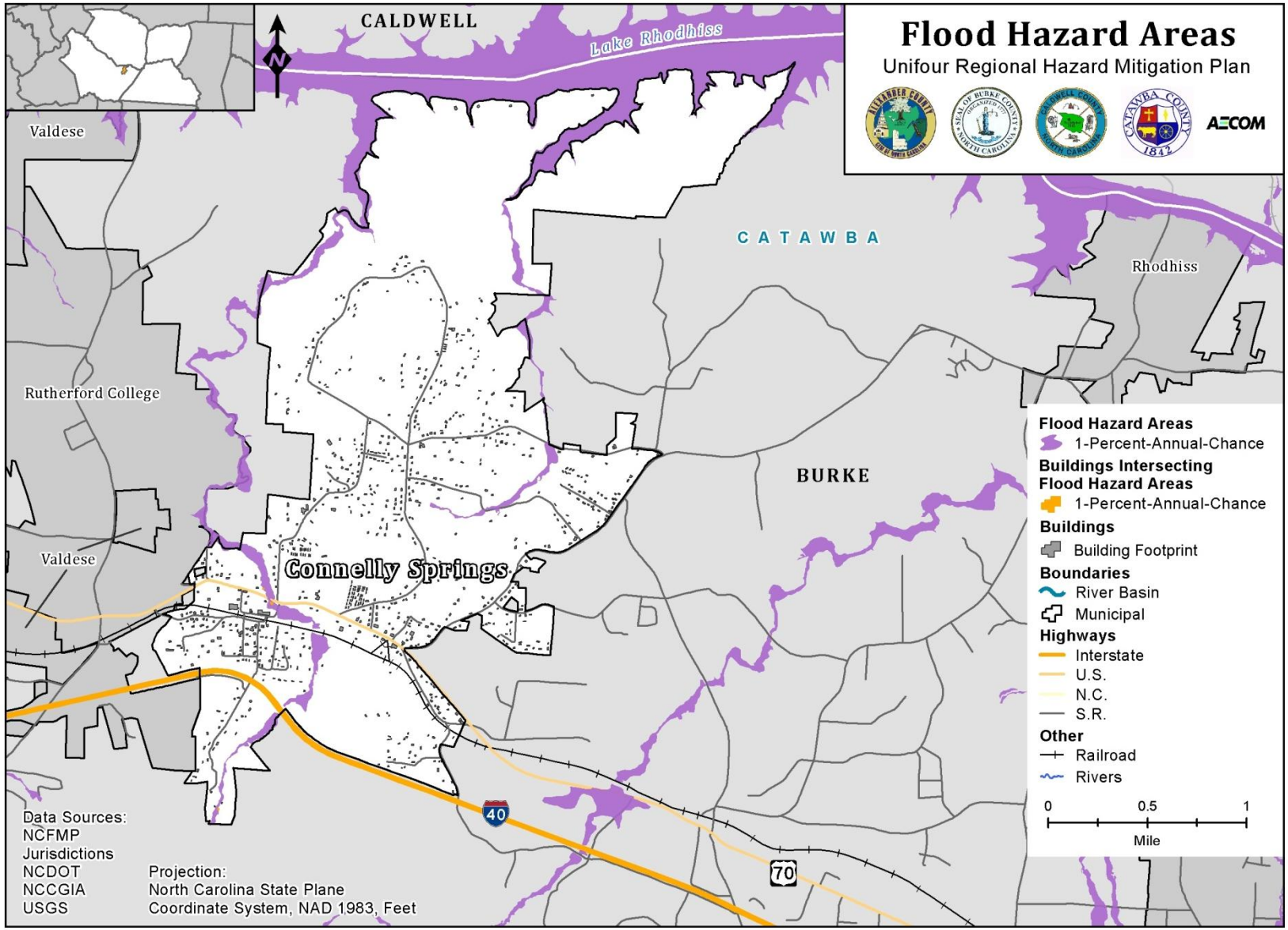


Figure 4.13: Flood Hazard Areas in the Town of Drexel

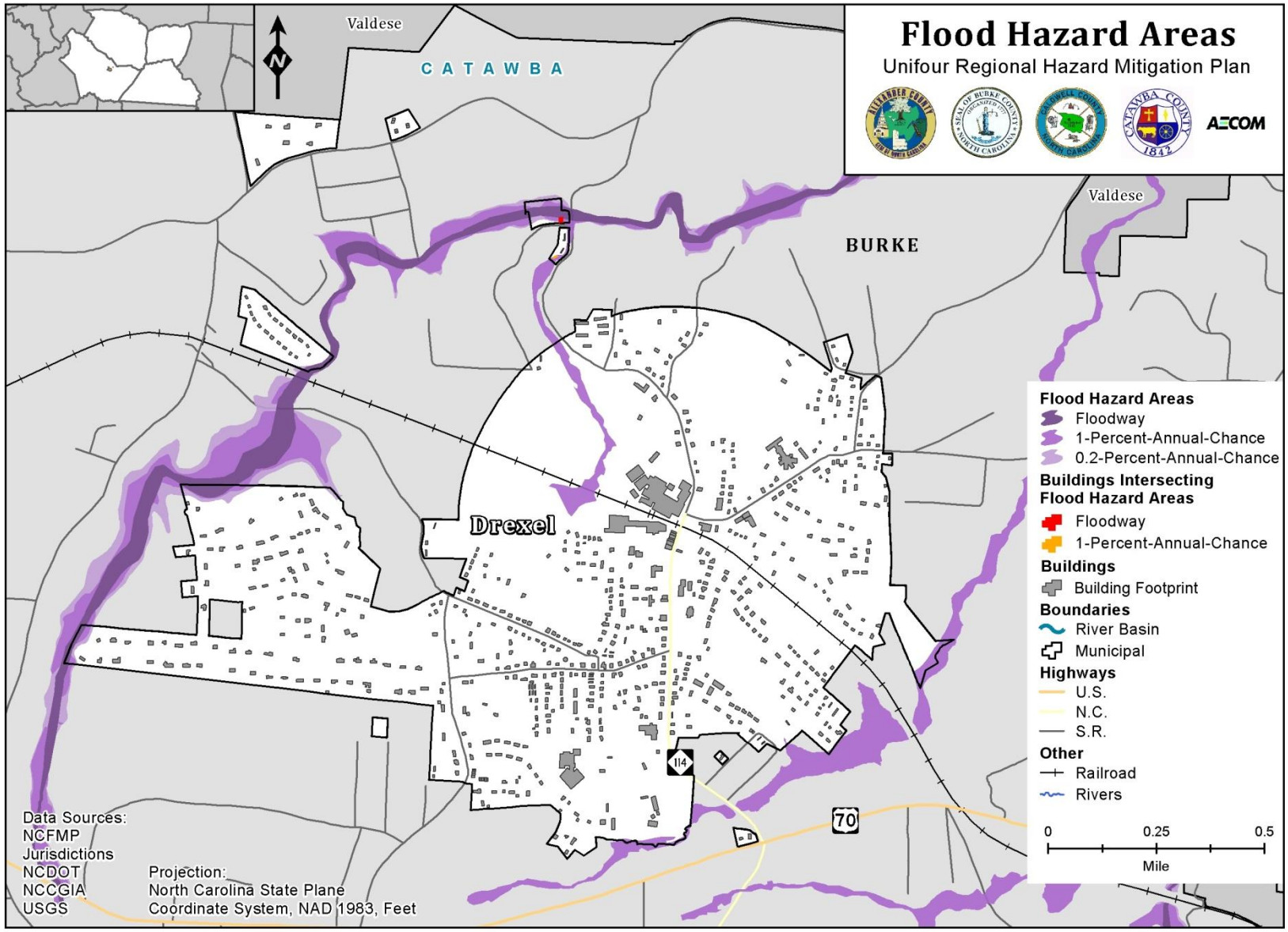


Figure 4.14: Flood Hazard Areas in the Town of Glen Alpine

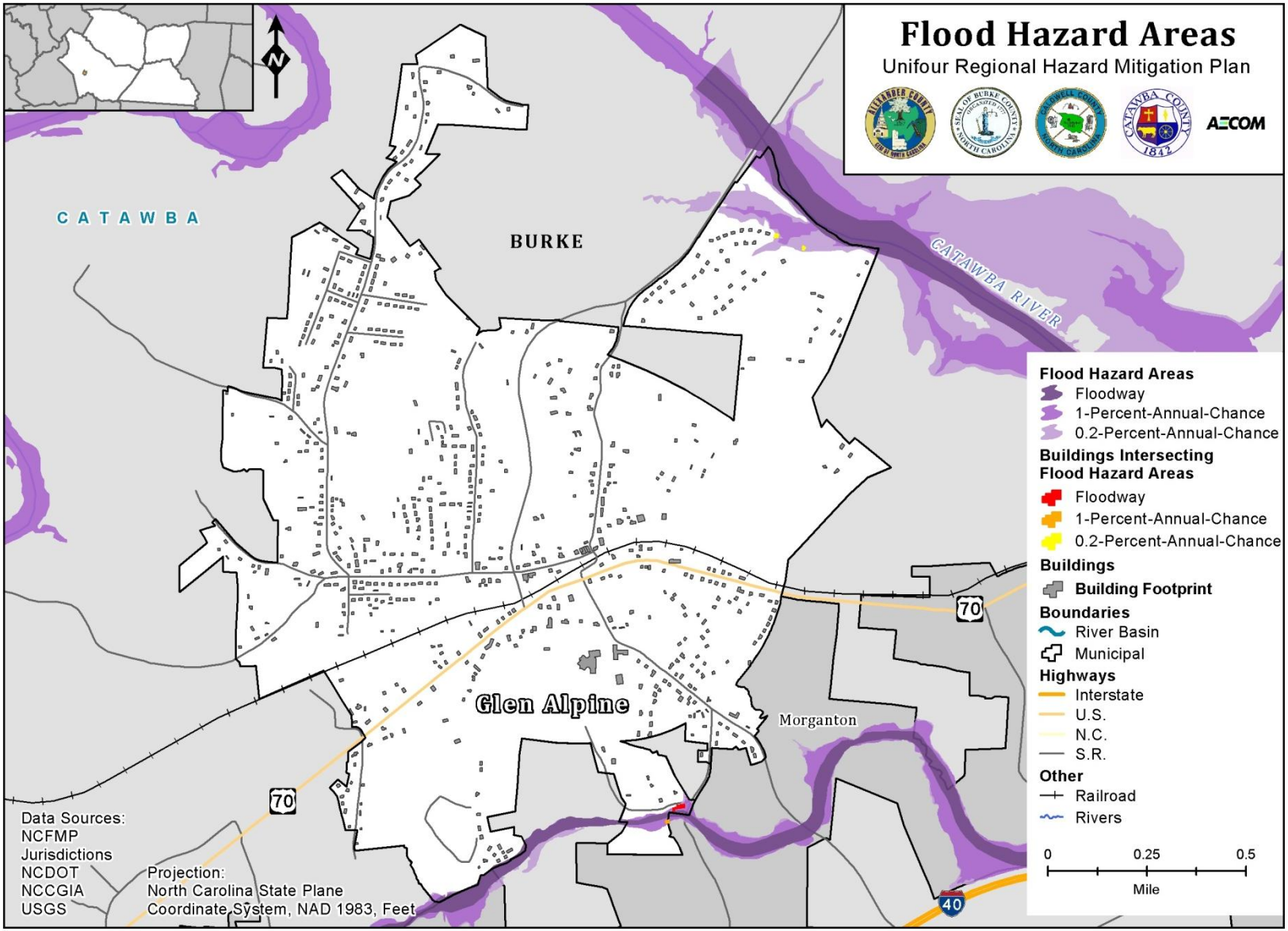


Figure 4.15: Flood Hazard Areas in the Town of Hildebran

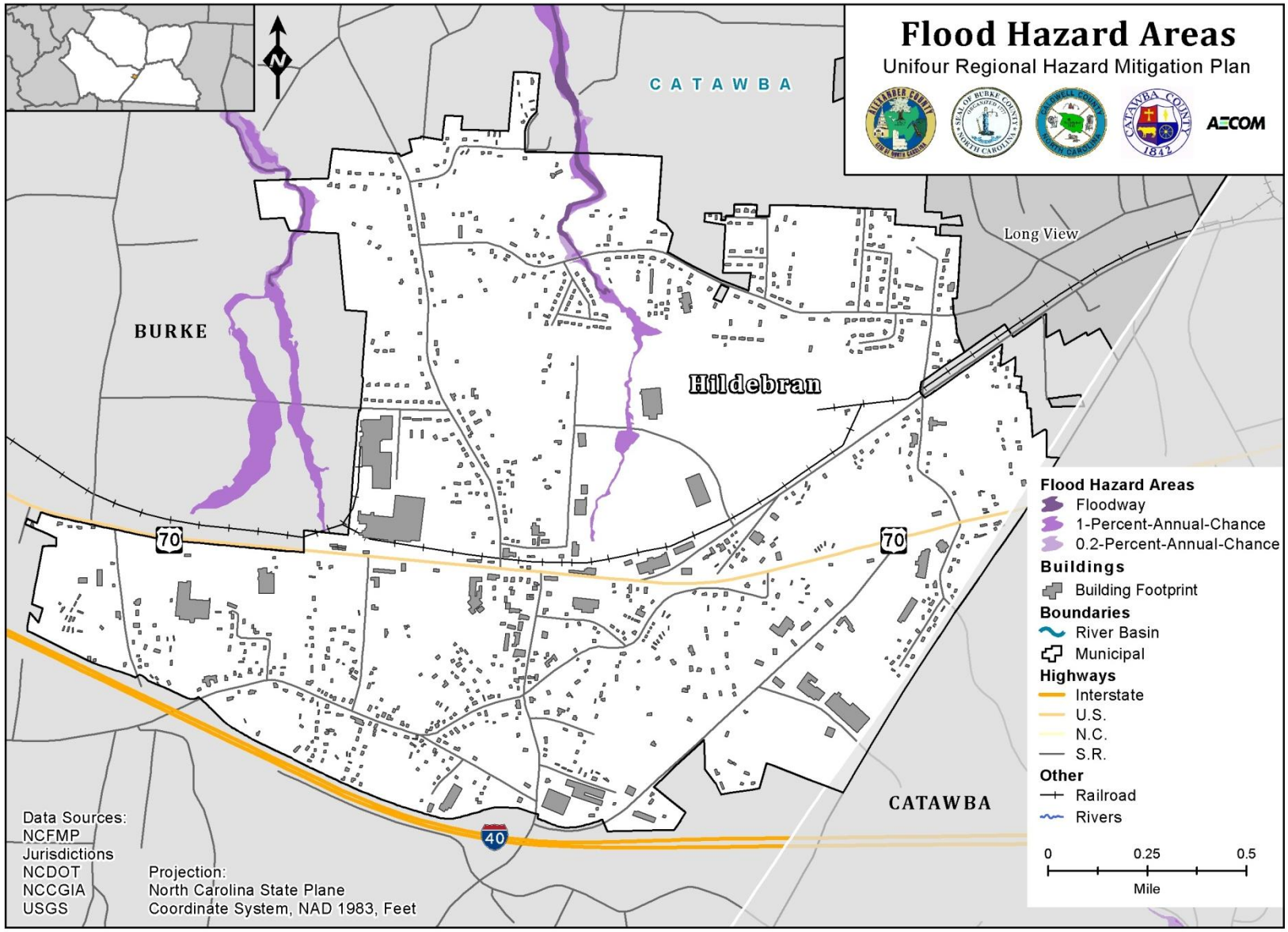


Figure 4.16: Flood Hazard Areas in the City of Morganton

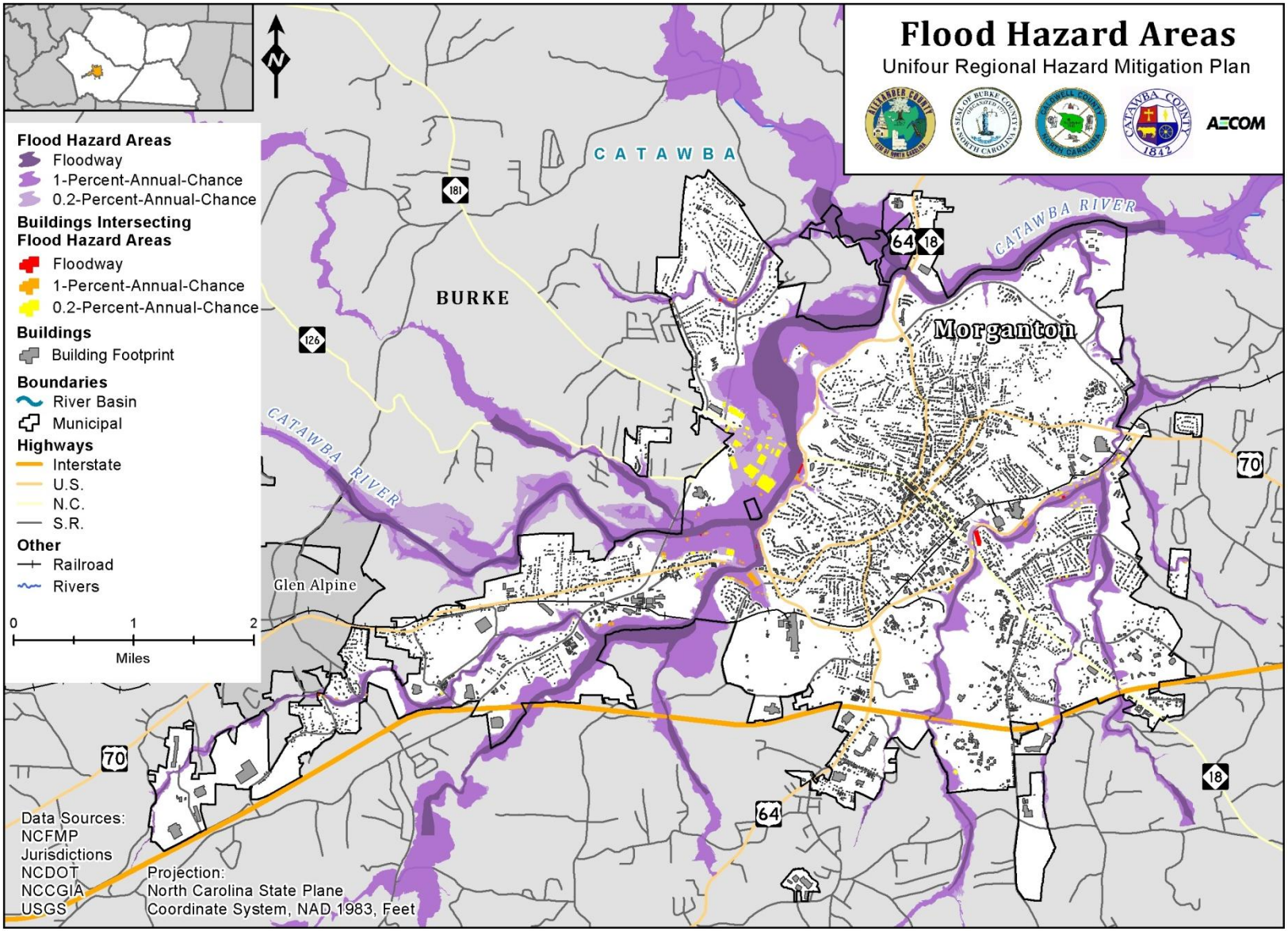


Figure 4.17: Flood Hazard Areas in the Town of Valdese

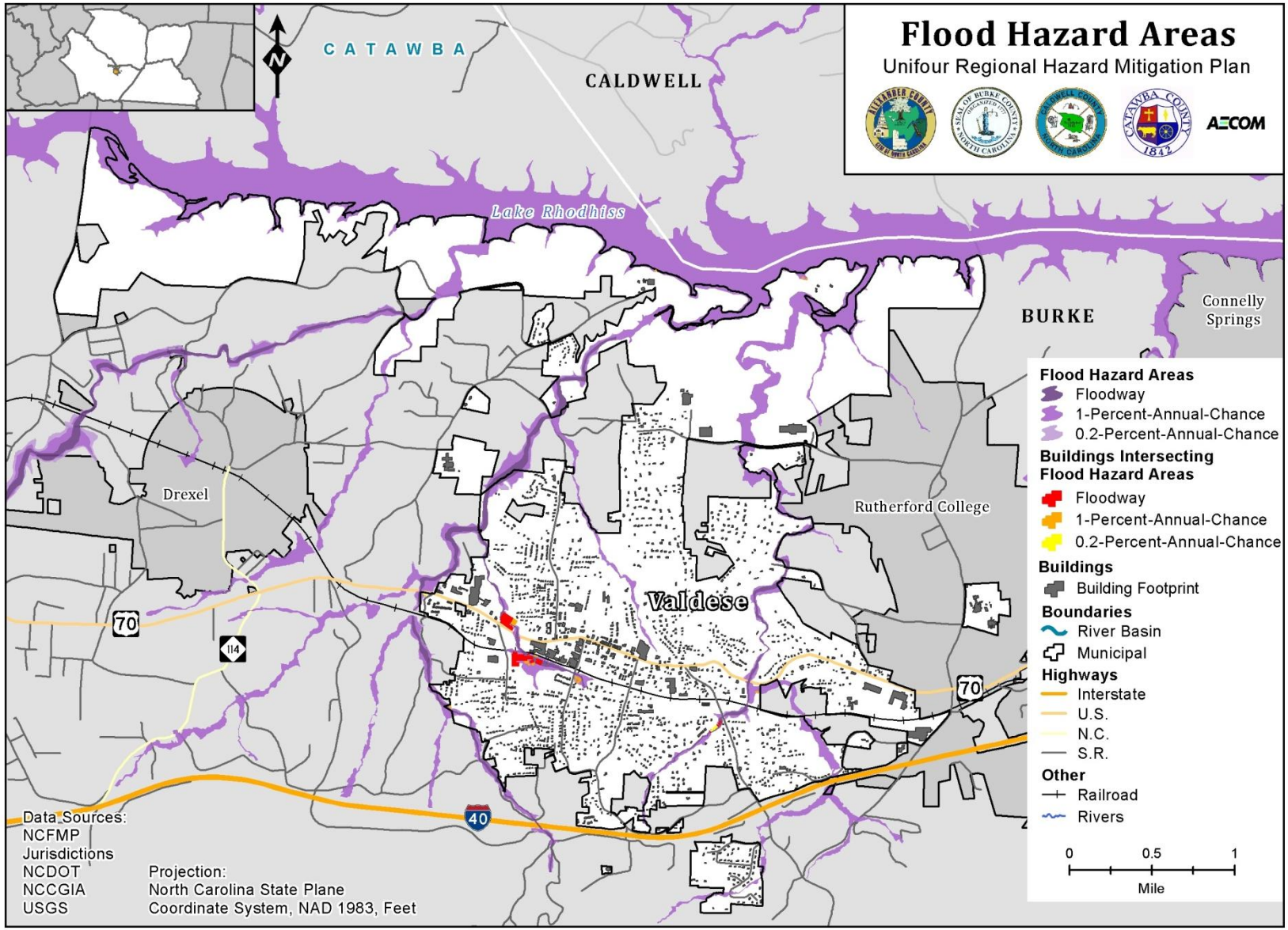


Figure 4.18: Flood Hazard Areas in Rutherford College

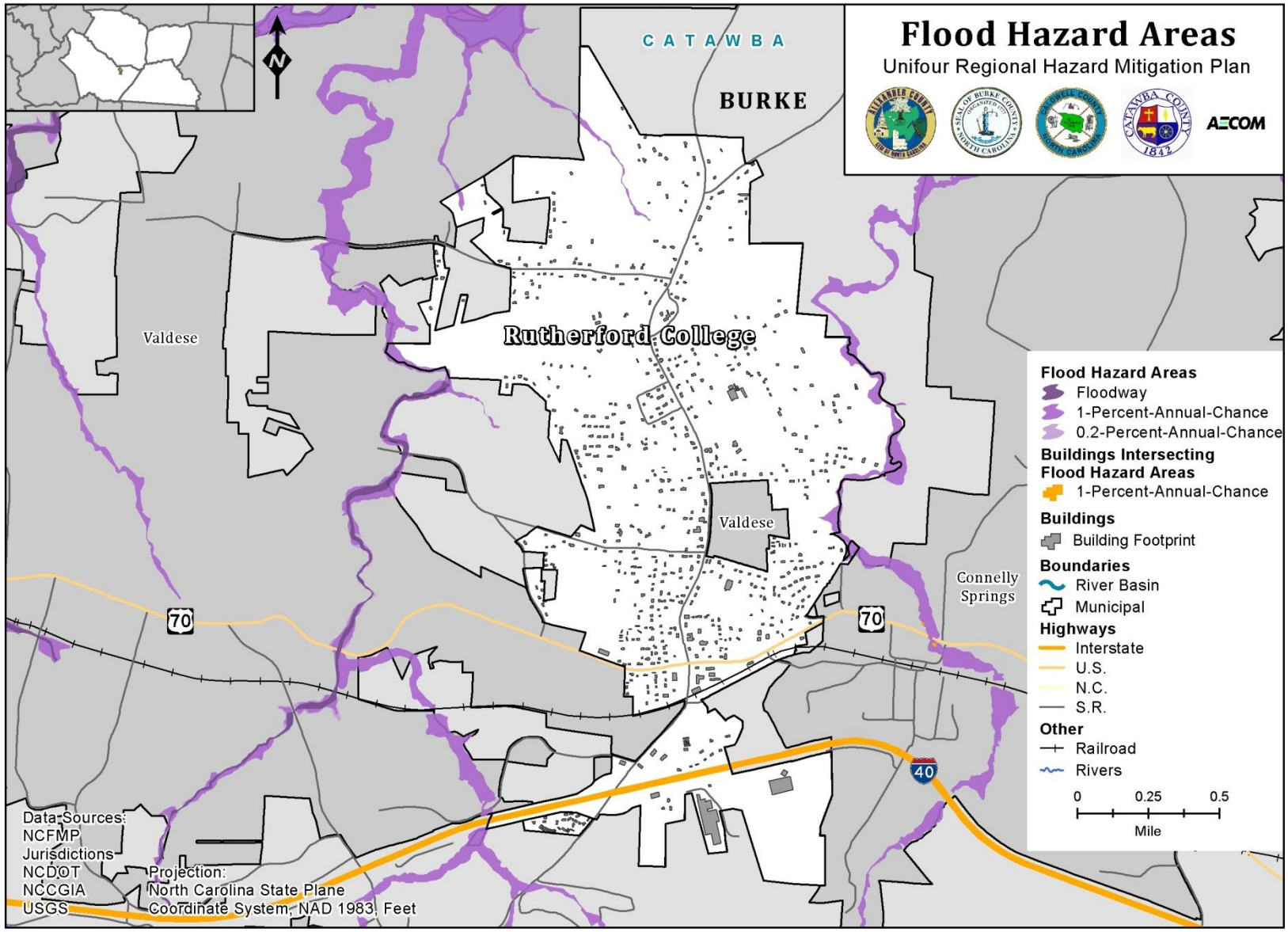


Figure 4.19: Flood Hazard Areas in Caldwell County

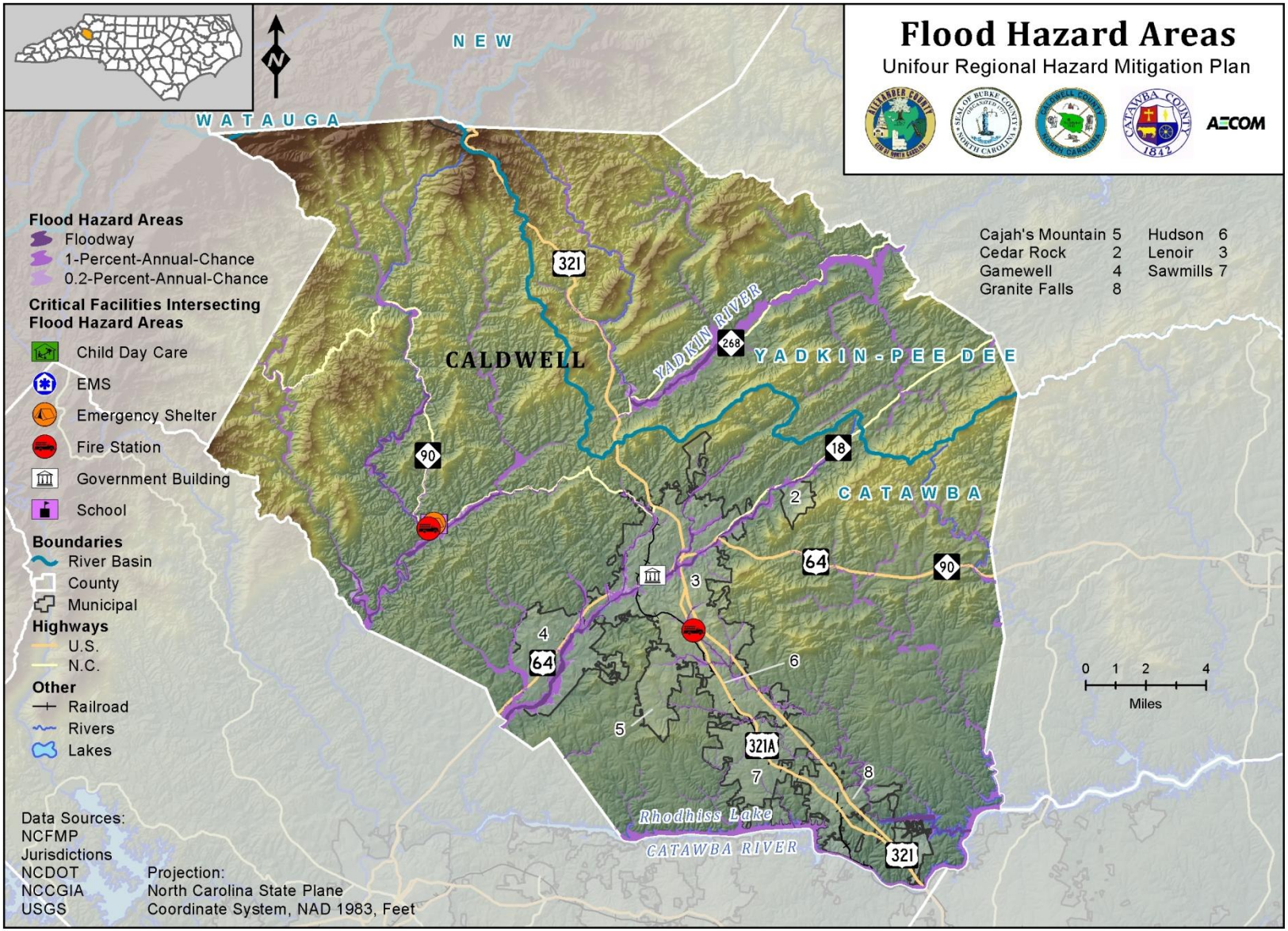


Figure 4.20: Flood Hazard Areas in the Town of Cajah's Mountain

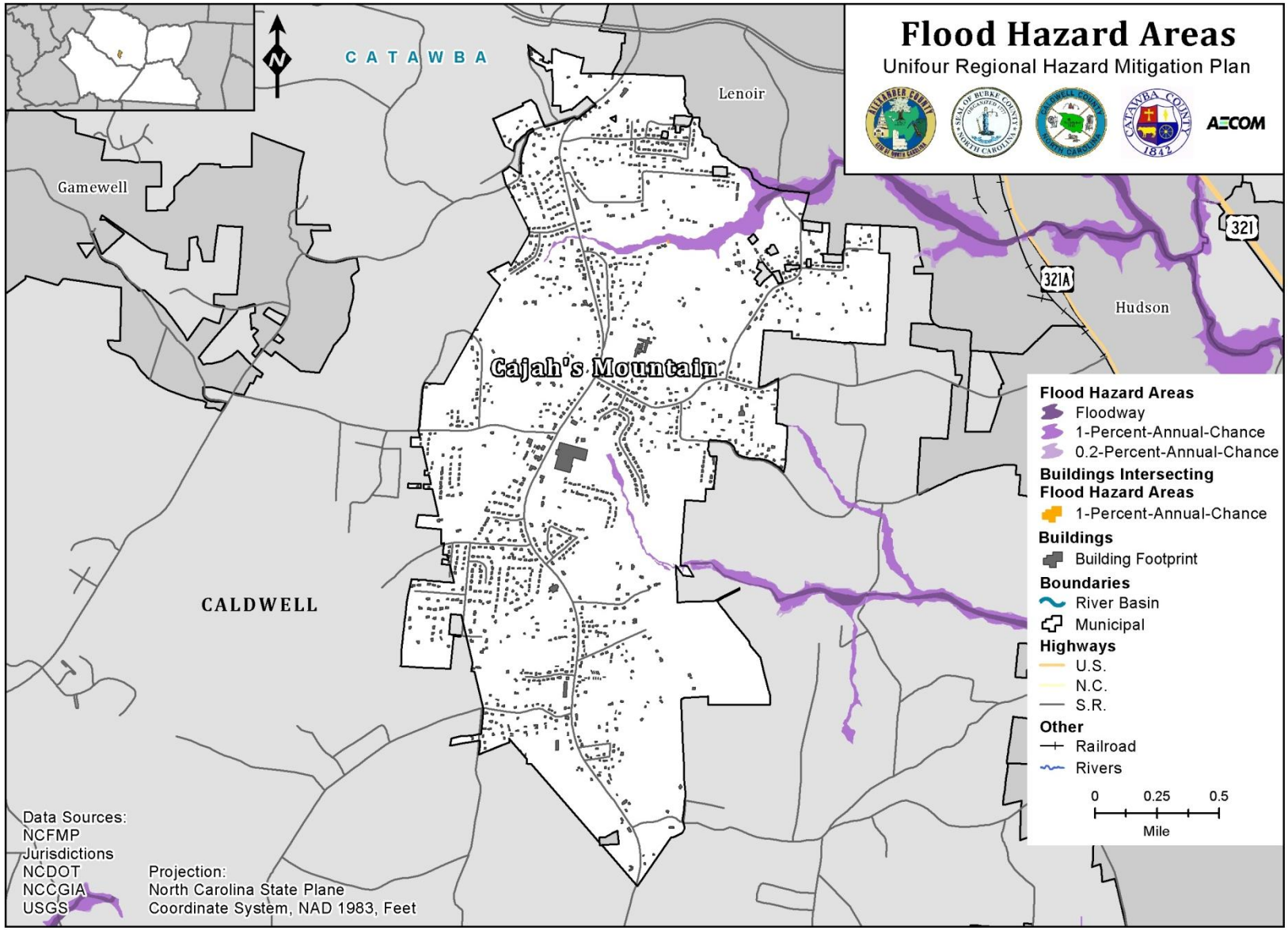


Figure 4.21: Flood Hazard Areas in the Village of Cedar Rock

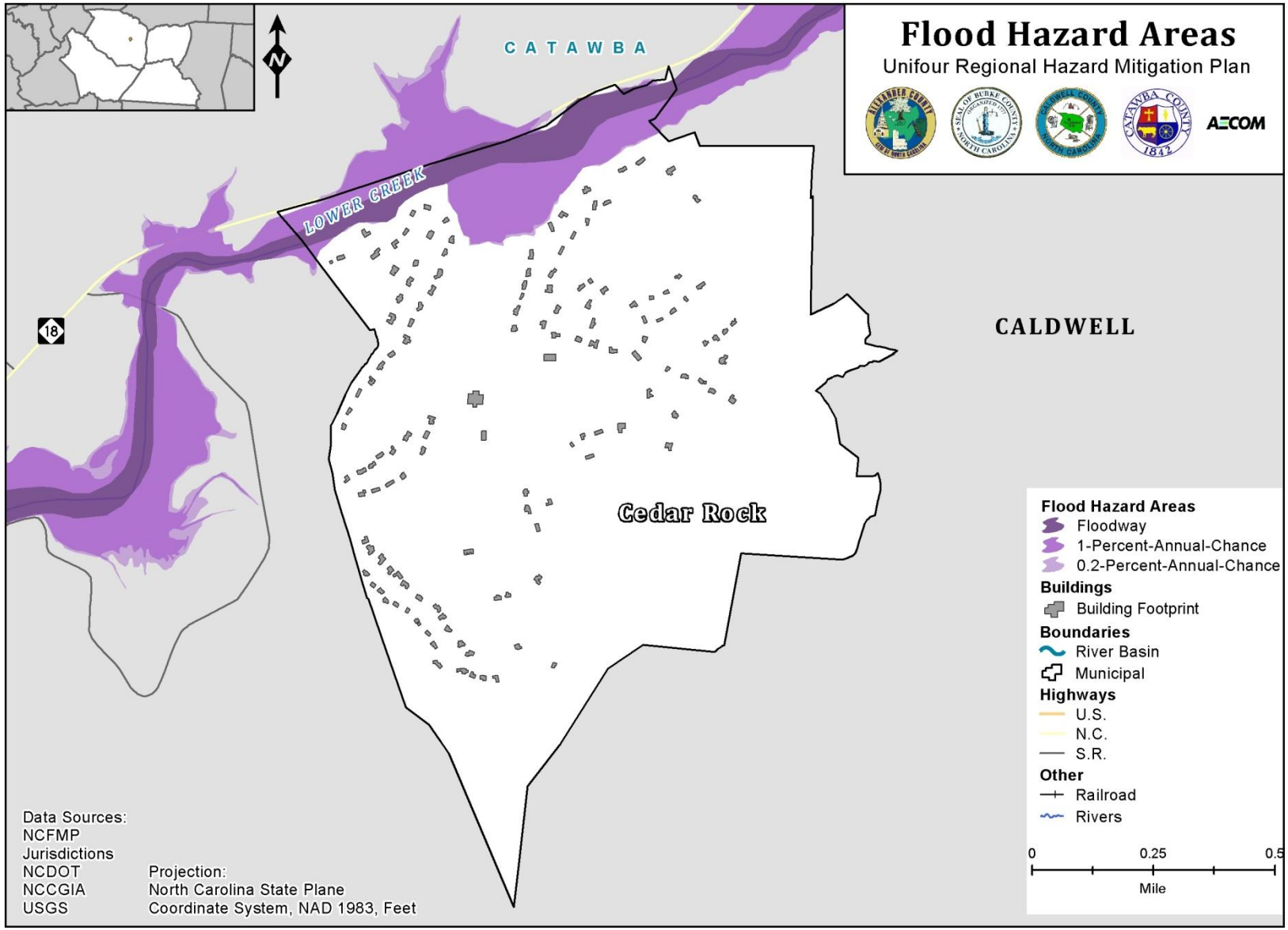


Figure 4.22: Flood Hazard Areas in the Town of Gamewell

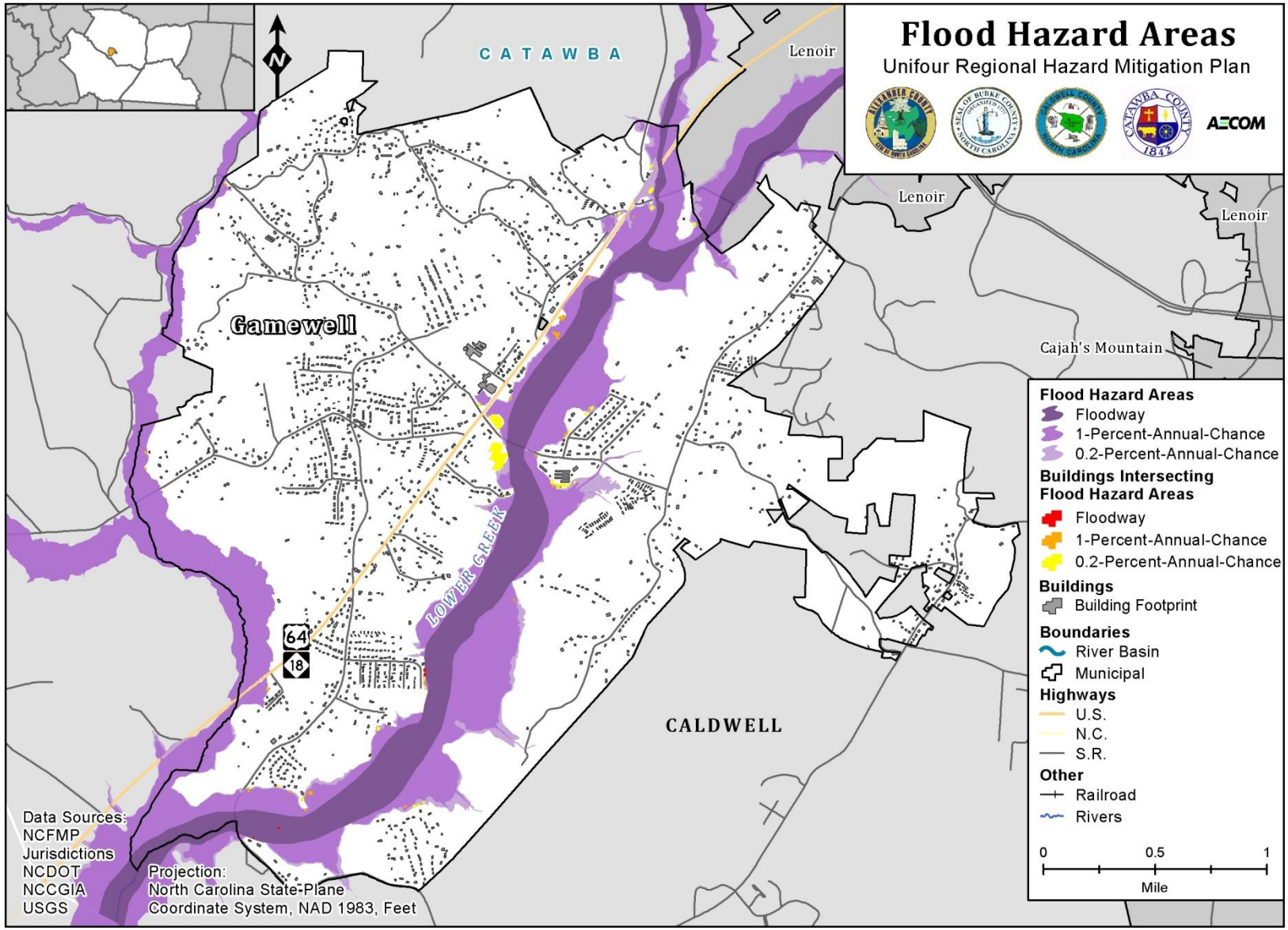


Figure 4.23: Flood Hazard Areas in the Town of Granite Falls

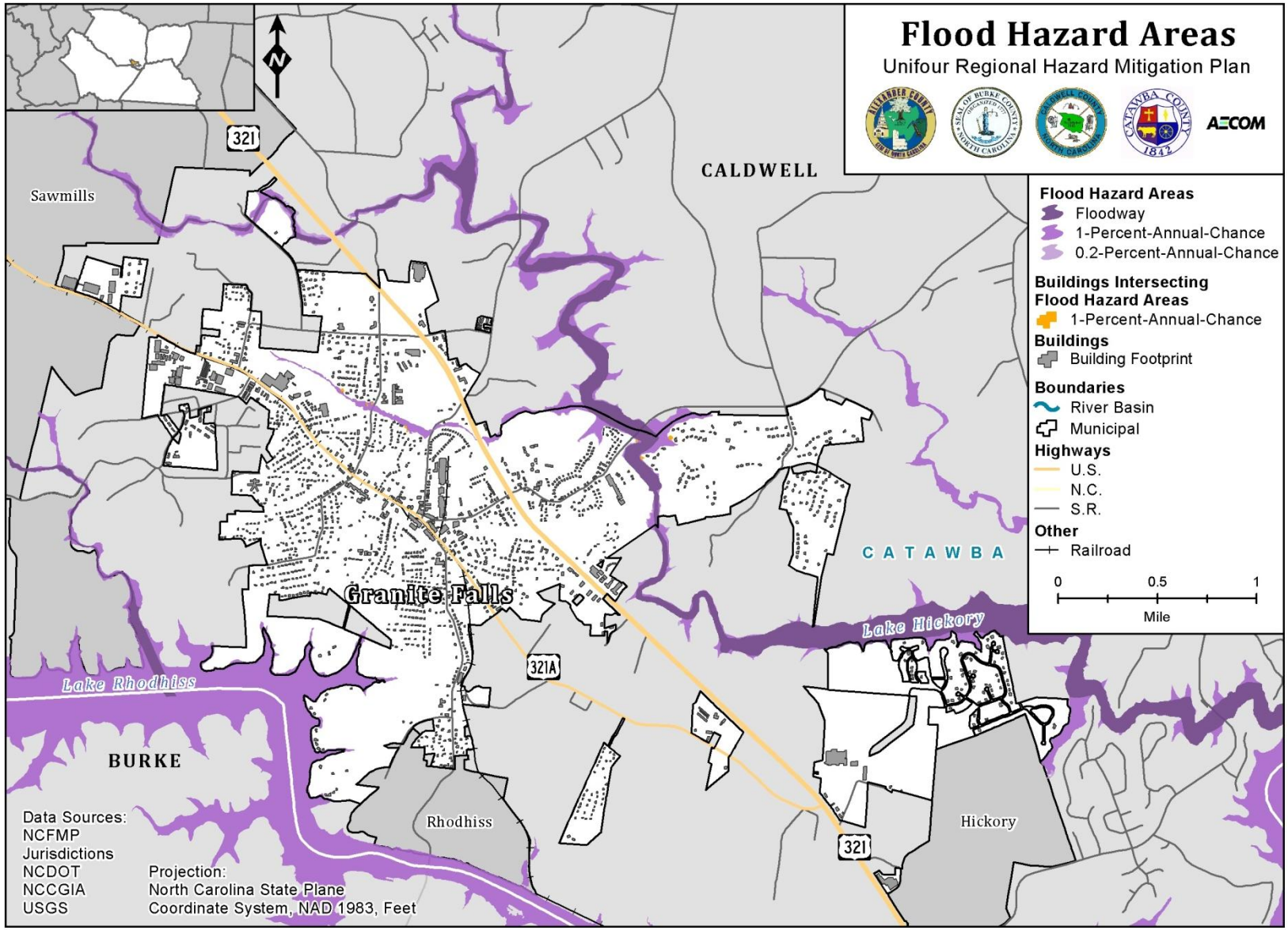


Figure 4.24: Flood Hazard Areas in the Town of Hudson

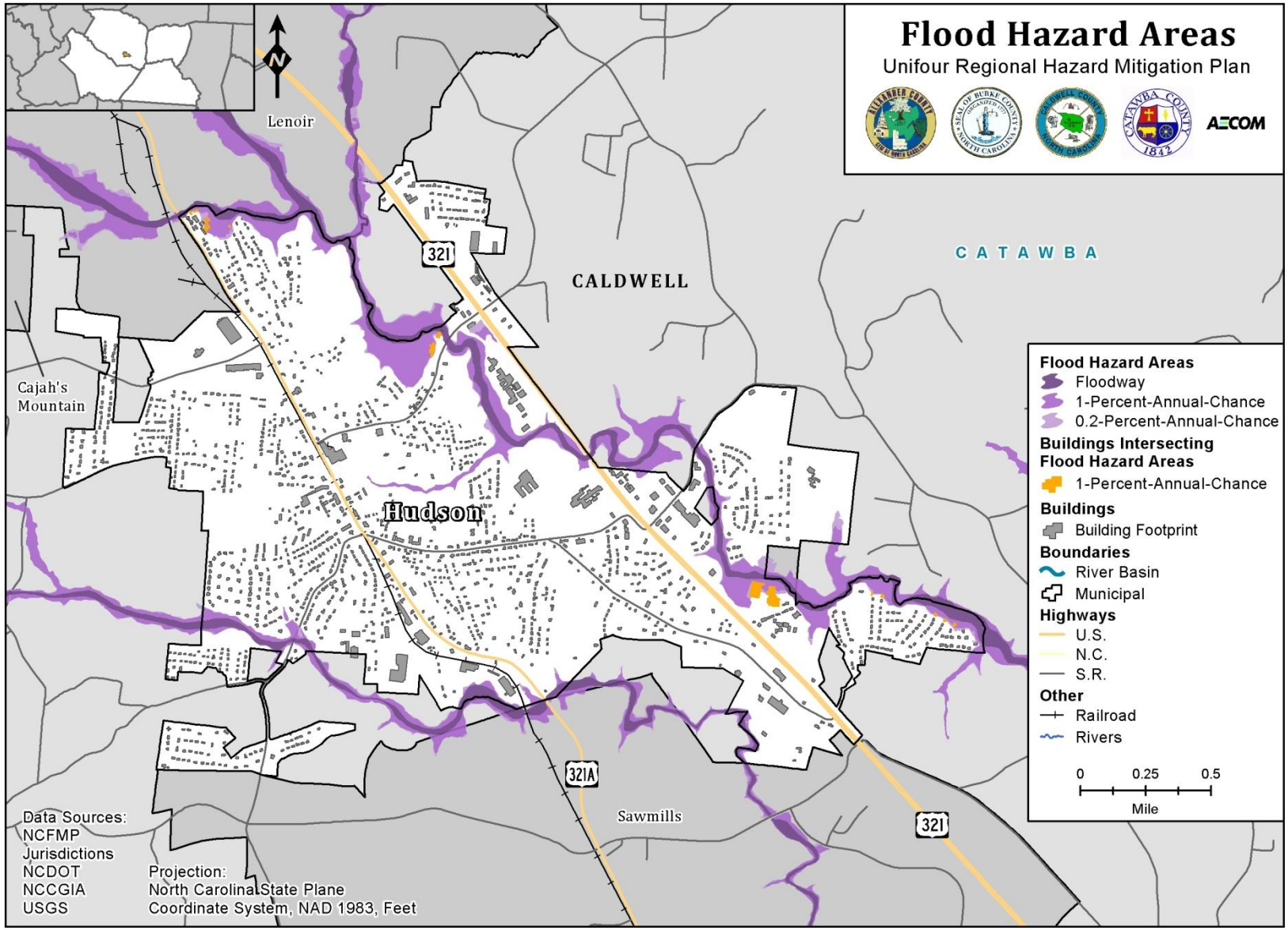


Figure 4.25: Flood Hazard Areas in the City of Lenoir

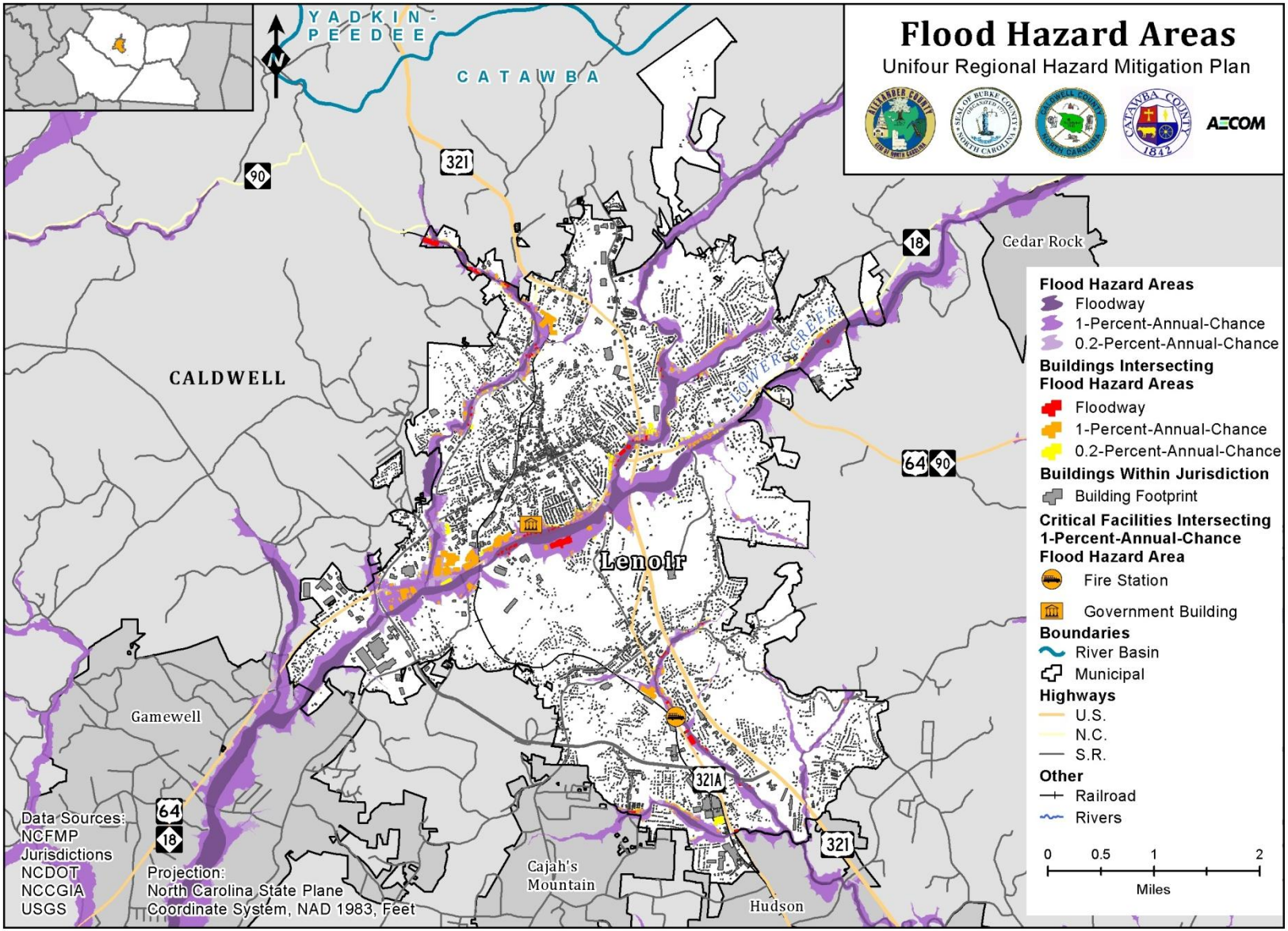


Figure 4.26: Flood Hazard Areas in the Town of Rhodhiss

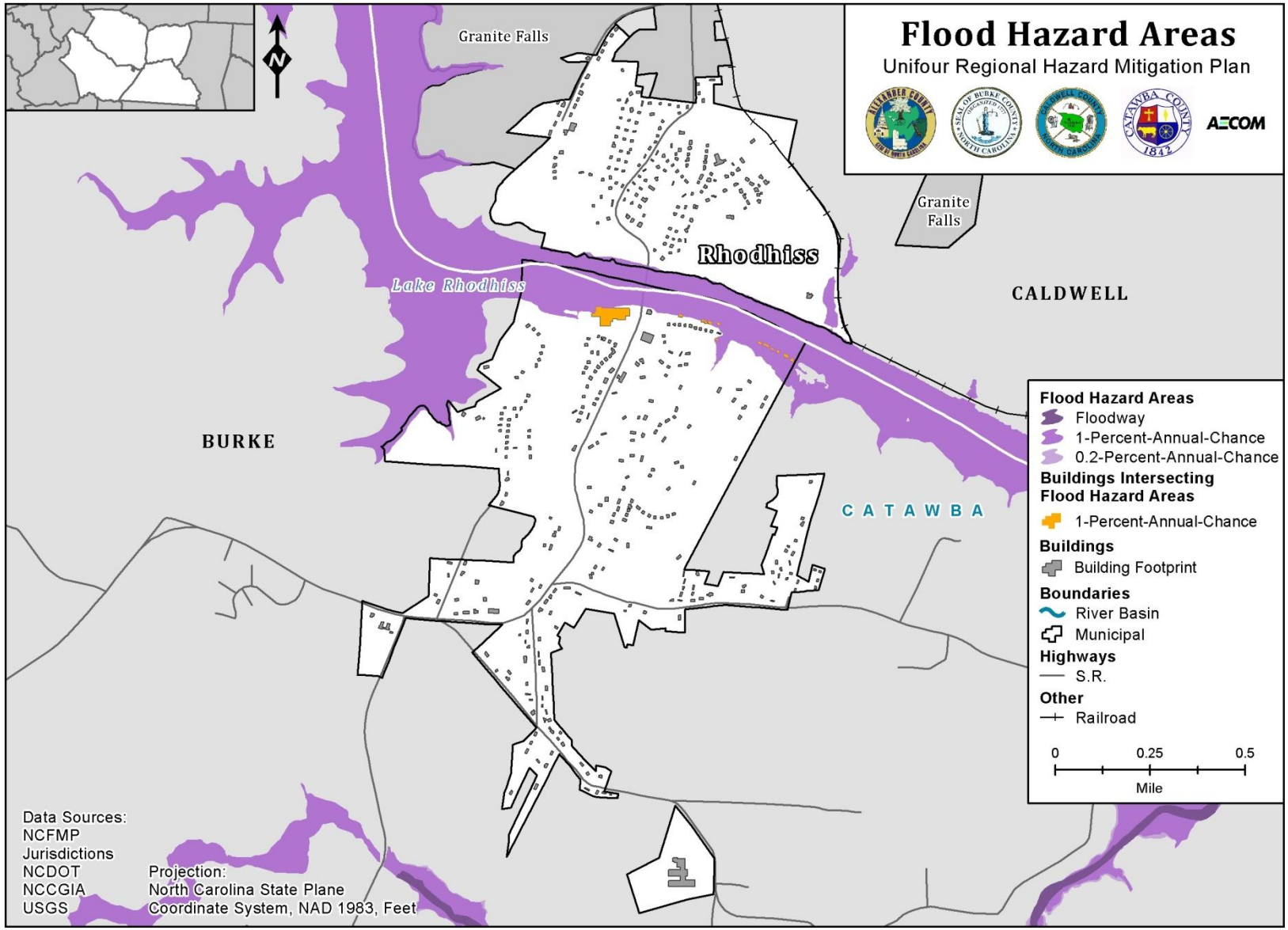


Figure 4.27: Flood Hazard Areas in the Town of Sawmills

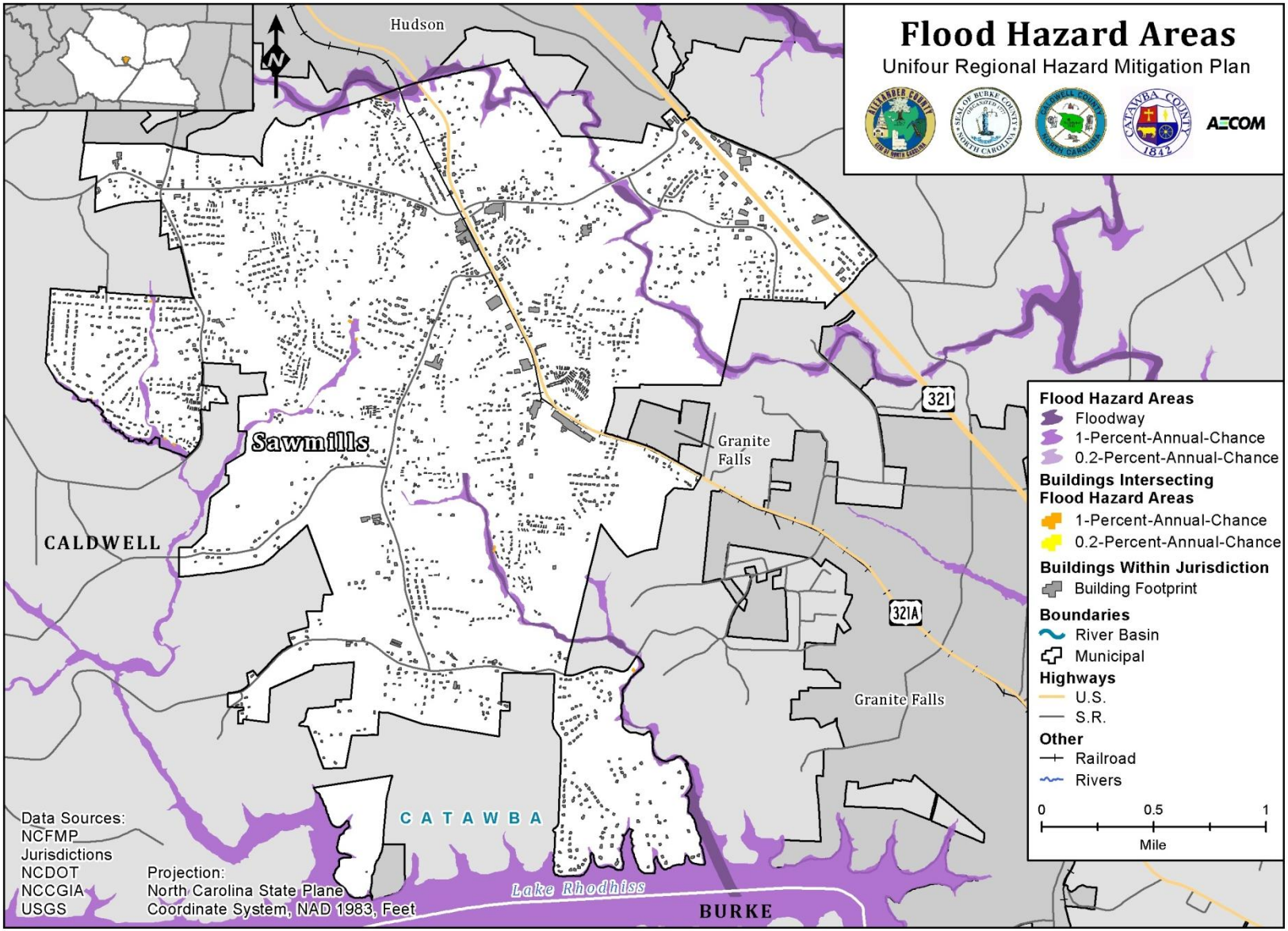


Figure 4.28: Flood Hazard Areas in Catawba County

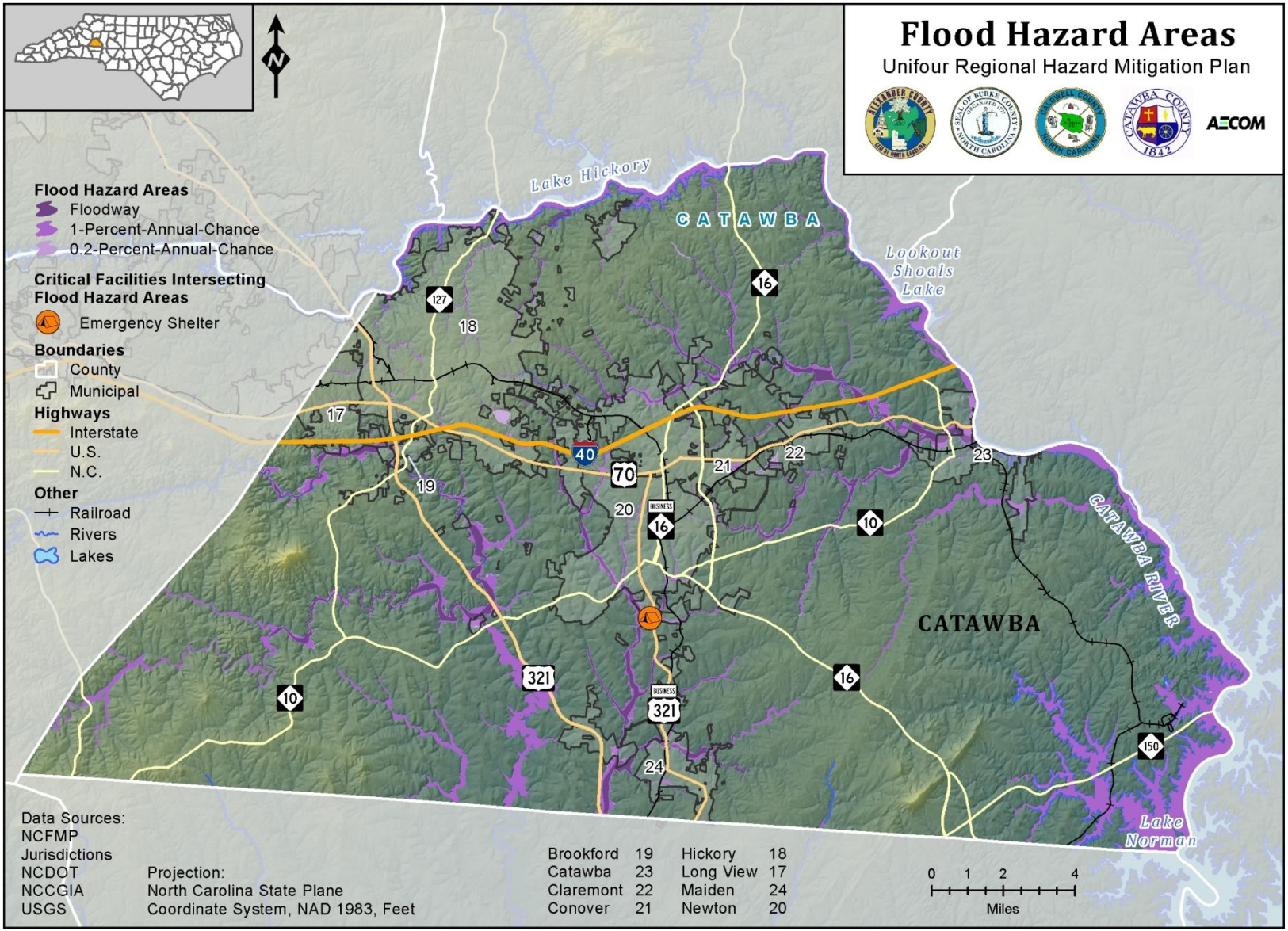


Figure 4.29: Flood Hazard Areas in the Town of Brookford

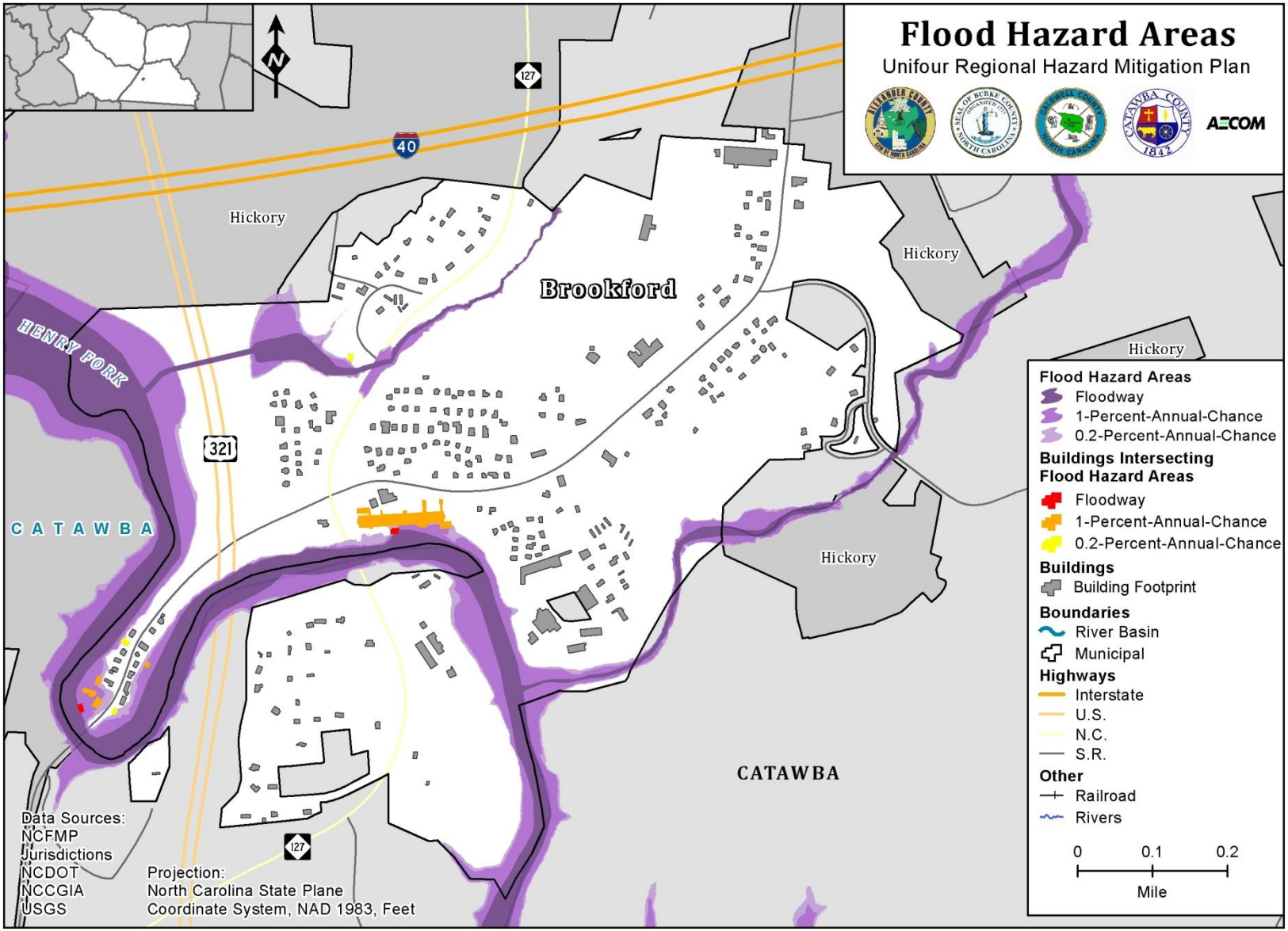


Figure 4.30: Flood Hazard Areas in the Town of Catawba

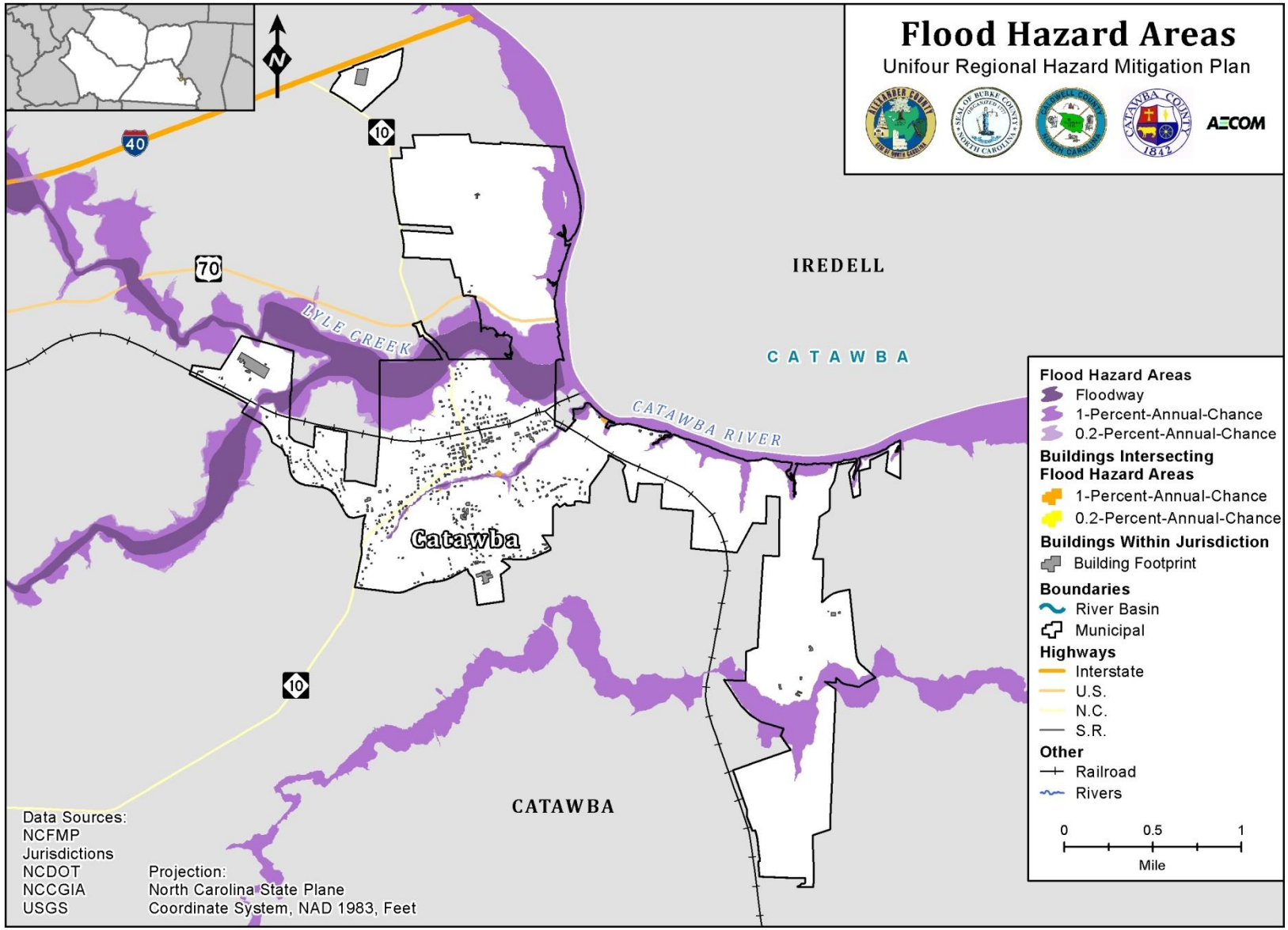


Figure 4.31: Flood Hazard Areas in the City of Claremont

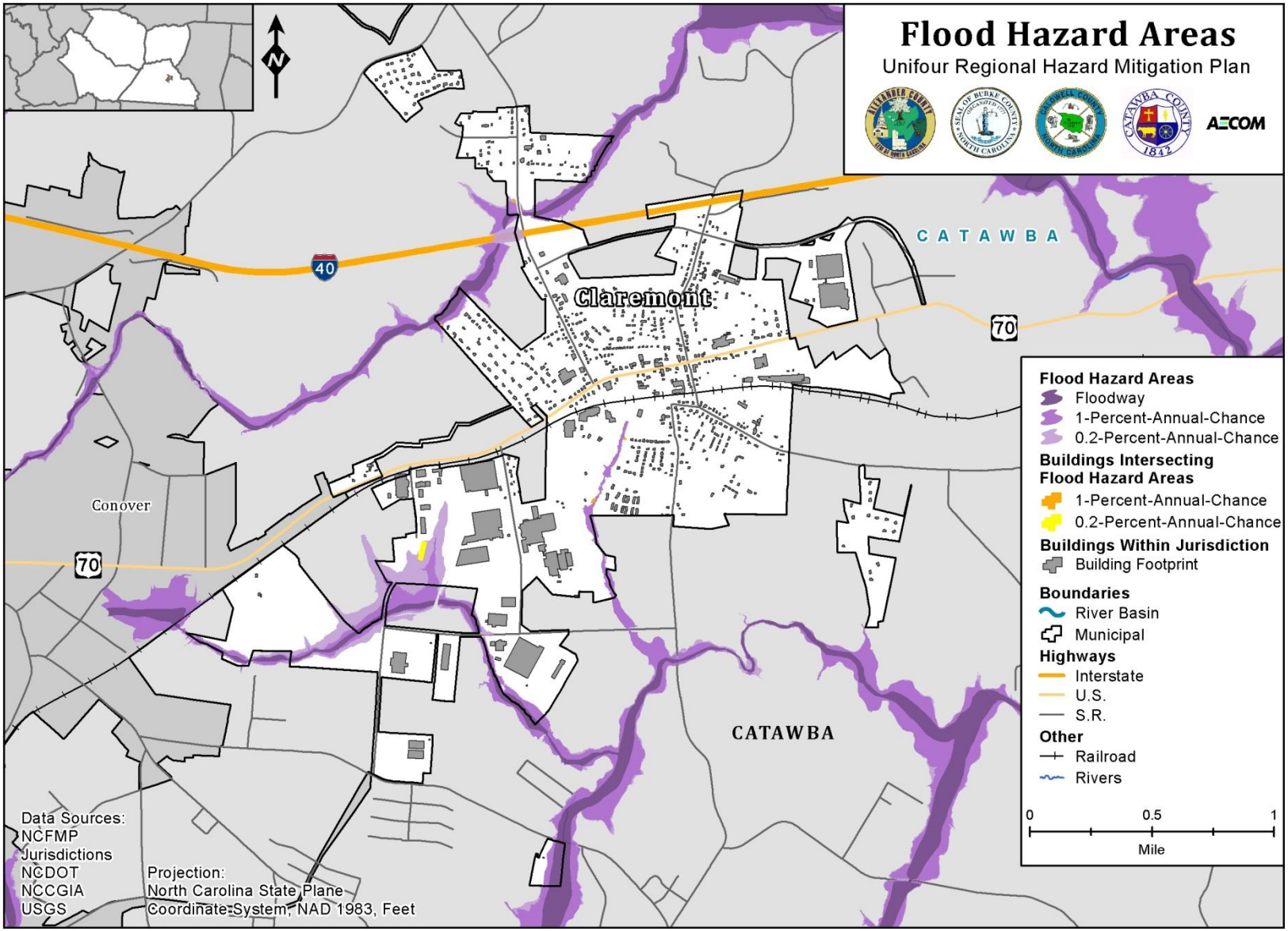


Figure 4.32: Flood Hazard Areas in the City of Conover

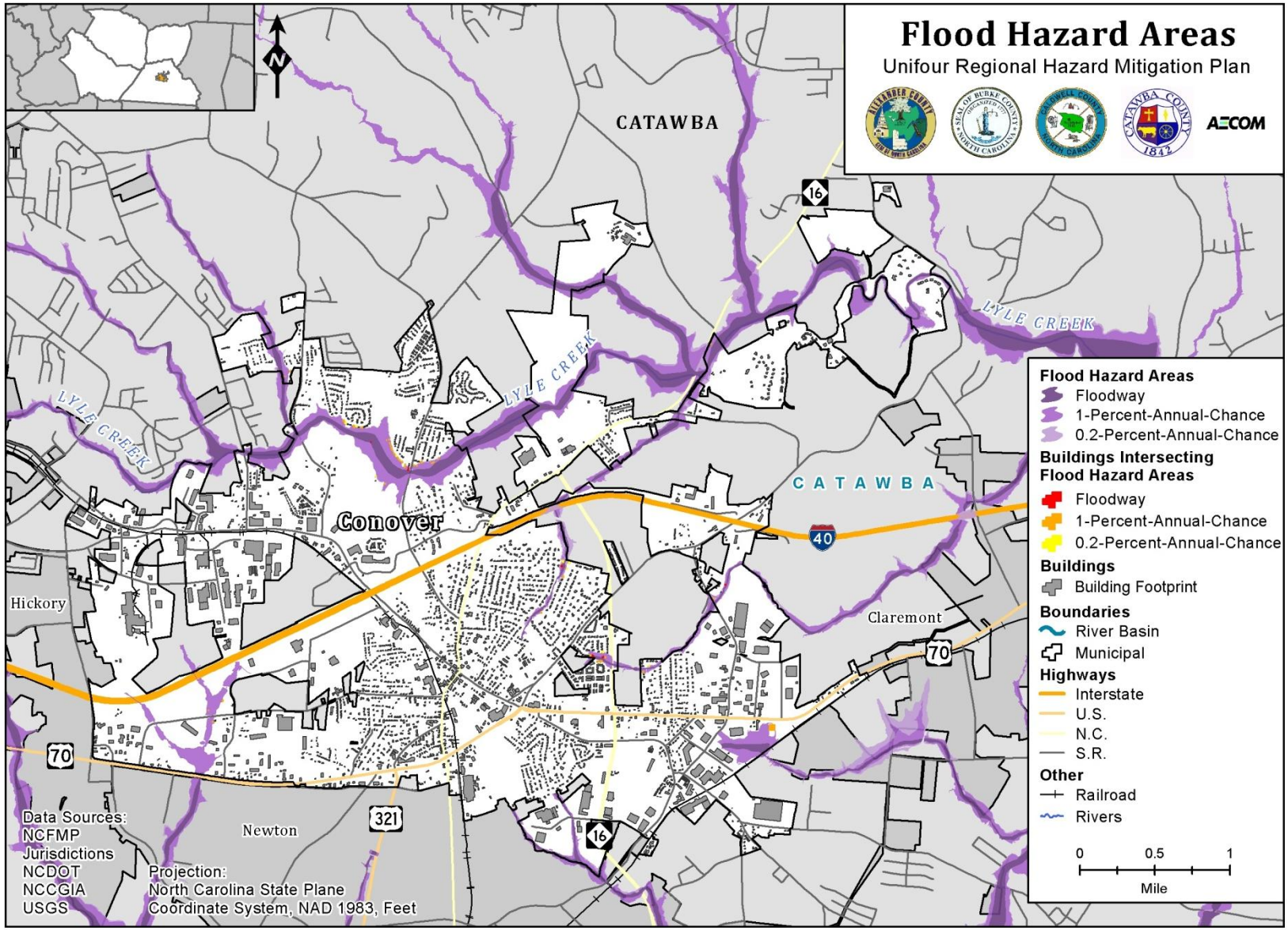


Figure 4.33: Flood Hazard Areas in the City of Hickory

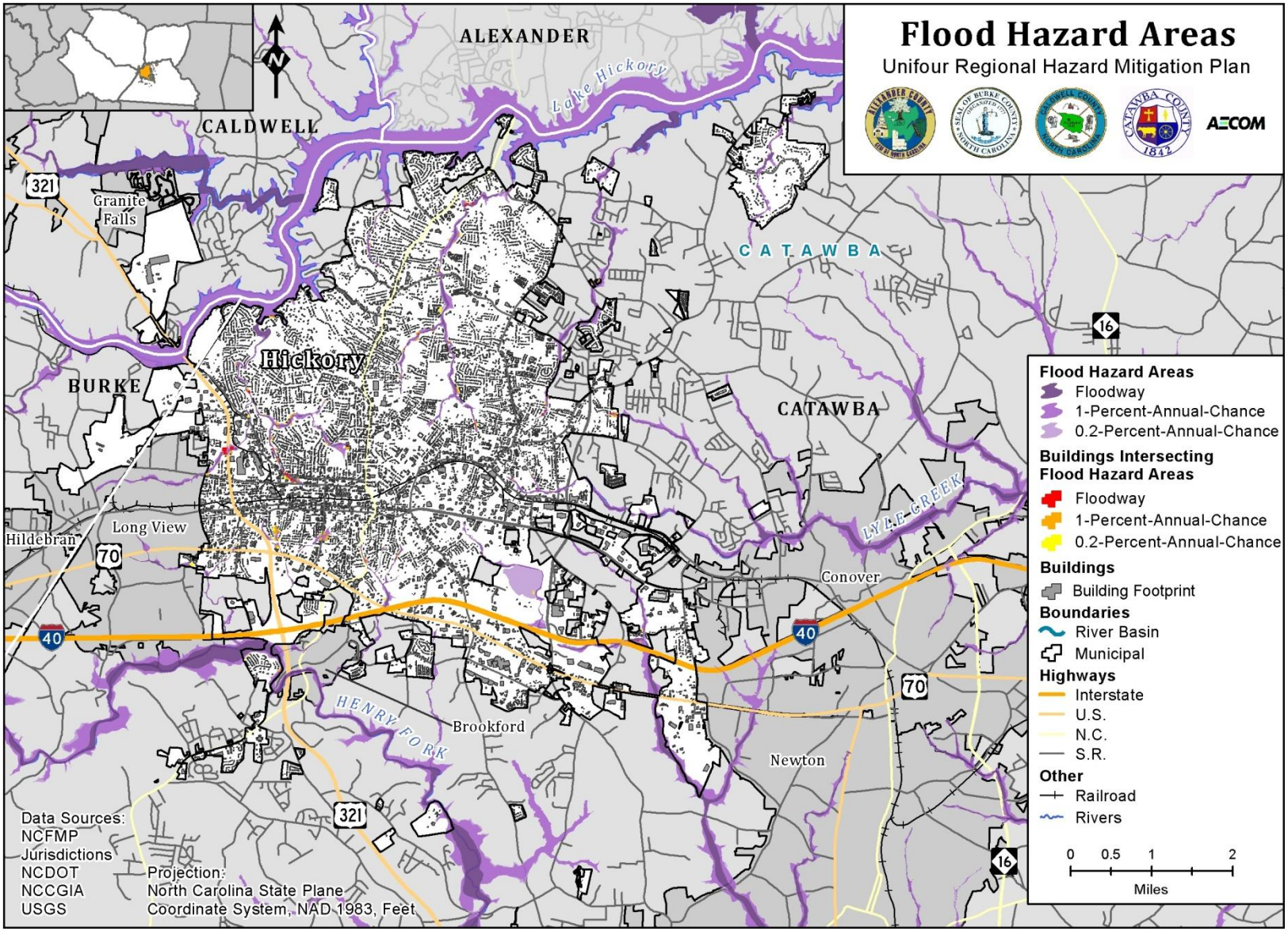


Figure 4.34: Flood Hazard Areas in the Town of Long View

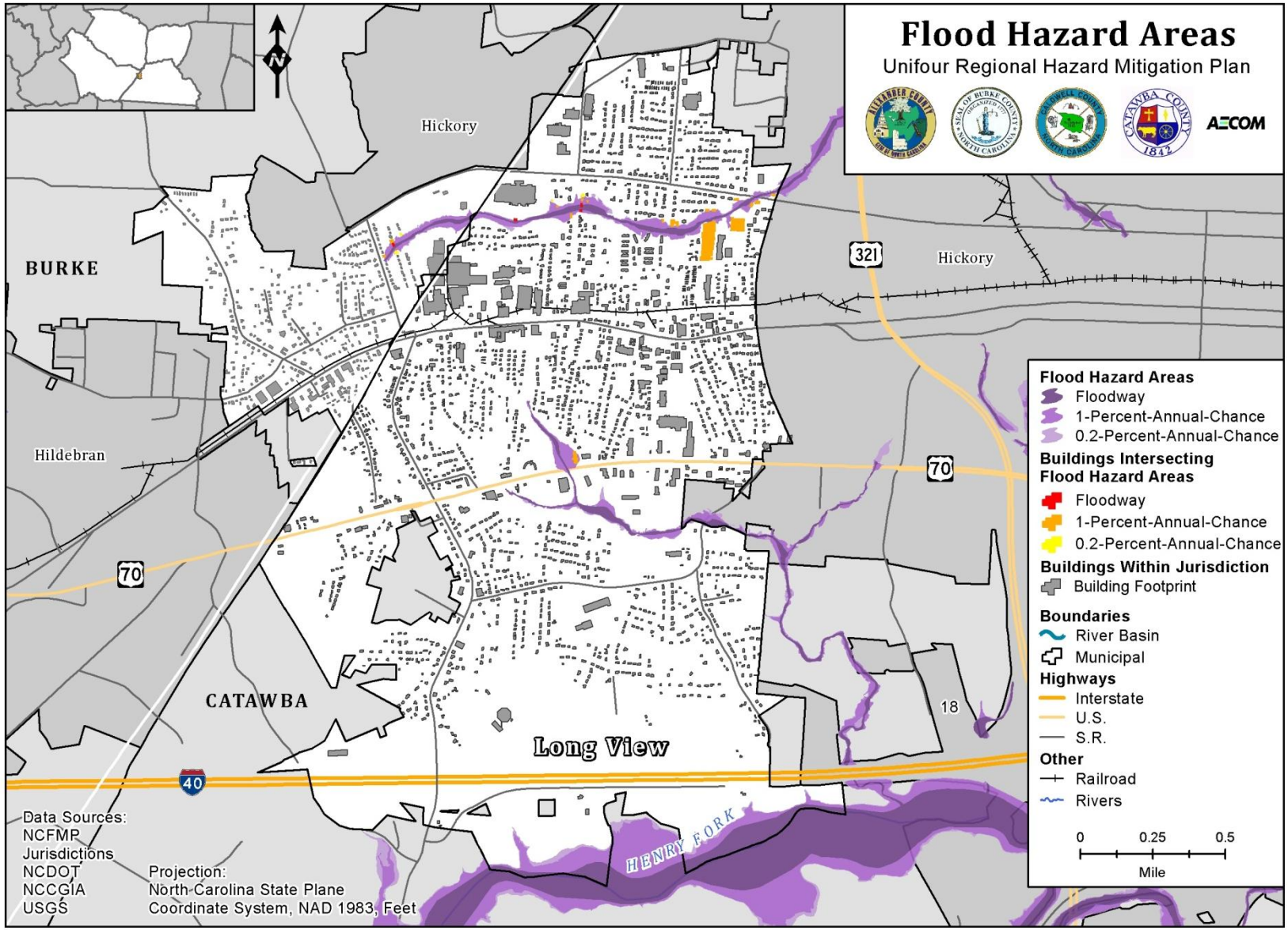


Figure 4.35: Flood Hazard Areas in the Town of Maiden

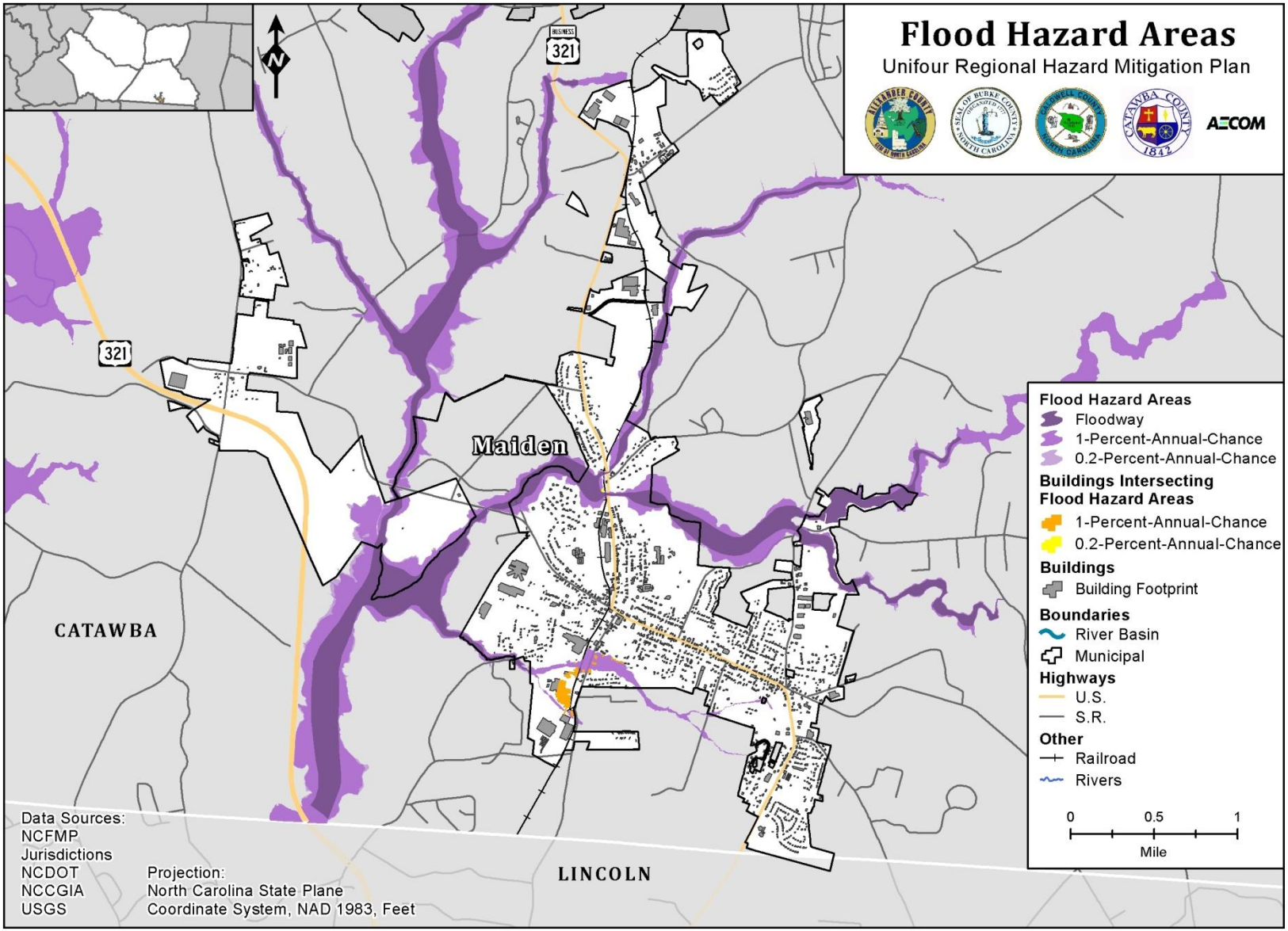


Figure 4.36: Flood Hazard Areas in the City of Newton

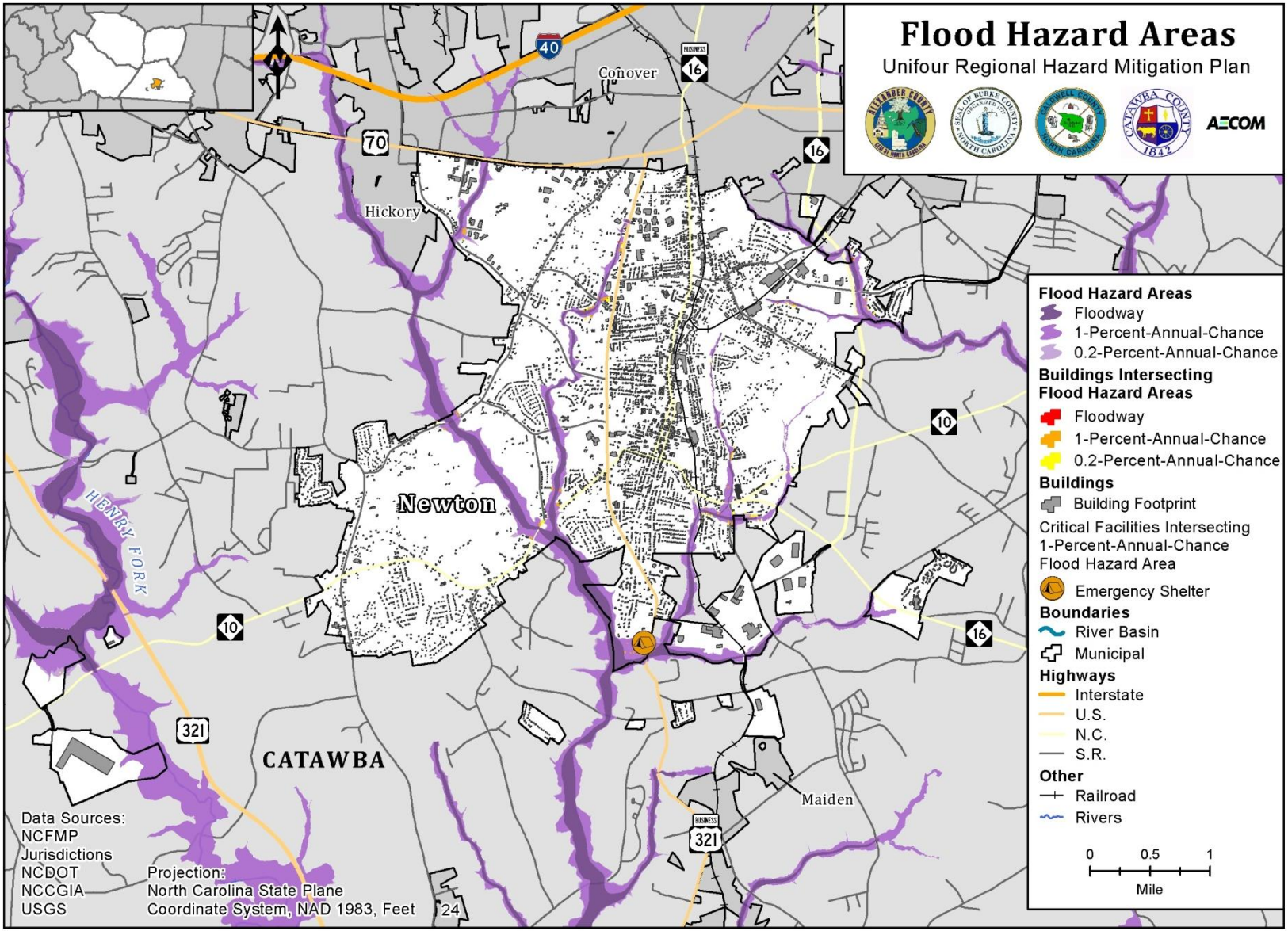


Table 4.9: Historical Occurrences of Flooding (1993-2013)

Location	Date	Type	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
ALEXANDER COUNTY						
Countywide	03/23/93	Flash Flood	N/A	N/A	N/A	N/A
Countywide	03/20/03	Flash Flood	0	0	$0	$0
Bethlehem	06/16/03	Flash Flood	0	0	$0	$0
Countywide	09/07/04	Flood	0	0	$100,000	$0
Vashti	05/26/09	Flash Flood	0	0	$0	$0
All Healing Springs	06/03/09	Flash Flood	0	0	$0	$0
All Healing Springs	01/24/10	Flash Flood	0	0	$0	$0
Millersville	01/24/10	Flash Flood	0	0	$0	$0
All Healing Springs	05/14/12	Flash Flood	0	0	$0	$0
Smiths Store	07/11/13	Flash Flood	0	0	$0	$0
Subtotal Alexander	*10 Events*		*0*	*0*	*$100,000*	*$0*
BURKE COUNTY						
Countywide	10/05/95	Flash Flood	N/A	N/A	$0	$0
Countywide	01/19/96	Flood	0	0	$0	$0
Countywide	01/27/96	Flood	0	0	$0	$0
Table Rock	08/12/96	Flash Flood	0	0	$0	$0
Morganton	08/12/96	Flash Flood	0	0	$0	$0
Morganton	07/29/97	Flash Flood	0	0	$4,300	$0
Morganton	09/06/98	Flood	0	0	$0	$0
Jonas Ridge	07/07/99	Flash Flood	0	0	$0	$0
Morganton	05/20/00	Flood	0	0	$0	$0
Morganton	09/02/00	Flash Flood	0	0	$0	$0
Jonas Ridge	04/17/02	Flood	0	0	$2,000	$0
Morganton	08/17/02	Flash Flood	0	0	$0	$0
Countywide	04/10/03	Flood	0	0	$0	$0
Morganton	06/15/03	Flash Flood	0	0	$0	$0
Morganton	06/16/03	Flash Flood	0	0	$0	$0
Morganton	07/13/03	Flash Flood	0	0	$0	$0
Morganton	08/07/03	Flash Flood	0	0	$0	$0
Hildebran	08/09/03	Flash Flood	0	0	$0	$0
Countywide	11/19/03	Flood	0	0	$0	$0
Countywide	09/07/04	Flood	0	0	$9,000,000	$0
Countywide	09/17/04	Flood	0	0	$0	$0
Northeast Portion	05/19/05	Flash Flood	0	0	$0	$0
Countywide	07/07/05	Flood	0	0	$0	$0
Morganton	07/19/05	Flash Flood	0	0	$0	$0
Morganton	07/27/05	Flash Flood	0	0	$0	$0
Western Portion	08/17/05	Flash Flood	0	0	$0	$0
Countywide	08/18/05	Flood	0	0	$0	$0

Location	Date	Type	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Countywide	10/07/05	Flood	0	0	$0	$0
Table Rock	08/26/08	Flash Flood	0	0	$0	$0
Burke Chapel	05/26/09	Flash Flood	0	0	$0	$0
Table Rock	01/24/10	Flash Flood	0	0	$0	$0
Table Rock	01/25/10	Flood	0	0	$0	$0
Table Rock	08/15/10	Flash Flood	0	0	$0	$0
Chesterfield	03/06/11	Flash Flood	0	0	$0	$0
Joy	04/16/11	Flood	0	0	$0	$0
Joy	04/16/11	Flash Flood	0	0	$0	$0
Joy	04/16/11	Flash Flood	0	0	$0	$0
Oak Hill	04/16/11	Flash Flood	0	0	$0	$0
Chesterfield	11/29/11	Flash Flood	0	0	$0	$0
Linville Falls	09/18/12	Flash Flood	0	0	$0	$0
Joy	05/05/13	Flood	0	0	$30,000	$0
Drexel	06/09/13	Flash Flood	0	0	$0	$0
Chesterfield	07/04/13	Flash Flood	0	0	$0	$0
Joy	07/04/13	Flood	0	0	$0	$0
Glen Alpine	07/12/13	Flash Flood	0	0	$60,000	$0
Subtotal Burke	*45 Events*		*0*	*0*	*$9,096,300*	*$0*
CALDWELL COUNTY						
Countywide	01/27/96	Flood	0	0	$0	$0
Draco	08/03/96	Flash Flood	0	0	$0	$0
Mortimer	08/11/96	Flash Flood	0	0	$0	$0
Collettsville	08/11/96	Flash Flood	0	0	$0	$0
Edgemont	08/11/96	Flash Flood	0	0	$0	$0
Collettsville	08/12/96	Flash Flood	0	0	$0	$0
Collettsville	01/08/98	Flash Flood	0	0	$0	$0
Western Portion	03/20/98	Flash Flood	0	0	$0	$0
Lenoir	04/17/98	Flash Flood	0	0	$0	$0
Lenoir	09/02/00	Flash Flood	0	0	$0	$0
Lenoir	07/02/01	Flash Flood	0	0	$50,000	$0
Lenoir	07/25/01	Flash Flood	0	0	$0	$0
Countywide	04/10/03	Flood	0	0	$0	$0
Lenoir	06/14/03	Flash Flood	0	0	$0	$0
Lenoir	06/15/03	Flash Flood	0	0	$0	$0
Lenoir	06/18/03	Flash Flood	0	0	$0	$0
Lenoir	06/19/03	Flash Flood	0	0	$0	$0
Mortimer	07/05/03	Flash Flood	0	0	$0	$0
Lenoir	07/06/03	Flash Flood	0	0	$20,000	$0
Lenoir	08/06/03	Flash Flood	0	0	$5,000	$0
Lenoir	08/07/03	Flash Flood	0	0	$0	$0

Location	Date	Type	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Countywide	11/19/03	Flood	0	0	$5,000	$0
Lenoir	05/22/04	Flash Flood	0	0	$0	$0
Lenoir	06/21/04	Flash Flood	0	0	$0	$0
Countywide	09/02/04	Flood	0	0	$0	$0
Countywide	09/07/04	Flood	0	0	$1,000,000	$1,500,000
Countywide	09/17/04	Flood	0	0	$20,000	$0
Lenoir	06/07/05	Flash Flood	0	0	$15,000	$0
Lenoir	06/08/05	Flash Flood	0	0	$0	$0
Lenoir	07/03/05	Flash Flood	0	0	$20,000	$0
Countywide	07/04/05	Flood	0	0	$0	$0
Countywide	07/07/05	Flood	0	0	$0	$0
Countywide	08/18/05	Flood	0	0	$0	$0
Western Portion	08/18/05	Flash Flood	0	0	$0	$0
Collettsville	08/26/08	Flash Flood	0	0	$0	$0
Yadkin Valley	05/16/09	Flash Flood	0	0	$0	$0
Lenoir	06/10/09	Flash Flood	0	0	$20,000	$0
Rufus	03/06/11	Flash Flood	0	0	$0	$0
Mortimer	04/16/11	Flash Flood	0	0	$50,000	$0
Yadkin Valley	05/14/12	Flash Flood	0	0	$0	$0
Warrior	05/14/12	Flash Flood	0	0	$0	$0
Abingdon	05/14/12	Flash Flood	0	0	$0	$0
Rufus	07/11/12	Flash Flood	0	0	$0	$0
Richland	08/09/12	Flash Flood	0	0	$5,000	$0
Edgemont	01/30/13	Flash Flood	0	0	$50,000	$0
Edgemont	05/05/13	Flood	0	0	$30,000	$0
Oak Hill	06/09/13	Flash Flood	0	0	$0	$0
Valmead	06/09/13	Flash Flood	0	0	$0	$0
Draco	07/02/13	Flood	0	0	$0	$0
Mortimer	07/04/13	Flash Flood	0	0	$300,000	$0
Rufus	07/07/13	Flash Flood	0	0	$0	$0
Grace Chapel	07/09/13	Flash Flood	0	0	$0	$0
Collettsville	07/12/13	Flash Flood	0	0	$50,000	$0
Collettsville	07/27/13	Flash Flood	2	0	$0	$0
Dudley Shoals	09/01/13	Flash Flood	0	0	$0	$0
Collettsville	09/02/13	Flash Flood	1	0	$0	$0
Subtotal Caldwell	*56 Events*		*3*	*0*	*$1,640,000*	*$1,500,000*
CATAWBA COUNTY						
Hickory	08/17/02	Flash Flood	0	0	$3,000,000	$0
Countywide	03/20/03	Flash Flood	0	0	$0	$0
Claremont	05/02/03	Flash Flood	0	0	$0	$0
Conover	05/03/03	Flash Flood	0	0	$0	$0

Location	Date	Type	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Hickory	06/16/03	Flash Flood	0	0	$60,000	$0
Long View	08/06/03	Flash Flood	0	0	$5,000	$0
Countywide	09/08/04	Flood	0	0	$130,000	$0
Long View	05/19/05	Flash Flood	0	0	$5,000	$0
Hickory	07/07/05	Flash Flood	0	0	$0	$0
Countywide	10/07/05	Flood	0	0	$30,000	$0
Maiden	08/17/08	Flash Flood	0	0	$50,000	$0
Startown	08/27/08	Flash Flood	0	0	$0	$0
Brookford	01/24/10	Flash Flood	0	0	$0	$0
Claremont	05/14/12	Flash Flood	0	0	$20,000	$0
Long View	07/21/12	Flash Flood	0	0	$1,000	$0
Claremont	05/06/13	Flood	0	0	$2,000,000	$0
Startown	06/05/13	Flash Flood	0	0	$0	$0
Claremont	07/27/13	Flash Flood	0	0	$1,000,000	$0
Hickory	07/27/13	Flash Flood	0	0	$3,200,000	$0
Hickory	07/27/13	Flood	0	0	$100,000	$0
Oyama	07/27/13	Flash Flood	0	0	$900,000	$0
Subtotal Catawba	*21 Events*		*0*	*0*	*$10,501,000*	*$0*
TOTAL UNIFOUR	**132 Events**		**3**	**0**	**$21,337,300**	**$1,500,000**

Source: National Climatic Data Center Storm Events Database; local reports provided through the HMPC.

According to NCDC and the HMPC, 132 recorded instances of flooding conditions have affected the planning area since 1993, causing an estimated $21,337,300 in losses to property, $1,500,000 in losses to agricultural crops, 3 deaths, and 0 injuries.

Table 4.10 provides a summary of this historical information by participating jurisdiction. It is important to note that many of the events attributed to the county are countywide or cover large portions of the county. The individual counts by jurisdiction are for those events that are only attributed to that one jurisdiction.

Table 4.10: Summary of Historical Flood Occurrences by Participating Jurisdiction

Jurisdiction	Number of Occurrences	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Alexander County (Unincorporated Area)	10	0	0	$100,000	$0
Taylorsville	0	0	0	$0	$0
Subtotal Alexander	*10*	*0*	*0*	*$100,000*	*$0*
Burke County (Unincorporated Area)	30	0	0	$9,032,000	$0
Connelly Springs	0	0	0	$0	$0
Drexel	1	0	0	$0	$0
Glen Alpine	1	0	0	$60,000	$0

Jurisdiction	Number of Occurrences	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Hildebran	1	0	0	$0	$0
Morganton	12	0	0	$4,300	$0
Valdese	0	0	0	$0	$0
Rutherford College	0	0	0	$0	$0
Subtotal Burke	*45*	*0*	*0*	*$9,096,300*	*$0*
Caldwell County (Unincorporated Area)	37	3	0	$1,510,000	$1,500,000
Cajah's Mountain	0	0	0	$0	$0
Cedar Rock	0	0	0	$0	$0
Gamewell	0	0	0	$0	$0
Granite Falls	0	0	0	$0	$0
Hudson	0	0	0	$0	$0
Lenoir	17	0	0	$130,000	$0
Rhodhiss	0	0	0	$0	$0
Sawmills	0	0	0	$0	$0
Subtotal Caldwell	*54*	*3*	*0*	*$1,640,000*	*$1,500,000*
Catawba County (Unincorporated Area)	6	0	0	$1,060,000	$0
Brookford	1	0	0	$0	$0
Catawba	0	0	0	$0	$0
Claremont	4	0	0	$3,020,000	$0
Conover	1	0	0	$0	$0
Hickory	5	0	0	$6,360,000	$0
Long View	3	0	0	$11,000	$0
Maiden	1	0	0	$50,000	$0
Newton	0	0	0	$0	$0
Subtotal Catawba	*21*	*0*	*0*	*$10,501,000*	*$0*
TOTAL UNIFOUR	**130**	**3**	**0**	**$21,337,300**	**$1,500,000**

Source: National Climatic Data Center Storm Events Database

Table 5.2 in Section 5: *Capability Assessment* lists the number of insured losses and total claims payments for historical flood damages in each jurisdiction as recorded under the NFIP. **Table 4.11** below provides the NFIP entry date for each participating jurisdiction. As explained in subsection 4.3, the NFIP entry date for each jurisdiction was used to determine buildings that were built pre-FIRM and are therefore assumed to be at greater risk to the flood hazard.

Table 4.11: NFIP Entry Dates

Jurisdiction	NFIP Entry Date
Alexander County (Unincorporated Area)	02/01/91
Taylorsville	12/18/07
Burke County (Unincorporated Area)	06/17/91
Connelly Springs	09/05/07
Drexel	08/19/86
Glen Alpine	09/05/07
Hildebran	09/05/07
Morganton	02/19/87
Valdese	07/03/86
Rutherford College	09/05/07
Caldwell County (Unincorporated Area)	08/16/88
Cajah's Mountain	08/16/88
Cedar Rock	07/07/09
Gamewell	08/16/88
Granite Falls	08/16/88
Hudson	08/16/88
Lenoir	08/16/88
Rhodhiss	07/03/86
Sawmills	07/07/09
Catawba County (Unincorporated Area)	09/03/80
Brookford	12/18/79
Catawba	09/03/80
Claremont	09/05/07
Conover	09/03/80
Hickory	08/03/81
Long View	09/03/80
Maiden	09/03/80
Newton	09/03/80

Source: Federal Emergency Management Agency Community Status Book Report: Communities Participating in the National Flood Program, August 2013

Probability of Future Occurrences

Based on the information provided above, it is assumed that the probability of future flood hazard occurrences in the planning area is highly likely.

Flood Hazard Vulnerability

The following tables provide counts and values by jurisdiction relevant to flood hazard vulnerability in the Unifour Region.

Table 4.12: Exposure to the Floodway

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Number of Pre-FIRM Buildings At Risk		Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per	Num	Per
Alexander County (Unincorporated Area)	**176**	**1.08%**	**91**	**1.43%**	**37**	**0.14%**	**$296,938**	**0**	**0.00%**	**70**	**0.20%**	**7**	**0.14%**	**2**	**0.10%**
Taylorsville	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Subtotal Alexander	*176*	*1.01%*	*91*	*1.38%*	*37*	*0.13%*	*$296,938*	*0*	*0.00%*	*70*	*0.19%*	*7*	*0.12%*	*2*	*0.09%*
Burke County (Unincorporated Area)	**333**	**1.41%**	**304**	**1.77%**	**47**	**0.14%**	**$2,403,911**	**29**	**0.14%**	**253**	**0.42%**	**33**	**0.37%**	**4**	**0.13%**
Connelly Springs	0	0.00%	1	0.18%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Drexel	8	1.18%	2	1.06%	1	0.13%	$69,072	1	0.16%	5	0.27%	1	0.25%	0	0.00%
Glen Alpine	5	0.78%	10	3.26%	1	0.14%	$0	0	0.00%	12	0.79%	2	0.78%	0	0.00%
Hildebran	13	1.61%	5	1.90%	0	0.00%	$0	0	0.00%	3	0.15%	0	0.00%	0	0.00%
Morganton	195	3.25%	144	7.91%	11	0.15%	$3,371,375	4	0.07%	277	1.64%	78	2.53%	12	1.04%
Valdese	48	2.63%	48	4.90%	9	0.43%	$1,173,766	4	0.25%	39	0.87%	5	0.56%	0	0.00%
Rutherford College	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Subtotal Burke	*602*	*1.73%*	*514*	*2.39%*	*69*	*0.15%*	*$7,018,124*	*38*	*0.12%*	*589*	*0.65%*	*119*	*0.83%*	*16*	*0.32%*
Caldwell County (Unincorporated Area)	**477**	**2.42%**	**335**	**3.15%**	**29**	**0.11%**	**$1,438,800**	**19**	**0.13%**	**295**	**0.68%**	**33**	**0.54%**	**8**	**0.35%**
Cajah's Mountain	2	0.18%	2	0.83%	0	0.00%	$0	0	0.00%	2	0.07%	0	0.00%	0	0.00%
Cedar Rock	2	1.36%	2	2.41%	0	0.00%	$0	0	0.00%	8	2.67%	3	3.23%	0	0.00%
Gamewell	37	2.38%	29	6.87%	4	0.20%	$298,500	1	0.07%	180	4.44%	19	3.04%	10	4.65%
Granite Falls	13	0.68%	22	3.15%	0	0.00%	$0	0	0.00%	4	0.08%	1	0.15%	0	0.00%

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Number of Pre-FIRM Buildings At Risk		Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per	Num	Per
Hudson	41	2.70%	40	9.43%	1	0.06%	$499,800	1	0.08%	83	2.20%	10	1.53%	4	1.96%
Lenoir	407	5.25%	171	7.62%	86	1.00%	$19,323,700	58	0.88%	535	2.94%	85	2.52%	25	2.25%
Rhodhiss	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Sawmills	45	2.40%	29	5.13%	0	0.00%	$0	0	0.00%	20	0.38%	2	0.29%	0	0.00%
Subtotal Caldwell	*1,024*	*2.84%*	*630*	*4.06%*	*120*	*0.26%*	*$21,560,800*	*79*	*0.28%*	*1,127*	*1.36%*	*153*	*1.19%*	*47*	*1.01%*
Catawba County (Unincorporated Area)	**782**	**2.04%**	**608**	**4.55%**	**44**	**0.08%**	**$9,856,600**	**11**	**0.05%**	**887**	**1.06%**	**96**	**0.86%**	**32**	**0.67%**
Brookford	29	12.24%	12	23.53%	2	0.68%	$498,500	2	0.82%	12	3.14%	2	2.78%	0	0.00%
Catawba	38	9.69%	18	10.17%	2	0.43%	$0	1	0.30%	24	3.98%	4	3.08%	1	3.70%
Claremont	11	1.47%	8	3.69%	0	0.00%	$0	0	0.00%	8	0.59%	1	0.51%	0	0.00%
Conover	112	3.24%	58	6.26%	7	0.18%	$886,200	4	0.18%	106	1.30%	14	1.01%	8	1.42%
Hickory	516	3.52%	257	7.57%	43	0.26%	$13,596,100	29	0.30%	403	1.01%	40	0.70%	21	0.77%
Long View	50	2.24%	24	5.16%	4	0.15%	$3,212,275	3	0.15%	33	0.68%	4	0.52%	2	0.58%
Maiden	25	1.57%	18	4.04%	0	0.00%	$0	0	0.00%	30	0.91%	3	0.66%	1	0.48%
Newton	202	3.83%	122	10.16%	3	0.05%	$79,400	1	0.02%	171	1.32%	25	1.22%	8	0.84%
Subtotal Catawba	*1,765*	*2.64%*	*1,125*	*5.56%*	*105*	*0.12%*	*$28,129,075*	*51*	*0.11%*	*1,674*	*1.08%*	*189*	*0.87%*	*73*	*0.75%*
TOTAL UNIFOUR	**3,567**	**2.30%**	**2,360**	**3.70%**	**331**	**0.16%**	**$57,004,937**	**168**	**0.14%**	**3,460**	**0.95%**	**468**	**0.86%**	**138**	**0.64%**

Source: GIS Analysis

Table 4.13: Exposure to the 1-Percent-Annual-Chance (100-year) Flood

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Number of Pre-FIRM Buildings At Risk		Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per[8]		Num	Per[9]	Num	Per	Num	Per	Num	Per
Alexander County (Unincorporated Area)	**1,549**	**9.49%**	**657**	**10.31%**	**342**	**1.31%**	**$20,938,021**	**78**	**0.54%**	**863**	**2.46%**	**98**	**1.92%**	**28**	**1.36%**
Taylorsville	49	4.67%	7	3.10%	10	0.76%	$1,333,202	10	0.84%	31	1.48%	16	3.05%	0	0.00%
Subtotal Alexander	*1,598*	*9.20%*	*664*	*10.06%*	*352*	*1.28%*	*$22,271,223*	*88*	*0.56%*	*894*	*2.40%*	*114*	*2.03%*	*28*	*1.27%*
Burke County (Unincorporated Area)	**1,336**	**5.65%**	**1,566**	**9.13%**	**289**	**0.89%**	**$14,157,590**	**137**	**0.65%**	**1,950**	**3.27%**	**261**	**2.94%**	**73**	**2.37%**
Connelly Springs	37	5.48%	179	31.79%	4	0.47%	$381,226	4	0.57%	30	1.80%	3	1.04%	0	0.00%
Drexel	6	0.89%	6	3.17%	1	0.13%	$0	0	0.00%	8	0.43%	1	0.25%	0	0.00%
Glen Alpine	8	1.25%	4	1.30%	1	0.14%	$54,634	1	0.15%	6	0.40%	1	0.39%	0	0.00%
Hildebran	7	0.87%	8	3.04%	0	0.00%	$0	0	0.00%	8	0.40%	3	0.75%	0	0.00%
Morganton	97	1.62%	60	3.29%	64	0.88%	$20,505,433	42	0.74%	555	3.28%	113	3.67%	32	2.78%
Valdese	40	2.19%	181	18.47%	18	0.87%	$2,176,381	8	0.49%	110	2.45%	16	1.78%	2	0.75%
Rutherford College	14	2.48%	15	6.49%	2	0.28%	$28,968	2	0.31%	13	0.97%	2	0.85%	0	0.00%
Subtotal Burke	*1,545*	*4.43%*	*2,019*	*9.39%*	*379*	*0.83%*	*$37,304,232*	*194*	*0.61%*	*2,680*	*2.95%*	*400*	*2.77%*	*107*	*2.15%*
Caldwell County (Unincorporated Area)	**1,739**	**8.83%**	**1,161**	**10.91%**	**572**	**2.19%**	**$27,268,000**	**344**	**2.40%**	**1,232**	**2.83%**	**175**	**2.85%**	**35**	**1.55%**
Cajah's Mountain	34	3.04%	6	2.48%	1	0.08%	$14,100	1	0.10%	35	1.24%	5	0.96%	2	1.09%
Cedar Rock	7	4.76%	3	3.61%	0	0.00%	$0	0	0.00%	16	5.33%	6	6.45%	0	0.00%
Gamewell	64	4.12%	41	9.72%	21	1.03%	$1,619,600	13	0.88%	255	6.29%	38	6.08%	13	6.05%
Granite Falls	67	3.51%	84	12.02%	8	0.40%	$1,336,900	4	0.33%	58	1.23%	6	0.90%	5	1.51%
Hudson	39	2.57%	15	3.54%	17	1.02%	$4,486,500	12	0.99%	150	3.97%	16	2.44%	10	4.90%

[8] Percent of total number of buildings in jurisdiction.
[9] Percent of total number of pre-FIRM buildings in jurisdiction.

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Number of Pre-FIRM Buildings At Risk		Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per[8]		Num	Per[9]	Num	Per	Num	Per	Num	Per
Lenoir	374	4.82%	112	4.99%	308	3.58%	$52,797,800	241	3.65%	822	4.51%	114	3.38%	44	3.97%
Rhodhiss	19	4.34%	29	15.59%	12	2.49%	$967,694	5	1.50%	29	2.71%	3	2.01%	1	1.49%
Sawmills	95	5.06%	49	8.67%	11	0.42%	$664,300	8	0.40%	93	1.77%	4	0.57%	2	0.66%
Subtotal Caldwell	*2,438*	*6.77%*	*1,500*	*9.67%*	*950*	*2.10%*	*$89,154,894*	*628*	*2.20%*	*2,690*	*3.24%*	*367*	*2.86%*	*112*	*2.41%*
Catawba County (Unincorporated Area)	**3,742**	**9.77%**	**1,360**	**10.18%**	**1,429**	**2.59%**	**$73,266,700**	**356**	**1.46%**	**2,080**	**2.49%**	**240**	**2.16%**	**67**	**1.39%**
Brookford	8	3.38%	3	5.88%	5	1.69%	$681,700	8	3.27%	11	2.88%	2	2.78%	0	0.00%
Catawba	16	4.08%	27	15.25%	5	1.08%	$1,223,800	6	1.83%	27	4.48%	3	2.31%	1	3.70%
Claremont	9	1.20%	18	8.29%	4	0.49%	$501,200	4	0.53%	9	0.67%	1	0.51%	0	0.00%
Conover	58	1.68%	23	2.48%	40	1.01%	$5,807,600	23	1.04%	193	2.36%	15	1.08%	12	2.13%
Hickory	237	1.62%	82	2.42%	137	0.84%	$33,990,800	62	0.63%	581	1.45%	61	1.06%	27	0.99%
Long View	15	0.67%	8	1.72%	17	0.65%	$6,724,546	15	0.74%	65	1.33%	7	0.91%	3	0.87%
Maiden	47	2.95%	24	5.39%	15	0.77%	$9,986,900	8	0.62%	50	1.51%	4	0.88%	3	1.44%
Newton	98	1.86%	49	4.08%	54	0.85%	$5,098,700	29	0.65%	267	2.06%	35	1.70%	12	1.26%
Subtotal Catawba	*4,230*	*6.32%*	*1,594*	*7.88%*	*1,706*	*1.93%*	*$137,281,946*	*511*	*1.11%*	*3,283*	*2.13%*	*368*	*1.69%*	*125*	*1.29%*
TOTAL UNIFOUR	**9,811**	**6.32%**	**5,777**	**9.05%**	**3,387**	**1.64%**	**$286,012,295**	**1,421**	**1.17%**	**9,547**	**2.61%**	**1,249**	**2.29%**	**372**	**1.73%**

Source: GIS Analysis

Table 4.14: Exposure to the 0.2-Percent-Annual-Chance (500-year) Flood

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Number of Pre-FIRM Buildings At Risk		Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per	Num	Per
Alexander County (Unincorporated Area)	**6**	**0.04%**	**2**	**0.03%**	**9**	**0.03%**	**$525,231**	**3**	**0.02%**	**3**	**0.01%**	**0**	**0.00%**	**0**	**0.00%**
Taylorsville	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Subtotal Alexander	*6*	*0.03%*	*2*	*0.03%*	*13*	*0.05%*	*$525,231*	*3*	*0.02%*	*3*	*0.01%*	*0*	*0.00%*	*0*	*0.00%*
Burke County (Unincorporated Area)	**28**	**0.12%**	**15**	**0.09%**	**36**	**0.12%**	**$3,098,295**	**23**	**0.11%**	**112**	**0.19%**	**17**	**0.19%**	**2**	**0.06%**
Connelly Springs	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Drexel	3	0.44%	0	0.00%	0	0.00%	$0	0	0.00%	2	0.11%	0	0.00%	0	0.00%
Glen Alpine	4	0.63%	8	2.61%	2	0.28%	$260,877	2	0.31%	16	1.05%	2	0.78%	1	0.96%
Hildebran	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	1	0.05%	0	0.00%	0	0.00%
Morganton	81	1.35%	40	2.20%	95	1.27%	$27,840,170	50	0.88%	110	0.65%	13	0.42%	6	0.52%
Valdese	5	0.27%	1	0.10%	6	0.29%	$334,991	0	0.00%	5	0.11%	0	0.00%	0	0.00%
Rutherford College	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Subtotal Burke	*121*	*0.35%*	*64*	*0.30%*	*139*	*0.31%*	*$31,534,333*	*75*	*0.24%*	*246*	*0.27%*	*32*	*0.22%*	*9*	*0.18%*
Caldwell County (Unincorporated Area)	**84**	**0.43%**	**56**	**0.53%**	**124**	**0.47%**	**$7,322,000**	**102**	**0.71%**	**62**	**0.14%**	**6**	**0.10%**	**0**	**0.00%**
Cajah's Mountain	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Cedar Rock	2	1.36%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Gamewell	20	1.29%	2	0.47%	25	1.22%	$3,229,500	17	1.15%	29	0.72%	1	0.16%	0	0.00%
Granite Falls	3	0.16%	2	0.29%	0	0.00%	$0	0	0.00%	1	0.02%	0	0.00%	0	0.00%
Hudson	8	0.53%	7	1.65%	6	0.36%	$7,484,200	3	0.25%	17	0.45%	0	0.00%	0	0.00%
Lenoir	107	1.38%	34	1.51%	123	1.43%	$170,744,400	90	1.36%	191	1.05%	14	0.42%	5	0.45%
Rhodhiss	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Sawmills	2	0.11%	0	0.00%	1	0.04%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Number of Pre-FIRM Buildings At Risk		Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per	Num	Per
Subtotal Caldwell	*226*	*0.63%*	*101*	*0.65%*	*279*	*0.62%*	*$188,780,100*	*212*	*0.74%*	*300*	*0.36%*	*21*	*0.16%*	*5*	*0.11%*
Catawba County (Unincorporated Area)	**81**	**0.21%**	**32**	**0.24%**	**50**	**0.09%**	**$12,929,900**	**18**	**0.07%**	**177**	**0.21%**	**5**	**0.04%**	**1**	**0.02%**
Brookford	5	2.11%	0	0.00%	3	1.02%	$210,500	3	1.22%	2	0.52%	0	0.00%	0	0.00%
Catawba	5	1.28%	0	0.00%	1	0.22%	$92,100	0	0.00%	4	0.66%	0	0.00%	0	0.00%
Claremont	2	0.27%	3	1.38%	1	0.12%	$629,400	1	0.13%	2	0.15%	0	0.00%	0	0.00%
Conover	10	0.29%	6	0.65%	9	0.23%	$1,237,100	4	0.18%	21	0.26%	1	0.07%	0	0.00%
Hickory	43	0.29%	14	0.41%	66	0.41%	$17,599,000	26	0.26%	167	0.42%	13	0.23%	4	0.15%
Long View	5	0.22%	0	0.00%	4	0.15%	$190,661	4	0.20%	7	0.14%	0	0.00%	0	0.00%
Maiden	0	0.00%	1	0.22%	1	0.05%	$14,400	0	0.00%	1	0.03%	0	0.00%	0	0.00%
Newton	22	0.42%	13	1.08%	26	0.41%	$2,377,800	18	0.40%	40	0.31%	1	0.05%	1	0.10%
Subtotal Catawba	*173*	*0.26%*	*69*	*0.34%*	*161*	*0.18%*	*$35,280,861*	*74*	*0.16%*	*421*	*0.27%*	*20*	*0.09%*	*6*	*0.06%*
TOTAL UNIFOUR	**526**	**0.34%**	**236**	**0.37%**	**592**	**0.29%**	**$256,120,525**	**364**	**0.30%**	**970**	**0.27%**	**73**	**0.13%**	**20**	**0.09%**

Source: GIS Analysis

Table 4.15: Numbers of Critical Facilities Exposed to the Floodway

Jurisdiction	Day Care	EMS	EOCs	Fire Stations	Govt. Buildings	Hospitals	Police Stations	Schools	Senior Care	Shelters
Alexander County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Taylorsville	0	0	0	0	0	0	0	0	0	0
Subtotal Alexander	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Burke County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Connelly Springs	0	0	0	0	0	0	0	0	0	0
Drexel	0	0	0	0	0	0	0	0	0	0
Glen Alpine	0	0	0	0	0	0	0	0	0	0
Hildebran	0	0	0	0	0	0	0	0	0	0
Morganton	0	0	0	0	0	0	0	0	0	0
Valdese	0	0	0	0	0	0	0	0	0	0
Rutherford College	0	0	0	0	0	0	0	0	0	0
Subtotal Burke	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Caldwell County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Cajah's Mountain	0	0	0	0	0	0	0	0	0	0
Cedar Rock	0	0	0	0	0	0	0	0	0	0
Gamewell	0	0	0	0	0	0	0	0	0	0
Granite Falls	0	0	0	0	0	0	0	0	0	0
Hudson	0	0	0	0	0	0	0	0	0	0
Lenoir	0	0	0	0	0	0	0	0	0	0
Rhodhiss	0	0	0	0	0	0	0	0	0	0
Sawmills	0	0	0	0	0	0	0	0	0	0
Subtotal Caldwell	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Catawba County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Brookford	0	0	0	0	0	0	0	0	0	0
Catawba	0	0	0	0	0	0	0	0	0	0
Claremont	0	0	0	0	0	0	0	0	0	0
Conover	0	0	0	0	0	0	0	0	0	0
Hickory	0	0	0	0	0	0	0	0	0	0
Long View	0	0	0	0	0	0	0	0	0	0
Maiden	0	0	0	0	0	0	0	0	0	0
Newton	0	0	0	0	0	0	0	0	0	0
Subtotal Catawba	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
TOTAL UNIFOUR	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Source: GIS Analysis

Table 4.16: Numbers of Critical Facilities Exposed to the 1-Percent-Annual-Chance (100-year) Flood

Jurisdiction	Day Care	EMS	EOCs	Fire Stations	Govt. Buildings	Hospitals	Police Stations	Schools	Senior Care	Shelters
Alexander County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Taylorsville	0	0	0	0	0	0	0	0	0	0
Subtotal Alexander	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Burke County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Connelly Springs	0	0	0	0	0	0	0	0	0	0
Drexel	0	0	0	0	0	0	0	0	0	0
Glen Alpine	0	0	0	0	0	0	0	0	0	0
Hildebran	0	0	0	0	0	0	0	0	0	0
Morganton	0	0	0	0	0	0	0	0	0	0
Valdese	0	0	0	0	0	0	0	0	0	0
Rutherford College	0	0	0	0	0	0	0	0	0	0
Subtotal Burke	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Caldwell County (Unincorporated Area)	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**
Cajah's Mountain	0	0	0	0	0	0	0	0	0	0
Cedar Rock	0	0	0	0	0	0	0	0	0	0
Gamewell	0	0	0	0	0	0	0	0	0	0
Granite Falls	0	0	0	0	0	0	0	0	0	0
Hudson	0	0	0	0	0	0	0	0	0	0
Lenoir	0	0	0	1	1	0	0	0	0	0
Rhodhiss	0	0	0	0	0	0	0	0	0	0
Sawmills	0	0	0	0	0	0	0	0	0	0
Subtotal Caldwell	*1*	*0*	*0*	*1*	*1*	*0*	*0*	*1*	*0*	*1*
Catawba County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Brookford	0	0	0	0	0	0	0	0	0	0
Catawba	0	0	0	0	0	0	0	0	0	0
Claremont	0	0	0	0	0	0	0	0	0	0
Conover	0	0	0	0	0	0	0	0	0	0
Hickory	0	0	0	0	0	0	0	0	0	0
Long View	0	0	0	0	0	0	0	0	0	0
Maiden	0	0	0	0	0	0	0	0	0	0
Newton	0	0	0	0	0	0	0	0	0	1
Subtotal Catawba	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*
TOTAL UNIFOUR	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**2**

Source: FEMA DFIRM data; critical facilities supplied by participating jurisdictions.

Table 4.17: Numbers of Critical Facilities Exposed to the 0.2-Percent-Annual-Chance (500-year) Flood

Jurisdiction	Day Care	EMS	EOCs	Fire Stations	Govt. Buildings	Hospitals	Police Stations	Schools	Senior Care	Shelters
Alexander County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Taylorsville	0	0	0	0	0	0	0	0	0	0
Subtotal Alexander	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Burke County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Connelly Springs	0	0	0	0	0	0	0	0	0	0
Drexel	0	0	0	0	0	0	0	0	0	0
Glen Alpine	0	0	0	0	0	0	0	0	0	0
Hildebran	0	0	0	0	0	0	0	0	0	0
Morganton	0	0	0	0	0	0	0	0	0	0
Valdese	0	0	0	0	0	0	0	0	0	0
Rutherford College	0	0	0	0	0	0	0	0	0	0
Subtotal Burke	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Caldwell County (Unincorporated Area)	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**
Cajah's Mountain	0	0	0	0	0	0	0	0	0	0
Cedar Rock	0	0	0	0	0	0	0	0	0	0
Gamewell	0	0	0	0	0	0	0	0	0	0
Granite Falls	0	0	0	0	0	0	0	0	0	0
Hudson	0	0	0	0	0	0	0	0	0	0
Lenoir	0	0	0	0	0	0	0	0	0	0
Rhodhiss	0	0	0	0	0	0	0	0	0	0
Sawmills	0	0	0	0	0	0	0	0	0	0
Subtotal Caldwell	*0*	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*0*
Catawba County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Brookford	0	0	0	0	0	0	0	0	0	0
Catawba	0	0	0	0	0	0	0	0	0	0
Claremont	0	0	0	0	0	0	0	0	0	0
Conover	0	0	0	0	0	0	0	0	0	0
Hickory	0	0	0	0	0	0	0	0	0	0
Long View	0	0	0	0	0	0	0	0	0	0
Maiden	0	0	0	0	0	0	0	0	0	0
Newton	0	0	0	0	0	0	0	0	0	0
Subtotal Catawba	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
TOTAL UNIFOUR	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**

Source: FEMA DFIRM data; critical facilities supplied by participating jurisdictions.

Table 4.18: Numbers of High Potential Loss Properties Exposed to the Flood Hazard

Jurisdiction	Airports			Military Facilities			Hazardous Materials Sites			Other[10]		
	FW	1%	0.2%	FW	1%	0.2%	FW	1%	0.2 %	FW	1%	0.2%
Alexander County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Taylorsville	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Alexander	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Burke County (Unincorporated Area)	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Connelly Springs	0	0	0	0	0	0	0	0	0	0	0	0
Drexel	0	0	0	0	0	0	0	0	0	0	0	0
Glen Alpine	0	0	0	0	0	0	0	0	0	0	0	0
Hildebran	0	0	0	0	0	0	0	0	0	0	0	0
Morganton	0	0	0	0	0	0	0	0	0	0	0	0
Valdese	0	0	0	0	0	0	0	0	0	0	0	0
Rutherford College	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Burke	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Caldwell County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Cajah's Mountain	0	0	0	0	0	0	0	0	0	0	0	0
Cedar Rock	0	0	0	0	0	0	0	0	0	0	0	0
Gamewell	0	0	0	0	0	0	0	0	0	0	0	0
Granite Falls	0	0	0	0	0	0	0	0	0	0	0	0
Hudson	0	0	0	0	0	0	0	1	0	0	0	0
Lenoir	0	0	0	0	0	0	0	1	0	0	1	0
Rhodhiss	0	0	0	0	0	0	0	0	0	0	0	0
Sawmills	0	0	0	0	0	0	0	1	0	0	0	0
Subtotal Caldwell	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*3*	*0*	*0*	*1*	*0*
Catawba County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Brookford	0	0	0	0	0	0	0	0	0	0	0	0
Catawba	0	0	0	0	0	0	0	0	0	0	0	0
Claremont	0	0	0	0	0	0	0	0	0	0	0	0
Conover	0	0	0	0	0	0	0	0	0	0	0	0
Hickory	0	0	0	0	0	0	0	0	0	0	0	0
Long View	0	0	0	0	0	0	0	0	0	0	0	0
Maiden	0	0	0	0	0	0	0	0	0	0	0	0
Newton	0	0	0	0	1	0	0	0	0	0	0	0
Subtotal Catawba	*0*	*0*	*0*	*0*	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
TOTAL UNIFOUR	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**1**	**0**

Source: GIS analysis.

[10] This category consists of a variety of facilities specified by participating jurisdictions.

Table 4.19: Numbers of Historic Properties Exposed to the Flood Hazard

Jurisdiction	Districts			Buildings			Other		
	FW	1%	0.2%	FW	1%	0.2%	FW	1%	0.2%
Alexander County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Taylorsville	0	0	0	0	0	0	0	0	0
Subtotal Alexander	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Burke County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Connelly Springs	0	0	0	0	0	0	0	0	0
Drexel	0	0	0	0	0	0	0	0	0
Glen Alpine	0	0	0	0	0	0	0	0	0
Hildebran	0	0	0	0	0	0	0	0	0
Morganton	1	0	0	0	0	0	1	0	0
Valdese	0	0	0	0	0	0	0	0	0
Rutherford College	0	0	0	0	0	0	0	0	0
Subtotal Burke	*1*	*0*	*0*	*0*	*0*	*0*	*1*	*0*	*0*
Caldwell County (Unincorporated Area)	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Cajah's Mountain	0	0	0	0	0	0	0	0	0
Cedar Rock	0	0	0	0	0	0	0	0	0
Gamewell	0	0	0	0	0	0	0	0	0
Granite Falls	0	0	0	0	0	0	0	0	0
Hudson	0	0	0	0	0	0	0	0	0
Lenoir	0	0	0	0	0	0	0	0	0
Rhodhiss	0	0	0	0	0	0	0	0	0
Sawmills	0	0	0	0	0	0	0	0	0
Subtotal Caldwell	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Catawba County (Unincorporated Area)	**8**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**
Brookford	0	0	0	0	0	0	0	0	0
Catawba	1	0	0	0	0	0	0	0	0
Claremont	0	0	0	0	0	0	0	0	0
Conover	0	0	0	0	0	0	0	0	0
Hickory	2	0	0	0	0	0	0	0	0
Long View	0	0	0	0	0	0	0	0	0
Maiden	0	0	0	0	0	0	0	0	0
Newton	0	0	0	0	0	0	0	0	0
Subtotal Catawba	*11*	*0*	*0*	*0*	*0*	*0*	*1*	*0*	*0*
TOTAL UNIFOUR	**13**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**

Source: Jurisdictions and National Register of Historic Places.

Table 4.20 provides a summary count by jurisdiction of Repetitive Loss (RL) properties identified by FEMA through the NFIP.

Table 4.20: Numbers of Repetitive Loss (RL) Properties by Jurisdiction

Jurisdiction	Total Number of Properties	Total Number of Losses	Total Amount of Claims Payments
Alexander County (Unincorporated Area)	**0**	**0**	**0**
Taylorsville	0	0	0
Subtotal Alexander	*0*	*0*	*0*
Burke County (Unincorporated Area)	**0**	**0**	**0**
Connelly Springs	0	0	0
Drexel	0	0	0
Glen Alpine	0	0	0
Hildebran	0	0	0
Morganton	0	0	0
Valdese	0	0	0
Rutherford College	0	0	0
Subtotal Burke	*0*	*0*	*0*
Caldwell County (Unincorporated Area)	**1**	**3**	**$60,721**
Cajah's Mountain	0	0	0
Cedar Rock	0	0	0
Gamewell	0	0	0
Granite Falls	0	0	0
Hudson	0	0	0
Lenoir	0	0	0
Rhodhiss	0	0	0
Sawmills	0	0	0
Subtotal Caldwell	*1*	*3*	*$60,721*
Catawba County (Unincorporated Area)	**5**	**11**	**$126,858**
Brookford	0	0	0
Catawba	0	0	0
Claremont	0	0	0
Conover	0	0	0
Hickory	1	3	$14,926
Long View	0	0	0
Maiden	0	0	0
Newton	0	0	0
Subtotal Catawba	*6*	*14*	*$141,784*
TOTAL UNIFOUR	**7**	**17**	**$202,505**

Source: North Carolina Emergency Management.

4.5.1.2 Erosion

Erosion Hazard Description

Erosion is the gradual breakdown and movement of land due to both physical and chemical processes of water, wind, and general meteorological conditions. Natural, or geologic, erosion has occurred since the Earth's formation and continues at a very slow and uniform rate each year.

There are two types of soil erosion: wind erosion and water erosion. Wind erosion can cause significant soil loss. Winds blowing across sparsely vegetated or disturbed land can pick up soil particles and carry them through the air, thus displacing them. Water erosion can occur over land or in streams and channels. Water erosion that takes place over land may result from raindrops, shallow sheets of water flowing off the land, or shallow surface flow, which becomes concentrated in low spots. Stream channel erosion may occur as the volume and velocity of water flow increases enough to cause movement of the streambed and bank soils.

An area's potential for erosion is determined by four factors: soil characteristics, vegetative cover, climate or rainfall, and topography. Soils composed of a large percentage of silt and fine sand are most susceptible to erosion. As the clay and organic content of these soils increases, the potential for erosion decreases. Well-drained and well-graded gravels and gravel-sand mixtures are the least likely to erode. Coarse gravel soils are highly permeable and have a good capacity for absorption, which can prevent or delay the amount of surface runoff. Vegetative cover can be very helpful in controlling erosion by shielding the soil surface from falling rain, absorbing water from the soil, and slowing the velocity of runoff. Runoff is also affected by the topography of the area including size, shape, and slope. The greater the slope length and gradient, the more potential an area has for erosion. Climate can affect the amount of runoff, especially the frequency, intensity, and duration of rainfall and storms. When rainstorms are frequent, intense, or of long duration, erosion risks are high. Seasonal changes in temperature and rainfall amounts define the period of highest erosion risk of the year.

During the past 20 years, the importance of erosion control has gained the increased attention of the public. Implementation of erosion control measures consistent with sound agricultural and construction operations is needed to minimize the adverse effects associated with harmful chemicals run-off due to wind or water events. The increase in government regulatory programs and public concern has resulted in a wide range of erosion control products, techniques, and analytical methodologies in the United States. The preferred method of erosion control in recent years has been the restoration of vegetation.

Erosion Hazard Analysis

Erosion in many areas of central and western North Carolina is typically caused by flash flooding events. Unlike coastal areas, where the soil is composed mainly of fine-grained particles such as sand, soils in other parts of North Carolina have a much greater organic matter content.

Location Within the Planning Area

No data is currently available with which to map identified areas of erosion concern.

Extent (Magnitude and Severity)

No data is currently available with which to determine magnitudes or severity of erosion hazard areas within the Unifour Region.

Historical Occurrences
No data is currently available to document historical erosion hazard occurrences.

Probability of Future Occurrences
Erosion will likely remain a natural, dynamic, and continuous process in areas of the Unifour Region, and its probability of future occurrence is certain.

Erosion Hazard Vulnerability
Based upon a lack of historical events, relevant GIS data, and any immediate threat to life or property, a detailed vulnerability assessment has not be conducted for this hazard.

4.5.1.3 Dam/Levee Failure

Dam/Levee Failure Hazard Description

Dam/levee failure is the breakdown, collapse, or other failure of a dam or levee structure characterized by the uncontrolled release of impounded water that results in downstream flooding. In the event of a dam or levee failure, the energy of the water stored behind even a small structure is capable of causing loss of life and severe property damage if development exists downstream. There are varying degrees of failure, and an unexpected or unplanned breach is considered one type of failure. A breach is an opening through a dam or levee which drains the water impounded behind it. A controlled breach is a planned, constructed opening and not considered a failure event, while an uncontrolled breach is the unintentional discharge from the impounded water body and considered a failure.

Dam/levee failure can result from natural events, human-induced events, or a combination of the two. Natural occurrences that may cause dam or levee failure include hurricanes, floods, earthquakes, and landslides; human-induced actions may include the deterioration of the foundation or the materials used in construction. In recent years, dams have also received considerably more attention in the emergency management community as potential targets for terrorist acts.

Dam/levee failure presents a significant potential for disaster, in that significant loss of life and property would be expected in addition to the possible loss of power and water resources. The most common cause of failure is prolonged rainfall that produces flooding. Failures due to other natural events such as hurricanes, earthquakes, or landslides are significant because there is generally little or no advance warning. The best way to mitigate dam or levee failure is through the proper construction, inspection, maintenance, and operation of these structures, as well as maintaining and updating Emergency Action Plans (EAPs) for use in the event of a dam failure.

Dam/Levee Failure Hazard Analysis

In Alexander County, many creeks empty into, or become part of, the Catawba River. Catawba River levels are controlled by dams and flood gates. Therefore, high water flooding in these areas is considered to be relatively unlikely. However, there is still a potential threat to flooding.

The most significant threat to Burke County is the impoundment of Lake James, consisting of earthen structures and two spillways that were constructed in 1919 and that impound a maximum 265,182 acre feet of water or a total of 86,422,813,800 gallons within Lake James. A dam failure at Lake James would pose a significant threat to persons and property within the inundation pathway through the entire county. Data provided by Duke Energy on a dam failure flood inundation pathway was entered as a layer onto the County GIS System to identify the properties and areas at risk should an event occur. In the event of a major dam failure at the Bridgewater site, 27,570 people living in 11,508 housing units would be impacted to some extent by inundation. Duke Energy is currently working to reinforce the dam structures and upgrade their construction standards. This process is expected to continue throughout the next 2-5 years.

The entire southern border of Caldwell County is traversed by the Catawba River. During the 1950s a series of dams was constructed along the Catawba River in an effort to harness hydroelectric power. The two specific lakes that border Caldwell County to the south are Lake Rhodhiss to the southwest and Lake Hickory to the southeast. The downstream dam of Lake Rhodhiss is of specific concern to the County. The dam containing Lake Hickory is located a number of miles downstream

in Catawba County. Failure of the dam containing Lake Rhodhiss would almost certainly result in catastrophic damage to life and property within Caldwell County. Also of concern are Oxford Dam, which contains Lake Hickory and Lookout Shoals Dam, which contains Lake Lookout.

The Town of Maiden in Catawba County has expressed some concern over the structural integrity of the Maiden Water Plant Dam and has been coordinating with state agencies on possible remedies, including permanent removal. The Town also recently completed the preparation of an EAP for the dam.

Location Within the Planning Area

Table 4.21 shows counts of high and intermediate hazard dams in each participating jurisdiction. In total there are 53 high hazard dams in the planning area and 36 intermediate hazard dams. **Figure 4.37** shows the locations of all state-regulated dams in and immediately around the planning area,

Table 4.21: Counts of High Hazard and Intermediate Hazard Dams by Jurisdiction

Jurisdiction	High	Intermediate
Alexander County (Unincorporated Area)	**11**	**5**
Taylorsville	0	1
Subtotal Alexander	*11*	*6*
Burke County (Unincorporated Area)	**10**	**11**
Connelly Springs	0	0
Drexel	0	0
Glen Alpine	0	0
Hildebran	0	0
Morganton	1	0
Valdese	0	0
Rutherford College	0	0
Subtotal Burke	*11*	*11*
Caldwell County (Unincorporated Area)	**14**	**8**
Cajah's Mountain	0	0
Cedar Rock	0	0
Gamewell	0	0
Granite Falls	1	0
Hudson	0	0
Lenoir	0	0
Rhodhiss	0	0
Sawmills	0	1
Subtotal Caldwell	*15*	*9*
Catawba County (Unincorporated Area)	**12**	**9**
Brookford	0	0
Catawba	0	0
Claremont	0	0
Conover	1	0
Hickory	1	1
Long View	0	0

Jurisdiction	High	Intermediate
Maiden	1	0
Newton	1	0
Subtotal Catawba	*16*	*10*
TOTAL UNIFOUR	**53**	**36**

Source: North Carolina Dams Program, North Carolina Department of Environment and Natural Resources (NCDENR).

Extent (Magnitude and Severity)

Two factors influence the potential severity of a dam failure: the amount of water impounded, and the density, type, and value of development and infrastructure located downstream. The potential extent of dam failure may be classified according to their "hazard potential," meaning the probable damage that would occur *if* the structure failed, in terms of loss of human life and economic loss or environmental damage. The State of North Carolina classifies dam structures under its regulations according to hazard potential as described in **Table 4.22**. It is important to note that these classifications are not based on the adequacy or structural integrity of existing dam structures.

Table 4.22: Classification of Hazard Potential for North Carolina Dams

Hazard Classification	Description	Quantitative Guidelines
Low	1) Interruption of road service, low volume roads 2) Economic damage	1) Less than 25 vehicles per day 2) Less than $30,000
Intermediate	1) Damage to highways, interruption of service 2) Economic damage	1) 25 to less than 250 vehicles per day 2) $30,000 to less than $200,000
High	1) Probable loss of human life due to breached roadway or bridge on or below the dam 2) Economic damage	1) Probable loss of 1 or more human lives 2) More than $200,000

Source: North Carolina Dams Program, North Carolina Department of Environment and Natural Resources (NCDENR).

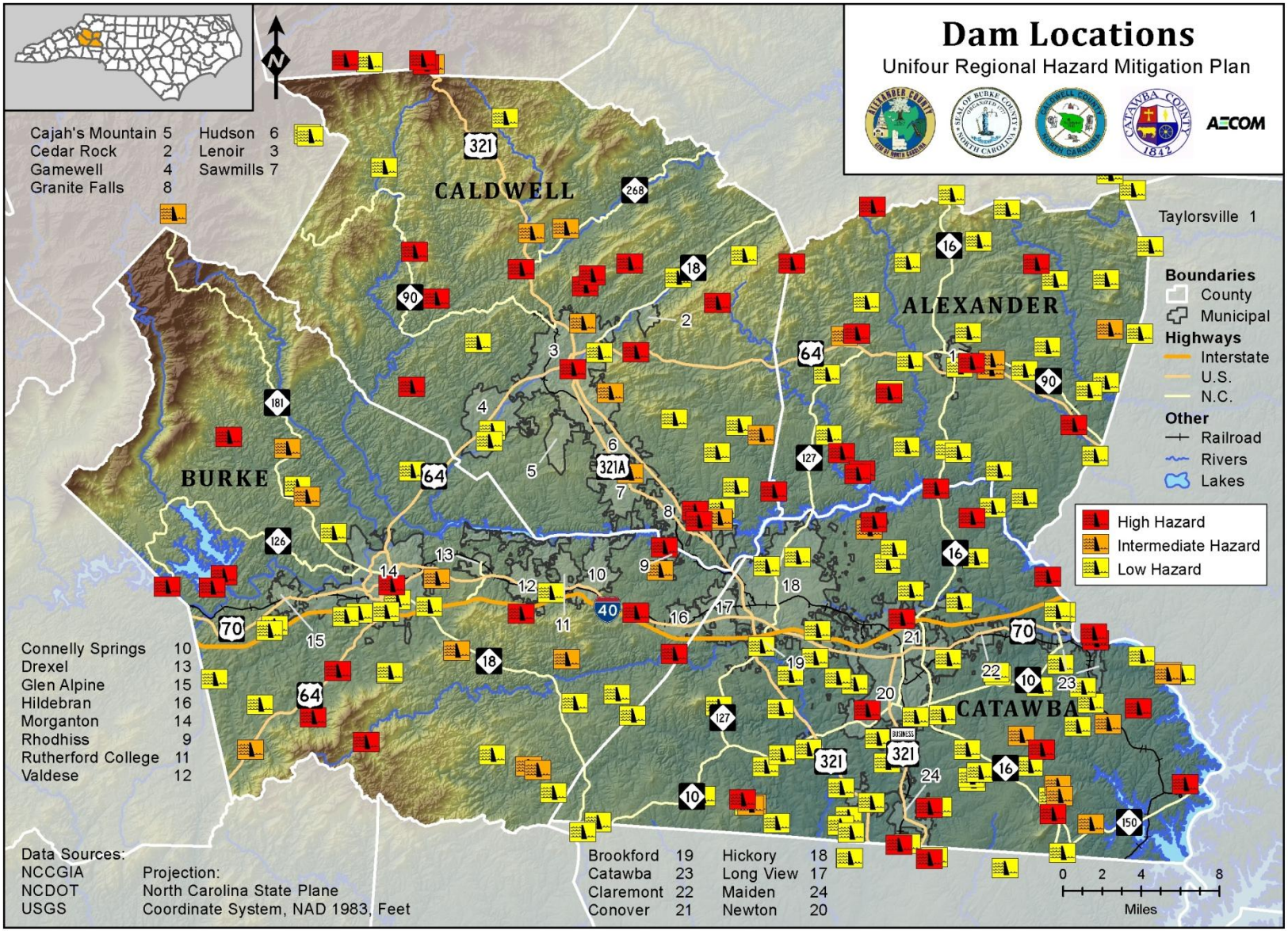
Historical Occurrences

There are no records of historical dam failure occurrences in or affecting the planning area.

Probability of Future Occurrences

The probability of the future occurrence of a failure at a large dam structure, especially one owned by Duke Energy Corporation, is considered to be unlikely. The probability of occurrence at smaller, privately owned dam structures is much more likely, however data is not currently available for these smaller structures, both in terms of point locations and mapped inundation areas. The HMPC does understand however that even if an event is considered to be highly unlikely, there could be high consequences should an event occur.

Figure 4.37: Locations of State-Regulated Dams



Dam/Levee Failure Hazard Vulnerability

There is a fundamental limitation in the data available for vulnerability assessment for the dam/levee failure hazard in the planning area. Excellent data is available for GIS analysis, including point locations and mapped inundation areas, for the dams owned by Duke Energy Corporation. These include the Bridgewater Dam, Lookout Shoals Dam, Oxford Dam, and Rhodhiss Dam PMF Inundation Areas. These are large facilities that would undoubtedly have a profound impact on the planning area should a failure occur; however, such failures are considered to be extremely unlikely and the HMPC feels strongly that these are not the structures that are of concern to the Unifour Region. The dam structures that are of concern are smaller, privately owned, and unregulated dams for which no GIS data or inventories are currently available. These are the facilities that could and likely would cause the most damage and disruption should a more likely failure occur.

It has been determined therefore that presenting detailed risk assessment results for the Duke Energy facilities, even though data is available, would be misleading and unproductive for the purposes of mitigation planning. It has also been determined that any rudimentary calculations based on the point locations for the dams mapped by NCDENR (as shown in Figure 4.37) would also be potentially misleading if any type of buffer or proximity analysis was performed to estimate surrounding impacts should a failure occur.

Any mitigation actions developed for this hazard therefore should be based on addressing data limitations, education and awareness programs, and/or any jurisdiction-specific concerns that may be addressable through an appropriate mitigation project.

4.5.1.4 Drought/Extreme Heat

Drought/Extreme Heat Hazard Description

Drought is a natural climatic condition caused by an extended period of limited rainfall beyond that which occurs naturally in a broad geographic area. High temperatures, high winds, and low humidity can worsen drought conditions, and can make areas more susceptible to wildfire. Human demands and actions can also hasten drought-related impacts.

Droughts are frequently classified as one of the following four types: meteorological, agricultural, hydrological, or socio-economic. Meteorological droughts are typically defined by the level of "dryness" when compared to an average, or normal amount of precipitation over a given period of time. Agricultural droughts relate common characteristics of drought to their specific agricultural-related impacts (when the amount of moisture in soil does not meet the needs of a particular crop). Hydrological drought is directly related to the effect of precipitation shortfalls on surface and groundwater supplies. Human factors, particularly changes in land use, can alter the hydrologic characteristics of a basin. Socio-economic drought is the result of water shortages that affect people and limit the ability to supply water-dependent products in the marketplace.

Drought conditions typically do not cause property damages or threaten lives, but rather drought effects are most directly felt by agricultural sectors. At times, drought may also cause community-wide impacts as a result of acute water shortages (regulatory use restrictions, drinking water supply, and salt water intrusion). The magnitude of such impacts correlates directly with local groundwater supplies, reservoir storage, and development densities. Drought conditions can also contribute to or exacerbate extreme heat concerns, particularly with regard to elderly populations.

Drought/Extreme Heat Hazard Analysis

In recent years, all of western North Carolina has experienced severe to extreme drought conditions. The drying up of wells and the subsequent necessary replacement of wells is one indicator of the local severity of drought over the past 10 years.

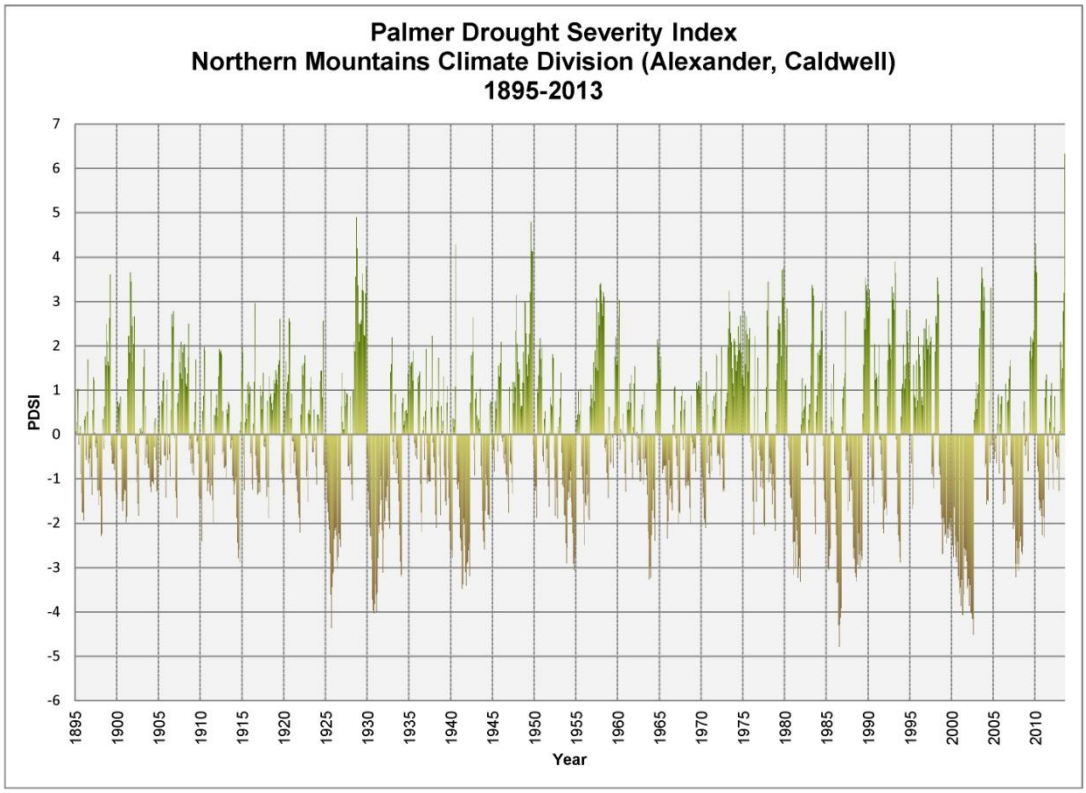
Location Within the Planning Area

Typically the National Weather Service looks at drought and extreme heat as episodes that impact a widespread forecast "zone," and therefore it is not common to pinpoint a specific location within a planning area that is more susceptible to these hazards than others. From this viewpoint, each county is considered uniformly at risk to drought and extreme heat. However, the most significant financial losses are likely to occur in areas that are primarily agricultural.

Extent (Magnitude and Severity)

As supported by the historical occurrences presented in the following subsection, the magnitude and severity of the drought/extreme heat hazard in the planning area is considered to be relatively mild. No deaths, injuries, property damages, or crop damages have been reported according to NCDC since 1998 so it is difficult to assign any specific severity rating to this hazard. **Figure 4.38** shows the Palmer Drought Severity Index (PDSI) for the Northern Mountains Climate Division for Alexander and Caldwell counties from 1895 through July 2013, which is an indication of periodic highs and lows for drought conditions. Similar graphs are available for Burke and Catawba counties.

Figure 4.38: Palmer Drought Severity Index for the Northern Mountains Climate Division



Source: National Oceanic and Atmospheric Administration

Historical Occurrences

The following historical occurrences of drought ranging from 1998 to the present have been identified based on the NCDC Storm Events database (**Table 4.23**). It should be noted that only those historical occurrences listed in the NCDC database are shown here and that other, unrecorded or unreported events may have occurred within the planning area during this timeframe.

Table 4.23: Historical Occurrences of Drought

Dates	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
ALEXANDER COUNTY				
07/01/98-11/01/98	0	0	$0	$0
07/01/99-10/01/99	0	0	$0	$0
08/01/00-11/01/00	0	0	$0	$0
02/01/01-12/01/01	0	0	$0	$0
08/01/02	0	0	$0	$0
05/01/04	0	0	$0	$0
05/01/07-12/01/07	0	0	$0	$0
01/01/08-11/01/08	0	0	$0	$0
Subtotal Alexander	0	0	$0	$0

Dates	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
BURKE COUNTY				
07/01/98-11/01/98	0	0	$0	$0
07/01/99-10/01/99	0	0	$0	$0
08/01/00-11/01/00	0	0	$0	$0
02/01/01-12/01/01	0	0	$0	$0
08/01/02	0	0	$0	$0
05/01/04	0	0	$0	$0
Subtotal Burke	0	0	$0	$0
CALDWELL COUNTY				
07/01/98-11/01/98	0	0	$0	$0
07/01/99-10/01/99	0	0	$0	$0
08/01/00-11/01/00	0	0	$0	$0
02/01/01-12/01/01	0	0	$0	$0
08/01/02	0	0	$0	$0
05/01/04	0	0	$0	$0
Subtotal Caldwell	0	0	$0	$0
CATAWBA COUNTY				
07/01/98-11/01/98	0	0	$0	$0
07/01/99-10/01/99	0	0	$0	$0
08/01/00-11/01/00	0	0	$0	$0
02/01/01-12/01/01	0	0	$0	$0
08/01/02	0	0	$0	$0
05/01/04	0	0	$0	$0
05/01/07-12/01/07	0	0	$0	$0
01/01/08-11/01/08	0	0	$0	$0
Subtotal Catawba	0	0	$0	$0
TOTAL UNIFOUR	**0**	**0**	**$0**	**$0**

Source: National Climatic Data Center Storm Events Database

According to NCDC, eight recorded instances of prolonged drought conditions have affected the planning area since 1998, causing an estimated $0 in property damages, $0 in losses to agricultural crops, 0 deaths, and 0 injuries.

Probability of Future Occurrences

Based on the historical occurrences presented in the previous subsection, it is likely that the Unifour Region will continue to experience periods of prolonged drought. It is considered to be unlikely however that the region will experience extreme conditions that would result in deaths, injuries, property damage, or significant crop damage.

Drought/Extreme Heat Hazard Vulnerability

All of the inventoried assets in the Unifour Region are technically exposed to the drought/extreme heat hazard. However, it is not possible through GIS or anecdotal methods to determine specific numbers and values of individual assets that are more vulnerable to this hazard, especially in terms of the built environment. Further, all crops and other natural assets are considered to be equally at

risk based on the data available and therefore no specific breakdown is possible. Any anticipated future damages or losses are expected to be minimal based on historical occurrences and other factors as described above.

4.5.2 Atmospheric Hazards (Severe Storms)

Atmospheric hazards generally have their own individual characteristics, geographic areas that may be affected, time of year they are most likely to occur, severity, and associated risk. Atmospheric hazards include thunderstorm, lightning, and hail; tornado; winter weather; and hurricane and tropical storm. In many cases, a natural hazard event involving atmospheric hazards involves more than one individual atmospheric hazard. For example, severe thunderstorms can produce lighting, hail, tornadoes, and damaging winds. Atmospheric hazards are presented separately from other categories of hazards but they may be interrelated. For example, severe thunderstorms can produce flooding, and other extreme weather events can lead to problems with dams and levees, cause landslides, exacerbate erosion, etc.

4.5.2.1 Thunderstorm, Lightning, and Hail

Thunderstorm, Lightning, and Hail Hazard Description

Thunderstorms are caused when air masses of varying temperatures meet. Rapidly rising warm moist air serves as the "engine" for thunderstorms. These storms can occur singularly, in lines, or in clusters. They can move through an area very quickly or linger for several hours. According to the National Weather Service, more than 100,000 thunderstorms occur each year, though only about 10% of these storms are classified as "severe." Although thunderstorms generally affect a small area when they occur, they are very dangerous because of their ability to generate tornadoes, hailstorms, strong winds, flash flooding, and damaging lightning. While thunderstorms can occur in all regions of the United States, they are most common in the central and southern states because atmospheric conditions in those regions are most ideal for generating these powerful storms.

Lightning is a discharge of electrical energy resulting from the buildup of positive and negative charges within a thunderstorm, creating a "bolt" when the buildup of charges becomes strong enough. This flash of light usually occurs within the clouds or between the clouds and the ground. A bolt of lightning can reach temperatures approaching 50,000 degrees Fahrenheit. Lightning rapidly heats the sky as it flashes, but the surrounding air cools following the bolt. This rapid heating and cooling of the surrounding air causes thunder. On average, 73 people are killed each year by lightning strikes in the United States.

Hail is a product of thunderstorms or intense showers. Hail is generally white and translucent, consisting of liquid or snow particles encased with layers of ice. Hail is formed within the high portion of a well-organized thunderstorm. When hailstones become too heavy to be caught in an updraft and carried back into the clouds of a thunderstorm (hailstones can be caught in numerous updrafts, adding a coating of ice to the original frozen droplets each time), they then fall as hail, and a hailstorm occurs.

Thunderstorm, Lightning, and Hail Hazard Analysis

Thunderstorms are common throughout the state of North Carolina, and have been known to occur during all calendar months.

Location Within the Planning Area
Thunderstorms, including lightning and hail, are widespread atmospheric disturbances that are not isolated to a specific geographic location. Therefore it is assumed that the entire planning area is exposed to these hazards. However, it is possible to map historic average annual cloud-to-ground lightning strikes and historic hail reporting by diameter as an indication of where in the Unifour Region these hazards have previously been observed and to what degree (**Figure 4.39**).

Extent (Magnitude and Severity)
Thunderstorms, lightning, and hail are known to be damaging hazard occurrences in the Unifour Region that can result in multiple injuries. There is currently no specific overall scale to rank the potential severity of severe events of this type but it is assumed that the magnitude and severity of future occurrences will be similar to that of historical occurrences.

The highest recorded thunderstorm winds in the planning area (according to NCDC) were 75 knots reported in Rutherford College in Burke County in 1997. The largest recorded size of a hailstone in the planning area (according to NCDC) is 4.5 inches reported in Morganton in Burke County (in 2000) and in Newton in Catawba County (in 1998).

There are some national studies that suggest that the risk of severe thunderstorms that produce torrential rain, damaging winds, large hail, and tornadoes may increase due to changes in the climate. However, there is currently no evidence to suggest at what rate this may occur within the Unifour Region.

Historical Occurrences
The following historical occurrences ranging from 1996 to the present have been identified based on the NCDC Storm Events database (**Table 4.24**). It should be noted that only those historical occurrences listed in the NCDC database are shown here and that other, unrecorded or unreported events may have occurred within the planning area during this timeframe.

Table 4.24: Summary of Historical Thunderstorm, Lightning, and Hail Occurrences by Participating Jurisdiction (January 1996 through April 2013)

Jurisdiction	Number of Thunder-storm High Wind Events	Number of Lightning Events	Number of Hail Events	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Alexander County (Unincorporated Area)	43	3	16	0	2	$243,000	$0
Taylorsville	23	3	20	0	0	$1,100,000	$0
Subtotal Alexander	66	6	36	0	2	$1,343,000	$0
Burke County (Unincorporated Area)	40	2	23	0	1	$1,040,000	$0
Connelly Springs	3	0	1	0	0	$0	$0
Drexel	2	0	5	0	0	$0	$0
Glen Alpine	6	2	14	0	1	$50,000	$0
Hildebran	1	1	4	0	1	$0	$0
Morganton	42	8	62	0	11	$183,000	$0

Jurisdiction	Number of Thunder-storm High Wind Events	Number of Lightning Events	Number of Hail Events	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Valdese	4	0	3	0	0	$0	$0
Rutherford College	3	1	2	0	1	$25,000	$0
Subtotal Burke	101	14	114	0	15	$1,298,000	$0
Caldwell County (Unincorporated Area)	32	2	41	0	0	$100,000	$0
Cajah's Mountain	0	0	0	0	0	$0	$0
Cedar Rock	0	0	0	0	0	$0	$0
Gamewell	1	0	3	0	0	$0	$0
Granite Falls	6	1	7	0	0	$20,000	$0
Hudson	2	1	0	0	0	$100,000	$0
Lenoir	29	4	27	0	0	$137,000	$0
Rhodhiss	1	0	0	0	0	$0	$0
Sawmills	3	0	0	0	0	$3,000	$0
Subtotal Caldwell	74	8	78	0	0	$260,000	$0
Catawba County (Unincorporated Area)	35	4	17	0	0	$115,000	$0
Brookford	0	0	3	0	0	$0	$0
Catawba	8	0	6	0	0	$20,000	$0
Claremont	13	2	8	0	1	$85,000	$0
Conover	8	2	9	0	0	$11,000	$0
Hickory	45	10	29	0	1	$449,000	$0
Long View	4	0	5	0	0	$10,000	$0
Maiden	8	0	14	0	0	$1,000	$0
Newton	19	2	16	0	0	$10,057,000	$0
Subtotal Catawba	140	20	107	0	2	$10,748,000	$0
TOTAL UNIFOUR	**381**	**48**	**335**	**0**	**19**	**$13,649,000**	**$0**

Source: National Climatic Data Center Storm Events Database

According to NCDC, 764 recorded instances of thunderstorm, lightning, and hail conditions have affected the planning area since 1996, causing an estimated $13,649,000 in property damages, $0 in crop damages, 0 deaths, and 19 reported injuries.

Probability of Future Occurrences

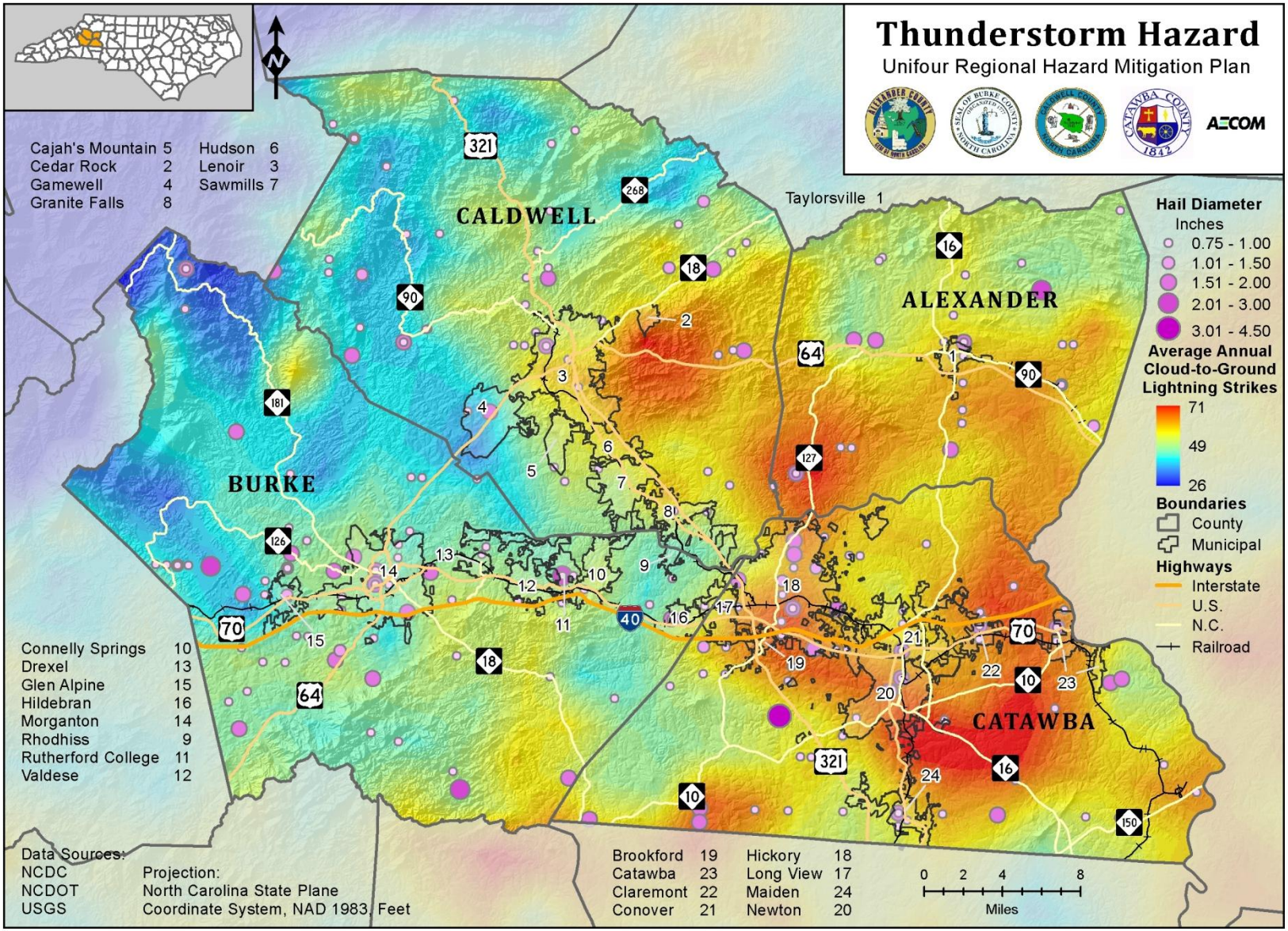
The probability of future occurrences of thunderstorm, lightning, and hail events is considered to be highly likely based on historical occurrences.

There are some national studies that suggest that the frequency of severe thunderstorms that produce torrential rain, damaging winds, large hail, and tornadoes may increase due to changes in the climate. However, there is currently no evidence to suggest at what rate this may occur within the Unifour Region.

Thunderstorm, Lightning, and Hail Hazard Vulnerability

All of the inventoried assets in the Unifour Region are exposed to thunderstorm, lightning, and hail. Any specific vulnerability of individual assets depends greatly on individual design, building characteristics, and any existing mitigation measures currently in place. Such site-specific vulnerability determinations are outside the scope of this risk assessment but may be considered during future plan updates.

Figure 4.39: Historic Lightning and Hail Observations in the Unifour Region



4.5.2.2 Tornado

Tornado Hazard Description

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud extending to the ground. Tornadoes are most often generated by thunderstorm activity (but sometimes result from hurricanes and other tropical storms) when cool, dry air intersects and overrides a layer of warm, moist air forcing the warm air to rise rapidly. The damage caused by a tornado is a result of the high wind velocity and wind-blown debris, also accompanied by lightning or large hail. According to the National Weather Service, tornado wind speeds normally range from 40 to more than 300 mph. The most violent tornadoes have rotating winds of 250 mph or more, and are capable of causing extreme destruction and turning normally harmless objects into deadly missiles.

The damage caused by tornadoes ranges from gale force to "incredible," depending on the intensity, size, and duration of the storm. Typically, tornadoes cause the greatest damage to structures of light construction such as residential homes (particularly mobile homes). **Table 4.25** shows the Enhanced Fujita Scale for Tornado Damage[11] which was implemented in 2007 to replace the original Fujita Scale and to more accurately measure tornado strength and associated damages.

Table 4.25: Enhanced Fujita Scale for Tornado Damage

Storm Category	Damage Level	3 Second Gust (mph)	Description of Damages
EF0	Gale	65–85	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages to sign boards.
EF1	Weak	86–110	The lower limit is the beginning of hurricane wind speed; peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages might be destroyed.
EF2	Strong	111–135	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.
EF3	Severe	136–165	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.
EF4	Devastating	166–200	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.
EF5	Incredible	200+	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles fly through the air in excess of 100 meters; trees debarked; steel re-enforced concrete structures badly damaged.

Source: National Oceanic and Atmospheric Administration, Federal Emergency Management Agency

[11] The Enhanced Fujita Scale for Tornado Damage can be accessed online at http://www.spc.noaa.gov/faq/tornado/ef-scale.html.

The original Fujita Tornado Damage Scale[12] is not shown here in order to avoid confusion. However, it is worth noting that tornado events that occurred prior to 2007 may be referenced by the original F-Scale numbers and associated damages may differ from those presented above.

Each year, an average of more than 800 tornadoes is reported nationwide, resulting in an average of 80 deaths and 1,500 injuries. They are more likely to occur during the months of March through May and can occur at any time of day, but are likely to form in the late afternoon and early evening. Most tornadoes are a few dozen yards wide and touch down briefly, but even small short-lived tornadoes can inflict tremendous damage. Highly destructive tornadoes might carve out a path over a mile wide and several miles long.

The tornadoes associated with tropical cyclones are most frequent in September and October when the incidence of tropical storm systems is greatest. This type of tornado usually occurs around the perimeter of the storm, and most often to the right and ahead of the storm path or the storm center as it comes ashore. These tornadoes commonly occur as part of large outbreaks and generally move in an easterly direction.

Tornado Hazard Analysis

When compared with other states, North Carolina ranks #22 in number of tornado events, #20 in tornado deaths, #17 in tornado injuries, and #21 in damages. These rankings are based upon data collected for all states and territories for tornado events between 1950 and 1994 (SPC, 2003). According to the State Climate Office of North Carolina, most (43%) of tornado occurrences in North Carolina are minimal (EF0) in intensity, followed by EF1 (37%).

Location Within the Planning Area

Tornadoes are unpredictable manifestations and are not isolated to a specific geographic location. Therefore it is assumed that the entire planning area is exposed to this hazard. However, it is possible to map historic tornado point locations and damage paths as an indicator of where tornadoes are known to have occurred throughout the planning area (**Figure 4.40**).

Extent (Magnitude and Severity)

Tornadoes of any magnitude and severity are possible within the planning area. Since 1951, the highest magnitude tornado to impact the Unifour Region has been an F4 on the Fujita Scale for Tornado Damage which has occurred on two separate occasions in two different counties in the planning area (see *Historical Occurrences* subsection below).

Historical Occurrences

The following historical occurrences ranging from 1950 to the present have been identified based on the NCDC Storm Events database (**Table 4.26**). It should be noted that only those historical occurrences listed in the NCDC database are shown here and that other, unrecorded or unreported events may have occurred within the planning area during this timeframe.

[12] The original Fujita Tornado Damage Scale can be accessed online at http://www.spc.noaa.gov/faq/tornado/f-scale.html.

Table 4.26: Historical Occurrences of Tornadoes

Location	Date	Magnitude	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
ALEXANDER COUNTY						
Alexander County	03/10/92	N/A	N/A	N/A	N/A	N/A
Hiddenite	05/07/98	F0	0	0	$425,000	$0
Bethlehem	05/07/98	F1	0	0	$450,000	$0
Taylorsville	07/07/05	F2	0	0	$150,000	$0
All Healing Springs	04/28/11	EF1	0	0	$0	$0
Paynes Store Road	08/18/11	EF0	0	0	$500,000	$0
Subtotal Alexander	6 Events		0	0	$1,525,000	$0
BURKE COUNTY						
Burke County	04/03/74	F1	N/A	N/A	$25,000	$0
Burke County	05/24/79	F2	N/A	N/A	$250,000	$0
Bridgewater	05/24/00	F0	0	0	$50,000	$0
Morganton	05/24/00	F0	0	0	$0	$0
Morganton	05/11/08	EF0	0	0	$0	$0
Brindletown	09/27/10	EF1	0	0	$400,000	$0
Burke Chapel	01/11/12	EF2	0	8	$13,400,000	$0
Subtotal Burke	7 Events		0	8	$14,125,000	$0
CALDWELL COUNTY						
Caldwell County	05/27/73	F1	0	0	$25,000	$0
Caldwell County	04/04/74	F2	0	0	$250,000	$0
Caldwell County	07/09/77	F0	0	0	$25,000	$0
Caldwell County	05/05/89	F2	0	0	$250,000	$0
Dudley Shoals	08/16/94	F0	0	0	$50,000	$0
Dudley Shoals	05/07/98	F4	0	2	$1,100,000	$0
Sawmills	04/28/11	EF1	0	1	$0	$0
Rhodhiss	01/11/12	EF0	0	0	$0	$0
Subtotal Caldwell	8 Events		0	3	$1,700,000	$0
CATAWBA COUNTY						
Catawba County	08/09/51	F2	0	0	$25,000	$0
Catawba County	08/18/54	F2	0	0	$25,000	$0
Catawba County	05/23/73	F1	0	2	$25,000	$0
Catawba County	05/27/73	F1	0	0	$250,000	$0
Catawba County	03/14/75	F1	0	0	$3,000	$0
Catawba County	05/25/75	F1	0	0	$3,000	$0
Catawba County	09/18/82	F1	0	0	$25,000	$0
Catawba County	05/05/89	F4	0	3	$25,000,000	$0
Catawba County	03/07/92	F0	0	0	$3,000	$0
Catawba County	11/22/92	F1	0	0	$250,000	$0
Northeast Hickory	08/16/94	F2	0	1	$500,000	$0
Hickory	09/28/98	F0	0	0	$20,000	$0

Location	Date	Magnitude	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Plateau	10/26/10	EF0	0	0	$0	$0
Claremont	10/26/10	EF2	0	0	$6,610,000	$0
Terrell	10/26/10	EF0	0	0	$0	$0
Subtotal Catawba	15 Events		0	6	$32,739,000	$0
TOTAL UNIFOUR	**36 Events**		**0**	**17**	**$50,089,000**	**$0**

Source: National Climatic Data Center Storm Events Database

According to the information provided in the preceding table, 36 recorded instances of tornadoes have affected the planning area since 1950, causing an estimated $50,089,000 in property damage, $0 in crop damages, 0 deaths, and 17 injuries. The highest magnitude tornado on record is an F4. The lowest magnitude tornado on record is an F0.

Table 4.27 provides a summary of this historical information by participating jurisdiction.

Table 4.27: Summary of Historical Tornado Occurrences by Jurisdiction

Jurisdiction	Number of Occurrences	Maximum Magnitude	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Alexander County (Unincorporated Area)	5	F1	0	0	$1,375,000	$0
Taylorsville	1	F2	0	0	$150,000	$0
Subtotal Alexander	6	F2	0	0	$1,525,000	$0
Burke County (Unincorporated Area)	5	EF2	0	8	$14,125,000	$0
Connelly Springs	0	N/A	0	0	$0	$0
Drexel	0	N/A	0	0	$0	$0
Glen Alpine	0	N/A	0	0	$0	$0
Hildebran	0	N/A	0	0	$0	$0
Morganton	2	EF0	0	0	$0	$0
Valdese	0	N/A	0	0	$0	$0
Rutherford College	0	N/A	0	0	$0	$0
Subtotal Burke	7	EF2	0	8	$14,125,000	$0
Caldwell County (Unincorporated Area)	6	F4	0	2	$1,700,000	
Cajah's Mountain	0	N/A	0	0	$0	$0
Cedar Rock	0	N/A	0	0	$0	$0
Gamewell	0	N/A	0	0	$0	$0
Granite Falls	0	N/A	0	0	$0	$0
Hudson	0	N/A	0	0	$0	$0
Lenoir	0	N/A	0	0	$0	$0
Rhodhiss	1	EF0	0	0	$0	$0
Sawmills	1	EF1	0	1	$0	$0
Subtotal Caldwell	8	F4	0	3	$1,700,000	$0

Jurisdiction	Number of Occurrences	Maximum Magnitude	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Catawba County (Unincorporated Area)	13	F4	0	6	$26,109,000	$0
Brookford	0	N/A	0	0	$0	$0
Catawba	0	N/A	0	0	$0	$0
Claremont	1	EF2	0	0	$6,610,000	$0
Conover	0	N/A	0	0	$0	$0
Hickory	1	F0	0	0	$20,000	$0
Long View	0	N/A	0	0	$0	$0
Maiden	0	N/A	0	0	$0	$0
Newton	0	N/A	0	0	$0	$0
Subtotal Catawba	15	F4	0	6	$32,739,000	$0
TOTAL UNIFOUR	**36**	**F4**	**0**	**17**	**$50,089,000**	**$0**

Source: National Climatic Data Center Storm Events Database

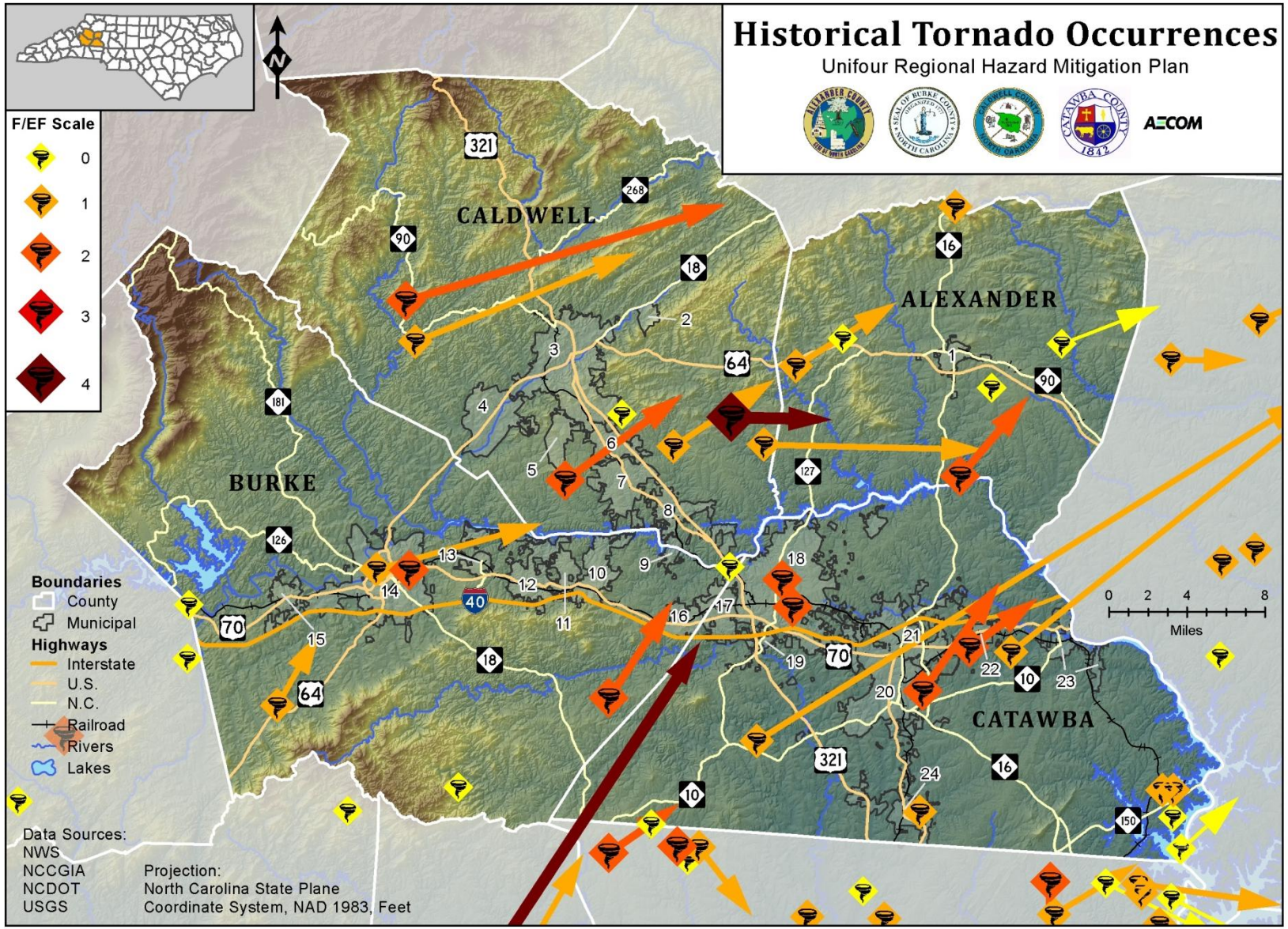
Probability of Future Occurrences

Future occurrences of potentially damaging tornadoes in the planning area are considered to be highly likely.

Tornado Hazard Vulnerability

All of the inventoried assets in the Unifour Region are exposed to potential tornado activity. Any specific vulnerability of individual assets would depend greatly on individual design, building characteristics, and any existing mitigation measures currently in place. Such site-specific vulnerability determinations are outside the scope of this risk assessment but may be considered during future plan updates.

Figure 4.40: Historic Tornado Point Locations and Damage Paths in the Unifour Region



4.5.2.3 Winter Weather

Winter Weather Hazard Description

In general, winter weather events may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation, all of which may create locally hazardous conditions regardless of the magnitude of the overall event. Blizzards, the most dangerous of all winter storms, combine heavy snowfall, low temperatures, and winds of at least 35 mph, reducing visibility to only a few yards. Blizzards have been reported in a number of counties in western North Carolina. Ice storms occur when moisture falls and freezes immediately upon impact on trees, power lines, communication towers, structures, roads, and other hard surfaces. Ice storms can down trees, cause widespread power outages, damage property, and cause fatalities and injuries to human life.

Winter Weather Hazard Analysis

Nearly the entire continental United States is susceptible to severe winter weather events. Some winter storms may be large enough to affect several states, while others might affect limited, more localized areas. The degree of exposure typically depends on the normal expected severity of local winter weather. The Unifour Region is accustomed to severe winter weather conditions, and frequently receives winter weather during the winter months. Given the atmospheric nature of the hazard, the entire region has uniform exposure to a winter storm.

Location Within the Planning Area

Winter weather, including blizzards, frosts/freezes, heavy snow and sleet, are widespread atmospheric conditions that are not isolated to a specific geographic location. Therefore it is assumed that the entire planning area is exposed to this hazard. However, it is possible to map average annual snowfall and greatest one-day snowfall as an indicator of where severe conditions have been observed historically in the Unifour Region (**Figure 5.41** and **5.42**).

Extent (Magnitude and Severity)

There is currently no overall scale to rank the potential severity of severe winter weather events of this type but it is assumed that the magnitude and severity of future occurrences will be similar to that of historical occurrences.

Historical Occurrences

The following historical occurrences ranging from 1996 to the present have been identified based on the NCDC Storm Events database. NCDC presents winter weather hazards under multiple subcategories. **Table 4.28** shows occurrences of winter weather, blizzards, frost/freezes, heavy snow, and sleet. Because winter weather affects a large geographic area, this information is processed by NCDC in forecast "zones," and therefore a municipal-level breakdown is not provided. Similarly, it is important to note that many of the events shown for one county are the same events that are counted for one of the other four counties in the planning area. For these reasons, totals are not provided in the table for the Unifour area as a whole as some double-counting would be inherent in the numbers. Also, only those historical occurrences listed in the NCDC database are shown here and other smaller, unrecorded, or unreported events may have occurred within the planning area during this timeframe.

Figure 4.40: Average Annual Snowfall in the Unifour Region

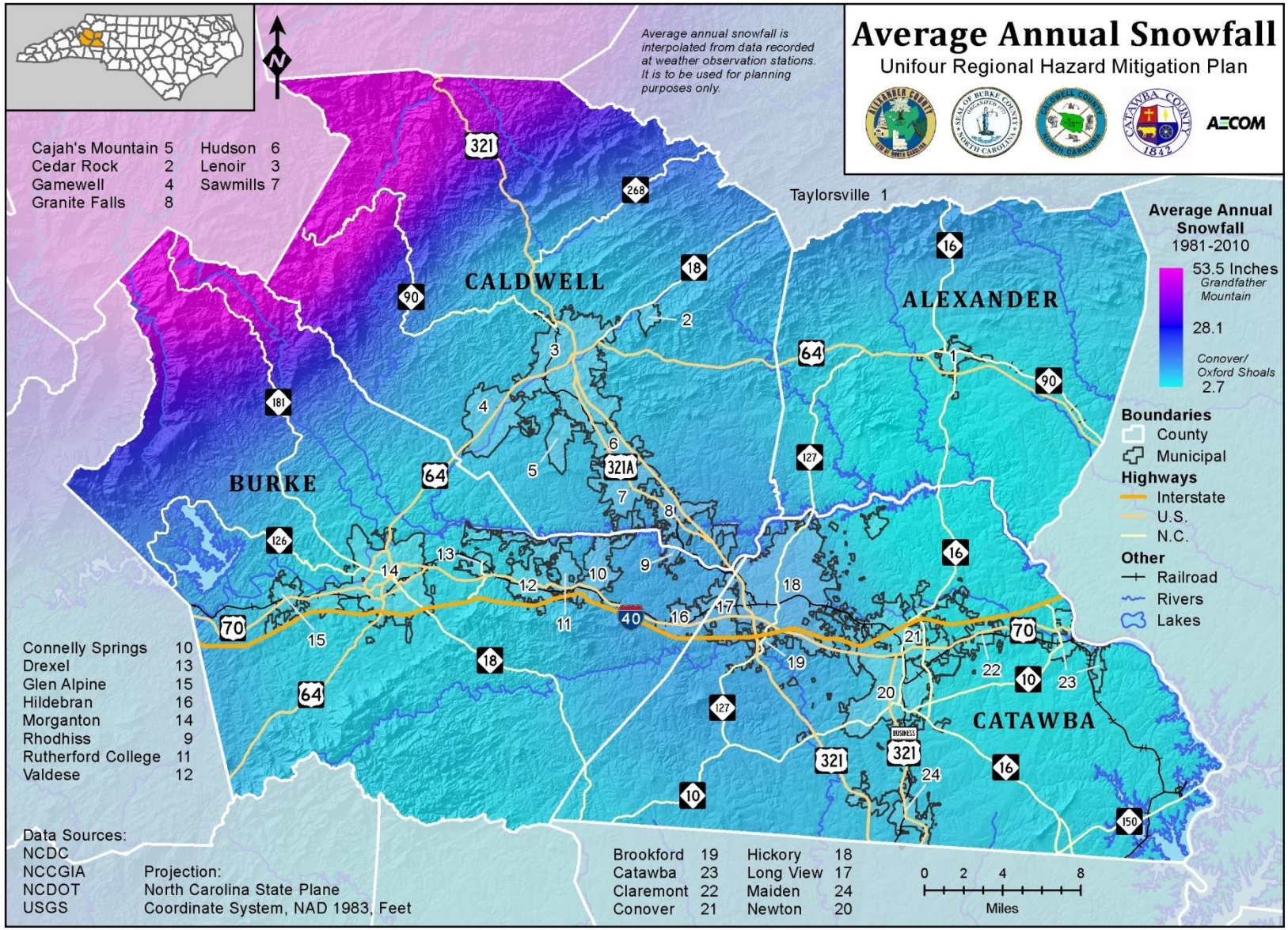


Figure 4.41: Greatest One-Day Snowfall in the Unifour Region

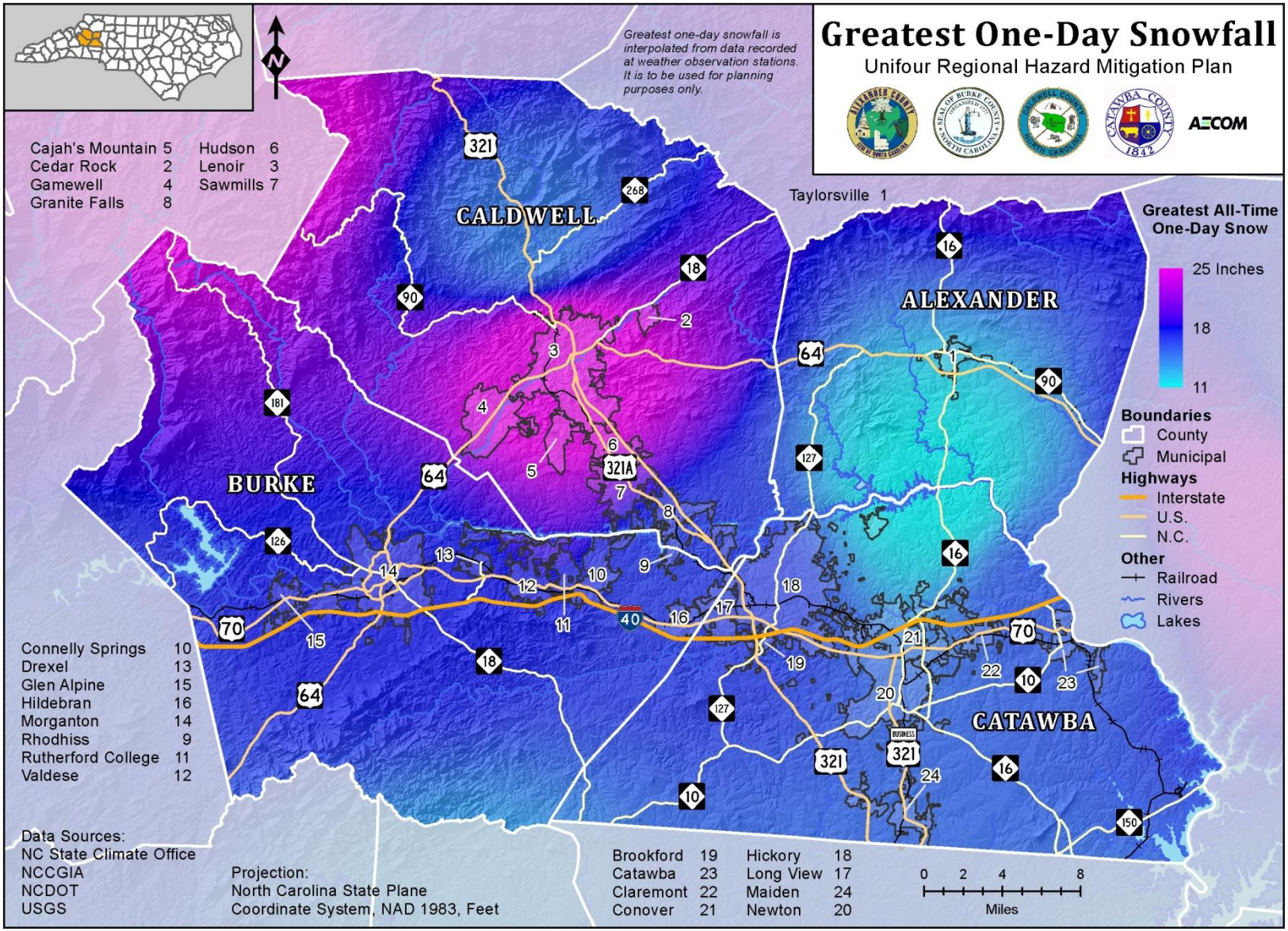


Table 4.28: Summary of Winter Weather Occurrences by Participating Jurisdiction (January 1996 through April 2013)

Jurisdiction	Number of Winter Weather Events	Number of Blizzard Events	Number of Frost/ Freeze Events	Number of Heavy Snow Events	Number of Sleet Events	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Alexander County	31	0	3	19	7	0	0	$0	$1,000,000
Burke County	26	0	1	23	6	0	0	$2,000	$0
Caldwell County	22	0	1	18	5	0	0	$0	$0
Catawba County	31	0	3	18	5	0	0	$2,000	$1,000,000

Source: National Climatic Data Center Storm Events Database

In summary, a total of at least 31 separate winter weather events, three frost/freeze events, 23 heavy snow events, and seven sleet events have affected the planning area since 1996, causing less than $5,000 in property damages and at least $1 million in crop damages (due to freezes). No deaths or injuries from winter weather have been reported.

Probability of Future Occurrences

It is assumed that the probably of future occurrences of winter weather events in the Unifour Region is highly likely and is anticipated to be similar in nature to known historical occurrences.

Winter Weather Hazard Vulnerability

All of the inventoried assets in the Unifour Region are exposed to potential winter weather. Any specific vulnerabilities of individual assets would depend greatly on individual design, building characteristics (such as a flat roof), and any existing mitigation measures currently in place. Such site-specific vulnerability determinations are outside the scope of this risk assessment but may be considered during future plan updates.

4.5.2.4 Hurricane and Tropical Storm

Hurricane/Tropical Storm Hazard Description

Hurricanes and tropical storms are classified as cyclones and are defined as any closed circulation developing around a low-pressure center in which the winds rotate counter-clockwise in the Northern Hemisphere (or clockwise in the Southern Hemisphere) and whose diameter averages 10 to 30 miles across. A tropical cyclone refers to any such circulation that develops over tropical waters. Tropical cyclones act as a "safety-valve," limiting the continued build-up of heat and energy in tropical regions by maintaining the atmospheric heat and moisture balance between the tropics and the pole-ward latitudes. The primary damaging forces associated with these storms are high-level sustained winds, heavy precipitation that causes inland flooding, and tornadoes. While mentioned here, each of these individual forces are more thoroughly addressed as separate hazards within this risk assessment (e.g., flood and tornado).

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

As an incipient hurricane develops, barometric pressure (measured in millibars or inches) at its center falls and winds increase. If the atmospheric and oceanic conditions are favorable, it can intensify into a tropical depression. When maximum sustained winds reach or exceed 39 mph, the system is designated a tropical storm, given a name, and is closely monitored by the National Hurricane Center in Miami, Florida. When sustained winds reach or exceed 74 mph the storm is deemed a hurricane. Hurricane intensity is further classified by the Saffir-Simpson Scale (**Table 4.29**), which rates hurricane intensity in categories on a scale of 1 to 5, with category 5 being the most intense.

Table 4.29: Saffir-Simpson Scale for Hurricanes

Category	Maximum Sustained Wind Speed (MPH)	Minimum Surface Pressure (Millibars)	Storm Surge (Feet)
1	74–95	Greater than 980	3–5
2	96–110	979–965	6–8
3	111–130	964–945	9–12
4	131–155	944–920	13–18
5	155 +	Less than 920	19+

Source: National Oceanic and Atmospheric Administration

The Saffir-Simpson Scale categorizes hurricane intensity linearly based upon maximum sustained winds, barometric pressure and storm surge potential, which are combined to estimate potential damage. Categories 3, 4, and 5 are classified as "major" hurricanes, and while hurricanes within this range comprise only 20% of total tropical cyclone landfalls, they account for over 70% of the damage in the United States. **Table 4.30** describes the damage that could be expected for each

category of hurricane. Damage during hurricanes might also result from spawned tornadoes, storm surge, and inland flooding associated with heavy rainfall that usually accompanies these storms.

Table 4.30: Hurricane Damage Classification

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

Source: National Oceanic and Atmospheric Administration, Federal Emergency Management Agency

Hurricane/Tropical Storm Hazard Analysis

On average, North Carolina experiences a hurricane approximately once every two years. Substantial hurricane damage is typically most likely to be expected in the easternmost counties of the state; however, hurricane and tropical storm-force winds have significantly impacted areas far inland, including Alexander, Burke, Caldwell, and Catawba counties. In fact, 33 such storms have passed within 75 miles of the planning area since 1859, 10 of which crossed directly through the planning area (see **Figure 4.42** and **Table 4.31**). The total number of 33 includes two Category 1 hurricanes, 12 tropical storms, 12 tropical depressions, and 7 extra-tropical storms. Extra-tropical storms were included in the analysis due to the comparable wind speeds present with those events.

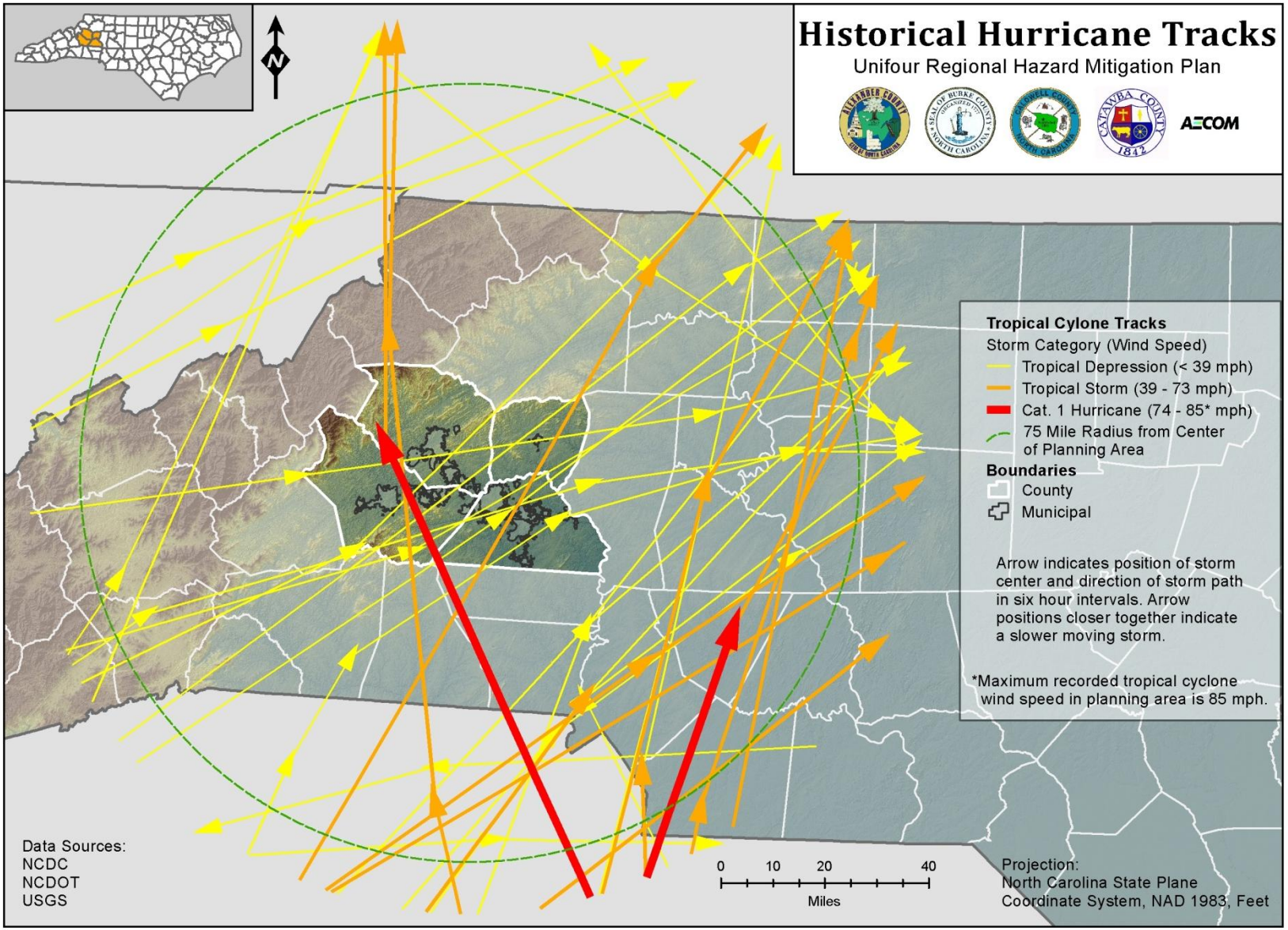
Location Within the Planning Area

Hurricanes and tropical storms are widespread atmospheric disturbances that are not isolated to a specific geographic location within the planning area. Therefore it is assumed that the entire planning area is exposed to this hazard.

Extent (Magnitude and Severity)

Hurricanes and tropical storms of any magnitude and severity are theoretically possible within the planning area, however major hurricanes (Category 3 and greater) are less likely to retain that classification as far inland as the Unifour Region. Since the 1850s, the greatest magnitude hurricane to impact the planning area has been a Category 1 hurricane in 1989 (Hurricane Hugo) (see *Historical Occurrences* section below). A Category 1 hurricane typically results in minimal damages, including damage primarily to unanchored mobile homes, shrubbery, and trees. Also, some coastal flooding and minor pier damage, etc. that is not applicable to the planning area.

Figure 4.42: Historical Hurricane and Tropical Storm Tracks in the Unifour Region



Historical Occurrences

Table 4.31 lists the 34 hurricane and tropical storm paths that have crossed within a 75 statute mile radius of the mean center of the planning area from 1859 to 2011 (the data from the National Hurricane Center is only current through 2011).

Table 4.31: Historical Occurrences of Hurricane Storm Paths Crossing within 75 Miles of the Planning Area

Name	Date	Magnitude	Maximum Recorded Wind Speed (mph)
Unnamed	09/17/1859	Tropical Storm	45
Unnamed	09/11/1882	Tropical Storm	45
Unnamed	06/22/1886	Tropical Storm	45
Unnamed	09/24/1889	Tropical Storm	50
Unnamed	08/28/1893	Category 1 Hurricane	85
Unnamed	07/19/1901	Tropical Depression	35
Unnamed	10/11/1902	Extra-tropical Storm	35
Unnamed	10/11/1905	Extra-tropical Storm	25
Unnamed	09/23/1907	Extra-tropical Storm	35
Unnamed	08/30/1911	Extra-tropical Storm	30
Unnamed	09/04/1913	Tropical Storm	45
Unnamed	08/03/1915	Tropical Depression	35
Unnamed	09/23/1920	Tropical Storm	65
Unnamed	10/03/1927	Tropical Storm	45
Unnamed	08/11/1928	Extra-tropical Storm	30
Unnamed	08/18/1939	Tropical Depression	30
Unnamed	08/14/1940	Extra-tropical Storm	35
Unnamed	08/28/1949	Tropical Storm	45
Able	08/31/1952	Tropical Storm	50
Gracie	09/30/1959	Tropical Storm	70
Cleo	08/30/1964	Tropical Depression	30
Abby	06/08/1968	Tropical Depression	30
Babe	09/08/1977	Tropical Depression	30
David	09/05/1979	Tropical Storm	65
Bob	07/25/1985	Tropical Storm	65
Danny	08/18/1985	Tropical Depression	30
Chris	08/29/1988	Tropical Depression	30
Hugo	09/22/1989	Category 1 Hurricane	85
Beryl	08/17/1994	Tropical Depression	15
Bill	07/02/2003	Tropical Depression	25
Ivan	09/09/2004	Tropical Depression	25
Jeanne	09/13/2004	Tropical Depression	25
Cindy	07/03/2005	Extra-tropical Storm	20

Source: NOAA National Hurricane Center

Figure 4.42 is based on the mapped paths of the storm systems shown in Table 4.31.

Probability of Future Occurrences
Future occurrences of hurricanes and tropical storms are considered to be likely.

Hurricane/Tropical Storm Hazard Vulnerability
All of the inventoried assets in the Unifour Region are exposed to potential hurricane and tropical storm events. Any specific vulnerability of individual assets would depend greatly on individual design, building characteristics, and any existing mitigation measures currently in place. Such site-specific vulnerability determinations are outside the scope of this risk assessment but may be considered during future plan updates.

4.5.3 Geologic Hazards

Geologic hazards include landslides, earthquakes, and sinkholes. As with the other hazard types discussed in this risk assessment, geologic hazards may occur as a result of or in combination with other hazards. For example, excessive rainfall can contribute to landslide occurrences, etc.

4.5.3.1 Landslide

Landslide Hazard Description
A landslide is the downward and outward movement of slope-forming soil, rock, and vegetation, which is driven by gravity. Landslides may be triggered by both natural and human-caused changes in the environment, including heavy rain, rapid snow melt, steepening of slopes due to construction or erosion, earthquakes, volcanic eruptions, and changes in groundwater levels. Landslides occur when the force of gravity pulling down the slope exceeds the strength of the earth materials that comprise to hold it in place.

There are several types of landslides: rock falls, rock topple, slides, slumps, and debris flows. Rock falls are rapid movements of bedrock, which result in bouncing or rolling. A topple is a section or block of rock that rotates or tilts before falling to the slope below. Slides are movements of soil or rock along a distinct surface of rupture, which separates the slide material from the more stable underlying material. Slumps are landslides that typically occur on smaller slopes when loosely consolidated materials or rock layers move a short distance down a slope, typically in a rotational fashion. Debris flows, sometimes referred to as mudslides, mudflows, lahars, or debris avalanches, are fast-moving rivers of rock, earth, and other debris saturated with water.

Landslides are typically associated with periods of heavy rainfall or rapid snow melt and tend to worsen the effects of flooding that often accompanies these events. Slopes are also more likely to fail if vegetative cover is low and/or soil water content is high. In areas burned by forest and brush fires, a lower threshold of precipitation may initiate landslides. Some landslides move slowly and cause damage gradually, whereas others move so rapidly that they can destroy property and take lives suddenly and unexpectedly. Slopes greater than 10 degrees are more likely to slide, as are slopes where the height from the top of the slope to its toe is greater than 40 feet.

In the United States, it is estimated that landslides cause up to $2 billion in damages and from 25 to 50 deaths annually. Globally, landslides cause billions of dollars in damage and thousands of deaths and injuries each year.

Landslide Hazard Analysis

Location Within the Planning Area

Figure 4.43 shows information developed by the United States Geological Survey (USGS) which depicts areas of landslide incidence and susceptibility. This information suggests that there is some significant potential risk that is not supported by any historical data or detailed landslide hazard mapping presently available for the planning area. In addition, **Figure 4.44** shows slope and average annual precipitation data for the Unifour Region.

Figure 4.43: Landslide Susceptibility and Incidence Data for the Unifour Region

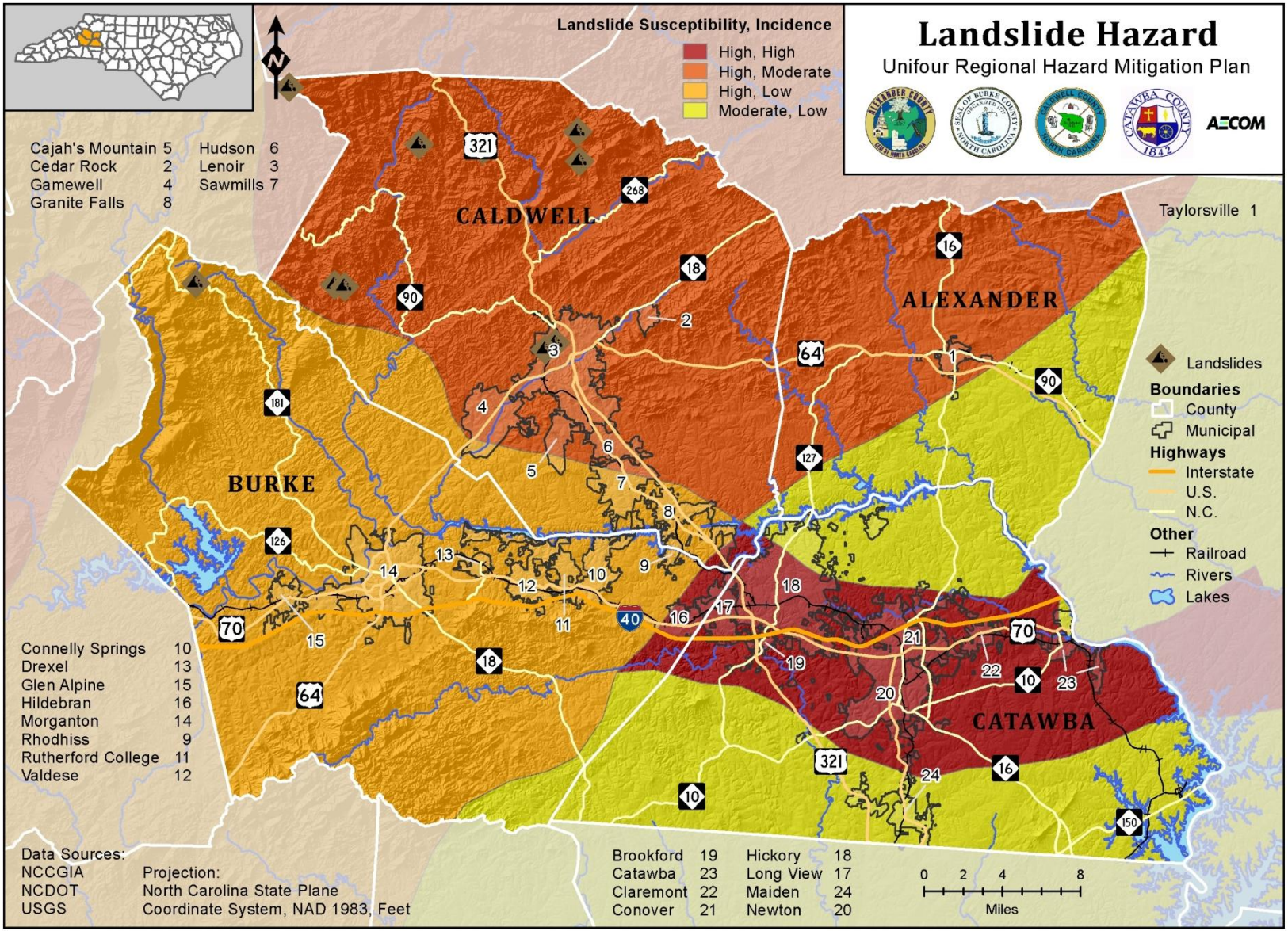
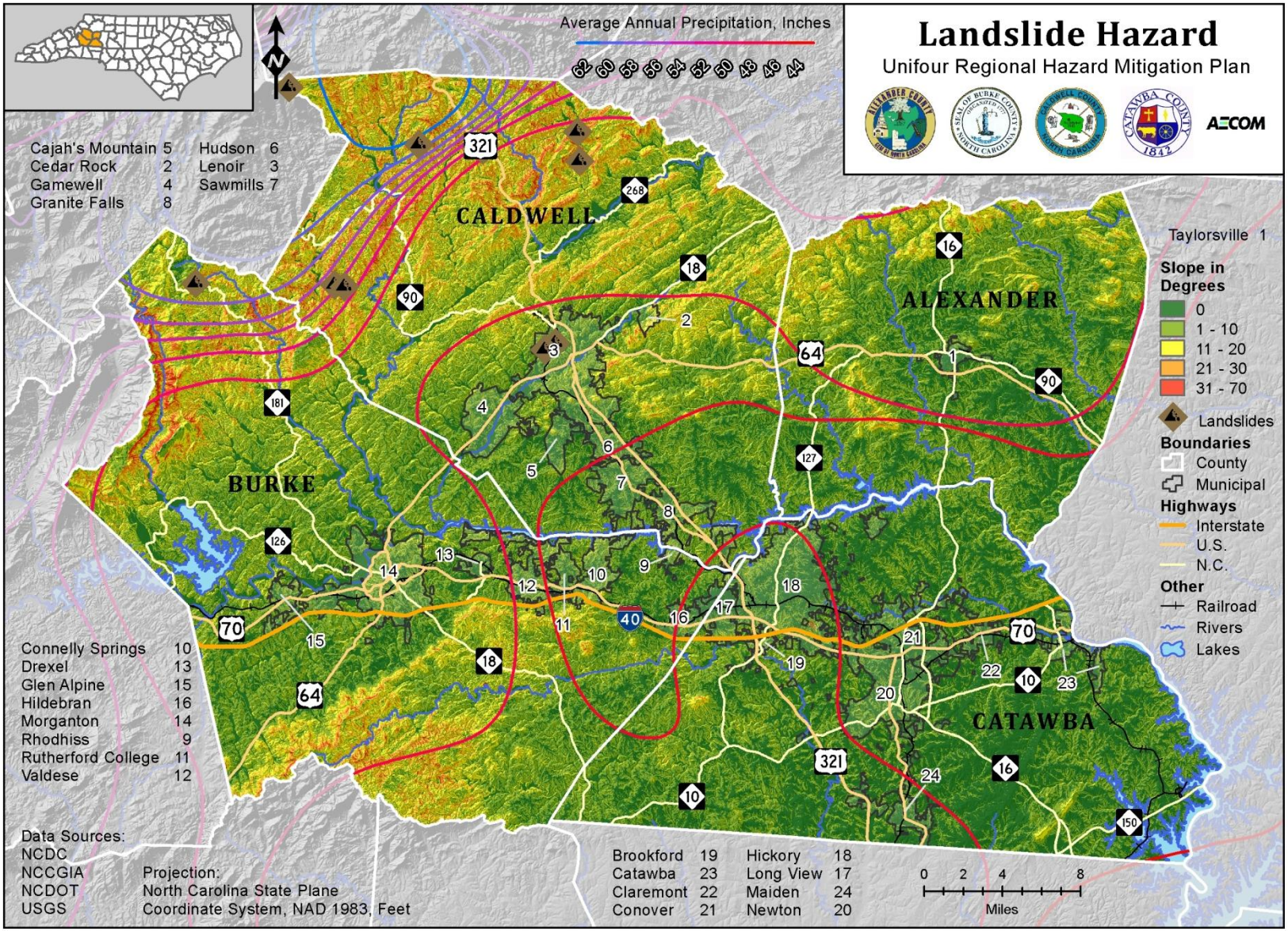


Figure 4.43: Slope and Average Annual Precipitation Data for the Unifour Region



Extent (Magnitude and Severity)
The magnitude and severity of landslides can vary greatly depending on terrain and other highly localized factors. In addition, there is no overall severity rating scale for landslides that can be applied to the Unifour Region.

Historical Occurrences
Table 4.32 shows historical occurrences of landslides in the planning area.

Table 4.32: Historical Occurrences of Landslides

Location	Date	Cause
ALEXANDER COUNTY		
N/A	N/A	N/A
Subtotal Alexander	0 Events	
BURKE COUNTY		
N/A	N/A	N/A
Subtotal Burke	0 Events	
CALDWELL COUNTY		
U.S. Highway 321 6 miles south of Blowing Rock	04/11/03	Landslide carried away earth beneath about 8 feet of the highway's northbound shoulder
-	09/04	Result of heavy rains/flooding
-	06/05	Result of heavy rains/flooding
-	07/13	-
Subtotal Caldwell	4 Events	
CATAWBA COUNTY		
N/A	N/A	N/A
Subtotal Catawba	0 Events	
TOTAL UNIFOUR	**4 Events**	

Landslide Hazard Vulnerability
Sufficient hazard information is not currently available with which to conduct a detailed vulnerability assessment. In addition, any specific vulnerability of individual assets would depend on individual design, building characteristics, and any existing mitigation measures currently in place. Such site-specific vulnerability determinations are outside the scope of this risk assessment but may be considered during future plan updates.

4.5.3.2 Earthquake

Earthquake Hazard Description

An earthquake is the motion or trembling of the ground produced by sudden displacement of rock in the Earth's crust. Earthquakes result from crustal strain, volcanism, landslides, or the collapse of caverns. Earthquakes can affect hundreds of thousands of square miles, cause damage to property measured in the tens of billions of dollars, result in loss of life and injury to hundreds of thousands of persons; and disrupt the social and economic functioning of the affected area.

Most property damage and earthquake-related deaths are caused by the failure and collapse of structures due to ground shaking. The level of damage depends upon the amplitude and duration of the shaking, which are directly related to the earthquake size, distance from the fault, site, and regional geology. Other damaging earthquake effects include landslides, the down-slope movement of soil and rock (mountain regions and along hillsides), and liquefaction, in which ground soil loses the ability to resist shear and flows much like quick sand. In the case of liquefaction, anything relying on the substrata for support can shift, tilt, rupture, or collapse.

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

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 (**Table 4.33**). Each unit increase in magnitude on the Richter Scale corresponds to a 10-fold increase in wave amplitude, or a 32-fold increase in energy. Intensity is most commonly measured using the Modified Mercalli Intensity (MMI) Scale based on direct and indirect measurements of seismic effects. The scale levels are typically described using roman numerals, with an "I" corresponding to imperceptible (instrumental) events, "IV" corresponding to moderate (felt by people awake) events, to "XII" for catastrophic (total destruction) events. A detailed description of the Modified Mercalli Intensity Scale of earthquake intensity and its correspondence to the Richter Scale is given in **Table 4.34**.

Table 4.33: Richter Scale

Richter Magnitudes	Earthquake Effects
Less than 3.5	Generally not felt but recorded.
3.5 to 5.4	Often felt but rarely causes damage.
Under 6.0	At most slight damage to well-designed buildings. Can cause major damage to poorly constructed buildings over small regions.
6.1 to 6.9	Can be destructive in areas up to about 100 kilometers across where people live.
7.0 to 7.9	Major earthquake. Can cause serious damage over larger areas.
8 or greater	Great earthquake. Can cause serious damage in areas several hundred kilometers across.

Source: Federal Emergency Management Agency.

Table 4.34: Modified Mercalli Intensity Scale for Earthquakes

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

Source: Federal Emergency Management Agency.

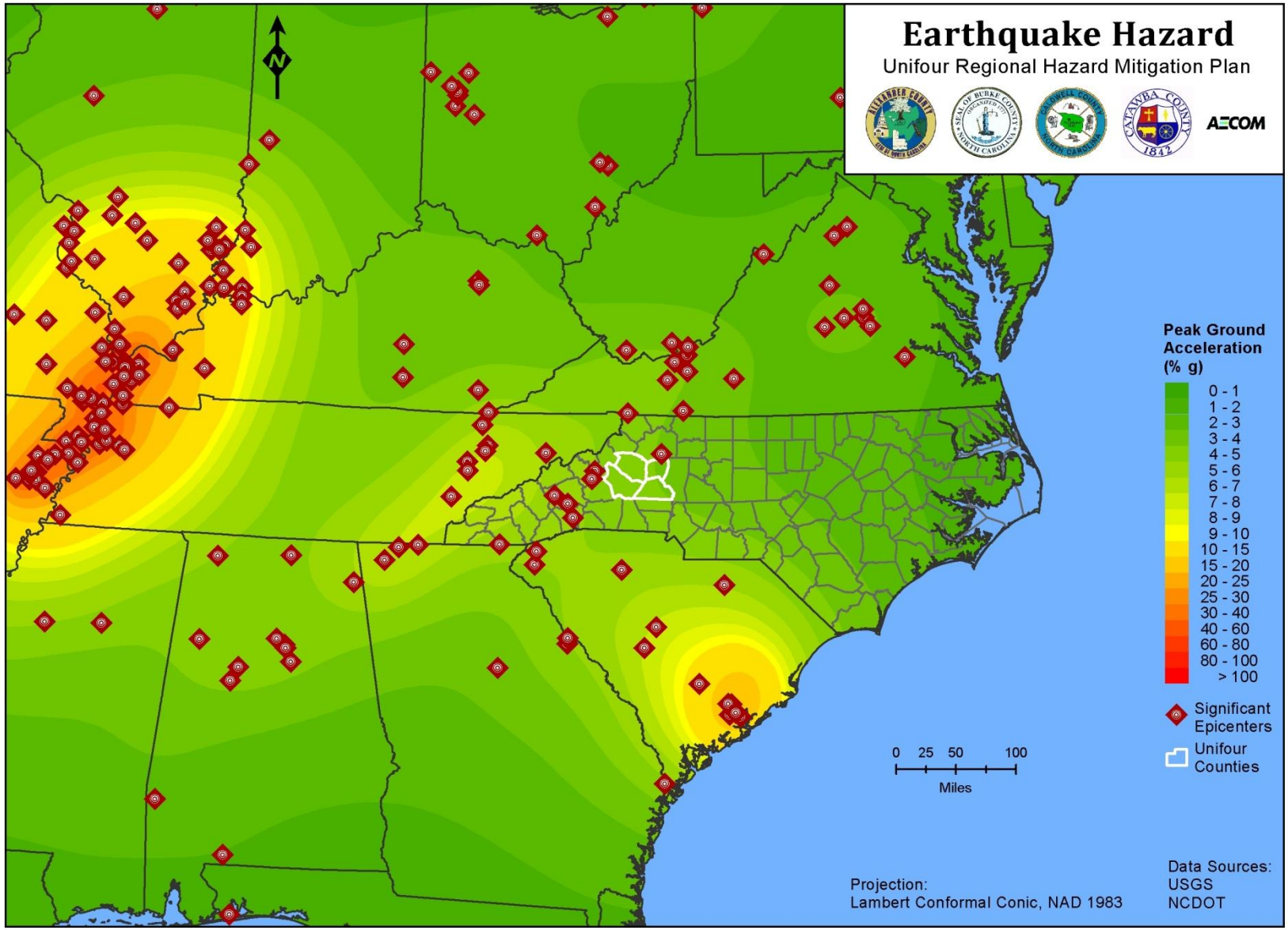
Earthquake Hazard Analysis

Approximately two-thirds of North Carolina is subject to earthquakes, with the western and southeast region most vulnerable to a very damaging earthquake. The state is affected by both the Charleston Fault in South Carolina and the New Madrid Fault in Tennessee. Both of these faults have generated earthquakes measuring greater than 8 on the Richter Scale during the last 200 years. In addition, there are several smaller fault lines throughout North Carolina.

Location Within the Planning Area

Figure 4.44 shows peak ground acceleration and historic earthquake epicenters for the state of North Carolina and relevant surrounding areas.

Figure 4.44: Peak Ground Acceleration and Historic Epicenters Relevant to the Unifour Region



Extent (Magnitude and Severity)
The most severe earthquake felt in the Unifour Region since the mid-1800s was a six (VI) on the Modified Mercalli Intensity Scale. This event occurred in 1886, the effects of which were reported specifically in the City of Hickory which was 337 miles from the epicenter of the earthquake. The affects of this magnitude earthquake typically include trees swaying, suspended objects swinging, and objects falling off of shelves. Earthquakes of greater magnitude may be possible within the region, however this is known to be the greatest severity currently on record.

Historical Occurrences
The following 10 historical occurrences ranging from 1886 to 2013 have been identified based on the National Geophysical Data Center (NGDC) Earthquake Intensity Database (**Table 4.35**). It should be noted that only those historical occurrences listed in the NGDC database are shown here and that other, unrecorded or unreported events may have occurred within the planning area during this timeframe.

Table 4.35: Historical Occurrences of Earthquake

Date	Location	Intensity (MMI)	Details
09/01/1886	Hickory	VI	337 miles from epicenter
02/21/1916	Hickory	V	107 miles from epicenter
08/26/1916	Newton	IV	42 miles from epicenter
11/03/1928	Newton	III	130 miles from epicenter
05/13/1957	Claremont	IV	76 miles from epicenter
05/13/1957	Conover	IV	70 miles from epicenter
05/13/1957	Hickory	V	59 miles from epicenter
05/13/1957	Maiden	IV	73 miles from epicenter
05/13/1957	Newton	IV	71 miles from epicenter
09/13/1976	Long View	II	109 miles from epicenter

Source: National Geophysical Data Center/World Data Service (NGDC/WDS) Significant Earthquake Database.

Probability of Future Occurrences
The probability of significant, damaging earthquake events affecting the Unifour Region is considered to be unlikely. However, it is likely that future earthquakes resulting in light to moderate perceived shaking and damages ranging from none to very light may affect the region.

Earthquake Hazard Vulnerability
Due to the relatively low probability of an earthquake occurrence producing significant damages in the participating jurisdictions, a detailed vulnerability assessment was not conducted for this hazard.

4.5.3.3 Sinkhole

Sinkhole Hazard Description

There are three general types of sinkholes known to occur in North Carolina: geologic, debris-related, and infrastructure failure-related. Typical geologic sinkholes are directly related to the dissolving of limestone or other carbonate rocks by rain water which has become slightly acidic from contact with either tannic acid from leaf litter or acids emitted from the burning of fossil fuels. This is the process of how caverns are formed. The surface water melts the carbonate as the water percolates downward. When a cavern is created, the thickness of the remaining carbonate continues to diminish until the weight of the cover rock exceeds the strength of the cover rock. The hole which is created can be circular or elongated.

The second type of sinkhole is one that is debris-related and is caused by the decomposition of building materials such as buried wood. Many times a circular sinkhole develops along a newly paved or widened road, where a tree was cut down but the root ball was never removed. When the root ball rots, the pavement collapses.

The final type of sinkhole is one associated with the failure of buried infrastructure, such as pipes, culverts, or the settling of soil used to cover buried power lines, cables, water lines, or sewer lines. In most cases, sinkholes associated with settling are from recently buried pipes or utility lines, where the cover material was not completely compacted and settled naturally over time. Significant infrastructure failure-related sinkholes are also caused by water (stormwater, potable water, or sewer) which carries soil and sediment from a crack, hole, or other point of failure in a pipe. The failure of a stormwater pipe can be dramatic because, during storm events when there are high water flows, there can be very rapid erosion of the soil and fill material used to cover buried pipes.

In addition to the sinkhole causes explained above, there is a fourth potential cause of ground collapse in North Carolina and that is mine collapse. While not specifically considered a sinkhole occurrence, the effects are similar.

Sinkhole Hazard Analysis

Location Within the Planning Area

The geologic formations under Alexander, Burke, Caldwell, and Catawba counties are composed of igneous and metamorphic granitic rocks, which are not the types of rocks which can be dissolved by acidic water. Therefore, geologic sinkholes are not a significant concern for the planning area.

Debris and infrastructure-related sinkholes are largely dependant upon undocumented human activity, construction practices, and natural course of events and therefore no portions of the planning area can be specifically mapped as known sinkhole hazard areas.

Extent (Magnitude and Severity)

Sinkholes are typically small, highly localized events that can have a varied magnitude and severity based on a wide range of site-specific variables.

Historical Occurrences

There is limited historical information available on previous sinkhole occurrences in the planning area, however **Table 4.36** shows four events that have occurred in Catawba County (specifically in the City of Hickory) since 2002. Each event was the result of collapse of buried infrastructure.

Table 4.36: Historical Occurrences of Sinkhole

Date	Location	Details
08/17/2002	1100 Hwy 70 SE, Hickory	Known for having swallowed a Corvette and being in litigation for years. Hole was closed and filled in and reappeared in July 2005.
07/2005	1340 Hwy 321 NW, Hickory	Parking lot/foundation of building collapsing into sinkhole.
05/19/2011	1975 Hwy 70 SE, Hickory	Opened on one lane of five-lane road.
07/30/2013	3200 20th Avenue SE, Hickory	Sinkhole in road post-flood.

Source: Catawba County Emergency Management.

Probability of Future Occurrences

Due to the multiple potential causes of sinkholes and a lack of historical and risk assessment data from which to prepare calculations, it is unknown what the probability of future occurrences within the planning area is likely to be.

Sinkhole Hazard Vulnerability

Due to what is assumed to be a relatively low probability of a sinkhole occurrence producing significant damages in the participating jurisdictions, as well as insufficient data and methodology to produce a region-wide assessment, a detailed vulnerability analysis was not conducted for this hazard.

4.5.4 Other Hazards

The wildfire hazard does not fit into any of the hazard classifications described above (hydrologic, atmospheric, and geologic). Therefore, wildfire is presented here under the category of "Other Hazards."

4.5.4.1 Wildfire

Wildfire Hazard Description

A wildfire is any fire occurring in a wildland area (e.g., grassland, forest, brush land) except for fire under prescription. Wildfires are part of the natural management of forest ecosystems, but may also be caused by human factors. Nationally, over 80% of forest fires are started by negligent human behavior such as smoking in wooded areas or improperly extinguishing campfires. The second most common cause for wildfire is lightning.

There are three classes of wildland fires: surface fire, ground fire, and crown fire. A surface fire is the most common of these three classes and burns along the floor of a forest, moving slowly and killing or damaging trees. A ground fire (muck fire) is usually started by lightning or human carelessness and burns on or below the forest floor. Crown fires spread rapidly by wind and move quickly by jumping along the tops of trees. Wildland fires are usually signaled by dense smoke that fills the area for miles around.

Wildfire probability depends on local weather conditions, outdoor activities such as camping, debris burning, and construction, and the degree of public cooperation with fire prevention measures. Drought conditions and other natural hazards (tornadoes, hurricanes, etc.) increase the probability of wildfires by producing fuel in both urban and rural settings. Forest damage from hurricanes and tornadoes may also block interior access roads and fire breaks, pull down overhead power lines, or damage pavement and underground utilities.

Wildfires can cause significant damage to property and threatens the lives of people who are unable to evacuate wildfire-prone areas. Many individual homes and cabins, subdivisions, resorts, recreational areas, organizational camps, businesses, and industries are located within high wildfire hazard areas. Further, the increasing demand for outdoor recreation places more people in wildlands during holidays, weekends, and vacation periods. Unfortunately, wildland residents and visitors are rarely educated or prepared for wildfire events that can sweep through the brush and timber and destroy property within minutes.

Wildfires can result in severe economic losses. Businesses that depend on timber, such as paper mills and lumber companies, experience losses that are often passed along to consumers through higher prices, and sometimes jobs are lost. The high cost of responding to and recovering from wildfires can deplete state resources and increase insurance rates. The economic impact of wildfires can also be felt in the tourism industry if roads and tourist attractions are closed due to health and safety concerns, such as reduced air quality by means of wildfire smoke and ash.

Wildfire Hazard Analysis

The entire region is at risk to a wildfire occurrence. However, drought conditions may make a fire more likely in certain locations under certain conditions. Further, areas in the urban-wildland interface are particularly susceptible to fire hazards as populations inhabit formerly undeveloped areas.

Location Within the Planning Area
In an effort to identify specific potential wildfire hazard areas within the planning area, a GIS-based data layer called the Wildland Fire Susceptibility Index (WFSI) was obtained from the North Carolina Division of Forest Resources (NCDFR). The WFSI is a component layer derived from the Southern Wildfire Risk Assessment (SWRA), a multi-year project to assess and quantify wildfire risk for the 13 Southern states. The WFSI is a value between 0 and 1. It was developed consistent with the mathematical calculation process for determining the probability of an acre burning. The WFSI integrates the probability of an acre igniting and the expected final fire size based on the rate of spread in four weather percentile categories into a single measure of wildland fire susceptibility. Due to some necessary assumptions, mainly fuel homogeneity, it is not the true probability. But since all areas of the planning area have this value determined consistently, it allows for comparison and ordination of areas as to the likelihood of an acre burning.

Figures 4.45 through **4.49** illustrates the level of wildfire potential for the planning area based on the WFSI data provided by NCDFR. Areas with a WFSI value of 0.01–0.05 were considered to be at moderate risk to the wildfire hazard. Areas with a WFSI value greater than 0.05 were considered to be at high risk to the wildfire hazard. Areas with a WFSI value less than 0.01 were considered to not be at risk to the wildfire hazard.

Extent (Magnitude and Severity)
The average size of wildfires in the Unifour Region is typically small.

Historical Occurrences
According to statistics provided by NCDFR, the 5-year average number of fires for the Unifour area was 1,197. The 5-year average number of acres burned was 1,082.4. Based on these statistics, it can be estimated that the Unifour Region experiences an average of 239 wildfire events per year. The leading cause of fires in Alexander County is debris burning (49%). The leading cause in Burke County is "miscellaneous" (e.g., downed power lines, an electric fence, stove ashes, or structure fires) (27%). The leading cause in Caldwell County is miscellaneous as well (36%). The leading cause in Catawba County is debris burning (55%). Other causes of fires in the planning area include children and incendiary. There are no known records of any deaths, injuries, or significant property damage attributed to a wildfire event in the planning area. **Table 4.37** shows a breakdown of averages by participating county area.

Table 4.37: Historical Occurrences of Wildfire

County	5-Year Average Number of Fires	5-Year Average Number of Acres Burned
Alexander	163	133.5
Burke	286	221.2
Caldwell	472	614.8
Catawba	276	112.9
TOTAL UNIFOUR	**1,197**	**1,082.4**

Source: North Carolina Division of Forest Resources.

Probability of Future Occurrences
It is assumed that wildfire occurrences of these types and magnitudes will continue to be likely in the planning area.

Figure 4.45: Wildfire Hazard Areas in the Unifour Region

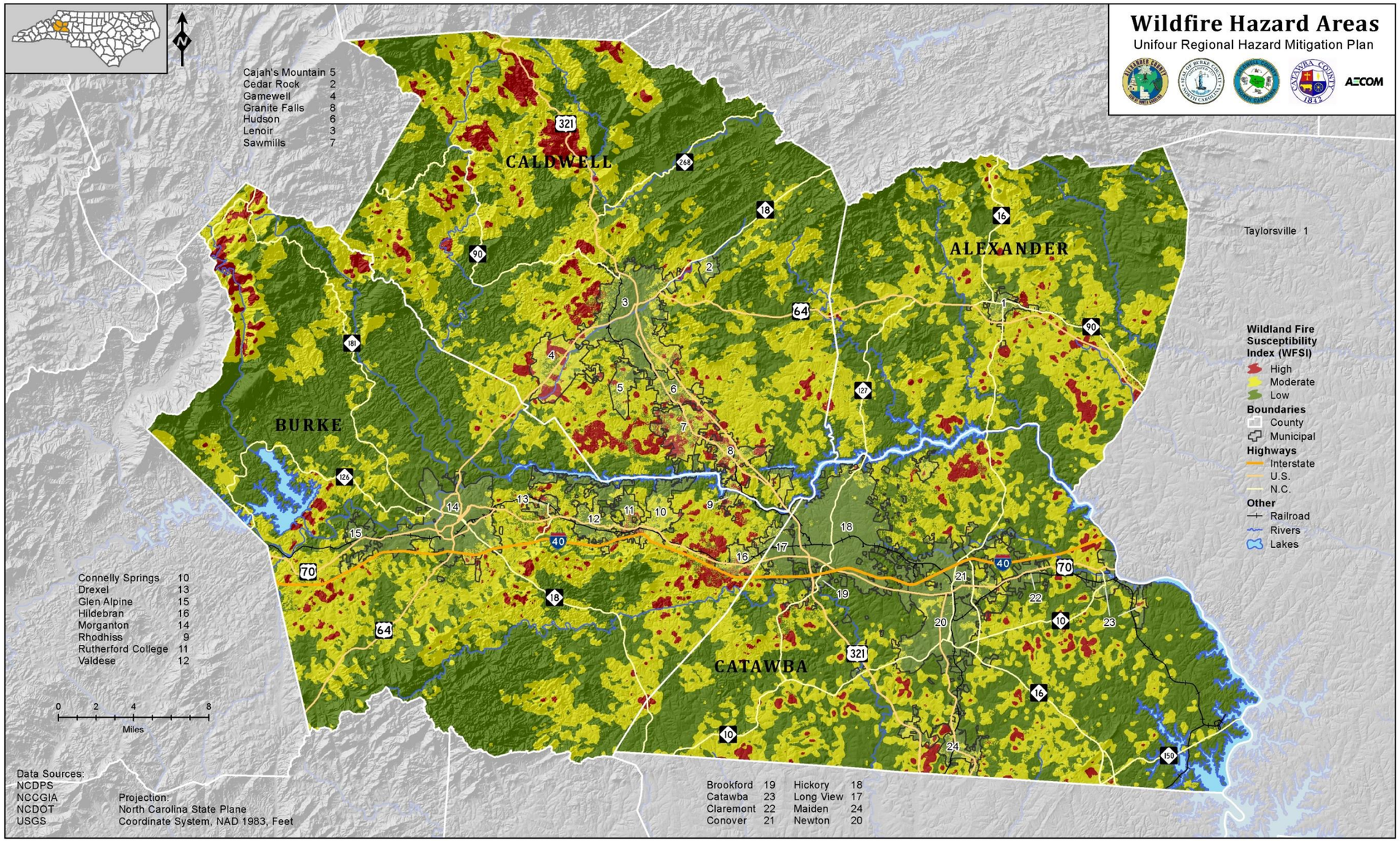


Figure 4.45: Wildfire Hazard Areas in Alexander County

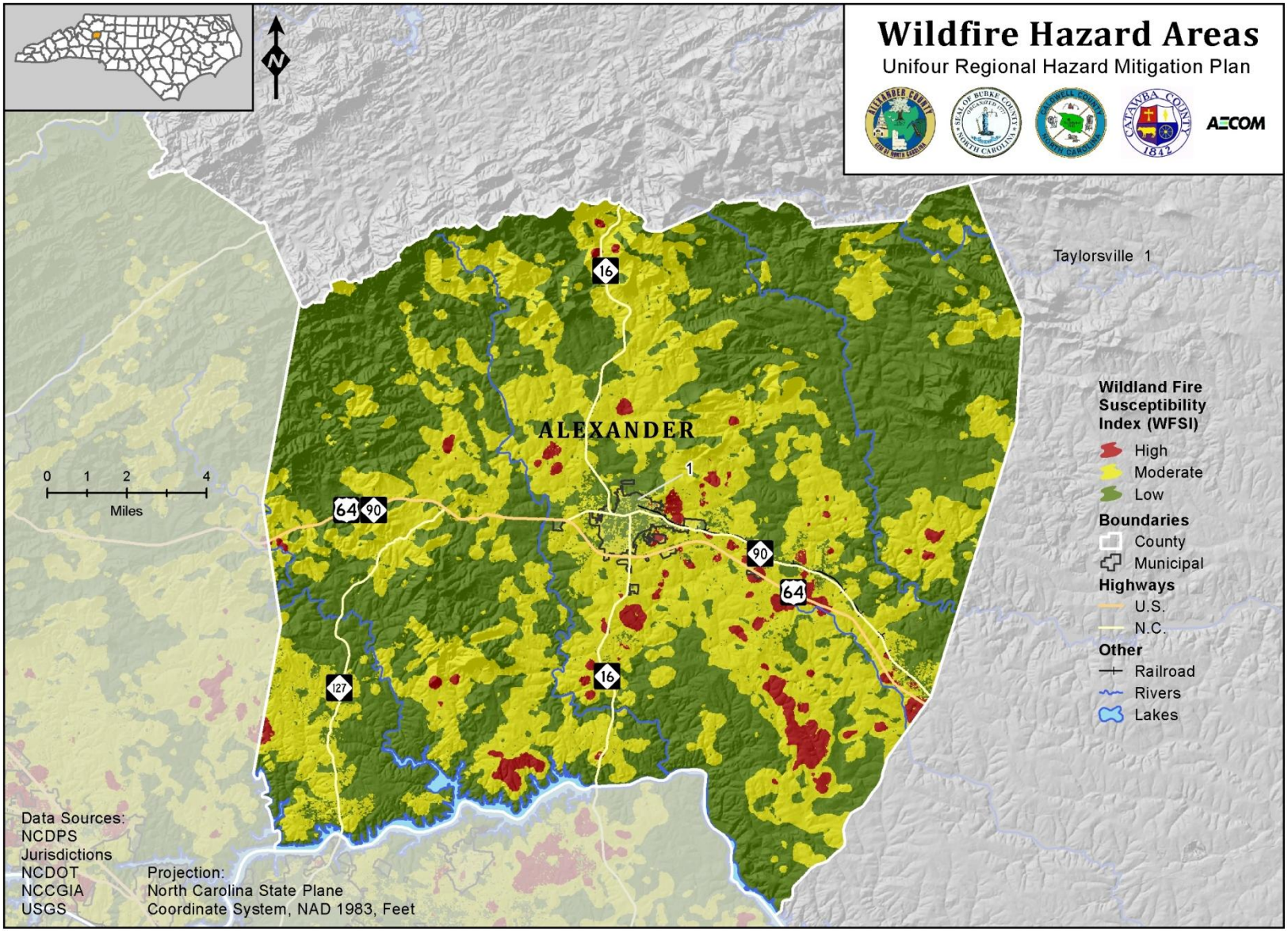


Figure 4.46: Wildfire Hazard Areas in Burke County

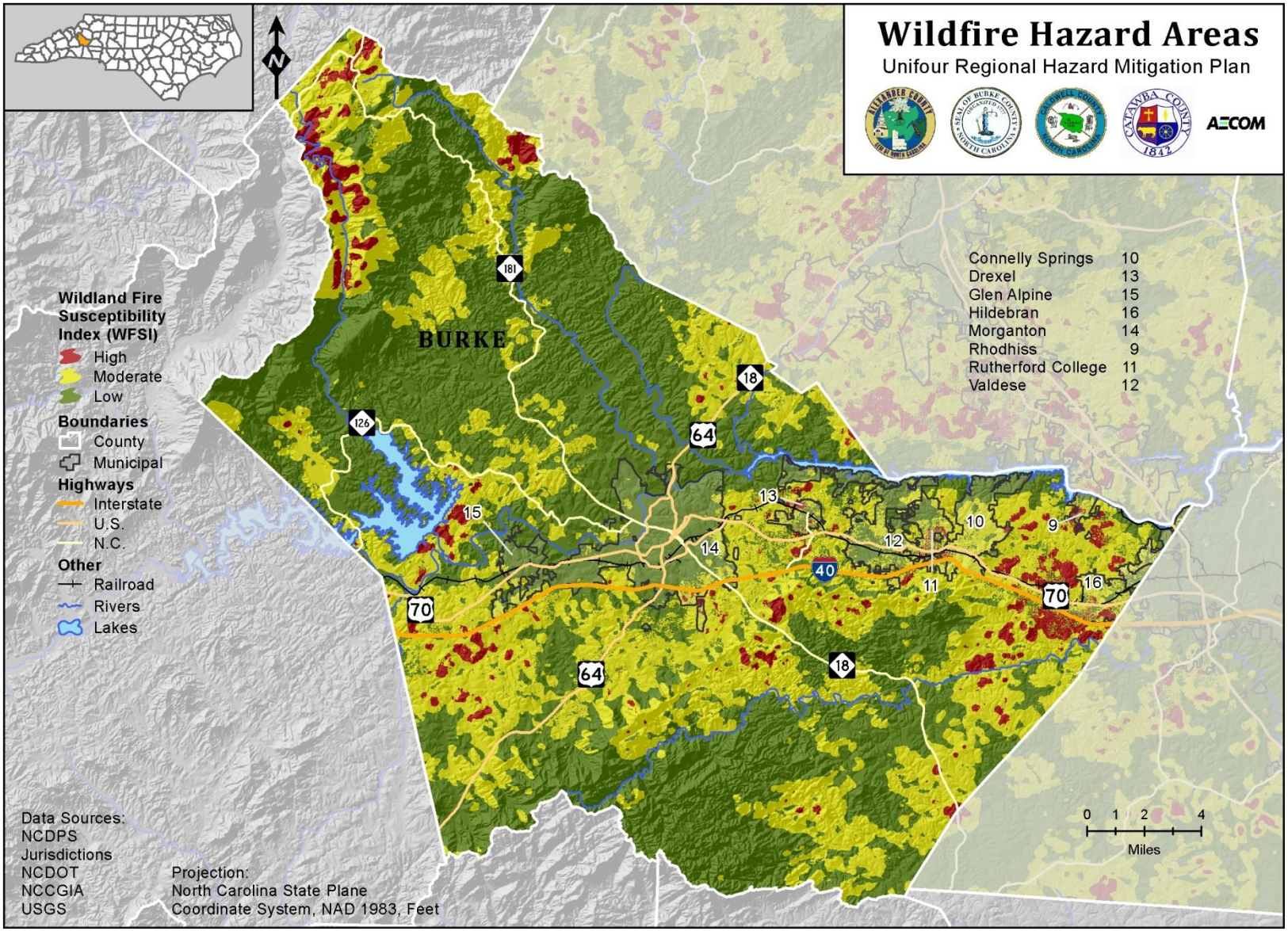


Figure 4.47: Wildfire Hazard Areas in Caldwell County

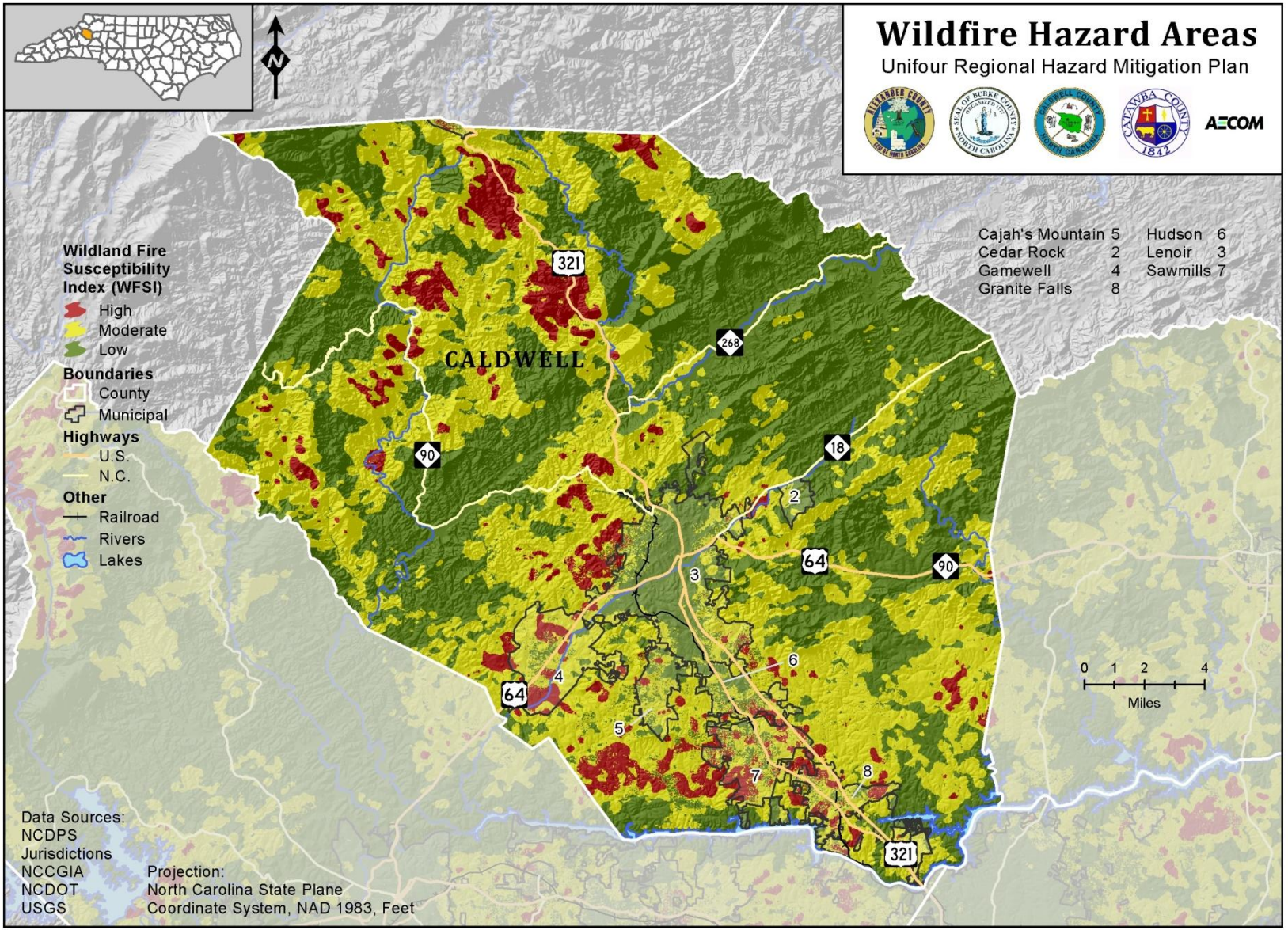
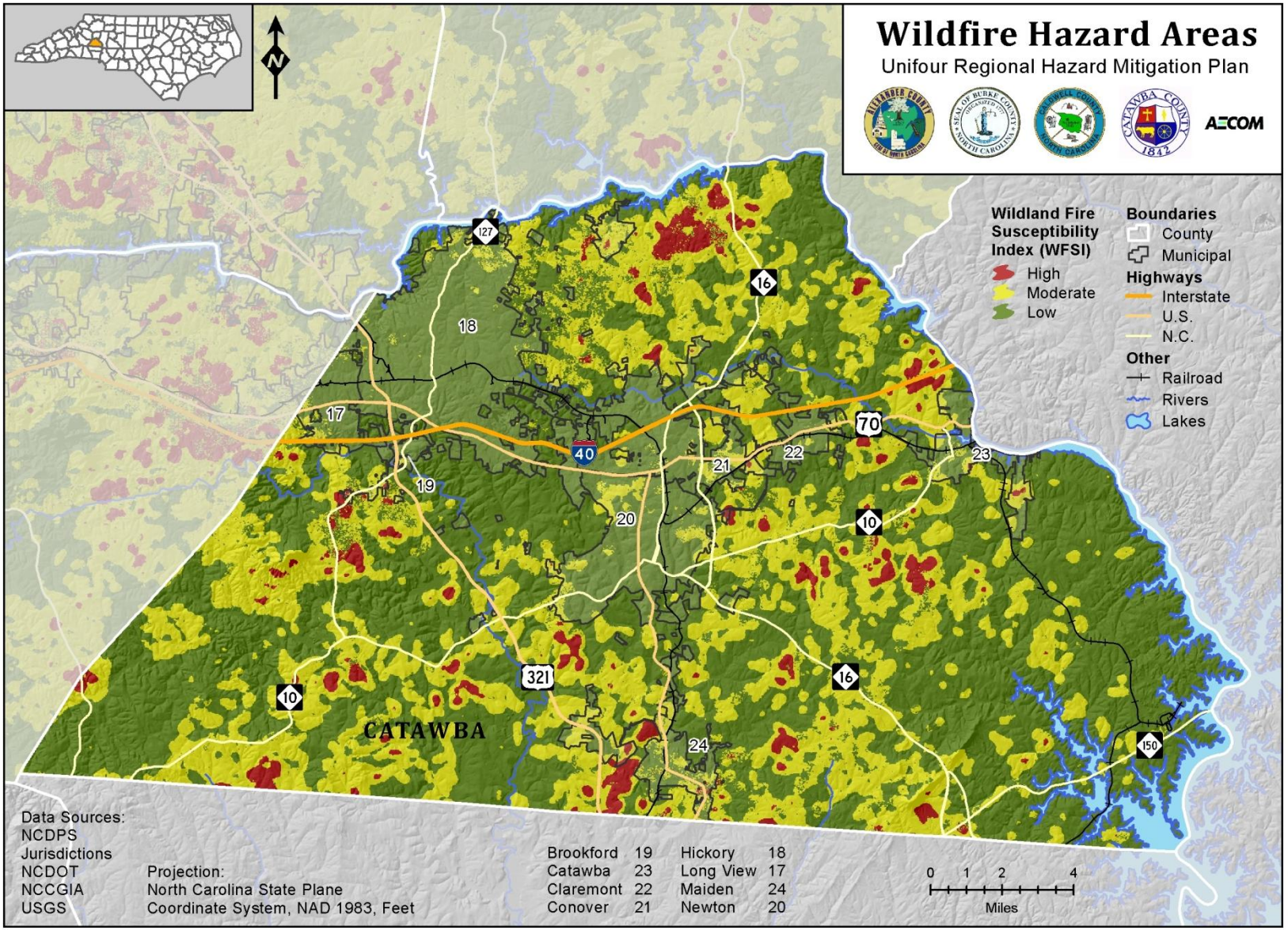


Figure 4.48: Wildfire Hazard Areas in Catawba County



Wildfire Hazard Vulnerability

The following tables provide counts and values by jurisdiction relevant to wildfire hazard vulnerability in the Unifour Region.

Table 4.38: Exposure to Wildfire High Hazard Areas

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per
Alexander County (Unincorporated Area)	**985**	**6.03%**	**337**	**5.29%**	**1,018**	**3.89%**	**$101,165,250**	**1,787**	**5.09%**	**188**	**3.68%**	**100**	**4.87%**
Taylorsville	32	3.05%	9	3.98%	23	1.74%	$1,864,360	20	0.95%	1	0.19%	3	1.95%
Subtotal Alexander	*1,017*	*5.85%*	*346*	*5.24%*	*1,041*	*3.78%*	*$103,029,610*	*1,807*	*4.86%*	*189*	*3.36%*	*103*	*4.66%*
Burke County (Unincorporated Area)	**2,913**	**12.31%**	**1,529**	**8.91%**	**2,763**	**8.51%**	**$175,033,270**	**4,238**	**7.11%**	**600**	**6.77%**	**218**	**7.07%**
Connelly Springs	60	8.89%	28	4.97%	39	4.54%	$7,015,756	65	3.89%	18	6.23%	3	3.49%
Drexel	167	24.67%	43	22.75%	83	10.84%	$11,887,524	194	10.44%	24	6.03%	8	8.51%
Glen Alpine	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Hildebran	293	36.35%	88	33.46%	222	21.02%	$23,620,954	232	11.47%	32	8.04%	8	6.78%
Morganton	2	0.03%	2	0.11%	12	0.17%	$0	72	0.43%	3	0.10%	0	0.00%
Valdese	20	1.10%	7	0.71%	10	0.48%	$18,607,576	34	0.76%	24	2.67%	0	0.00%
Rutherford College	183	32.39%	70	30.30%	117	16.43%	$10,506,245	129	9.62%	17	7.26%	4	5.13%
Subtotal Burke	*3,638*	*10.44%*	*1,767*	*8.21%*	*3,246*	*7.07%*	*$246,671,325*	*4,964*	*5.46%*	*718*	*4.98%*	*241*	*4.84%*
Caldwell County (Unincorporated Area)	**2,970**	**15.07%**	**1,320**	**12.41%**	**2,857**	**10.94%**	**$196,778,600**	**4,172**	**9.59%**	**633**	**10.31%**	**204**	**9.01%**
Cajah's Mountain	62	5.55%	19	7.85%	51	3.83%	$3,545,600	80	2.83%	15	2.89%	4	2.17%
Cedar Rock	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Gamewell	441	28.38%	90	21.33%	435	21.25%	$35,040,700	927	22.88%	122	19.52%	47	21.86%
Granite Falls	629	32.93%	184	26.32%	484	24.26%	$84,303,500	1,064	22.53%	169	25.34%	55	16.57%

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per
Hudson	222	14.61%	64	15.09%	149	8.95%	$17,241,100	276	7.31%	39	5.95%	8	3.92%
Lenoir	348	4.49%	96	4.28%	273	3.17%	$23,813,200	617	3.38%	106	3.14%	39	3.52%
Rhodhiss	166	37.90%	50	26.88%	143	29.67%	$5,864,762	243	22.71%	32	21.48%	13	19.40%
Sawmills	866	46.11%	204	36.11%	758	29.08%	$53,176,800	1,229	23.45%	152	21.81%	56	18.54%
Subtotal Caldwell	*5,704*	*15.83%*	*2,027*	*13.07%*	*5,150*	*11.45%*	*$419,764,262*	*8,608*	*10.37%*	*1,268*	*9.89%*	*426*	*9.17%*
Catawba County (Unincorporated Area)	**2,320**	**6.06%**	**552**	**4.13%**	**2,454**	**4.45%**	**$196,264,900**	**3,059**	**3.66%**	**366**	**3.29%**	**185**	**3.85%**
Brookford	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Catawba	8	2.04%	9	5.08%	2	0.43%	$3,698,700	4	0.66%	1	0.77%	0	0.00%
Claremont	1	0.13%	1	0.46%	3	0.37%	$17,100	0	0.00%	0	0.00%	0	0.00%
Conover	21	0.61%	6	0.65%	17	0.43%	$1,782,900	44	0.54%	2	0.14%	5	0.89%
Hickory	68	0.46%	33	0.97%	43	0.26%	$21,495,700	90	0.22%	9	0.16%	4	0.15%
Long View	19	0.85%	9	1.94%	13	0.50%	$807,905	14	0.29%	1	0.13%	1	0.29%
Maiden	92	5.77%	28	6.29%	61	3.14%	$7,287,200	50	1.51%	5	1.10%	2	0.96%
Newton	52	0.99%	16	1.33%	47	0.74%	$5,665,100	151	1.16%	11	0.54%	14	1.47%
Subtotal Catawba	*2,581*	*3.86%*	*654*	*3.23%*	*2,640*	*3.00%*	*$237,019,505*	*3,412*	*2.21%*	*395*	*1.81%*	*211*	*2.18%*
TOTAL UNIFOUR	**12,940**	**8.34%**	**4,794**	**7.51%**	**12,077**	**5.85%**	**$1,006,484,702**	**18,791**	**5.14%**	**2,570**	**4.70%**	**981**	**4.56%**

Source: GIS analysis.

Table 4.39: Exposure to Wildfire Moderate Hazard Areas

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per
Alexander County (Unincorporated Area)	**9,582**	**58.69%**	**3,574**	**56.07%**	**13,420**	**51.24%**	**$642,579,255**	**16,710**	**47.61%**	**2,378**	**46.61%**	**941**	**45.79%**
Taylorsville	697	66.38%	151	66.81%	598	45.17%	$77,454,849	788	37.56%	206	39.24%	51	33.12%
Subtotal Alexander	*10,279*	*59.16%*	*3,725*	*56.44%*	*14,018*	*50.94%*	*$720,034,104*	*17,498*	*47.04%*	*2,584*	*45.92%*	*992*	*44.91%*
Burke County (Unincorporated Area)	**15,603**	**65.94%**	**10,100**	**58.87%**	**19,227**	**59.19%**	**$1,119,818,508**	**33,332**	**55.95%**	**4,766**	**53.76%**	**1,724**	**55.88%**
Connelly Springs	576	85.33%	257	45.65%	726	84.52%	$34,883,060	1,212	72.62%	203	70.24%	58	67.44%
Drexel	394	58.20%	113	59.79%	370	48.30%	$42,133,302	829	44.62%	180	45.23%	27	28.72%
Glen Alpine	90	14.11%	28	9.12%	60	8.30%	$3,319,141	107	7.05%	25	9.80%	6	5.77%
Hildebran	458	56.82%	162	61.60%	602	57.01%	$58,047,893	1,150	56.85%	222	55.78%	57	48.31%
Morganton	680	11.34%	283	15.54%	681	9.37%	$190,080,202	1,494	8.83%	284	9.22%	79	6.87%
Valdese	1,075	58.87%	505	51.53%	838	40.46%	$118,424,350	1,598	35.59%	308	34.22%	78	29.43%
Rutherford College	292	51.68%	129	55.84%	342	48.03%	$28,697,776	588	43.85%	93	39.74%	33	42.31%
Subtotal Burke	*19,168*	*55.01%*	*11,577*	*53.82%*	*22,846*	*49.74%*	*$1,595,404,232*	*40,310*	*44.34%*	*6,081*	*42.18%*	*2,062*	*41.41%*
Caldwell County (Unincorporated Area)	**11,904**	**60.41%**	**5,641**	**53.02%**	**14,707**	**56.31%**	**$868,803,200**	**23,873**	**54.88%**	**3,218**	**52.40%**	**1,240**	**54.77%**
Cajah's Mountain	890	79.68%	179	73.97%	875	65.79%	$82,280,600	1,667	59.05%	283	54.53%	111	60.33%
Cedar Rock	85	57.82%	43	51.81%	71	50.71%	$18,860,400	127	42.33%	40	43.01%	1	14.29%
Gamewell	1,079	69.43%	327	77.49%	1,444	70.54%	$83,773,700	2,549	62.92%	388	62.08%	131	60.93%
Granite Falls	1,091	57.12%	357	51.07%	1,168	58.55%	$136,654,850	2,569	54.40%	341	51.12%	176	53.01%
Hudson	930	61.22%	298	70.28%	867	52.10%	$170,287,500	1,748	46.29%	288	43.97%	94	46.08%
Lenoir	2,954	38.09%	845	37.64%	2,537	29.49%	$323,470,600	4,387	24.07%	787	23.33%	190	17.13%
Rhodhiss	193	44.06%	95	51.08%	219	45.44%	$15,882,660	571	53.36%	75	50.34%	38	56.72%
Sawmills	811	43.18%	270	47.79%	1,246	47.79%	$72,909,600	2,416	46.11%	301	43.19%	114	37.75%

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per
Subtotal Caldwell	*19,937*	*55.34%*	*8,055*	*51.95%*	*23,134*	*51.42%*	*$1,772,923,110*	*39,907*	*48.06%*	*5,721*	*44.64%*	*2,095*	*45.10%*
Catawba County (Unincorporated Area)	**18,934**	**49.42%**	**5,661**	**42.39%**	**23,420**	**42.43%**	**$1,946,856,500**	**31,030**	**37.15%**	**3,943**	**35.45%**	**1,726**	**35.89%**
Brookford	16	6.75%	4	7.84%	20	6.78%	$950,400	31	8.12%	8	11.11%	2	11.11%
Catawba	165	42.09%	56	31.64%	152	32.83%	$14,758,300	162	26.87%	31	23.85%	7	25.93%
Claremont	115	15.39%	43	19.82%	89	10.87%	$27,295,600	99	7.32%	8	4.08%	3	3.90%
Conover	701	20.28%	241	26.03%	644	16.32%	$127,067,800	1,025	12.55%	119	8.57%	73	12.97%
Hickory	1,811	12.36%	502	14.79%	1,411	8.69%	$439,071,050	2,926	7.31%	280	4.88%	156	5.74%
Long View	373	16.69%	126	27.10%	280	10.71%	$25,450,483	482	9.90%	51	6.62%	31	9.04%
Maiden	887	55.61%	275	61.80%	783	40.28%	$95,862,700	1,031	31.15%	119	26.10%	54	25.96%
Newton	769	14.59%	197	16.40%	743	11.69%	$170,120,500	1,274	9.82%	310	15.08%	81	8.48%
Subtotal Catawba	*23,771*	*35.53%*	*7,105*	*35.12%*	*27,542*	*31.34%*	*$2,847,433,333*	*38,060*	*24.66%*	*4,869*	*22.36%*	*2,133*	*22.06%*
TOTAL UNIFOUR	**73,155**	**47.15%**	**30,462**	**47.71%**	**87,540**	**42.43%**	**$6,935,794,779**	**135,775**	**37.15%**	**19,255**	**35.24%**	**7,282**	**33.86%**

Source: GIS analysis.

Table 4.40: Numbers of Critical Facilities Exposed to Wildfire High Hazard Areas

Jurisdiction	Day Care	EMS	EOCs	Fire Stations	Govt. Buildings	Hospitals	Police Stations	Schools	Senior Care	Shelters
Alexander County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
Taylorsville	0	0	0	0	0	0	0	0	0	0
Subtotal Alexander	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*0*
Burke County (Unincorporated Area)	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**1**
Connelly Springs	0	0	0	0	0	0	0	0	0	0
Drexel	0	0	0	0	0	0	0	0	0	1
Glen Alpine	0	0	0	0	0	0	0	0	0	0
Hildebran	0	0	0	0	0	0	0	0	0	0
Morganton	0	0	0	0	0	0	0	1	0	0
Valdese	0	0	0	0	0	0	0	0	0	0
Rutherford College	0	0	0	0	0	0	0	0	0	0
Subtotal Burke	*0*	*0*	*0*	*1*	*0*	*0*	*0*	*2*	*1*	*2*
Caldwell County (Unincorporated Area)	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**
Cajah's Mountain	0	0	0	0	0	0	0	0	0	0
Cedar Rock	0	0	0	0	0	0	0	0	0	0
Gamewell	0	0	0	1	1	0	0	0	0	0
Granite Falls	2	0	0	0	0	0	0	1	0	1
Hudson	1	0	0	0	0	0	0	0	0	0
Lenoir	1	0	0	0	1	0	0	0	0	0
Rhodhiss	0	0	0	0	0	0	0	0	0	0
Sawmills	1	0	0	0	0	0	0	0	0	0
Subtotal Caldwell	*8*	*0*	*0*	*1*	*2*	*0*	*0*	*2*	*0*	*3*
Catawba County (Unincorporated Area)	**3**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**1**
Brookford	0	0	0	0	0	0	0	0	0	0
Catawba	0	0	0	0	0	0	0	0	0	0
Claremont	0	0	0	0	0	0	0	0	0	0
Conover	0	0	0	0	0	0	0	0	0	0
Hickory	0	0	0	0	0	0	0	0	0	0
Long View	0	0	0	0	0	0	0	0	0	0
Maiden	0	0	0	0	0	0	0	0	0	0
Newton	0	0	0	0	0	0	0	0	0	0
Subtotal Catawba	*3*	*0*	*0*	*1*	*0*	*0*	*0*	*3*	*0*	*1*
TOTAL UNIFOUR	**11**	**0**	**0**	**3**	**2**	**0**	**0**	**7**	**2**	**6**

Source: Critical facilities supplied by participating jurisdictions.

Table 4.41: Numbers of Critical Facilities Exposed to Wildfire Moderate Hazard Areas

Jurisdiction	Day Care	EMS	EOCs	Fire Stations	Govt. Buildings	Hospitals	Police Stations	Schools	Senior Care	Shelters
Alexander County (Unincorporated Area)	**8**	**2**	**0**	**4**	**2**	**0**	**0**	**3**	**1**	**2**
Taylorsville	0	0	0	0	1	0	2	1	0	0
Subtotal Alexander	*8*	*2*	*0*	*4*	*3*	*0*	*2*	*4*	*1*	*2*
Burke County (Unincorporated Area)	**0**	**1**	**0**	**7**	**0**	**0**	**0**	**5**	**4**	**9**
Connelly Springs	0	0	0	1	0	0	0	0	0	0
Drexel	0	0	0	0	0	0	0	1	0	1
Glen Alpine	0	0	0	0	0	0	0	0	0	0
Hildebran	0	1	0	0	0	0	0	1	1	1
Morganton	0	1	0	0	0	1	1	3	1	1
Valdese	0	0	0	0	0	1	0	2	0	1
Rutherford College	0	0	0	0	0	0	0	0	0	0
Subtotal Burke	*0*	*3*	*0*	*8*	*0*	*2*	*1*	*12*	*6*	*13*
Caldwell County (Unincorporated Area)	**16**	**0**	**0**	**1**	**0**	**0**	**0**	**6**	**0**	**7**
Cajah's Mountain	0	1	0	0	0	0	0	0	1	0
Cedar Rock	0	0	0	0	0	0	0	0	0	0
Gamewell	7	1	0	0	0	0	0	1	0	1
Granite Falls	3	0	0	0	1	0	1	1	2	1
Hudson	2	1	0	0	0	0	0	2	0	1
Lenoir	5	0	1	0	2	0	1	1	0	1
Rhodhiss	0	0	0	1	0	0	0	0	0	0
Sawmills	4	0	0	0	0	0	0	0	0	0
Subtotal Caldwell	*37*	*3*	*1*	*2*	*3*	*0*	*2*	*11*	*3*	*11*
Catawba County (Unincorporated Area)	**27**	**1**	**0**	**2**	**0**	**0**	**0**	**7**	**0**	**8**
Brookford	0	0	0	0	0	0	0	0	0	0
Catawba	0	0	0	0	0	0	0	0	0	0
Claremont	0	0	0	0	0	0	0	0	0	0
Conover	0	0	0	0	0	0	0	0	0	1
Hickory	2	0	0	0	0	0	0	1	1	0
Long View	0	0	0	0	0	0	0	0	0	0
Maiden	2	0	0	0	0	0	0	0	0	0
Newton	3	0	0	1	0	0	0	1	1	1
Subtotal Catawba	*34*	*1*	*0*	*3*	*0*	*0*	*0*	*9*	*2*	*10*
TOTAL UNIFOUR	**79**	**9**	**1**	**17**	**6**	**2**	**5**	**36**	**12**	**36**

Source: Critical facilities supplied by participating jurisdictions.

Table 4.42: Numbers of High Potential Loss Properties Exposed to Wildfire Hazard

Jurisdiction	Airports		Military Facilities		Hazardous Materials Sites		Other	
	High	Mod.	High	Mod.	High	Mod.	High	Mod.
Alexander County (Unincorporated Area)	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**0**
Taylorsville	0	0	0	0	0	0	0	0
Subtotal Alexander	*0*	*3*	*0*	*0*	*0*	*1*	*0*	*0*
Burke County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**
Connelly Springs	0	0	0	0	0	0	0	0
Drexel	0	0	0	0	0	0	0	0
Glen Alpine	0	0	0	0	0	0	0	0
Hildebran	0	0	0	0	0	0	0	0
Morganton	0	2	0	0	0	1	0	0
Valdese	0	0	0	0	0	0	0	0
Rutherford College	0	0	0	0	0	0	0	0
Subtotal Burke	*0*	*2*	*0*	*0*	*0*	*2*	*0*	*0*
Caldwell County (Unincorporated Area)	**0**	**2**	**0**	**1**	**0**	**1**	**0**	**0**
Cajah's Mountain	0	0	0	0	0	0	0	0
Cedar Rock	0	0	0	0	0	0	0	0
Gamewell	0	0	0	0	0	0	0	0
Granite Falls	0	0	0	0	0	0	0	1
Hudson	0	0	0	0	0	1	0	0
Lenoir	0	0	0	0	0	0	1	0
Rhodhiss	0	0	0	0	0	0	0	0
Sawmills	0	0	0	0	0	0	0	0
Subtotal Caldwell	*0*	*2*	*0*	*1*	*0*	*2*	*0*	*0*
Catawba County (Unincorporated Area)	**0**	**2**	**0**	**0**	**0**	**6**	**0**	**0**
Brookford	0	0	0	0	0	0	0	0
Catawba	0	0	0	0	0	0	0	0
Claremont	0	0	0	0	0	0	0	0
Conover	0	0	0	0	0	0	0	0
Hickory	0	1	0	0	0	0	0	1
Long View	0	0	0	0	0	0	0	0
Maiden	0	0	0	0	0	1	0	0
Newton	0	0	0	1	0	0	0	0
Subtotal Catawba	*0*	*3*	*0*	*1*	*0*	*7*	*0*	*0*
TOTAL UNIFOUR	**0**	**10**	**0**	**2**	**0**	**12**	**0**	**0**

Source: GIS analysis.

Table 4.43: Numbers of Historic Properties Exposed to the Wildfire Hazard Areas

Jurisdiction	Districts		Buildings		Other	
	Mod	High	Mod	High	Mod	High
Alexander County (Unincorporated Area)	**0**	**0**	**0**	**0**	**0**	**0**
Taylorsville	0	0	0	0	0	0
Subtotal Alexander	*0*	*0*	*0*	*0*	*0*	*0*
Burke County (Unincorporated Area)	**0**	**0**	**3**	**0**	**0**	**0**
Connelly Springs	0	0	0	0	0	0
Drexel	0	0	0	0	0	0
Glen Alpine	0	0	0	0	0	0
Hildebran	0	0	0	0	0	0
Morganton	1	0	0	0	0	0
Valdese	0	0	0	0	0	0
Rutherford College	0	0	0	0	0	0
Subtotal Burke	*1*	*0*	*3*	*0*	*0*	*0*
Caldwell County (Unincorporated Area)	**2**	**0**	**2**	**0**	**0**	**0**
Cajah's Mountain	0	0	0	0	0	0
Cedar Rock	0	0	0	0	0	0
Gamewell	0	0	0	0	0	0
Granite Falls	0	0	0	0	0	0
Hudson	0	0	0	0	0	0
Lenoir	0	0	1	0	0	0
Rhodhiss	0	0	0	0	0	0
Sawmills	0	0	0	0	0	0
Subtotal Caldwell	*2*	*0*	*3*	*0*	*0*	*0*
Catawba County (Unincorporated Area)	**8**	**0**	**6**	**0**	**0**	**0**
Brookford	0	0	0	0	0	0
Catawba	0	0	0	0	0	0
Claremont	0	0	0	0	0	0
Conover	0	0	0	0	0	0
Hickory	0	0	0	0	0	0
Long View	0	0	0	0	0	0
Maiden	0	0	0	0	0	0
Newton	0	0	1	0	0	0
Subtotal Catawba	*8*	*0*	*7*	*0*	*0*	*0*
TOTAL UNIFOUR	**11**	**0**	**13**	**0**	**0**	**0**

Source: GIS analysis.

4.6 Conclusions on Hazard Risk

Based on consensus of the Hazard Mitigation Planning Committee, primarily at the third HMPC meeting, in addition to the results presented in this *Risk Assessment*, the hazards addressed in this plan have been ranked according to the following prioritized list:

High Risk Hazards

- Flood
- Tornado
- Winter Weather
- Thunderstorm, Lightning, and Hail

Moderate Risk Hazards

- Wildfire
- Sinkhole
- Dam/Levee Failure
- Drought/Extreme Heat

Low Risk Hazards

- Erosion
- Landslide
- Hurricane and Tropical Storm

The HMPC has agreed to focus on the high risk hazards identified above for purposes of mitigation strategy development. The list above is also consistent with Annualized Loss Estimates (ALEs) calculated for the planning area which point to the same four high risk hazards, although in a slightly different order:

- Tornado
- Flood
- Thunderstorm, Lightning, and Hail
- Winter Weather

In addition to the results presented throughout this *Risk Assessment*, the annualized losses presented in **Table 4.44** and summarized above further help substantiate the priority ranking stated here in these conclusions on hazard risk.

Table 4.44: Annualized Loss Estimates (ALEs) by Hazard by Jurisdiction

Jurisdiction	Flood	Erosion	Dam/Levee Failure	Drought/ Extreme Heat	Thunderstorm	Tornado	Winter Weather	Hurricane and Tropical Storm	Landslide	Earthquake	Sinkholes	Wildfire
Alexander County (Unincorporated Area)	**$5,000**	**Neg***	**Neg**	**Neg**	**$12,150**	**$68,750**	**NA****	**Neg**	**Neg**	**Neg**	**Neg**	**Neg**
Taylorsville	$0	Neg	Neg	Neg	$55,000	$7,500	NA	Neg	Neg	Neg	Neg	Neg
Subtotal Alexander	*$5,000*	*Neg*	*Neg*	*Neg*	*$67,150*	*$76,250*	*$50,000*	*Neg*	*Neg*	*Neg*	*Neg*	*Neg*
Burke County (Unincorporated Area)	**$450,100**	**Neg**	**Neg**	**Neg**	**$52,000**	**$706,250**	**NA**	**Neg**	**Neg**	**Neg**	**Neg**	**Neg**
Connelly Springs	$0	Neg	Neg	Neg	$0	$0	NA	Neg	Neg	Neg	Neg	Neg
Drexel	$0	Neg	Neg	Neg	$0	$0	NA	Neg	Neg	Neg	Neg	Neg
Glen Alpine	$0	Neg	Neg	Neg	$2,500	$0	NA	Neg	Neg	Neg	Neg	Neg
Hildebran	$0	Neg	Neg	Neg	$0	$0	NA	Neg	Neg	Neg	Neg	Neg
Morganton	$215	Neg	Neg	Neg	$9,150	$0	NA	Neg	Neg	Neg	Neg	Neg
Valdese	$0	Neg	Neg	Neg	$0	$0	NA	Neg	Neg	Neg	Neg	Neg
Rutherford College	$0	Neg	Neg	Neg	$1,250	$0	NA	Neg	Neg	Neg	Neg	Neg
Subtotal Burke	*$450,315*	*Neg*	*Neg*	*Neg*	*$64,900*	*$706,250*	*$100*	*Neg*	*Neg*	*Neg*	*Neg*	*Neg*
Caldwell County (Unincorporated Area)	**$131,500**	**Neg**	**Neg**	**Neg**	**$5,000**	**$85,000**	**NA**	**Neg**	**Neg**	**Neg**	**Neg**	**Neg**
Cajah's Mountain	$0	Neg	Neg	Neg	$0	$0	NA	Neg	Neg	Neg	Neg	Neg
Cedar Rock	$0	Neg	Neg	Neg	$0	$0	NA	Neg	Neg	Neg	Neg	Neg
Gamewell	$0	Neg	Neg	Neg	$0	$0	NA	Neg	Neg	Neg	Neg	Neg
Granite Falls	$0	Neg	Neg	Neg	$1,000	$0	NA	Neg	Neg	Neg	Neg	Neg
Hudson	$0	Neg	Neg	Neg	$5,000	$0	NA	Neg	Neg	Neg	Neg	Neg
Lenoir	$6,500	Neg	Neg	Neg	$6,850	$0	NA	Neg	Neg	Neg	Neg	Neg

Jurisdiction	Flood	Erosion	Dam/Levee Failure	Drought/ Extreme Heat	Thunderstorm	Tornado	Winter Weather	Hurricane and Tropical Storm	Landslide	Earthquake	Sinkholes	Wildfire
Rhodhiss	$0	Neg	Neg	Neg	$0	$0	NA	Neg	Neg	Neg	Neg	Neg
Sawmills	$0	Neg	Neg	Neg	$150	$0	NA	Neg	Neg	Neg	Neg	Neg
Subtotal Caldwell	*$138,000*	*Neg*	*Neg*	*Neg*	*$13,000*	*$85,000*	*$0*	*Neg*	*Neg*	*Neg*	*Neg*	*Neg*
Catawba County (Unincorporated Area)	**$8,000**	**Neg**	**Neg**	**Neg**	**$5,750**	**$1,305,450**	**NA**	**Neg**	**Neg**	**Neg**	**Neg**	**Neg**
Brookford	$0	Neg	Neg	Neg	$0	$0	NA	Neg	Neg	Neg	Neg	Neg
Catawba	$0	Neg	Neg	Neg	$1,000	$0	NA	Neg	Neg	Neg	Neg	Neg
Claremont	$1,000	Neg	Neg	Neg	$4,250	$330,500	NA	Neg	Neg	Neg	Neg	Neg
Conover	$0	Neg	Neg	Neg	$550	$0	NA	Neg	Neg	Neg	Neg	Neg
Hickory	$153,000	Neg	Neg	Neg	$22,450	$1,000	NA	Neg	Neg	Neg	Neg	Neg
Long View	$550	Neg	Neg	Neg	$500	$0	NA	Neg	Neg	Neg	Neg	Neg
Maiden	$2,500	Neg	Neg	Neg	$50	$0	NA	Neg	Neg	Neg	Neg	Neg
Newton	$0	Neg	Neg	Neg	$502,850	$0	NA	Neg	Neg	Neg	Neg	Neg
Subtotal Catawba	*$165,050*	*Neg*	*Neg*	*Neg*	*$537,400*	*$1,636,950*	*$50,100*	*Neg*	*Neg*	*Neg*	*Neg*	*Neg*
TOTAL UNIFOUR	**$758,365**	**Neg**	**Neg**	**Neg**	**$682,450**	**$2,504,450**	**$100,200**	**Neg**	**Neg**	**Neg**	**Neg**	**Neg**

**"Neg" = "Negligible" which indicates that sufficient historical losses in dollar values were not available to produce an Annualized Loss Estimate (ALE).*
**"NA" = "Not Applicable" which indicates that an ALE is only applicable at the county level.*

Section 5: Capability Assessment

This section discusses the capability of the Unifour Region to implement hazard mitigation activities. It consists of the following four subsections:

5.1 Overview
5.2 Conducting the Capability Assessment
5.3 Capability Assessment Findings
5.4 Conclusions on Local Capability

5.1 Overview

The purpose of conducting a *Capability Assessment* is to determine the ability of a local jurisdiction to implement a comprehensive *Mitigation Strategy*, and to identify potential opportunities for establishing or enhancing specific mitigation policies, programs, or projects. As in any planning process, it is important to try to establish which goals, objectives, and actions are feasible, based on an understanding of the organizational capacity of those agencies or departments tasked with their implementation. A *Capability Assessment* helps to determine which mitigation actions are practical and likely to be implemented over time given a local government's planning and regulatory framework, level of administrative and technical support, amount of fiscal resources, and current political climate.

A *Capability Assessment* has two primary components: 1) an inventory of a local jurisdiction's relevant plans, ordinances, and programs already in place; and 2) an analysis of its capacity to carry them out. Careful examination of local capabilities will detect any existing gaps, shortfalls, or weaknesses with ongoing government activities that could hinder proposed mitigation activities and possibly exacerbate community hazard vulnerability. A *Capability Assessment* also highlights the positive mitigation measures already in place or being implemented at the local government level, which should continue to be supported and enhanced through future mitigation efforts.

The *Capability Assessment* completed for the Unifour Region serves as a critical planning step and an integral part of the foundation for designing an effective *Mitigation Strategy*. Coupled with the *Risk Assessment*, the *Capability Assessment* helps identify and target meaningful mitigation actions for incorporation into the *Mitigation Strategy* portion of the Plan. It not only helps establish the goals and objectives for the Region to pursue under this Plan, but also ensures that those goals and objectives are realistically achievable under given local conditions.

5.2 Conducting the Capability Assessment

In order to facilitate the inventory and analysis of local government capabilities within the Unifour counties, a detailed *Local Capability Assessment Survey* was distributed to members of the Unifour Hazard Mitigation Planning Committee (HMPC) at the second planning committee meeting. The survey questionnaire requested information on a variety of "capability indicators" such as existing local plans, policies, programs, or ordinances that contribute to and/or hinder the Region's ability to implement hazard mitigation actions. Other indicators included information related to the Region's fiscal, administrative, and technical capabilities, such as access to local budgetary and personnel resources for mitigation purposes, as well as any existing education and outreach programs that can be used to promote mitigation. Survey respondents were also asked to comment

on the current political climate with respect to hazard mitigation, an important consideration for any local planning or decision making process.

At a minimum, the survey results provide an extensive and consolidated inventory of existing local plans, ordinances, programs, and resources in place or under development, in addition to their overall effect on hazard loss reduction. In completing the survey, local officials were also required to conduct a self assessment of their jurisdiction's specific capabilities. The survey instrument thereby not only helps accurately assess the degree of local capability, but it also serves as a good source of introspection for counties and local jurisdictions that want to improve their capabilities as identified gaps, weaknesses, or conflicts can be recast as opportunities for specific actions to be proposed as part of the *Mitigation Strategy*.

The information provided in response to the survey questionnaire was incorporated into a database for further analysis. A general scoring methodology was then applied to quantify each jurisdiction's overall capability. According to the scoring system, each capability indicator was assigned a point value based on its relevance to hazard mitigation. Additional points were added based on the jurisdiction's self assessment of their own planning and regulatory capability, administrative and technical capability, fiscal capability, education and outreach capability, and political capability.

Using this scoring methodology, a total score and an overall capability rating of "High," "Moderate," or "Limited" could be determined according to the total number of points received. These classifications are designed to provide nothing more than a general assessment of local government capability. In combination with the narrative responses provided by local officials, the results of this *Capability Assessment* provide critical information for developing an effective and meaningful mitigation strategy.

5.3 Capability Assessment Findings

The findings of the *Capability Assessment* are summarized in this Plan to provide insight into the relevant capacity of the Unifour Region to implement hazard mitigation activities. All information is based upon the input provided by local government officials through the *Local Capability Assessment Survey* and during meetings of the HMPC.

5.3.1 Planning and Regulatory Capability

Planning and regulatory capability is based on the implementation of plans, ordinances, and programs that demonstrate a local jurisdiction's commitment to guiding and managing growth, development, and redevelopment in a responsible manner, while maintaining the general welfare of the community. It includes emergency response and mitigation planning, comprehensive land use planning, and transportation planning, in addition to the enforcement of zoning or subdivision ordinances and building codes that regulate how land is developed and structures are built, as well as protecting environmental, historic, and cultural resources in the community. Although some conflicts can arise, these planning initiatives generally present significant opportunities to integrate hazard mitigation principles and practices into the local decision making process.

This assessment is designed to provide a general overview of the key planning and regulatory tools or programs in place or under development for the Unifour Region, along with their potential effect on loss reduction. This information will help identify opportunities to address existing gaps,

weaknesses, or conflicts with other initiatives in addition to integrating the implementation of this Plan with existing planning mechanisms where appropriate.

Table 5.1 provides a summary of the relevant local plans, ordinances, and programs already in place or under development for the Unifour Region. A checkmark (✓) indicates that the given item is currently in place and being implemented. An asterisk (*) indicates that the given item is currently being developed for future implementation. Each of these local plans, ordinances, and programs should be considered available mechanisms for incorporating the requirements of the Unifour Regional Hazard Mitigation Plan.

Table 5.1: Relevant Plans, Ordinances, and Programs

Jurisdiction	Hazard Mitigation Plan	Comprehensive Land Use Plan	Floodplain Management Plan	Open Space Management Plan	Stormwater Management Plan	Emergency Operations Plan	SARA Title III Plan	Radiological Emergency Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Transportation Plan	Flood Damage Prevention Ordinance	Zoning Ordinance	Subdivision Ordinance	Site Plan Review Requirements	Unified Development Ordinance	Post-Disaster Redevelopment Ordinance	Building Code	Fire Code	Community Wildfire Protection Plan	National Flood Insurance Program	Community Rating System
Alexander County	✓	✓	✓	✓		✓	✓		✓	✓	✓				✓	✓	✓	✓				✓	✓		✓	
Taylorsville	✓	✓													✓	✓	✓	✓	✓			✓	✓		✓	
Burke County	✓	✓	✓			✓	✓		✓	✓		✓	✓		✓	✓	✓	✓	✓			✓	✓	✓	✓	
Connelly Springs	✓	✓	✓		✓											✓	✓	✓							✓	
Drexel	✓	✓										✓					✓	✓							✓	
Glen Alpine	✓	*	✓	✓	✓	✓	✓	✓	✓	*	*	*	*	*	*	✓	✓	✓	✓	*	*	✓	✓	✓	✓	*
Hildebran	✓	✓													✓	✓	✓	✓	✓			✓	✓		✓	
Morganton	✓	✓	✓	✓	✓	✓	✓					✓	✓	*	✓	✓	✓	✓	✓			✓	✓		✓	
Rutherford College	✓	✓													✓	✓	✓	✓	✓			✓	✓		✓	
Valdese	✓	✓	✓	*	✓	✓	✓		✓	✓	*	*	*			✓	✓	✓	✓			✓	✓	✓	✓	
Caldwell County	✓	✓	✓	✓	✓	✓	✓	*	✓	*	*		✓			✓	✓	✓	✓	✓	*	✓	✓		✓	✓
Cajah's Mountain	✓	✓			✓	✓						✓			✓	✓	✓	✓				✓	✓		✓	
Cedar Rock	✓														✓	✓	✓	✓	✓			✓	✓			
Gamewell	✓	✓			✓										✓	✓	✓	✓	✓			✓	✓		✓	
Granite Falls	✓	✓			✓							✓				✓	✓	✓	✓							
Hudson	✓	✓			✓										✓	✓	✓	✓	✓			✓	✓		✓	
Lenoir	✓	✓			✓	✓	✓					✓		✓	✓	✓	✓	✓	✓				✓	✓	✓	

Jurisdiction	Hazard Mitigation Plan	Comprehensive Land Use Plan	Floodplain Management Plan	Open Space Management Plan	Stormwater Management Plan	Emergency Operations Plan	SARA Title III Plan	Radiological Emergency Plan	Continuity of Operations Plan	Evacuation Plan	Disaster Recovery Plan	Capital Improvements Plan	Economic Development Plan	Historic Preservation Plan	Transportation Plan	Flood Damage Prevention Ordinance	Zoning Ordinance	Subdivision Ordinance	Site Plan Review Requirements	Unified Development Ordinance	Post-Disaster Redevelopment Ordinance	Building Code	Fire Code	Community Wildfire Protection Plan	National Flood Insurance Program	Community Rating System
Rhodhiss	✓		✓	*		✓		✓	✓			✓		*		✓		✓				✓	✓	✓	✓	
Sawmills	✓	✓			✓										✓	✓	✓	✓	✓			✓	✓		✓	
Catawba County	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓		✓	
Brookford	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Catawba	✓	✓										✓	✓		✓	✓	✓	✓	✓						✓	
Claremont	✓	✓		✓	✓	✓						✓	✓		✓	✓	✓	✓	*			✓	✓		✓	
Conover	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			✓	✓	✓	✓	
Hickory	✓	✓	✓	✓	✓	✓	✓					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	
Long View	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓			✓	✓		✓	
Maiden	✓	✓	✓	✓	✓	✓	✓	*	✓	✓	*	✓	*	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	
Newton	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓		✓	✓	✓	✓	✓			✓	✓		✓	

Source: Local Capability Assessment Survey.

A more detailed discussion on the Region's planning and regulatory capability follows, along with the incorporation of additional information based on the narrative comments provided by local officials in response to the survey questionnaire.

5.3.1.1 Emergency Management

Hazard mitigation is widely recognized as one of the four primary phases of emergency management. The three other phases are preparedness, response, and recovery. In reality each phase is interconnected with hazard mitigation, as **Figure 5.1** suggests. Opportunities to reduce potential losses through mitigation practices are most often implemented before a disaster event, such as elevation of flood-prone structures or through the continuous enforcement of policies that prevent and regulate development that is vulnerable to hazards because of its location, design, or other characteristics. Mitigation opportunities can also be identified during immediate preparedness or response activities (such as installing storm shutters in advance of a hurricane), and in many instances during the long-term recovery and redevelopment process following a disaster event.

Figure 5.1: The Four Phases of Emergency Management



Planning for each phase is a critical part of a comprehensive emergency management program and a key to the successful implementation of hazard mitigation actions. As a result, the *Local Capability Assessment Survey* asked several questions across a range of emergency management plans in order to assess the Unifour Region's willingness to plan and their level of technical planning proficiency.

Hazard Mitigation Plan
A hazard mitigation plan represents a community's blueprint for how it intends to reduce the impact of natural, and in some cases human-caused, hazards on people and the built environment. The essential elements of a hazard mitigation plan include a risk assessment, capability assessment, and mitigation strategy.

- All of the jurisdictions participating in this regional planning effort have previously been covered by their county's multi-jurisdictional hazard mitigation plan.

Disaster Recovery Plan
A disaster recovery plan serves to guide the physical, social, environmental, and economic recovery and reconstruction process following a disaster event. In many instances, hazard mitigation principles and practices are incorporated into local disaster recovery plans with the intent of capitalizing on opportunities to break the cycle of repetitive disaster losses. Disaster recovery plans can also lead to the preparation of disaster redevelopment policies and ordinances to be enacted following a hazard event.

- Nine of the 28 participating jurisdictions have a disaster recovery plan either in place or under development. (Five jurisdictions have one in place; four have one under development.)

Emergency Operations Plan
An emergency operations plan outlines responsibilities and the means by which resources are deployed during and following an emergency or disaster.

- Seventeen of the 28 participating jurisdictions have an emergency operations plan either in place or are covered under a county plan. (Sixteen have one in place; one is covered under a county plan.)

Continuity of Operations Plan
A continuity of operations plan establishes a chain of command, line of succession, and plans for backup or alternate emergency facilities in case of an extreme emergency or disaster event.

- Twelve of the 28 participating jurisdictions have a continuity of operations plan in place.

5.3.1.2 General Planning

The implementation of hazard mitigation activities often involves agencies and individuals beyond the emergency management profession. Stakeholders may include local planners, public works officials, economic development specialists, and others. In many instances, concurrent local planning efforts will help to achieve or complement hazard mitigation goals, even though they are not designed as such. Therefore, the *Local Capability Assessment Survey* also asked questions regarding general planning capabilities and the degree to which hazard mitigation is integrated into other ongoing planning efforts in the Unifour Region.

Comprehensive/General Plan
A comprehensive land use plan, or general plan, establishes the overall vision for what a community wants to be and serves as a guide for future governmental decision making. Typically a comprehensive plan contains sections on demographic conditions, land use, transportation elements, and community facilities. Given the broad nature of the plan and its regulatory standing in many communities, the integration of hazard mitigation measures into the comprehensive plan can enhance the likelihood of achieving risk reduction goals, objectives, and actions.

- Twenty-six of the 28 participating jurisdictions have a comprehensive land use plan either in place or under development (Twenty-four have one in place; two have one under development.)

Capital Improvements Plan
A capital improvements plan guides the scheduling of spending on public improvements. A capital improvements plan can serve as an important mechanism for guiding future development away from identified hazard areas. Limiting public spending in hazardous areas is one of the most effective long-term mitigation actions available to local governments.

- Seventeen of the 28 participating jurisdictions have a capital improvements plan in place or under development.

Historic Preservation Plan
A historic preservation plan is intended to preserve historic structures or districts within a community. An often overlooked aspect of the historic preservation plan is the assessment of buildings and sites located in areas subject to natural hazards, and the identification of ways to reduce future damages. This may involve retrofitting or relocation techniques that account for the need to protect buildings that do not meet current building standards, or are within a historic district that cannot easily be relocated out of harm's way.

- Seven of the 28 participating jurisdictions have an historic preservation plan in place or under development.

Zoning Ordinance
Zoning represents the primary means by which land use is controlled by local governments. As part of a community's police power, zoning is used to protect the public health, safety, and welfare of those in a given jurisdiction that maintains zoning authority. A zoning ordinance is the mechanism through which zoning is typically implemented. Since zoning regulations enable municipal governments to limit the type and density of development, a zoning ordinance can serve as a powerful tool when applied in identified hazard areas.

- Twenty-seven of the 28 participating jurisdictions have a zoning ordinance in place or under development.

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

- All 28 participating jurisdictions have a subdivision ordinance in place or under development.

Building Codes, Permitting, and Inspections
Building codes regulate construction standards. In many communities, permits and inspections are required for new construction. Decisions regarding the adoption of building codes (that account for hazard risk), the type of permitting process required both before and after a disaster, and the enforcement of inspection protocols all affect the level of hazard risk faced by a community.

- Twenty-three of the 28 participating jurisdictions have building codes in place.

The adoption and enforcement of building codes by local jurisdictions is routinely assessed through the Building Code Effectiveness Grading Schedule (BCEGS) program, developed by the Insurance

Services Office, Inc. (ISO). In North Carolina, the North Carolina Department of Insurance assesses the building codes in effect in a particular community and how the community enforces its building codes, with special emphasis on mitigation of losses from natural hazards. The results of BCEGS assessments are routinely provided to ISO's member private insurance companies, which in turn may offer ratings credits for new buildings constructed in communities with strong BCEGS classifications. The concept is that communities with well-enforced, up-to-date codes should experience fewer disaster-related losses, and as a result should have lower insurance rates.

In conducting the assessment, ISO collects information related to personnel qualification and continuing education, as well as number of inspections performed per day. This type of information combined with local building codes is used to determine a grade for that jurisdiction. The grades range from 1 to 10, with a BCEGS grade of 1 representing exemplary commitment to building code enforcement, and a grade of 10 indicating less than minimum recognized protection.

5.3.1.3 Floodplain Management

Flooding represents the greatest natural hazard facing the nation. At the same time, the tools available to reduce the impacts associated with flooding are among the most developed when compared to other hazard-specific mitigation techniques. In addition to approaches that cut across hazards such as education, outreach, and the training of local officials, the National Flood Insurance Program (NFIP) contains specific regulatory measures that enable government officials to determine where and how growth occurs relative to flood hazards. Participation in the NFIP is voluntary for local governments; however, program participation is strongly encouraged by FEMA as a first step for implementing and sustaining an effective hazard mitigation program. It is therefore used as part of this *Capability Assessment* as a key indicator for measuring local capability.

In order for a county or municipality to participate in the NFIP, they must adopt a local flood damage prevention ordinance that requires jurisdictions to follow established minimum building standards in the floodplain. These standards require that all new buildings and substantial improvements to existing buildings will be protected from damage by a 100-year flood event, and that new development in the floodplain will not exacerbate existing flood problems or increase damage to other properties.

A key service provided by the NFIP is the mapping of identified flood hazard areas. Once completed, the Flood Insurance Rate Maps (FIRMs) are used to assess flood hazard risk, regulate construction practices, and set flood insurance rates. FIRMs are an important source of information to educate residents, government officials, and the private sector about the likelihood of flooding in their community.

Table 5.2 provides NFIP policy and claim information for each participating jurisdiction in the Unifour Region.

Table 5.2: NFIP Policy and Claim Information

Jurisdiction	Date Joined NFIP	Current Effective Map Date	NFIP Policies In Force	Insurance In Force	Written Premium In Force	Closed Losses	Total Payments
Alexander County	02/01/91	07/07/09	29	$7,876,800	$18,344	2	$4,911
Taylorsville	12/18/07	07/07/09	4	$1,545,000	$4,602	0	$0
Subtotal Alexander	-	-	*33*	*$9,421,800*	*$22,946*	*2*	*$4,911*
Burke County	06/17/91	07/07/09	66	$14,562,400	$48,902	21	$738,944
Connelly Springs	09/05/07	07/07/09	2	$600,000	$798	0	$0
Drexel	08/19/86	07/07/09	3	$630,000	$1,125	0	$0
Glen Alpine	09/05/07	07/07/09	0	$0	$0	0	$0
Hildebran	09/05/07	07/07/09	0	$0	$0	0	$0
Morganton	02/19/87	07/07/09	58	$17,388,000	$92,940	19	$1,200,374
Rutherford College	09/05/07	07/07/09	1	$238,700	$349	0	$0
Valdese	07/03/86	07/07/09	2	$590,000	$2,153	0	$0
Subtotal Burke	-	-	*132*	*$34,009,100*	*$146,267*	*40*	*$1,939,318*
Caldwell County	08/16/88	07/07/09	87	$17,888,500	$70,819	14	$233,721
Cajah's Mountain	08/16/88	07/07/09	0	$0	$0	0	$0
Cedar Rock	07/07/09	07/07/09	0	$0	$0	0	$0
Gamewell	08/16/88	07/07/09	3	$300,000	$1,487	0	$0
Granite Falls	08/16/88	07/07/09	7	$1,574,500	$6,819	0	$0
Hudson	08/16/88	07/07/09	3	$791,000	$2,410	0	$0
Lenoir	08/16/88	07/07/09	107	$23,292,800	$131,732	18	$176,689
Rhodhiss	07/03/86	07/07/09	6	$1,527,100	$4,299	2	$12,587
Sawmills	07/07/09	07/07/09	0	$0	$0	0	$0
Subtotal Caldwell	-	-	*213*	*$45,373,900*	*$217,566*	*34*	*$422,997*
Catawba County	09/03/80	07/07/09	116	$26,334,000	$71,102	61	$942,174
Brookford	12/18/79	07/07/09	1	$105,000	$904	0	$0
Catawba	09/03/80	07/07/09	3	$805,000	$1,355	0	$0
Claremont	09/05/07	07/07/09	5	$976,000	$3,109	0	$0
Conover	09/03/80	07/07/09	15	$3,179,800	$10,965	2	$5,105
Hickory	08/03/81	07/07/09	72	$17,371,200	$42,678	10	$139,162
Long View	09/03/80	07/07/09	5	$1,055,000	$5,732	0	$0
Maiden	09/03/80	07/07/09	7	$1,186,000	$2,860	1	$2,379
Newton	09/03/80	07/07/09	14	$3,479,100	$8,075	2	$38,624
Subtotal Catawba	-	-	*238*	*$54,491,100*	*$146,780*	*76*	*$1,127,444*
TOTAL UNIFOUR	**-**	**-**	**616**	**$143,295,900**	**$533,559**	**152**	**$3,494,670**

Source: FEMA NFIP Policy Statistics (08/31/2013).

All jurisdictions listed above participate in the National Flood Insurance Program and will continue to comply with all required provisions of the program and work to adequately comply in the future utilizing a number of strategies. Floodplain management in all four counties is managed at the county level through zoning ordinances, building code restrictions, and the county building inspection program. The jurisdictions will coordinate with NCEM and FEMA to develop maps and regulations related to Special Flood Hazard Areas within their jurisdictional boundaries and,

through a consistent monitoring process, will design and improve their floodplain management program in a way that reduces the risk of flooding to people and property. Each county and its municipalities while participating in the National Flood Insurance Program comply with regulations as demonstrated in regular Community Assessment Visits (see attached spreadsheet).

Community Rating System
An additional indicator of floodplain management capability is the active participation of local jurisdictions in the Community Rating System (CRS). The CRS is an incentive-based program that encourages counties and municipalities to undertake defined flood mitigation activities that go beyond the minimum requirements of the NFIP, adding extra local measures to provide protection from flooding. All of the 18 creditable CRS mitigation activities are assigned a range of point values. As points are accumulated and reach identified thresholds, communities can apply for an improved CRS class. Class ratings, which range from 10 to 1, are tied to flood insurance premium reductions as shown in **Table 5.3**. As class ratings improve (the lower the number, the better), the percent reduction in flood insurance premiums for NFIP policyholders in that community increases.

Table 5.3: CRS Premium Discounts, By Class

CRS Class	Premium Reduction
1	45%
2	40%
3	35%
4	30%
5	25%
6	20%
7	15%
8	10%
9	5%
10	0%

Source: NFIP Community Rating System.

Community participation in the CRS is voluntary. Any community that is in full compliance with the rules and regulations of the NFIP may apply to FEMA for a CRS classification better than class 10. The CRS application process has been greatly simplified over the past several years, based on community comments intended to make the CRS more user friendly, and extensive technical assistance available for communities who request it.

- Caldwell County participates in the CRS with a class of 9.

Floodplain Management Plan
A floodplain management plan (or a flood mitigation plan) provides a framework for action regarding corrective and preventative measures to reduce flood-related impacts.

- 15 of the 28 participating jurisdictions have a floodplain management plan in place.

Open Space Management Plan
An open space management plan is designed to preserve, protect, and restore largely undeveloped lands in their natural state, and to expand or connect areas in the public domain such as parks,

greenways, and other outdoor recreation areas. In many instances open space management practices are consistent with the goals of reducing hazard losses, such as the preservation of wetlands or other flood-prone areas in their natural state in perpetuity.

- 13 of the 28 participating jurisdictions have an open space management plan in place or under development.

Stormwater Management Plan
A stormwater management plan is designed to address flooding associated with stormwater runoff. The stormwater management plan is typically focused on design and construction measures that are intended to reduce the impact of more frequently occurring minor urban flooding.

- 18 of the 28 participating jurisdictions have a stormwater management plan in place.

All jurisdictions listed above participate in the National Flood Insurance Program and will continue to comply with all required provisions of the program and work to adequately comply in the future utilizing a number of strategies. Floodplain management in all four counties is managed at the county level through zoning ordinances, building code restrictions, and the county building inspection program. The jurisdictions will coordinate with NCEM and FEMA to develop maps and regulations related to Special Flood Hazard Areas within their jurisdictional boundaries and, through a consistent monitoring process, will design and improve their floodplain management program in a way that reduces the risk of flooding to people and property. Each county and its municipalities while participating in the National Flood Insurance Program comply with regulations as demonstrated in regular Community Assessment Visits (see attached spreadsheet).

5.3.2 Administrative and Technical Capability

The ability of a local government to develop and implement mitigation projects, policies, and programs is directly tied to its ability to direct staff time and resources for that purpose. Administrative capability can be evaluated by determining how mitigation-related activities are assigned to local departments and if there are adequate personnel resources to complete these activities. The degree of intergovernmental coordination among departments will also affect administrative capability for the implementation and success of proposed mitigation activities.

Technical capability can generally be evaluated by assessing the level of knowledge and technical expertise of local government employees, such as personnel skilled in using geographic information systems (GIS) to analyze and assess community hazard vulnerability. The *Local Capability Assessment Survey* was used to capture information on administrative and technical capability through the identification of available staff and personnel resources.

Table 5.4 provides a summary of the *Local Capability Assessment Survey* results for the Unifour Region with regard to relevant staff and personnel resources. A checkmark (✓) indicates the presence of a staff member(s) in that jurisdiction with the specified knowledge or skill.

Table 5.4: Relevant Staff/Personnel Resources

Jurisdiction	Planners with knowledge of land development and land management practices	Engineers or professionals trained in construction practices related to buildings and/or infrastructure	Planners or engineers with an understanding of natural and/or human-caused hazards	Building Official	Emergency manager	Floodplain manager	Land surveyors	Scientist familiar with the hazards of the community	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in Geographic Information Systems (GIS) and/or HAZUS	Resource development staff or grant writers	Maintenance programs to reduce risk	Warning systems/services	Mutual Aid Agreements
Alexander County	✓			✓	✓	✓				✓	✓	✓		✓
Taylorsville	✓	✓	✓		✓	✓							✓	✓
Burke County	✓	✓	✓	✓	✓	✓			✓	✓	✓		✓	✓
Connelly Springs	✓			✓		✓								✓
Drexel												✓		✓
Glen Alpine	✓		✓		✓	✓			✓	✓	✓	✓	✓	✓
Hildebran	✓	✓	✓	✓	✓	✓				✓	✓		✓	
Morganton	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓
Rutherford College	✓	✓	✓	✓	✓	✓				✓	✓		✓	✓
Valdese	✓	✓	✓	✓	✓	✓				✓	✓		✓	✓
Caldwell County	✓		✓	✓	✓	✓			✓	✓	✓		✓	✓
Cajah's Mountain	✓	✓	✓	✓	✓	✓					✓			
Cedar Rock	✓	✓	✓	✓	✓					✓	✓		✓	✓
Gamewell	✓	✓	✓	✓	✓					✓	✓		✓	✓
Granite Falls	✓		✓			✓				✓	✓	✓	✓	✓
Hudson	✓	✓	✓	✓	✓	✓				✓	✓		✓	✓
Lenoir	✓	✓	✓		✓	✓			✓	✓	✓	✓	✓	✓
Rhodhiss					✓	✓			✓			✓	✓	✓
Sawmills	✓	✓	✓	✓	✓	✓				✓	✓		✓	✓
Catawba County	✓	✓	✓	✓	✓	✓			✓	✓	✓		✓	✓

Jurisdiction	Planners with knowledge of land development and land management practices	Engineers or professionals trained in construction practices related to buildings and/or infrastructure	Planners or engineers with an understanding of natural and/or human-caused hazards	Building Official	Emergency manager	Floodplain manager	Land surveyors	Scientist familiar with the hazards of the community	Staff with education or expertise to assess the community's vulnerability to hazards	Personnel skilled in Geographic Information Systems (GIS) and/or HAZUS	Resource development staff or grant writers	Maintenance programs to reduce risk	Warning systems/services	Mutual Aid Agreements
Brookford					✓	✓						✓		✓
Catawba	✓			✓		✓				✓	✓	✓		
Claremont	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
Conover	✓	✓	✓		✓	✓			✓	✓	✓	✓	✓	✓
Hickory	✓	✓	✓			✓	✓		✓	✓	✓	✓		
Long View	✓	✓	✓		✓	✓			✓	✓	✓	✓	✓	
Maiden	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓
Newton	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓

Source: Local Capability Assessment Survey.

5.3.3 Fiscal Capability

The ability of a local government to take action is often closely associated with the amount of money available to implement policies and projects. This may take the form of outside grant funding awards or locally based revenue and financing. The costs associated with mitigation policy and project implementation vary widely. In some cases, policies are tied primarily to staff time or administrative costs associated with the creation and monitoring of a given program. In other cases, direct expenses are linked to an actual project such as the acquisition of flood-prone houses, which can require a substantial commitment from local, state, and federal funding sources.

The *Local Capability Assessment Survey* was used to capture information on the Region's fiscal capability through the identification of locally available financial resources.

Table 5.5 provides a summary of the results for the Unifour Region with regard to relevant fiscal resources. A checkmark (✓) indicates that the given fiscal resource is locally available for hazard mitigation purposes (including match funds for state and federal mitigation grant funds).

Table 5.5: Relevant Fiscal Resources

Jurisdiction	Capital Improvement Programming	Community Development Block Grants (CDBG)	Special Purpose Taxes	Gas/Electric Utility Fees	Water/Sewer Fees	Stormwater Utility Fees	Development Impact Fees	General Obligation Bonds	Revenue Bonds	Special Tax Bonds	Other
Alexander County		✓			✓			✓	✓		✓
Taylorsville		✓									
Burke County	✓	✓	✓		✓			✓	✓	✓	
Connelly Springs		✓			✓						
Drexel				✓	✓						
Glen Alpine		✓									
Hildebran											
Morganton	✓			✓	✓						
Rutherford College	✓	✓									
Valdese	✓	✓	✓		✓	✓	✓	✓	✓	✓	
Caldwell County		✓	✓	✓	✓			✓			
Cajah's Mountain					✓						
Cedar Rock	✓	✓									
Gamewell	✓	✓									
Granite Falls	✓	✓									
Hudson	✓	✓									
Lenoir	✓	✓			✓						
Rhodhiss	✓	✓			✓						
Sawmills	✓	✓									

Jurisdiction	Capital Improvement Programming	Community Development Block Grants (CDBG)	Special Purpose Taxes	Gas/Electric Utility Fees	Water/Sewer Fees	Stormwater Utility Fees	Development Impact Fees	General Obligation Bonds	Revenue Bonds	Special Tax Bonds	Other
Catawba County	✓	✓			✓						
Brookford		✓									
Catawba	✓	✓			✓			✓	✓	✓	
Claremont		✓			✓						
Conover	✓	✓			✓		✓	✓			
Hickory	✓	✓			✓			✓			
Long View	✓	✓			✓			✓	✓		
Maiden	✓	✓		✓	✓			✓	✓		
Newton	✓	✓		✓	✓			✓			

Source: Local Capability Assessment Survey.

5.3.4 Education and Outreach Capability

This type of local capability refers to education and outreach programs and methods already in place that could be used to implement mitigation activities and communicate hazard-related information. Examples include natural disaster or safety related school programs; participation in community programs such as Firewise or StormReady; and activities conducted as part of hazard awareness campaigns such as a Tornado Awareness Month.

Table 5.6 provides a summary of the results for the Unifour Region with regard to relevant education and outreach resources. A checkmark (✓) indicates that the given resource is locally available for hazard mitigation purposes.

Table 5.6: Education and Outreach Resources

Jurisdiction	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Natural disaster or safety related school programs	StormReady certification	Firewise Communities certification	Public-private partnership initiatives addressing disaster-related issues	Other
Alexander County	✓	✓				✓	
Taylorsville							
Burke County	✓	✓	✓				
Connelly Springs							
Drexel		✓					
Glen Alpine		✓					
Hildebran							
Morganton		✓					
Rutherford College							
Valdese		✓	✓	✓	✓	✓	✓
Caldwell County	✓	✓				✓	
Cajah's Mountain		✓					
Cedar Rock							
Gamewell							
Granite Falls		✓	✓				
Hudson							
Lenoir		✓					
Rhodhiss		✓	✓				
Sawmills							
Catawba County	✓	✓	✓	✓		✓	
Brookford		✓				✓	
Catawba							
Claremont		✓					
Conover							
Hickory	✓	✓					
Long View	✓	✓		✓			
Maiden	✓	✓	✓				
Newton		✓					

Source: Local Capability Assessment Survey.

5.3.5 Political Capability

One of the most difficult capabilities to evaluate involves the political will of a jurisdiction to enact meaningful policies and projects designed to reduce the impact of future hazard events. Hazard mitigation may not be a local priority, or may conflict with or be seen as an impediment to other goals of the community, such as growth and economic development. Therefore the local political climate must be considered in designing mitigation strategies, as it could be the most difficult hurdle to overcome in accomplishing their adoption and implementation.

The *Local Capability Assessment Survey* was used to capture information on political capability of the Unifour Region. Survey respondents were asked to identify some general examples of local political capability, such as guiding development away from identified hazard areas, restricting public investments or capital improvements within hazard areas, or enforcing local development standards that go beyond minimum state or federal requirements (e.g., building codes, floodplain management, etc.). The comments provided by the participating jurisdictions are listed below:

- Elected officials and senior management are always willing to do whatever is necessary to protect the health, safety, and welfare of all citizens. Example: Lake James Environmental Standards (buffers, erosion, and setbacks) all exceed state and federal requirements.
- The Board of Alderman has shown their commitment to hazard mitigation by adopting and maintaining many of the recommended ordinances.
- Typically, the Town Council is willing to adopt regulations that set minimum standards for watershed protection and flood damage protection.
- Floodplain management ordinance, flood damage prevention ordinance, building codes with Burke and Caldwell counties.
- The Catawba County Board of Commissioners supports policies and ordinances which address hazard mitigation; however, the County is fiscally constrained to fund infrastructure without assistance from federal or state grants. The County's Unified Development Ordinance, adopted by the Board of Commissioners in 2007, incorporated many of the action strategies from the 2004 Hazard Mitigation Plan. These included mandatory open space requirements, a mountain protection overlay district addressing Firewise communities, and a cluster subdivision option which protects environmentally sensitive areas. The County evaluated the Community Rating System, which was a mitigation action from the 2009 Hazard Mitigation Plan; however, with the very few number of residents that would receive minimal benefits it was determined to not be economically viable.
- Check ordinances on http://www.townofcatawba.org: Town Code of Ordinances, Zoning Ordinance, Subdivision Regulations, Flood Damage Prevention Ordinance.
- City Council has been open to enacting policies that reduce hazard vulnerabilities. They did adopt new FIRM maps and flood protection ordinance that exceed the minimum standard (requires 2 feet of freeboard). In the land development plan adopted by the City Council, greenways have been designated along creeks in the flood hazard areas. The City Council has also adopted a conservation subdivision where at least 40% of the area should be held as open/green space.
- Elected officials will, within reason, support programs to mitigate hazards.

- The Board of Aldermen of the Town of Long View is willing to enact policies and programs that reduce hazard vulnerabilities. Development outside of a floodplain is always encouraged but development within the floodplain is not completely prohibited. The Town has adopted a flood damage prevention ordinance that adds regulations and costs to developing in a floodplain. No developer has proposed to build in a floodplain in the last eight years. Other than designated floodplain areas, the Town of Long View does not have any other identified hazard areas.
- Our local political leadership has displayed a willingness to enact policies above the established minimum baseline. For example, our floodplain protection ordinance requires 2 feet of freeboard for floodplain development.
- The City of Newton is committed to implementing policies and regulations that reduce potential hazard vulnerabilities. Zoning, Subdivision, Erosion Control, Stormwater, Floodplain, and Wetland regulations are in place. Floodplain regulations require all structural development within the floodplain to be constructed 2 feet above the base flood elevation (BFE). Several plans have also been created to assist in hazard mitigation efforts, which include: Land Development Plan, Eastside Area Plan, Southeast Area Plan, St. Paul's Area Plan, Core Area Plan, Southwest Area Plan, Multi-Hazard Plan, Parks & Recreation Master Plan, and Greenway Plan. In addition, elected officials and key staff have received National Incident Management System (NIMS) certification.

5.3.6 Local Self Assessment

In addition to the inventory and analysis of specific local capabilities, the *Local Capability Assessment Survey* asked counties and local jurisdictions within the Unifour Region to conduct a self assessment of their perceived capability to implement hazard mitigation activities. As part of this process, local officials were encouraged to consider the barriers to implementing proposed mitigation strategies in addition to the mechanisms that could enhance or further such strategies. In response to the survey questionnaire, county officials classified each of the aforementioned capabilities as either “limited,” “moderate,” or “high.”

Table 5.7 summarizes the results of the self assessment for the Unifour Region.

Table 5.7: Self Assessment of Capability

Jurisdiction	Plans, Ordinances, Codes and Programs	Administrative and Technical Capability	Fiscal Capability	Education and Outreach Capability	Political Capability	OVERALL CAPABILITY
Alexander County	MODERATE	LOW	MODERATE	MODERATE	LOW	LOW
Taylorsville	MODERATE	MODERATE	LOW	MODERATE	MODERATE	MODERATE
Burke County	MODERATE	MODERATE	LOW	LOW	HIGH	MODERATE
Connelly Springs	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE	MODERATE
Drexel	LOW	LOW	LOW	LOW	LOW	LOW
Glen Alpine	LOW	LOW	LOW	LOW	LOW	LOW
Hildebran	MODERATE	MODERATE	LOW	MODERATE	MODERATE	MODERATE
Morganton	MODERATE	MODERATE	MODERATE	LOW	MODERATE	MODERATE
Rutherford College	MODERATE	MODERATE	LOW	MODERATE	MODERATE	MODERATE
Valdese	HIGH	MODERATE	LOW	MODERATE	MODERATE	MODERATE
Caldwell County	LOW	HIGH	LOW	MODERATE	LOW	LOW
Cajah's Mountain	MODERATE	MODERATE	LOW	LOW	LOW	MODERATE
Cedar Rock	MODERATE	MODERATE	LOW	MODERATE	MODERATE	MODERATE
Gamewell	MODERATE	MODERATE	LOW	MODERATE	MODERATE	MODERATE
Granite Falls	MODERATE	LOW	LOW	MODERATE	MODERATE	MODERATE
Hudson	MODERATE	MODERATE	LOW	MODERATE	MODERATE	MODERATE
Lenoir	HIGH	HIGH	MODERATE	HIGH	MODERATE	HIGH
Rhodhiss	LOW	LOW	LOW	LOW	MODERATE	LOW
Sawmills	MODERATE	MODERATE	LOW	MODERATE	MODERATE	MODERATE
Catawba County	HIGH	HIGH	MODERATE	MODERATE	MODERATE	MODERATE
Brookford	MODERATE	LOW	LOW	LOW	MODERATE	LOW
Catawba	HIGH	MODERATE	LOW	LOW	MODERATE	HIGH
Claremont	MODERATE	MODERATE	MODERATE	MODERATE	HIGH	MODERATE
Conover	HIGH	LOW	LOW	LOW	LOW	LOW
Hickory	HIGH	HIGH	MODERATE	MODERATE	MODERATE	MODERATE
Long View	MODERATE	MODERATE	LOW	MODERATE	HIGH	MODERATE
Maiden	HIGH	HIGH	HIGH	HIGH	HIGH	HIGH
Newton	HIGH	MODERATE	LOW	MODERATE	HIGH	MODERATE

Source: Local Capability Assessment Survey.

5.4 Conclusions on Local Capability

In order to form meaningful conclusions on the assessment of local capability, a quantitative scoring methodology was designed and applied to results of the *Local Capability Assessment Survey*. This methodology attempts to assess the overall level of capability of the Unifour Region to implement hazard mitigation actions.

Table 5.8 shows the results of the *Capability Assessment* using the designed scoring methodology. The capability score is based solely on the information provided by local officials in response to the *Local Capability Assessment Survey*. According to the assessment, the average local capability score for all responding jurisdictions is 48, which falls into the moderate capability ranking.

Table 5.8: Capability Assessment Results

Jurisdiction	Overall Capability Score	Overall Capability Rating
Alexander County	54	HIGH
Taylorsville	33	MODERATE
Burke County	64	HIGH
Connelly Springs	34	MODERATE
Drexel	15	LIMITED
Glen Alpine	54	HIGH
Hildebran	35	MODERATE
Morganton	55	HIGH
Rutherford College	35	MODERATE
Valdese	67	HIGH
Caldwell County	64	HIGH
Cajah's Mountain	37	MODERATE
Cedar Rock	30	MODERATE
Gamewell	38	MODERATE
Granite Falls	29	MODERATE
Hudson	40	MODERATE
Lenoir	57	HIGH
Rhodhiss	38	MODERATE
Sawmills	38	MODERATE
Catawba County	69	HIGH
Brookford	56	HIGH
Catawba	36	MODERATE
Claremont	51	HIGH
Conover	61	HIGH
Hickory	58	HIGH
Long View	62	HIGH
Maiden	80	HIGH
Newton	63	HIGH

Source: Local Capability Assessment Survey.

As previously discussed, one of the reasons for conducting a *Capability Assessment* is to examine local capabilities to detect any existing gaps or weaknesses within ongoing government activities that could hinder proposed mitigation activities and possibly exacerbate community hazard vulnerability. These gaps or weaknesses have been identified, for each jurisdiction, in the tables found throughout this section. The participating jurisdictions used the *Capability Assessment* as part of the basis for the mitigation actions that are identified in Section 7; therefore, each jurisdiction addresses their ability to expand on and improve their existing capabilities through the identification of their mitigation actions.

Section 6: Mitigation Strategy

The *Mitigation Strategy* section provides the blueprint for the participating jurisdictions in the Unifour Region to follow to become less vulnerable to the negative effects of the natural hazards identified and addressed in this Plan. It is based on the general consensus of the Unifour Hazard Mitigation Planning Committee (HMPC) and the findings and conclusions of the *Risk Assessment* and *Capability Assessment*. It consists of the following five subsections:

6.1 Overview
6.2 Mitigation Goals
6.3 Identification and Analysis of Mitigation Techniques
6.4 Selection of Mitigation Techniques for the Unifour Region
6.5 Plan Update Requirement

6.1 Overview

The intent of the *Mitigation Strategy* is to provide the Unifour Region with overall goals that will serve as guiding principles for future mitigation policy and project administration, along with an analysis of mitigation techniques deemed available to meet those goals and reduce the impact of identified hazards. It is designed to be comprehensive, strategic, and functional in nature:

- In being comprehensive, the development of the *Mitigation Strategy* included a thorough review of all natural hazards and identifies extensive mitigation measures intended to not only reduce the future impacts of high risk hazards, but also to help the Unifour Region achieve compatible economic, environmental, and social goals.
- In being strategic, the development of the *Mitigation Strategy* ensures that all policies and projects proposed for implementation are consistent with pre-identified, long-term planning goals.
- In being functional, each proposed mitigation action is linked to established priorities and assigned to specific departments or individuals responsible for their implementation with target completion deadlines. When necessary, funding sources are identified that can be used to assist in project implementation.

The first step in designing the *Mitigation Strategy* included the identification of mitigation goals. Mitigation goals represent broad statements that are achieved through the implementation of more specific mitigation actions. These actions include both hazard mitigation policies (such as the regulation of land in known hazard areas through a local ordinance), as well as hazard mitigation projects that seek to address specifically targeted hazard risks (such as the acquisition and relocation of a repetitive loss structure).

The second step involves the identification, consideration, and analysis of available mitigation measures to help achieve the identified mitigation goals. This is a long-term, continuous process sustained through the development and maintenance of this Plan. Alternative mitigation measures will continue to be considered as future mitigation opportunities are identified, as data and technology improve, as mitigation funding becomes available, and as the Plan is maintained over time.

The third and last step in designing the *Mitigation Strategy* is the selection and prioritization of specific mitigation actions for the Unifour Region (found in Section 7: *Mitigation Action Plans*). Each County and participating jurisdiction has its own *Mitigation Action Plan* (MAP) that reflects the needs and concerns of that jurisdiction. The MAP represents an unambiguous and functional plan for action and is considered to be the most essential outcome of the mitigation planning process. A significant amount of time and effort was applied to this step in the process.

The MAP includes a prioritized listing of proposed hazard mitigation actions (policies and projects) for the Unifour counties and incorporated municipalities to complete. Each action has accompanying information, such as those departments or individuals assigned responsibility for implementation, potential funding sources, and an estimated target date for completion. The MAP provides the departments or individuals responsible for implementing mitigation actions with a clear roadmap that also serves as an important tool for monitoring success or progress over time. The cohesive collection of actions listed in the MAP can also serve as an easily understood menu of mitigation policies and projects for those local decision makers who want to quickly review the recommendations and proposed actions of the Unifour Regional Hazard Mitigation Plan.

In preparing each *Mitigation Action Plan* for the Unifour Region, officials considered the overall hazard risk and capability to mitigate the effects of hazards as recorded through the risk and capability assessment process, in addition to meeting the adopted mitigation goals and unique needs of the planning area. Prioritization of the proposed mitigation actions was based on the factors outlined in subsection 6.1.1.

6.1.1 Mitigation Action Prioritization

The priority for each mitigation action was determined by the participating jurisdiction by identifying each action as high, moderate, or low priority. In order to make this decision, local government officials reviewed and considered the findings of the *Risk Assessment* and *Capability Assessment*. Other considerations included each individual mitigation action's effect on overall risk to life and property, its ease of implementation, its degree of political and community support, its general cost-effectiveness, and funding availability (if necessary).

6.2 Mitigation Goals

The primary goal of all local governments is to promote the public health, safety, and welfare of its citizens. In keeping with this standard, the Unifour counties and participating municipalities have developed seven goal statements for local hazard mitigation planning in the Unifour Region. In developing these goals, the previous four county hazard mitigation plans were reviewed to determine areas of consistency. The project consultant reviewed the wide range of strategies, goals, objectives, actions, and implementation plans from each of the four previous county plans and a determination was made to review and discuss previous goals but to move forward with a newly crafted set of goals to better reflect the current needs and concerns of the Unifour Region as a whole. These regional goals are presented in **Table 6.1**.

These regional goals were developed by the HMPC at the third planning committee meeting. Each goal, purposefully broad in nature, serves to establish the parameters that were used to review and update existing mitigation actions and to aid in formulating new ones. The consistent implementation of mitigation actions over time will ensure that these mitigation goals are achieved.

Table 6.1: Regional Mitigation Goals

Goal #1	Evaluate and revise as needed local plans, policies, procedures, regulations, and ordinances to support effective mitigation.
Goal #2	Maintain and/or upgrade existing infrastructure to minimize system failures due to natural hazards.
Goal #3	Implement a public outreach campaign to heighten awareness of natural hazard risks where we live, work, and play.
Goal #4	Support coordination of greenway plans and linkages to parks and open space networks to mitigate flooding at the regional level.
Goal #5	Pursue mitigation of repetitive flood loss properties.
Goal #6	Investigate, seek funding for, and implement structural mitigation projects that will reduce the damaging effects of natural hazards.
Goal #7	Investigate, seek funding for, and implement other unspecified special projects and planning efforts that will reduce the damaging effects of natural hazards.

6.3 Identification and Analysis of Mitigation Techniques

In formulating the *Mitigation Strategy* for the Unifour Region, a wide range of activities were considered in order to help achieve the established mitigation goals, in addition to addressing any specific hazard concerns. These activities were discussed during the HMPC meetings. In general, all activities considered by the planning committee can be classified under one of the following four broad categories of mitigation techniques: local plans and regulations, structure and infrastructure projects, natural systems protection, and education and awareness programs. These are described in detail below.

6.3.1 Local Plans and Regulations

Mitigation actions that fall under this category include government authorities, policies, or codes that influence the way land and buildings are developed and built. Examples of these types of actions include:

- Comprehensive plans
- Land use ordinances
- Subdivision regulations
- Development review
- NFIP Community Rating System
- Capital improvement programs
- Open space preservation
- Stormwater management regulations and master plans

6.3.2 Structure and Infrastructure Projects

Mitigation actions that fall under this category involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards. Many of these types of actions are projects eligible for funding through the FEMA Hazard Mitigation Assistance (HMA) program. Examples of these types of actions include:

- Acquisitions and elevations of structures in flood-prone areas
- Utility undergrounding
- Structural retrofits
- Floodwalls and retaining walls
- Detention and retention structures
- Culverts
- Safe rooms

6.3.3 Natural Systems Protection

Mitigation actions that fall under this category minimize damage and losses and also preserve or restore the functions of natural systems. Examples of these types of actions include:

- Sediment and erosion control
- Stream corridor restoration
- Forest management
- Conservation easements
- Wetland restoration and preservation

6.3.4 Education and Awareness Programs

Mitigation actions that fall under this category inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady or Firewise communities. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions. Examples of these types of actions include:

- Radio or television spots
- Websites with maps and information
- Real estate disclosure
- Presentations to school groups or neighborhood organizations
- Mailings to residents in hazard-prone areas
- StormReady
- Firewise

6.3.5 Other Types of Actions

Participating jurisdictions may wish to include other types of actions in their *Mitigation Action Plans* that do not fit into one of the categories listed above. In some cases, these may not be viewed as pure examples of mitigation, but they may be related in ways that make sense to the local government adopting the actions. Examples of these types of actions include:

- Warning systems
- Communications enhancements
- Emergency response training and exercises
- Evacuation management
- Sandbagging for flood protection
- Installing temporary shutters for immediate wind protection
- Other forms of emergency services

6.4 Selection of Mitigation Techniques for the Unifour Region

To determine the most appropriate mitigation techniques for the jurisdictions in the Unifour Region, the HMPC thoroughly reviewed and considered the findings of the *Risk Assessment* and *Capability Assessment* to determine the best activities for their respective communities.

Other considerations included the effect of each mitigation action on overall risk to life and property, its ease of implementation, its degree of political and community support, its general cost-effectiveness, and funding availability (if necessary).

6.5 Plan Update Requirement

In keeping with FEMA requirements for plan updates, the mitigation actions identified in the previous Unifour Region county plans were evaluated to determine their current implementation status. Updates on the implementation status of each existing mitigation action are provided as part of the *Mitigation Action Plans* found in Section 7.

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Section 7: Mitigation Action Plans

The *Mitigation Action Plan* section includes a *Mitigation Action Plan* (MAP) for each participating jurisdiction, plus a separate MAP for the Unifour Region as a whole. As stated in Section 6, each County and participating jurisdiction has its own MAP that reflects the needs and concerns of that jurisdiction. The MAP represents an unambiguous and functional plan for action and is considered to be the most essential outcome of the mitigation planning process.

The participating jurisdictions are listed below in the order that the MAPs are included in this section.

- **Unifour Regional Actions**

- **Alexander County**
- Town of Taylorsville

- **Burke County**
- Town of Connelly Springs
- Town of Drexel
- Town of Glen Alpine
- Town of Hildebran
- City of Morganton
- Town of Rutherford College
  Town of Valdese

- **Caldwell County**
- Town of Cajah's Mountain
- Village of Cedar Rock
- Town of Gamewell
- Town of Granite Falls
- Town of Hudson
- City of Lenoir
- Town of Rhodhiss
- Town of Sawmills

- **Catawba County**
- Town of Brookford
- Town of Catawba
- City of Claremont
- City of Conover
- City of Hickory
- Town of Long View
- Town of Maiden
- City of Newton

Mitigation Action Plan—Alexander County

2014 Mitigation Actions

Mitigation Action 1	Conduct outreach to the public regarding Alexander County's Community Alert System to educate them on how to obtain information both pre- and post- disaster event.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Alexander County Emergency Services Department
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Alexander County General Fund
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Mitigation Action 2	Improve information sharing with Duke Energy regarding its operational procedures for the movement of water through its hydro-electric systems on the Catawba River. This can be achieved by meeting formally at least once a year, when significant weather events are anticipated and when upgrades or improvements to the system are scheduled.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Alexander County Emergency Services Department
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Alexander County General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 3	Establish a protocol for monitoring the tail race areas below the Catawba River dams during high water events to ensure security of the area and limiting public access.
Category:	Local Plans and Regulations; Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Alexander County Emergency Services Department; Sheriff's Office
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Alexander County General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 4	Install generator transfer switch connections during the construction of new public facilities (schools, fire stations, County buildings, etc.).
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Alexander County Finance Department; Alexander County Emergency Services Department
Estimated Cost:	To be determined
Potential Funding Sources:	Alexander County General Fund; Department of Homeland Security – Emergency Management Performance Grants (EMPG), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 5	Integration of a cooperative hazard mitigation program into new development, commercial districts, infrastructure, and land use planning.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Alexander County Emergency Services Department; Alexander County Planning Department
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Alexander County General Fund
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	High

Mitigation Action 6	Promote a standard hookup for emergency generators such that any portable generator can be simply connected to it for supply of power to vital circuits in homes and/or public buildings. Priority locations are nursing homes, schools, and government buildings.
Category:	Other
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Alexander County Emergency Services Department; American Red Cross
Estimated Cost:	To be determined
Potential Funding Sources:	Department of Homeland Security – Emergency Management Performance Grants (EMPG), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program.
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	Moderate to High

Mitigation Action 7	To establish, where feasible, additional emergency response forces, by at least 10%, that are trained, equipped and prepared to respond to a variety of emergency and disaster situations. This concept is concurred by Alexander County and the Town of Taylorsville.
Category:	Other
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm, Lightning and Hail; Tornado; Wildfire; Drought; Winter Weather
Lead Agency/Department Responsible:	Alexander County Manager and Commissioners
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Alexander County General Fund
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	Low

Mitigation Action 8	Retrofit or relocate residential structures in 100-year floodplain. Recent count of structures inside the 100-year floodplain indicates that flooding could occur of such magnitude to cause a significant impact on citizens. This action will depend upon state and federal assistance through the "buy-out" program for floodplains and flood-prone areas. Zero tolerance for persons building in floodplain or flood-prone areas will be incorporated.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Alexander County Planning Department; Alexander County Emergency Services Department
Estimated Cost:	To be determined during the feasibility phase
Potential Funding Sources:	Alexander County; State of North Carolina; Federal Government
Implementation Schedule:	5-10 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 9	Retrofit critical facilities to reduce collapsing materials. Funding is the most important issue for this action. Public education and awareness must be accomplished prior to implementations.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Multiple Hazards
Lead Agency/Department Responsible:	Alexander County Building Inspection Department; Alexander County Emergency Services Department
Estimated Cost:	To be determined during the feasibility phase
Potential Funding Sources:	Alexander County and Hazard Mitigation Grant monies
Implementation Schedule:	5-10 years
Priority (High, Moderate, Low):	Low

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	To establish, where feasible, additional emergency response forces, by at least 10%, that are trained, equipped and prepared to respond to a variety of emergency and disaster situations. This concept is concurred by Alexander County and the Town of Taylorsville.
Category:	Emergency Services
Hazard(s) Addressed:	Floods; Hurricanes and Tropical Storms; Severe Thunderstorms and Tornadoes; Wildfire; Drought; Winter Storms
Lead Agency/Department Responsible:	Alexander County Manager and Commissioners
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Alexander County General Fund
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	Low
2014 Status:	**Ongoing. Additional funding has been secured for Rescue. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 7 above.)**

Mitigation Action 2	Integration of a cooperative hazard mitigation program into new development, commercial districts, infrastructure, and land use planning.
Category:	Property Protection; Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Alexander County Emergency Services Department; Alexander County Planning Department
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Alexander County General Fund
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**No changes or updates have been made to local ordinances or zoning regulations since the last plan update. Changes and updates are anticipated when funding and staff time allow. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 5 above.)**

Mitigation Action 3	Retrofit or relocate residential structures in 100-year floodplain. Recent count of structures inside the 100-year floodplain indicates that flooding could occur of such magnitude to cause a significant impact on citizens. This action will depend upon state and federal assistance through the "buy-out" program for floodplains and flood-prone areas. Zero tolerance for persons building in floodplain or flood-prone areas will be incorporated.
Category:	Property Protection
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Alexander County Planning Department; Alexander County Emergency Services Department
Estimated Cost:	To be determined during the feasibility phase
Potential Funding Sources:	Alexander County; State of North Carolina; Federal Government
Implementation Schedule:	5-10 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**To date only one structure has sustained damage and no funds were available for buyout. We continually monitor this. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 8 above.)**

Mitigation Action 4	Retrofit critical facilities to reduce collapsing materials. Funding is the most important issue for this action. Public education and awareness must be accomplished prior to implementations.
Category:	Property Protection
Hazard(s) Addressed:	Multiple Hazards
Lead Agency/Department Responsible:	Alexander County Building Inspection Department; Alexander County Emergency Services Department
Estimated Cost:	To be determined during the feasibility phase
Potential Funding Sources:	Alexander County and Hazard Mitigation Grant monies
Implementation Schedule:	5-10 years
Priority (High, Moderate, Low):	Low
2014 Status:	**The new Alexander County Law Enforcement/Detention Center has been completed. Progressing with plans to renovate the old Law Enforcement Center. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 9 above.)**

Mitigation Action 5	Audible and visual warning devices to be installed by Duke Energy at Oxford Dam for warnings when flood gate(s) are opened to warn boaters, other users of the waterway, and residents in an attempt to save lives when flood gate(s) are opened.
Category:	Emergency Services
Hazard(s) Addressed:	Dam Failure
Lead Agency/Department Responsible:	Alexander County Emergency Services Department
Estimated Cost:	To be determined during the feasibility phase
Potential Funding Sources:	Duke Energy
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Duke Energy sirens sound each time gates are opened or power production begins. This has proven to be sufficient notice of rising water levels just below the dam.**

Mitigation Action Plan—Town of Brookford

2014 Mitigation Actions

Mitigation Action 1	Develop a debris management plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Wildfire; Winter Weather
Lead Agency/Department Responsible:	Town of Brookford Administration Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 2	Develop a post-disaster reconstruction plan to facilitate decision-making following a hazard event.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Wildfire; Drought; Winter Weather; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	Town of Brookford Administration Department; Town of Brookford Police Department; Town of Brookford Public Works Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	2-4 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	Implement moderate to major repairs to stormwater drains.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Brookford Public Works Department
Estimated Cost:	Moderate to High
Potential Funding Sources:	Local
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Mitigation Action 4	Identify and strengthen facilities to function as public shelters.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Wildfire; Drought; Winter Weather; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	Town of Brookford Administration Department
Estimated Cost:	To be determined
Potential Funding Sources:	Grants; local
Implementation Schedule:	2-4 years
Priority (High, Moderate, Low):	Low

Mitigation Action 5	Continue routinely pruning and clearing limbs on the Town's rights of way.
Category:	Prevention
Hazard(s) Addressed:	Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Winter Weather
Lead Agency/Department Responsible:	Town of Brookford Public Works Department
Estimated Cost:	Moderate
Potential Funding Sources:	Local
Implementation Schedule:	5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 6	In coordination with the Catawba County Emergency Services Department, conduct outreach to the public regarding the County's Community Alert System to educate them about how to obtain information both pre- and post-event and about mitigation strategies.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Brookford; Catawba County Emergency Services Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	Maintain continued compliance with the National Flood Insurance Program (NFIP).
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Brookford Administration Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	2-4 years
Priority (High, Moderate, Low):	High
2014 Status:	**The Town adopted a Flood Damage Prevention Ordinance based on the model provided by the State of North Carolina. The Town Manager will plan to attend training with regard to floodplain management. There are no inspectors within the Town, other than those that inspect through the County.**

Mitigation Action 2	Develop mutual aid agreement with other jurisdictions to augment local inspection personnel after major disasters.
Category:	Emergency Services
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Wildfire; Drought; Winter Weather; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	Town of Brookford Administration Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	2-4 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed. The Town has signed a mutual aid agreement with the City of Hickory and works closely with Catawba County.**

Mitigation Action 3	Prepare a Local Evacuation Plan to ensure the safety of Town residents in advance of anticipated hazard events, particularly wildfires and flooding.
Category:	Emergency Services
Hazard(s) Addressed:	Wildfire; Flood
Lead Agency/Department Responsible:	Town of Brookford Police Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	2-4 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed. The Town of Brookford Police Department has worked closely with local municipalities, Catawba County, the Town's chemical plant, and Town residents to prepare an evacuation plan.**

Mitigation Action 4	Enhance local citizens' disaster preparedness through continuous outreach and education efforts in coordination with Catawba County, the American Red Cross, and other support organizations.
Category:	Preparedness
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Wildfire; Drought; Winter Weather; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	Town of Brookford Administration Department; Town of Brookford Police Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	2-4 years
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. Town citizens have been continuously updated on the evacuation plans and the use of the Community Building as a safe house in the case of extreme situations.**

Mitigation Action 5	Continue routine inspections of the Town's storm drain system.
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Brookford Public Works Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	Continuous implementation (as needed)
Priority (High, Moderate, Low):	Moderate
2014 Status:	**The Town of Brookford Public Works Department does this as an ongoing preventative action. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 3 above.)**

Mitigation Action 6	Continue routinely pruning and clearing limbs on the Town's rights of way.
Category:	Prevention
Hazard(s) Addressed:	Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Winter Weather
Lead Agency/Department Responsible:	Town of Brookford Public Works Department
Estimated Cost:	Moderate
Potential Funding Sources:	Local
Implementation Schedule:	Continuous implementation (as needed)
Priority (High, Moderate, Low):	Moderate
2014 Status:	**The Town of Brookford Public Works Department does this as an ongoing preventative action. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 5 above.)**

Mitigation Action Plan—Burke County

2014 Mitigation Actions

Mitigation Action 1	Review/update Flood Damage Prevention Ordinance.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Burke County Planning & Development Department; Burke County Building Inspections Department; Burke County Emergency Services Department
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	Revision 2014/2015
Priority (High, Moderate, Low):	Moderate

Mitigation Action 2	Revise/update regulatory floodplain maps of any known flood areas.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Burke County Planning & Development Department; Burke County Land Records/GIS Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state; federal
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	Adopt zoning and subdivision regulations in floodplain, steep slope, and wildfire hazard areas.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Planning & Development Department; Burke County Emergency Services Department; Burke County Building Inspections Department
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	Review Yearly
Priority (High, Moderate, Low):	High

Mitigation Action 4	Update Comprehensive Land Use Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Planning & Development Department
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	2014/2015
Priority (High, Moderate, Low):	High

Mitigation Action 5	Step up centralized coordinated permitting process, including effective filing/permitting system to ensure compliance with floodplain regulations.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Burke County Emergency Services Department; Burke County Planning & Development Department; Burke County Building Inspections Department; Burke County Environmental Health Department
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	2014/2015
Priority (High, Moderate, Low):	Moderate

Mitigation Action 6	Upgrade and maintain Early Warning System.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Emergency Services Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state; federal; private (Duke Energy)
Implementation Schedule:	Continuous monitoring and testing
Priority (High, Moderate, Low):	High

Mitigation Action 7	Establish a program for evaluating and improving critical services (roads, bridges, water, sewer, electricity, etc.) and critical facilities (fire, rescue, medical, etc.) to reduce risk to natural hazards.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Emergency Services Department; Burke County Planning & Development Department; North Carolina Department of Transportation (NCDOT)
Estimated Cost:	N/A
Potential Funding Sources:	Local; state; federal
Implementation Schedule:	Ongoing review
Priority (High, Moderate, Low):	Moderate

Mitigation Action 8	Prepare countywide stormwater management plan covering the Catawba River basin.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Burke County Planning & Development Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state
Implementation Schedule:	Revise in 2015
Priority (High, Moderate, Low):	Moderate

Mitigation Action 9	Prepare development plan for relocating public infrastructure out of hazardous areas.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Planning & Development Department; Burke County Building Inspections Department
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	Ongoing Review
Priority (High, Moderate, Low):	Low

Mitigation Action 10	Improve Hazardous Warning and Response Plan, which outlines warning and evacuation procedures for critical facilities, instructions for getting persons out of flood-prone or isolated areas, and protocols for controlling vehicles on evacuation routes.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All hazards
Lead Agency/Department Responsible:	Burke County Planning & Development Department; Burke County Emergency Services Department
Estimated Cost:	N/A
Potential Funding Sources:	Local, State, Federal
Implementation Schedule:	Continuous review
Priority (High, Moderate, Low):	High

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	Review/update Flood Damage Prevention Ordinance.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Burke County Planning & Development Department; Burke County Building Inspections Department
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	To be completed by 2007
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed in 2007 and reviewed annually. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 1 above.)**

Mitigation Action 2	Adopt zoning and subdivision regulations in floodplain, steep slope, and wildfire areas.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Planning & Development Department
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	To be reviewed annually
Priority (High, Moderate, Low):	High
2014 Status:	**Completed and reviewed annually. Floodplain ordinance adopted. All development projects reviewed for floodplain compliance prior to issuance. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 3 above.)**

Mitigation Action 3	Revise/update regulatory floodplain maps.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Burke County Planning & Development Department; Burke County Land Records/GIS Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state; federal
Implementation Schedule:	To be done on an ongoing basis
Priority (High, Moderate, Low):	Moderate
2014 Status:	**The County adopts and utilizes current North Carolina Floodplain Mapping Program data. Updates coincide with state map updates. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 2 above.)**

Mitigation Action 4	Acquire federal funds to purchase destroyed or substantially damaged properties and relocate households.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Emergency Services Department; Burke County Planning & Development Department
Estimated Cost:	N/A
Potential Funding Sources:	State; federal
Implementation Schedule:	Ongoing case-by-case basis
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing on a case-by-case basis. In 2010, CDBG monies were used to repair 22 residential properties. No properties were purchased and no households were relocated.**

Mitigation Action 5	Complete Community Rating System (CRS) application. Ensure participation in the National Flood Insurance Program (NFIP).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Burke County Emergency Services Department
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	Within five years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Complete; requires continuous monitoring. All development applications reviewed for floodplain compliance prior to issuance. Floodplain areas identified on applicable zoning permits. Burke County does not intend to apply for CRS.**

Mitigation Action 6	Update 1993 Comprehensive Land Use Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Planning & Development Department
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	Annual Review
Priority (High, Moderate, Low):	High
2014 Status:	**The Comprehensive Land Use Plan is reviewed and updated annually as needed. (Ongoing elements of this action are reflected in 2014 Mitigation Action 4 above.)**

Mitigation Action 7	Step up centralized, coordinated permitting process including effective filing/permitting system to ensure compliance with floodplain regulations.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Burke County Building Inspections Department; Burke County Planning & Development Department; Burke County Emergency Services Department; Burke County Environmental Health Department
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	Within five years
Priority (High, Moderate, Low):	High
2014 Status:	**Completed; updating in 2014/2015. (Ongoing elements of this action are reflected in 2014 Mitigation Action 5 above.)**

Mitigation Action 8	Develop a comprehensive Capital Improvement Plan for public facilities that steers capital projects out of hazardous areas.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Burke County Management; all departments
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing; continuous monitoring. No public facilities have been built since last plan update. All capital improvements made have been on facilities that are out of hazardous area.**

Mitigation Action 9	Maintain library on retrofitting techniques. Publicize through bulletins/newsletters.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Building Inspections Department; Burke County Emergency Services Department; Burke County Planning & Development Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state
Implementation Schedule:	Ongoing; continuous monitoring
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. Floodplain manager maintains documentation related to suggested retrofitting techniques. There have been no activities related to the website, newsletter, etc. within the past 5 years.**

Mitigation Action 10	Continuation and expansion of E-911 Addressing Program to include all municipalities with goal to cover entire county with one system.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Emergency Services Department; 911 Addressing; Burke County Land Records/GIS Department
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	Ongoing; requires continuous monitoring
Priority (High, Moderate, Low):	High
2014 Status:	**Completed; requires continuous monitoring. Our addressing office along with the E-911 Center updates the addresses on a continuous basis when new residences and businesses are built. Before building permits are issued, a 911 address must be given for the new construction project.**

Mitigation Action 11	Drainage system management—prepare countywide storm water management plan covering the Catawba River basin.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Burke County Planning & Development Department; West Piedmont Council of Governments (WPCOG)
Estimated Cost:	N/A
Potential Funding Sources:	Local; state
Implementation Schedule:	To be updated in 2011
Priority (High, Moderate, Low):	High
2014 Status:	**Updated in 2011.**

Mitigation Action 12	Upgrade and maintain Early Warning System.
Category:	
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Emergency Services Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state; federal; private (Duke Energy)
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing; continuous monitoring. (Ongoing elements of this action are reflected in 2014 Mitigation Action 6 above.) Duke Energy maintains the early warning system for dam failures and potential hazards dealing with Lake James. Hyper-Reach is used for a reverse 911 system to notify residences of potential hazardous conditions. A local radio station is used for National Weather Service severe weather.**

Mitigation Action 13	Acquisition of properties susceptible to flood damage and wildland fires.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Planning & Development Department; Burke County Building Inspections Department; Burke County Emergency Services Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state; federal
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Under annual review. No property acquisitions were conducted within the past 5 years. No federal grant funds were applied for or received.**

Mitigation Action 14	Capital Improvements Program—development plan for relocating public infrastructure out of hazards areas.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Planning & Development Department; Burke County Building Inspections Department
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Low
2014 Status:	**Ongoing; requires continuous monitoring. The only infrastructure Burke County has in hazardous areas is a Sewer Pump Station that is located in a floodplain area. It is not possible to relocate the pump station due to the terrain and the cost to relocate. Any new projects are reviewed for hazardous areas before construction begins. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 9 above.)**

Mitigation Action Plan—Town of Cajah's Mountain

2014 Mitigation Actions

Mitigation Action 1	Establish and maintain a Temporary Disaster Debris Staging Area by selecting a suitable site and submitting to the North Carolina Department of Environment and Natural Resources (NCDENR) for approval for use during a natural disaster.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Tornado; Winter Weather; Thunderstorm, Lightning, and Hail; Hurricane and Tropical Storm
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; Town of Cajah's Mountain
Estimated Cost:	To be determined
Potential Funding Sources:	Town of Cajah's Mountain General Fund
Implementation Schedule:	2019. Staff has identified an area adjacent to the Town's Pump Station to be considered as a possible staging area.
Priority (High, Moderate, Low):	High

Mitigation Action 2	Incorporate hazard mitigation elements into the next update of the Town's Land Use Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Cajah's Mountain
Estimated Cost:	Staff time plus consultant fees to be determined
Potential Funding Sources:	Town of Cajah's Mountain General Fund; grant funding
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	Work with Caldwell County Emergency Services to address potential wildfire issues.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Wildfire; Drought
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	To be determined
Potential Funding Sources:	Town of Cajah's Mountain General Fund; possible grant funding
Implementation Schedule:	0-2 years
Priority (High, Moderate, Low):	Low

Mitigation Action 4	Establish procedure for sounding fire department siren for tornado warnings and flash floods.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Tornado; Thunderstorm
Lead Agency/Department Responsible:	North Catawba Fire/Rescue
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	1 year
Priority (High, Moderate, Low):	High

Mitigation Action 5	Identify all possible emergency shelter buildings.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Cajah's Mountain
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	Low

Mitigation Action 6	Increase watershed and stormwater awareness.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood; Sinkhole; Erosion; Landslide
Lead Agency/Department Responsible:	Town of Cajah's Mountain
Estimated Cost:	To be determined
Potential Funding Sources:	Town of Cajah's Mountain General Fund
Implementation Schedule:	2-3 years
Priority (High, Moderate, Low):	Low

Mitigation Action 7	In cooperation with the Caldwell County Planning and Development Department and the Caldwell County Building Inspections Department, make information regarding hazards and development regulations within floodplains available through the following: a) Ensuring that the local library maintains information relating to flooding and flood protection. b) Provide a link on the Town's website to FEMA resources addressing flooding and flood protection, sheltering, evacuation procedures, disaster preparedness, and post-disaster recovery.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood; Winter Weather; Thunderstorm; Dam/Levee Failure; Tornado
Lead Agency/Department Responsible:	Town of Cajah's Mountain
Estimated Cost:	N/A (covered by Caldwell County)
Potential Funding Sources:	Local-Maintain present activities under the funding available
Implementation Schedule:	2019
Priority (High, Moderate, Low):	High

Mitigation Action 8	In coordination with Caldwell County, the Town of Cajah's Mountain will continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. All parties will continue to pro-actively establish open space within the floodplain and floodway as grant funds become available to carry out this initiative.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Town of Cajah's Mountain; Caldwell County Building Inspections Department; Caldwell County Planning and Development Department
Estimated Cost:	$250,000+
Potential Funding Sources:	Grant fund resources; hazard mitigation of Lenoir EMS Base
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Low

Mitigation Action 9	In coordination with Caldwell County, the Town of Cajah's Mountain will maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Cajah's Mountain; Caldwell County Emergency Management Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 10	In coordination with the Caldwell County Emergency Management Department, the Town of Cajah's Mountain will assist with the monitoring of water resources. When necessary, the Town will cooperate with the County in instituting measures to conserve water resources according to the County's Drought Management Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Drought; Wildfire
Lead Agency/Department Responsible:	Town of Cajah's Mountain; Caldwell County Water Department
Estimated Cost:	$1.5 million (covered by Caldwell County)
Potential Funding Sources:	Grants and tax-based funding
Implementation Schedule:	2016
Priority (High, Moderate, Low):	Low

Mitigation Action 11	Cooperate with Caldwell County in the implementation and enforcement of the County's comprehensive stormwater management program.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Cajah's Mountain; City of Lenoir Planning and Building Inspections Department; administrative staff of Caldwell County
Estimated Cost:	$50,000 per year
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Annually through 2019
Priority (High, Moderate, Low):	Moderate

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	**Maintain a map information service involving the following:** **a) Provide information relating to Flood Insurance Rate Maps (FIRMs) to all inquirers, including provision of information on whether a given property is located within a flood hazard area.** **b) Provide information on the flood insurance purchase requirement.** **c) Maintain historical and current FIRMs.** **d) Advertise once annually in the local newspaper.** **e) Provide information to inquirers about local floodplain management requirements.**
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Planning Department
Estimated Cost:	To be determined
Potential Funding Sources:	Town of Cajah's Mountain General Fund
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. Caldwell County Online GIS maps include updated flood hazard area overlays and Town staff are available to answer questions and make determinations. Current and previous FIRMs available for review at Town Hall.**

Mitigation Action 2	**The Caldwell County Planning and Development Department and the Caldwell County Building Inspections Department will make information regarding hazards and development regulations within floodplains available through the following:** **a) Ensuring that the local library maintains information relating to flooding and flood protection.** **b) Providing a link on their website to FEMA resources addressing flooding and flood protection.** **c) All participating jurisdictions, if a website is in place, will provide a link on their website to FEMA resources addressing flooding and flood protection, sheltering, evacuation procedures, disaster preparedness, and post-disaster recovery.**
Category:	Natural Systems Protection; Education and Awareness Programs
Hazard(s) Addressed:	Flood; Winter Weather; Wildfire; Thunderstorms, Lightning, and Hail; Dam/Levee Failure; Tornado
Lead Agency/Department Responsible:	Caldwell County Planning and Development Department; Caldwell County Building Inspections Department
Estimated Cost:	To be determined
Potential Funding Sources:	General Fund
Implementation Schedule:	2-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. The Town of Cajah's Mountain has utilized its website to publicize FEMA resources for disaster preparedness.**

Mitigation Action 3	Caldwell County and all participating jurisdictions will continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. All parties will continue to pro-actively establish open space within the floodplain and floodway as grant funds become available to carry out this initiative.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Caldwell County Commissioners
Estimated Cost:	Unknown
Potential Funding Sources:	General Fund
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. The Town will participate in the county program to establish perpetual open space in Special Flood Hazard Areas as budget allows.**

Mitigation Action 4	The Caldwell County Mitigation Advisory Committee, in conjunction with all municipal jurisdictions participating in the 2009 plan update, will work on the five-year implementation of this Hazard Mitigation Plan Update. At the end of the five-year period, the County will again update the plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	To be determined
Potential Funding Sources:	General Fund
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**The Town of Cajah's Mountain has participated in the regionalization of the Caldwell County hazard mitigation plan and is now a participating jurisdiction in the Unifour Regional Hazard Mitigation Plan which has taken the place of the previously planned county-level 5-year plan update.**

Mitigation Action 5	Caldwell County, as well as all participating jurisdictions, will continue to support the North Carolina Office of Dam Safety efforts to monitor and inspect all dams throughout the County, as well as the State of North Carolina. The County relies on this agency to ensure that all dam facilities, both public and private, are properly maintained and stable.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	To be determined
Potential Funding Sources:	General Fund
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. The Town will work in conjunction with County Emergency Management staff to remain informed about the safety status of local dams to be able to pass this information along to citizens.**

Mitigation Action 6	Caldwell County Emergency Services will continue to coordinate with the Caldwell County Public Works Department, as well as all participating jurisdictions, regarding the monitoring of water resources statewide. When necessary, the County will institute measures to conserve water resources according to the County's Drought Management Plan.
Category:	Natural Systems Protection; Education and Awareness Programs
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Caldwell County Water Department
Estimated Cost:	To be determined
Potential Funding Sources:	General Fund
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. The Town will notify citizens if the County's Drought Management Plan has to be implemented through its website, social media, and Town Hall informational sign.**

Mitigation Action 7	Caldwell County, as well as all participating jurisdictions, will maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Deleted. It is not feasible for the Town to complete this action.**

Mitigation Action 8	Caldwell County will assist all communities within the County, including property owners in unincorporated areas, in applying for FEMA-sponsored mitigation grant assistance for the acquisition and/or elevation of substantially damaged structures following a natural disaster.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	To be determined
Potential Funding Sources:	General Fund; possible grant funding
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. Town staff and contracted staff will be available to help citizens protect their property following a natural disaster.**

Mitigation Action 9	Caldwell County Emergency Services will continue to work on the establishment of a comprehensive special needs registry. This effort will involve the cooperation of all participating jurisdictions.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	To be determined
Potential Funding Sources:	General Fund; possible grant funding
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Deleted. The Town supports the establishment of a comprehensive Special Needs Registry but research has shown that a registry is best established at the county and/or state level. The Town will actively participate and encourage use of the registry in the future when it is established by the State of North Carolina or Caldwell County.**

Mitigation Action 10	The City of Lenoir will continue to serve an administrative role in the implementation and enforcement of the County's comprehensive stormwater management program. The stormwater regulations outlined within this program shall apply to Gamewell, Cajah's Mountain, Lenoir, Hudson, Sawmills, and Granite Falls.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	City of Lenoir Planning Department
Estimated Cost:	To be determined
Potential Funding Sources:	General Fund
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. The Town contracts with the City of Lenoir on a yearly basis for implementation and enforcement of the Stormwater regulations.**

Mitigation Action Plan—Caldwell County

2014 Mitigation Actions

Mitigation Action 1	**Maintain the required finished floor elevation certificate for all development within the Special Flood Hazard Area (SFHA) within both incorporated and unincorporated portions of the county. All elevation certificates should be submitted on an official FEMA elevation certificate. No certificate of occupancy shall be issued for any development within a defined SFHA without the submittal of the required elevation certificate.**
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department; Caldwell County Planning and Development Department
Estimated Cost:	$50,000
Potential Funding Sources:	General Budget
Implementation Schedule:	Maintaining this function through the next five years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 2	**Maintain a map information service involving the following:** **a) Provide information relating to Flood Insurance Rate Maps (FIRMs) to all inquirers, including provision of information on whether a given property is located within a flood hazard area.** **b) Provide information regarding the flood insurance purchase requirement.** **c) Maintain historical and current FIRMs.** **d) Advertise once annually in the local newspaper.** **e) Provide information to inquirers about local floodplain management requirements.**
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Planning and Development Department; administrative staff of all municipalities within the county
Estimated Cost:	$85,000
Potential Funding Sources:	Tax-based funding
Implementation Schedule:	Maintain the current activities with access to NC Floodmaps
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	Caldwell County will annually mail a notice to all property owners whose land is located within a Special Flood Hazard Area (SFHA). The notice should clearly state that the recipient's property is susceptible to flooding and provide information pertinent to emergency evacuation and post-disaster recovery.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Caldwell County Planning and Development Department
Estimated Cost:	$8,500
Potential Funding Sources:	Maintain present activities under the funding available
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 4	The Caldwell County Planning and Development Department and the Caldwell County Building Inspections Department will make information regarding hazards and development regulations within floodplains available through the following: a) Ensuring that the local library maintains information relating to flooding and flood protection. b) Providing a link on their website to FEMA resources addressing flooding and flood protection. c) All participating jurisdictions, if a website is in place, will provide a link on their website to FEMA resources addressing flooding and flood protection, sheltering, evacuation procedures, disaster preparedness, and post-disaster recovery.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood; Winter Weather; Thunderstorm; Dam/Levee Failure; Tornado
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department; administrative staff of all municipalities within the county
Estimated Cost:	$1,200 per year
Potential Funding Sources:	Maintain present activities under the funding available
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 5	**The Caldwell County Building Inspections Department will provide comprehensive services regarding planning and development activities within the defined Special Flood Hazard Area (SFHA) and issues relating to the construction of disaster resistant structures. These services will include:** **a) Providing site specific flood and flood-related information on an as-needed basis.** **b) Maintaining a list of contractors with experience in floodproofing and retrofit techniques.** **c) Providing information on windproofing construction methods for new and renovated structures.** **d) Maintaining materials providing an overview of how to select a qualified contractor.** **e) Making site visits upon request to review occurrences of flooding, drainage problems, and sewer problems. If applicable, the inspector should provide one-on-one advice to the property owner.** **f) Providing advice and assistance regarding CRS activity 530.** **g) Advertising the availability of this service once annually within the local newspaper.** **h) Maintaining a log of all individuals assisted through this County service including all site visits.**

Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department; Caldwell County Planning and Development Department
Estimated Cost:	Maintain present activities under the funding available
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate

Mitigation Action 6	**Caldwell County and its municipalities will continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. All parties will continue to pro-actively establish open space within the floodplain and floodway as grant funds become available to carry out this initiative.**

Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department; Caldwell County Planning and Development Department
Estimated Cost:	$250,000+
Potential Funding Sources:	Grant fund resources; hazard mitigation of Lenoir EMS Base
Implementation Schedule:	2015
Priority (High, Moderate, Low):	Low

Mitigation Action 7	Caldwell County and its municipalities will continue to support the North Carolina Office of Dam Safety in its efforts to monitor and inspect all dams throughout the county. The County relies on this agency to ensure that all dam facilities, both public and private, are properly maintained and stable. The Caldwell County Emergency Management Department will form a registry that will identify dams and their locations including data collection from Emergency Operations Plans (EOPs).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; North Carolina Department of Environment and Natural Resources (NCDENR) Dams Program
Estimated Cost:	$2,500 per year
Potential Funding Sources:	Caldwell County Emergency Management Budget for registry
Implementation Schedule:	2014-2015 for data collection; registry complete by 2016
Priority (High, Moderate, Low):	High

Mitigation Action 8	The Caldwell County Emergency Management Department will continue to work closely with the American Red Cross on the management and operation (when necessary) of emergency shelter facilities within the county. Caldwell County will also contract with schools and faith-based organizations to get the capabilities up to at least 15% of the county's population. The County will operate only in a support role in dealing with individual shelter issues.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	American Red Cross; Caldwell County Emergency Management Department
Estimated Cost:	$200,000
Potential Funding Sources:	Grant funding and possible donations
Implementation Schedule:	2016
Priority (High, Moderate, Low):	High

Mitigation Action 9	The Caldwell County Emergency Management Department will continue to coordinate with the Caldwell County Water Department, as well as its municipalities, regarding the monitoring of water resources statewide. When necessary the County will institute measures to conserve water resources according to the County's Drought Management Plan. This includes the placement of tanks and new (larger) water lines.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Drought; Wildfire
Lead Agency/Department Responsible:	Caldwell County Water Department; administrative staff of all municipalities within the county
Estimated Cost:	$1.5 million
Potential Funding Sources:	Grants and tax-based funding
Implementation Schedule:	2016
Priority (High, Moderate, Low):	Low

Mitigation Action 10	Implement and enforce the County's comprehensive stormwater management program. The stormwater regulations outlined within this program shall apply to Gamewell, Cajah's Mountain, Lenoir, Hudson, Sawmills, and Granite Falls.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Lenoir Planning and Building Inspections Department; administrative staff of Caldwell County; administrative staff of all municipalities within the county
Estimated Cost:	$50,000 per year
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate

Mitigation Action 11	The Caldwell County Emergency Management Department will provide supporting services to its municipalities in the following areas: a) Wildfire awareness classes to be held each year to promote wildfire protection. b) Encouragement of citizens to embrace "Firewise" tactics as being a good way of protecting homes and lives from the wildfire hazard. c) Conducting an exercise that will incorporate the NIMS structure that involves a wildfire aspect. d) Support in promoting North Carolina Forest Service wildfire programs in schools and civic clubs (e.g., Life & Safety Festival).
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	North Carolina Forest Service; Caldwell County Emergency Management Department
Estimated Cost:	$10,000
Potential Funding Sources:	Grant funding
Implementation Schedule:	2015
Priority (High, Moderate, Low):	High

Mitigation Action 12	Implement an All Hazards Warning System to consist of the following: a) Converting Fire Department sirens to All Hazard Alert System. b) Purchasing five (5) sirens to be placed at strategic locations where fire sirens are not located or cannot be heard.
Category:	Other
Hazard(s) Addressed:	Tornado; Flash Flood
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; North Carolina Division of Emergency Management; Caldwell County Firefighters Association
Estimated Cost:	$150,000
Potential Funding Sources:	Hazard mitigation grants
Implementation Schedule:	2016
Priority (High, Moderate, Low):	High

Mitigation Action 13	Caldwell County, as well as all participating jurisdictions, will maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; administrative staff of all participating jurisdictions
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 14	Caldwell County will assist all communities within the county, including property owners in unincorporated areas, in applying for FEMA-sponsored mitigation grant assistance for the acquisition and/or elevation of substantially damaged structures following a natural disaster.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; elected boards of all participating jurisdictions
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Low

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	**Require a finished floor elevation certificate for all development within the Special Flood Hazard Area (SFHA) within both incorporated and unincorporated portions of the county. All elevation certificates should be submitted on an official FEMA elevation certificate. No certificate of occupancy shall be issued for any development within a defined SFHA without the submittal of the required elevation certificate.**
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department; Caldwell County Planning and Development Department
Estimated Cost:	$50,000
Potential Funding Sources:	Existing staff and administrative resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 1 above.)**

Mitigation Action 2	**Maintain a map information service involving the following:** **a) Provide information relating to Flood Insurance Rate Maps (FIRMs) to all inquirers, including provision of information on whether a given property is located within a flood hazard area.** **b) Provide information regarding the flood insurance purchase requirement.** **c) Maintain historical and current FIRMs.** **d) Advertise once annually in the local newspaper.** **e) Provide information to inquirers about local floodplain management requirements.**
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Planning and Development Department; administrative staff of all participating jurisdictions within the county
Estimated Cost:	$85,000
Potential Funding Sources:	Tax-based funding
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 2 above.)**

Mitigation Action 3	Caldwell County will annually mail a notice to all property owners whose land is located within a Special Flood Hazard Area (SFHA). The notice should clearly state that the recipient's property is susceptible to flooding and provide information pertinent to emergency evacuation and post-disaster recovery.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Caldwell County Planning and Development Department
Estimated Cost:	$8,500
Potential Funding Sources:	Maintain present activities under the funding available
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 3 above.)**

Mitigation Action 4	The Caldwell County Planning and Development Department will work with local real estate agencies to ensure that agents are informing clients when property for sale is located within a Special Flood Hazard Area (SFHA). Caldwell County will provide these agencies with brochures documenting the concerns relating to development located within flood-prone areas and ways that homeowners may make their homes more disaster resistant to strong winds, lightning, and heavy rains.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood; Winter Weather; Wildfire; Thunderstorm; Windstorm
Lead Agency/Department Responsible:	Caldwell County Planning and Development Department; Caldwell County Emergency Management Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	2-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Completed.**

Mitigation Action 5	**The Caldwell County Planning and Development Department and the Caldwell County Building Inspections Department will make information regarding hazards and development regulations within floodplains available through the following:** **a) Ensuring that the local library maintains information relating to flooding and flood protection.** **b) Providing a link on their website to FEMA resources addressing flooding and flood protection.** **c) Each of the county's municipalities, if a website is in place, will provide a link on their website to FEMA resources addressing flooding and flood protection, sheltering, evacuation procedures, disaster preparedness, and post-disaster recovery.**
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood; Winter Weather; Thunderstorm; Dam/Levee Failure; Tornado
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department; administrative staff of all participating jurisdictions within the county
Estimated Cost:	$1,200 per year
Potential Funding Sources:	Maintain present activities under the funding available
Implementation Schedule:	2-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 4 above.)**

Mitigation Action 6	**The Caldwell County Building Inspections Department will provide comprehensive services regarding planning and development activities within the defined Special Flood Hazard Area (SFHA) and issues relating to the construction of disaster resistant structures. These services will include:** **a) Providing site specific flood and flood-related information on an as-needed basis.** **b) Maintaining a list of contractors with experience in floodproofing and retrofit techniques.** **c) Providing information on windproofing construction methods for new and renovated structures.** **d) Maintaining materials providing an overview of how to select a qualified contractor.** **e) Making site visits upon request to review occurrences of flooding, drainage problems, and sewer problems. If applicable, the inspector should provide one-on-one advice to the property owner.** **f) Providing advice and assistance regarding CRS activity 530.** **g) Advertising the availability of this service once annually within the local newspaper.** **h) Maintaining a log of all individuals assisted through this County service including all site visits.**

Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department; Caldwell County Planning and Development Department
Estimated Cost:	Maintain present activities under the funding available
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	2-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 5 above.)**

Mitigation Action 7	**Caldwell County and its municipalities will continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. All parties will continue to pro-actively establish open space within the floodplain and floodway as grant funds become available to carry out this initiative.**

Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department; Caldwell County Planning and Development Department
Estimated Cost:	$250,000+
Potential Funding Sources:	Grant fund resources; hazard mitigation of Lenoir EMS Base
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 6 above.)**

Mitigation Action 8	The Caldwell County Planning and Development Department will maintain a comprehensive Geographic Information System (GIS) with current Flood Insurance Rate Map (FIRM) panels in an effort to make this information readily available to County citizens. In addition to this digital data, bound copies of all historical and current FIRM panels will be maintained within the Caldwell County Planning and Development Department office.
Category:	Local Plans and Regulations; Education and Awareness Programs
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Planning and Development Department; Caldwell County Information Technology Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Completed.**

Mitigation Action 9	The Caldwell County Mitigation Advisory Committee, in conjunction with all municipal jurisdictions participating in the 2009 plan update, will work on the five-year implementation of this Hazard Mitigation Plan Update. At the end of the five-year period, the County will again update the plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	To be determined
Potential Funding Sources:	General Fund
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Caldwell County has participated in the regionalization of the Caldwell County hazard mitigation plan and is now a participating jurisdiction in the Unifour Regional Hazard Mitigation Plan. This process has taken the place of the previously planned county-level 5-year plan update.**

Mitigation Action 10	Caldwell County, as well as all participating jurisdictions, will continue to support the North Carolina Office of Dam Safety's efforts to monitor and inspect all dams throughout the county, as well as the State of North Carolina. The County relies on this agency to ensure that all dam facilities, both public and private, are properly maintained and stable.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; administrative staff of all participating jurisdictions
Estimated Cost:	$2,500 per year
Potential Funding Sources:	Caldwell County Emergency Management Budget for registry
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 7 above.)**

Mitigation Action 11	Caldwell County will maintain participation in the Community Rating System (CRS) program. Additionally, Caldwell County will work with all participating jurisdictions, upon request, to secure inclusion in the CRS program. Currently, only unincorporated Caldwell County is a participant in the program.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flooding; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Planning and Development Department; elected boards of all participating jurisdictions
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed.**

Mitigation Action 12	The Caldwell County Emergency Management Department will continue to work closely with the American Red Cross on the management and, when necessary, operation of emergency shelter facilities within the county. The County will operate only in a support role in dealing with individual shelter issues.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	American Red Cross; Caldwell County Emergency Management Department
Estimated Cost:	$200,000
Potential Funding Sources:	Grant funding and possible donations
Implementation Schedule:	2-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 8 above.)**

Mitigation Action 13	Caldwell County will work with the American Red Cross, and will attempt to obtain funding for locating switches and generators at all emergency shelter locations.
Category:	Emergency Services
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; American Red Cross
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources or grant funding
Implementation Schedule:	2-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**DPR controlled and no funding in the past two years. Looking for new ways to fund this project.**

Mitigation Action 14	The Caldwell County Emergency Management Department will continue to coordinate with the Caldwell County Public Works Department, as well as all participating jurisdictions, regarding the monitoring of water resources statewide. When necessary the County will institute measures to conserve water resources according to the County's Drought Management Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Caldwell County Water Department; administrative staff of all participating jurisdictions
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Low
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 9 above.)**

Mitigation Action 15	Caldwell County, as well as all participating jurisdictions, will maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; administrative staff of all participating jurisdictions
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 13 above.)**

Mitigation Action 16	Caldwell County will assist all communities within the county, including property owners in unincorporated areas, in applying for FEMA-sponsored mitigation grant assistance for the acquisition and/or elevation of substantially damaged structures following a natural disaster.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; elected boards of all participating jurisdictions
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Low
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 14 above.)**

Mitigation Action 17	The Caldwell County Emergency Management Department will continue to work on the establishment of a comprehensive special needs registry. This effort will involve the cooperation of all participating jurisdictions.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; administrative staff of all participating jurisdictions
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Low
2014 Status:	**Deleted. This activity has fallen back into the hands of the North Carolina Department of Health and Human Services (NCDHHS). They have the legal obligation to maintain this type of registry.**

Mitigation Action 18	The City of Lenoir will continue to serve an administrative role in the implementation and enforcement of the County's comprehensive stormwater management program. The stormwater regulations outlined within this program shall apply to Gamewell, Cajah's Mountain, Lenoir, Hudson, Sawmills, and Granite Falls.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Lenoir Planning and Building Inspections Department; administrative staff of Caldwell County; administrative staff of all municipalities within the county
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 10 above.)**

Mitigation Action 19	Caldwell County will consider the development and adoption of a slope control ordinance based on the findings outlined within this plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Landslide
Lead Agency/Department Responsible:	Caldwell County Planning and Development Department; Caldwell County Board of Commissioners
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	2-5 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**The Caldwell County Planning Board holds the future of this purposed ordinance.**

Mitigation Actions 20 and 21 were specific to the Town of Granite Falls, Town of Gamewell, and Town of Hudson and updates on those actions are included in those respective Mitigation Action Plans.

Mitigation Action 22	In an effort to incorporate discussions relating to the provision of electric service during or following natural hazard events, Caldwell County will consider inviting a staff member from each of the electric service providers operating in the county to attend and participate in all Local Emergency Planning Commission (LEPC) meetings.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Winter Weather; Thunderstorm; Windstorm
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; Electric Service Providers
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	2-5 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed. Both Electrical Cooperatives have representation on the LEPC as of 2013.**

Mitigation Actions 23 and 24 were specific to the Town of Rhodhiss and updates on those actions are included in that Mitigation Action Plan.

Mitigation Action Plan—Catawba County

2014 Mitigation Actions

Mitigation Action 1	Install generator transfer switch connections during the construction of new public facilities (schools, fire stations, County buildings, etc.).
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Catawba County Finance; Purchasing; and Emergency Services Departments
Estimated Cost:	To be determined
Potential Funding Sources:	General Fund; Department of Homeland Security – Emergency Management Performance Grants (EMPG), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program.
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High

Mitigation Action 2	Continue to evaluate County policies to reduce greenhouse gases. These policies may include additional lighting retrofitting, "green" purchasing goals, upgrading of equipment in buildings, acquisition/dedication of parkland, and timber management at existing parks.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Designed to address climate change and its long-term potential to increase the frequency and severity of natural hazards including Floods; Hurricanes and Tropical Storms; Severe Thunderstorms; Tornadoes; Wildfire; Drought; Winter Storms; and Dam/Levee Failure.
Lead Agency/Department Responsible:	County Manager's Office
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High

Mitigation Action 3	Prepare a one-page information sheet that incorporates the floodplain development permitting process for all departments. In addition, when permits are being reviewed where access to the site requires new driveway/road construction across a floodplain, require stream crossing plans with drainage calculations, culvert size, and installation details.
Category:	Local Plans and Regulations; Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Catawba County Building Inspections; Planning, Parks & Development; and Environmental Health Departments
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Mitigation Action 4	Update the County's Parks Master Plan to identify locations and funding sources for greenways in order to preserve sensitive land along river systems.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Catawba County Planning, Parks & Development Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Mitigation Action 5	In coordination with the Carolina Thread Trail organization, begin acquiring land and construct an interconnected trail network along Lyle Creek.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Catawba County Planning, Parks & Development Department
Estimated Cost:	To be determined
Potential Funding Sources:	Carolina Thread Trail; Parks and Recreation Trust Fund (PARTF); North Carolina State Trails Program; volunteers
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Mitigation Action 6	Conduct outreach to the public regarding the County's Community Alert System to educate them about how to obtain information both pre- and post-event and about mitigation strategies such as proper tree-trimming techniques.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Catawba County Emergency Services Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Mitigation Action 7	Incorporate hazard mitigation elements into the development of new small area and corridor plans.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Catawba County Planning, Parks & Development Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Mitigation Action 8	Improve information sharing with Duke Energy regarding its operational procedures for the movement of water through its hydro-electric systems on the Catawba River. This can be achieved by meeting formally at least once a year, when significant weather events are anticipated, and when upgrades or improvements to the system are scheduled.
Category:	Education and Awareness Program
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Catawba County Emergency Services Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 9	Establish a protocol for monitoring the tail race areas below the Catawba River dams during high water events to ensure security of the area and limiting public access.
Category:	Education and Awareness Program
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Catawba County Emergency Services and Sheriff's Departments
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 10	Work with local land trusts to secure conservation easements on farmland to preserve sensitive land along river systems.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Catawba County Planning, Parks & Development and Soil & Water Conservation Departments
Estimated Cost:	To be determined
Potential Funding Sources:	Farmland Preservation Trust Fund; other private funding sources
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 11	Identify locations of log jamming in priority watersheds which could jeopardize bridge abutments and water supply using new GIS aerial photography available in late 2014. Relay this information to appropriate agencies and develop action plans for abatement.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Catawba County Emergency Services and Planning, Parks & Development Departments
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund and Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program grants
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Moderate

Mitigation Action 12	Evaluate the need for stronger building code requirements for structures constructed in the tail race areas below the Catawba River dams in order to prevent property damage downstream.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Catawba County Building Codes & Services Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 13	Propose the requirement for a stormwater master plan for new major subdivisions that addresses the treatment of stormwater for new roads and lots within the development.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Catawba County Utilities & Engineering Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	Moderate

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	**Preserve large, intact forest land through the acquisition and/or dedication of park land through the County's Unified Development Ordinance requirements. As part of the Parks Department forestry management program, non-native pine plantation stands in the park property will be selectively harvested to allow for the successional return of native forest vegetation. This action is aimed at reducing greenhouse gases through carbon sequestration and thereby also helping to reduce the potential of increased frequency and severity of natural hazards (particularly drought and wildfire, but many others identified in this Plan as well).**
Category:	Natural Resource Protection
Hazard(s) Addressed:	Designed to address climate change and its long-term potential to increase the frequency and severity of natural hazards including Flood; Hurricane and Tropical Storm; Severe Thunderstorm; Tornado; Wildfire; Drought; Winter Storm; and Dam/Levee Failure.
Lead Agency/Department Responsible:	Catawba County Planning, Parks & Development Department
Estimated Cost:	Staff time to be determined
Potential Funding Sources:	General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. Catawba County acquired 580 acres of land on Lake Norman (referred to as the Mountain Creek tract) in late 2010. This tract of land consists of an old growth forest along with planted pines which will be preserved in perpetuity. As development occurs in the county, either on-site dedication of park land will be provided or a fee-in-lieu will be obtained to acquire additional preserved land. The Planning & Development Department, with the State, is in the process of coordinating the acquisition of 36 acres adjoining the Bunker Hill Covered Bridge in order to preserve additional acreage of an old growth forest. The Parks Department is evaluating non-native pine plantation stands at River Bend Park which may be harvested in the next two years. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 2 above.)**

Mitigation Action 2	**Conduct a carbon footprint analysis for the County's facilities and evaluate current policies to identify ways to reduce greenhouse gases. Implement priority strategies identified in the study, which may include the production of biodiesel fuel at the County's EcoComplex, renewable energy sources such as windmills, reduction of particulate matter and ozone through recommendations of the Early Action Compact, and the development of an energy plan which may include purchasing policies that address energy reduction strategies and contractor policies for equipment emissions.**
Category:	Prevention
Hazard(s) Addressed:	Designed to address climate change and its long-term potential to increase the frequency and severity of natural hazards including Flood; Hurricane and Tropical Storm; Severe Thunderstorm; Tornado; Wildfire; Drought; Winter Storm; and Dam/Levee Failure.
Lead Agency/Department Responsible:	Multi-departmental through Green Initiatives Team, especially the Catawba County Public Health and Utilities & Engineering Departments
Estimated Cost:	Staff time with implementation to be determined
Potential Funding Sources:	General Fund and Energy Department grants
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. Catawba County has decreased its carbon footprint by 4.24% from calendar year 2010 through 2012. This has been achieved through light retrofitting in government buildings, replacing outdated air conditioners and other appliances with more energy efficient models, and designing newer buildings using resource efficient design techniques. To date, 63% of all County building space has been retrofitted with T-8 lighting or better. In addition, the County has a policy of purchasing recycled and other environmentally preferred products. In the 1st quarter of FY 2013, 36.25% of items purchased were "green." In August 2011, the Catawba County-Appalachian State University Biodiesel Research Development and Production Facility was officially opened. Research at the facility includes the testing of biodiesel produced from feedstock crops grown around the Blackburn Landfill. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 2 above.)**

Mitigation Action 3	Develop a farmland preservation plan which will identify tools and techniques to preserve sensitive farmland, and particularly those areas prone to flooding.
Category:	Prevention; Natural Resource Protection
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Catawba County Planning, Parks & Development Department; Cooperative Extension through the Agricultural Advisory Board
Estimated Cost:	To be determined
Potential Funding Sources:	Agricultural Development & Farmland Preservation (ADFP) trust fund grant; Catawba County General Fund
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. A Farm & Food Sustainability Plan was developed by a committee of over 20 partners which identified 66 action items to be implemented over the next 5+ years to help promote and sustain agriculture in the county. Action items included identifying conservation lands to be protected by local land trusts and advocating for bottomlands to be incorporated into the State's Ecosystem Enhancement Program.**

Mitigation Action 4	**Maintain continued compliance with the National Flood Insurance Program (NFIP) through implementation of the specific actions. This includes evaluating the Community Rating System (CRS) and identifying strategies that can be implemented to reduce flood potential and in turn allow for a reduction in flood insurance rates for citizens of the County. These strategies may include maintaining digital FEMA elevation certificates, training for plan reviewers and building inspectors, sponsoring a training workshop for surveyors, and pursuing Certified Floodplain Manager (CFM) certification for a staff person. Supplies of FEMA and NFIP materials will also be made available to the public in various locations throughout the county such as libraries and on the Catawba County website.**
Category:	Prevention and Public Education/Awareness
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Catawba County Planning, Parks & Development and Emergency Services Departments
Estimated Cost:	To be determined
Potential Funding Sources:	General Fund and Grants
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. This action is considered complete as a mitigation action. Now that the practice is institutionalized within the Catawba County Planning, Parks and Development Department it is understood that compliance with the NFIP will continue and therefore this action has been deleted from the list of 2014 mitigation actions. Staff attended a 3-day workshop in 2012 on the CRS, which included an overview of the new CRS manual. After evaluating the program and the advantages to property owners, it was determined that there would be very little benefit weighed against the costs of implementing the CRS program. When the new CRS program manual is adopted, this may be re-evaluated again. The County has links to the NC Floodmaps website and information about floodplain development permits on its website.**

Mitigation Action 5	Develop a countywide greenway master plan to provide an interconnected trail network which preserves sensitive land along river systems. These trails can become part of the Carolina Thread Trail, Duke Energy Relicensing facilities, and the Lake Norman Bicycle Route.
Category:	Natural Resource Protection
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Catawba County Planning, Parks & Development Department
Estimated Cost:	To be determined
Potential Funding Sources:	Carolina Thread Trail; Parks and Recreation Trust Fund (PARTF); Clean Water Management Trust Fund (CWMTF); other grant sources
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. Catawba County prepared and adopted its Carolina Thread Trail Master Plan which lays out a plan for an interconnected trail system of 126 miles within the county. Of the 126 miles, 56 miles (or 45%) is proposed along river corridors which will preserve sensitive floodplain areas through the acquisition of easements. The County also adopted the Lake Norman Bicycle Route Plan which also will help to protect sensitive corridor areas.**

Mitigation Action 6	Provide education to citizens about tree-trimming techniques to reduce the potential for power outages due to downed tree limbs.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Hurricane and Tropical Storm; Severe Thunderstorm; Tornado; Winter Weather
Lead Agency/Department Responsible:	Cooperative Extension through local power companies
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	1-3 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. Newspaper articles have been written regarding tree-trimming techniques and periodically about weather threats and how to be prepared. Cooperative Extension, through its NC State website, has information on emergency preparedness which includes information on chainsaw safety, how to take care of storm damaged trees, and hiring an arborist. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 6 above.)**

Mitigation Action 7	Coordinate with the American Red Cross to install pre-wired connections ("Quick Connects") to use portable generators at targeted critical public facilities and those designed to serve as shelters for disaster survivors. Evaluate other locations with existing wiring which can accommodate generators, for example, schools, churches, recreation centers.
Category:	Emergency Services
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm; Tornado; Wildfire; Drought; Winter Weather; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	Catawba County Emergency Services Department; American Red Cross
Estimated Cost:	To be determined
Potential Funding Sources:	Department of Homeland Security – Emergency Management Performance Grants (EMPG), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program.
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. Pre-wired connections were installed at two schools (Startown Elementary and Bandys High School) within the last three years using Department of Homeland Security grants. Staff has met with representatives of the County schools to establish a policy to have pre-wired connections installed during the construction of new facilities in order to be more cost effective. An inventory of activity sites and outreach to churches and other shelter facilities has been conducted.**

Mitigation Action 8	Provide outreach education to property owners along flood-prone areas, such as Carpenters Cove, about floodplain regulations and evacuation plans. This includes direct mailings to owners of repetitive loss properties (as identified by FEMA) about available mitigation grant programs. Also provide education opportunities for school-age children, such as the American Red Cross "Masters of Disaster" education program.
Category:	Emergency Services; Public Education and Awareness
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Catawba County Emergency Services Department; American Red Cross; Catawba County Planning, Parks & Development Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	1-3 years
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. Staff has conducted door-to-door meetings with property owners in the Carpenters Cove area of Lake Lookout. Information shared with the owners included: emergency preparedness, the County's Community Alert System, and flood insurance information. This information has also been shared with property owners below the Marshall Steam Station dam on Lake Norman. Countywide community and school programs have been conducted about the County's Community Alert System and flood prevention/insurance issues. An owner in Carpenters Cove applied for a flood mitigation grant and has completed mitigation actions for his structures.**

Mitigation Action 9	Promote a standard hook up for emergency generators such that any portable generator can be simply connected to it for supply of power to vital circuits in homes and/or public buildings. Priority locations are hospitals, nursing homes, schools, and government buildings.
Category:	Emergency Services
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm; Tornado; Wildfire; Drought; Winter Weather; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	Catawba County Emergency Services Department; American Red Cross
Estimated Cost:	To be determined
Potential Funding Sources:	Department of Homeland Security – Emergency Management Performance Grants (EMPG), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program.
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High-Moderate
2014 Status:	**Completed. Staff has worked with the nursing homes in the county and conducted testing of generators at hospitals and schools.**

Mitigation Action 10	Identify areas for emergency access to and from public properties, such as Bakers Mountain Park, Riverbend Park, and the Wildlife Club (off Lynn Mountain Road). These areas will be maintained for access by emergency personnel in the event of wildfires or other events. This includes working with key property owners adjoining the subject properties, developing cooperative agreements, and clearing/maintaining new or existing fire roads. Emphasis will be placed on securing access ways at each of these properties. Gating, ditching, signage, and fencing is necessary in high risk areas that are prone to vandalism that may result in forest fires. The first phase will be mapping of appropriate locations and training with EMS in the County's parks.
Category:	Natural Resource Protection; Public Education/Awareness
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	Catawba County Emergency Services Department; Forest Service; Park Personnel
Estimated Cost:	To be determined
Potential Funding Sources:	Grants or community-service projects with organized groups
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed. Procedures are established for evacuation of the parks which includes alternative routes when appropriate. Also, natural breaks are established in the parks which would reduce the spread of wildfires to adjoining properties. Due to the recent flooding events in the county, a closure plan for River Bend Park has been implemented; whereby, portions of trails are closed depending upon the level of flooding and gates open at Oxford Dam.**

Mitigation Action 11	Evaluate the Firewise communities program and its application to develop communities and homes which are designed, built, and maintained to withstand wildfires.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	Catawba County Emergency Services; Fire Department; and Planning, Parks & Development Departments
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	2-3 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed. The County Forest Service Agency provided information about the Firewise program during various events throughout the past several years. They have also shared information with various fire departments when speaking about fire prevention. The County's Community Wildfire Protection Plan addresses areas of concern which are monitored by the Forest Service.**

Mitigation Action 12	Ensure that manufactured home parks have perimeter vegetative buffers to protect manufactured homes from high wind events.
Category:	Prevention
Hazard(s) Addressed:	Hurricane and Tropical Storm; Thunderstorm; Tornado
Lead Agency/Department Responsible:	Catawba County Planning, Parks & Development Department
Estimated Cost:	Requirement of ordinance
Potential Funding Sources:	Private
Implementation Schedule:	1-3 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Not completed. As a matter of policy, this requirement was deleted from the Unified Development Ordinance and therefore is no longer a viable mitigation action.**

Mitigation Action 13	Continue the work of the established multi-jurisdictional Stormwater Committee to prioritize stormwater issues/projects within the area. This committee will meet regularly to develop action plans and establish priorities for addressing stormwater issues which would minimize the impacts of flooding throughout the County. Examples of efforts would include coordination of stormwater review of subdivisions, public education on clearing stormwater drains and culverts, a stormwater plan to address flooding episodes at Carpenters Cove, and sharing of information with the North Carolina Department of Transportation (NCDOT) regarding debris accumulation at bridge abutments, culverts, etc.
Category:	Prevention; Natural Resource Protection; Public Education and Awareness
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Multi-jurisdictional with staff of Catawba County Engineering and Planning Departments
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed. A working group of fire, law enforcement, emergency managers, and NCDOT meet quarterly to discuss issues of concern, which include debris removal at bridge abutments and culverts. Also Public Service Announcements are periodically run to encourage the clearing of private road/driveway culvert drains. The committee has been established to do the work and is up and running; therefore, this is no longer needed as a 2014 mitigation action.**

Mitigation Action 14	Coordinate with Social Services to provide back-up power at family care, nursing, and adult care homes within the county.
Category:	Emergency Services
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm; Tornado; Wildfire; Drought; Winter Weather; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	Catawba County Emergency Services; Social Services
Estimated Cost:	To be determined
Potential Funding Sources:	Department of Homeland Security – Emergency Management Performance Grants (EMPG), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program.
Implementation Schedule:	2-3 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed. Meetings have been conducted with nursing home operators within the last year about the importance of having back-up power generators. Due to the costs of retrofitting, very few have installed generators. Outreach with family care and adult care home operators has been conducted to encourage them to have emergency preparedness plans in place; whereby, they move residents to other facilities that have generators or have not been impacted by a hazard occurrence.**

Mitigation Action 15	Evaluate ordinances and policies to develop ways to address mitigation for drought events. This may include implementation of a Low Inflow Protocol along the Catawba River and encouraging drought resistant vegetation and LEED standards for new development.
Category:	Prevention
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Catawba County Planning, Parks & Development Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	1-3 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed. The County's Unified Development Ordinance (UDO) was amended to encourage the planting of drought tolerant plant materials as part of the landscaping requirements for new development. A Landscaping Manual is in the final stages of development which will include specific drought tolerant species for planting in the county. Also, the UDO encourages the use of sustainable maintenance systems for landscaping, such as rain barrels or cisterns. Catawba County adopted a policy whereby it will rebate 50% of fees related to plan review or express plan review for commercial buildings seeking LEED, Energy Star, and/or NC Healthy Built Homes certification. Catawba County is a signator to the Duke Energy Relicensing Agreements which established a Low Inflow Protocol (LIP) in managing the river system during times of drought.**

Mitigation Action 16	Continue and expand the network of public-private partners, such as the Local Emergency Planning Committee (LEPC), to include other organizations like the Contingency Planning Association of the Carolinas (CPAC) to engage the business community in hazard mitigation activities.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm; Tornado; Wildfire; Drought; Winter Weather; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	Catawba County Emergency Services Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed. The LEPC meets semi-annually to discuss emergency preparedness. Recently, an environmental specialist has been added to the group to provide additional expertise for the group. The committee has been established to do the work and is up and running; therefore, this is no longer needed as a 2014 mitigation action.**

Mitigation Action 17	Develop a landscape manual which encourages the use of native trees and vegetation which are storm and drought resistant. This manual will be available to the development community as a tool to meet the landscaping requirements of the Unified Development Ordinance. The general public will also be encouraged to use this manual when landscaping individual home sites.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Hurricane and Tropical Storm; Thunderstorm; Tornado; Wildfire; Drought; Winter Weather
Lead Agency/Department Responsible:	Catawba County Planning, Parks & Development Department; Cooperative Extension
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	1-3 years
Priority (High, Moderate, Low):	Low
2014 Status:	**Completed. Information about species of plants that grow well in the county has been obtained from various nurseries in the county. A list of the plants has been complied and illustrations have been developed and incorporated into a user-friendly manual.**

Mitigation Action 18	Provide outreach education to manufactured home park owners and residents on the need for developing an evacuation plan during imminent hazard threats.
Category:	Emergency Services; Public Education and Awareness
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm; Tornado; Wildfire; Drought; Winter Weather; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	Catawba County Emergency Services Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	Low
2014 Status:	**Completed. Outreach has been conducted to manufactured home owners about emergency preparedness, such as participating in the County's Community Alert System. Information has been directly delivered to these owners and programs have also been conducted.**

Mitigation Action Plan—Town of Catawba

2014 Mitigation Actions

Mitigation Action 1	Evaluate Town policies to reduce greenhouse gases. These policies may include additional lighting retrofitting, "green" purchasing goals, and upgrading of equipment in buildings.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Designed to address climate change and its long-term potential to increase the frequency and severity of natural hazards including Floods, Hurricanes and Tropical Storms, Severe Thunderstorms and Tornadoes, Wildfires, Drought, Winter Storms, and Dam/Levee Failure.
Lead Agency/Department Responsible:	Town of Catawba Planning, Administration, and Public Works Departments
Estimated Cost:	Staff time/low
Potential Funding Sources:	Local
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 2	If the Town Public Works Department can do this, keep infrastructure database updated when repairs are made and new facilities are installed.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Severe Storms
Lead Agency/Department Responsible:	Town of Catawba Public Works Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	Short-range
Priority (High, Moderate, Low):	Low

Mitigation Action 3	Participate in local and regional public outreach programs regarding hazard potential in our area.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Catawba Planning, Administration, Police, Fire, and Public Works Departments
Estimated Cost:	Staff time/low
Potential Funding Sources:	Local
Implementation Schedule:	Short-range
Priority (High, Moderate, Low):	Moderate

Mitigation Action 4	Review Town of Catawba plans and ordinances for alignment and inclusivity regarding potential hazard mitigation measures.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Severe Storms
Lead Agency/Department Responsible:	Town of Catawba Planning and Administration Departments
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	Short-range
Priority (High, Moderate, Low):	High

Mitigation Action 5	Review flood data and designate flood-prone area for greenways in plans, if possible.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Catawba Planning Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	Short-range
Priority (High, Moderate, Low):	Moderate

Mitigation Action 6	**Maintain continued compliance with the National Flood Insurance Program (NFIP) through implementation of the following specific actions:** **a) Evaluate and consider the adoption of "higher standards" that are proven to reduce flood damage (including additional freeboard, setbacks, limitations on lower-level enclosure size, and the prohibition on use of fill).** **b) Develop a checklist for review of building/development permit plans and for inspection of development in floodplains (a model is available).** **c) Establish a goal to have each plan reviewer attend a related training periodically (for example, the North Carolina Association of Floodplain Managers Annual Conference or Fall Floodplain Institute).** **d) Encourage or require certain local staff positions to obtain and maintain Certified Floodplain Manager (CFM) certification.** **e) Maintain supplies of FEMA/NFIP materials to help property owners evaluate measures to reduce potential hazard damage. Make available in public buildings, local library, website, etc. and inform people who they can call to learn more information.**
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Catawba Planning Department
Estimated Cost:	N/A (staff time)
Potential Funding Sources:	N/A
Implementation Schedule:	Immediate and ongoing through 2015
Priority (High, Moderate, Low):	High

Mitigation Action 7	**Develop a debris management plan.**
Category:	Emergency Services
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm, Severe Thunderstorm and Tornado; Wildfire; Winter Storm
Lead Agency/Department Responsible:	Town of Catawba Administration Department
Estimated Cost:	To be determined
Potential Funding Sources:	Department of Homeland Security – Emergency Management Performance Grants (EMPG), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program; Economic Development Administration – Disaster Mitigation Planning and Technical Assistance.
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 8	Draft a new stormwater drain map.
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Catawba Administration and Public Works Departments
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 9	Provide hazard susceptibility checklist for homeowners to conduct their own inspections.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Severe Thunderstorm; Tornado; Wildfire; Drought; Winter Storm; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	Town of Catawba Administration Department
Estimated Cost:	To be determined
Potential Funding Sources:	Department of Homeland Security – Emergency Management Performance Grants (EMPG), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program, Citizen Corps. Many FEMA and American Red Cross publications are available at no cost.
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Low

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	**Maintain continued compliance with the National Flood Insurance Program (NFIP) through implementation of the following specific actions:** **f) Evaluate and consider the adoption of "higher standards" that are proven to reduce flood damage (including additional freeboard, setbacks, limitations on lower-level enclosure size, and the prohibition on use of fill).** **g) Develop a checklist for review of building/development permit plans and for inspection of development in floodplains (a model is available).** **h) Establish a goal to have each plan reviewer and building inspector attend a related training periodically (for example, the North Carolina Association of Floodplain Managers Annual Conference or Fall Floodplain Institute).** **i) Encourage or require certain local staff positions to obtain and maintain Certified Floodplain Manager (CFM) certification.** **j) Maintain supplies of FEMA/NFIP materials to help property owners evaluate measures to reduce potential hazard damage. Make available in public buildings, local library, website, etc. and inform people who they can call to learn more information.**
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Catawba Planning Department
Estimated Cost:	N/A (staff time)
Potential Funding Sources:	N/A
Implementation Schedule:	Immediate and ongoing through 2015
Priority (High, Moderate, Low):	High
2014 Status:	**Completed/ongoing. The Town adopted a Flood Damage Prevention Ordinance based off the model provided by the State that provides "higher standards" particularly in regards to freeboard.** **The Town Planner will plan to attend a training in regards to floodplain management if possible. There are no inspectors within the Town, other than those that inspect through the County.** **The Town has FEMA/NFIP information in Town Hall for pick up. The Town's website will add a link that directs people to FEMA and State program sites.** **Ongoing elements of this action are reflected in the 2014 Mitigation Action 6 above.**

Mitigation Action 2	Develop a debris management plan.
Category:	Emergency Services
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm, Severe Thunderstorm and Tornado; Wildfire; Winter Storm
Lead Agency/Department Responsible:	Town of Catawba Administration Department
Estimated Cost:	To be determined
Potential Funding Sources:	Department of Homeland Security – Emergency Management Performance Grants (EMPG), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program; Economic Development Administration – Disaster Mitigation Planning and Technical Assistance.
Implementation Schedule:	July 2010
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. There is not a formal plan, but public works has an informal plan currently in place. They turn debris into mulch and pile it on a lot where they provide it to the public for free. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 7 above.)**

Mitigation Action 3	Establish pre-disaster debris management contracts.
Category:	Emergency Services
Hazard(s) Addressed:	Flood, Hurricane and Tropical Storm, Severe Thunderstorm; Tornado; Wildfire; Winter Storm
Lead Agency/Department Responsible:	Town of Catawba Administration, Police, Fire, and Public Works Department
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	July 2010
Priority (High, Moderate, Low):	High
2014 Status:	**Similar action ongoing (Mitigation Action 2 above). The Town's Public Works Department removes debris, and, in the case of a disaster, can take it to a landfill. The Town currently provides free mulch, made from the debris.**

Mitigation Action 4	Develop a post-disaster reconstruction plan to facilitate decision making following a hazard event.
Category:	Prevention
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Severe Thunderstorm; Tornado; Wildfire; Drought; Winter Storm; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	Town of Catawba Administration, Police, and Fire Departments
Estimated Cost:	To be determined
Potential Funding Sources:	Department of Homeland Security – Emergency Management Performance Grants (EMPG), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program; Economic Development Administration – Disaster Mitigation Planning and Technical Assistance.
Implementation Schedule:	July 2010
Priority (High, Moderate, Low):	High
2014 Status:	**Deferred. None in existence to the best of planning staff knowledge. Parties responsible (Administration, Police, and Fire) do not seem to have time to complete this given their current work load.**

Mitigation Action 5	Draft a new stormwater drain map.
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Catawba Administration and Public Works Departments
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	July 2010
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 8 above.)**

Mitigation Action 6	Routinely clean and repair stormwater drains.
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Catawba Public Works Department
Estimated Cost:	Staff time
Potential Funding Sources:	To be determined
Implementation Schedule:	N/A
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. This activity has been completed as a mitigation action and now the Town Public Works Department does this as an ongoing preventative action.**

Mitigation Action 7	Routinely prune trees and clear tree limbs hanging in right of way.
Category:	Emergency Services
Hazard(s) Addressed:	Hurricane and Tropical Storm; Severe Thunderstorm; Tornado; Winter Storm
Lead Agency/Department Responsible:	Relies upon private company (Asplundh) through Duke Energy
Estimated Cost:	Staff time
Potential Funding Sources:	To be determined
Implementation Schedule:	N/A
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. This action has not been implemented directly by the Town due to lack of tree pruning equipment/apparatus. Instead, the Town relies upon a private company (Asplundh) through Duke Energy for pruning. With this in place, this action does not need to be carried over as an ongoing mitigation action to the list of 2014 actions.**

Mitigation Action 8	Identify and strengthen facilities to function as public shelters.
Category:	Prevention
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Severe Thunderstorm; Tornado; Wildfire; Drought; Winter Storm; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	Town of Catawba Administration Department
Estimated Cost:	To be determined
Potential Funding Sources:	Department of Homeland Security – Emergency Management Performance Grants (EMPG), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program.
Implementation Schedule:	N/A
Priority (High, Moderate, Low):	Low
2014 Status:	**Completed. The Town of Catawba Fire Department is a public shelter, and the Town of Catawba Rescue Building serves as a backup. (It has a generator on site.)**

Mitigation Action 9	Provide hazard susceptibility checklist for homeowners to conduct their own inspections.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Severe Thunderstorm; Tornado; Wildfire; Drought; Winter Storm; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	Town of Catawba Administration Department
Estimated Cost:	To be determined
Potential Funding Sources:	Department of Homeland Security – Emergency Management Performance Grants (EMPG), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program, Citizen Corps. Many FEMA and American Red Cross publications are available at no cost.
Implementation Schedule:	July 2010
Priority (High, Moderate, Low):	Low
2014 Status:	**Ongoing. The Town can continue to provide materials to citizens via the sources listed above. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 9 above.)**

Mitigation Action Plan—Village of Cedar Rock

2014 Mitigation Actions

Mitigation Action 1	Maintain street rights of way and ditches to prevent damage to streets and property.
Category:	Structure and Infrastructural Projects
Hazard(s) Addressed:	Flood; Thunderstorm; Hurricane and Tropical Storm; Winter Weather
Lead Agency/Department Responsible:	Village of Cedar Rock Private Contractor
Estimated Cost:	$100,000
Potential Funding Sources:	Power Bill
Implementation Schedule:	Yearly
Priority (High, Moderate, Low):	High

Mitigation Action 2	Update current land use plans to address floodplain development.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Severe Storms; Hurricane and Tropical Storm
Lead Agency/Department Responsible:	Village of Cedar Rock; Western Piedmont Council of Governments (WPCOG)
Estimated Cost:	<$5,000
Potential Funding Sources:	General Fund
Implementation Schedule:	0-2 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	Work with Caldwell County Emergency Services to address potential wildfire issues.
Category:	Prevention
Hazard(s) Addressed:	Wildfire; Drought
Lead Agency/Department Responsible:	Caldwell County Emergency Services; Village of Cedar Rock Village Council
Estimated Cost:	<$1,000
Potential Funding Sources:	Grants; General Fund
Implementation Schedule:	0-2 years
Priority (High, Moderate, Low):	Low

Mitigation Action 4	Monitor water resources and when necessary institute measures to conserve water through Drought Management Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Caldwell County Water Department
Estimated Cost:	$1.5 million
Potential Funding Sources:	Grants and tax-based funding
Implementation Schedule:	Unspecified
Priority (High, Moderate, Low):	High

Mitigation Action 5	Support the North Carolina Office of Dam Safety; make sure dams are regularly inspected.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Dam Failure; Flood
Lead Agency/Department Responsible:	North Carolina Department of the Environment and Natural Resources (NCDENR), Dam Program
Estimated Cost:	Unspecified
Potential Funding Sources:	Unspecified
Implementation Schedule:	2019
Priority (High, Moderate, Low):	High

Mitigation Action 6	In cooperation with the Caldwell County Planning and Development Department and the Caldwell County Building Inspections Department, make information regarding all hazards and development regulations within floodplains available through the following: a) Ensuring that the local library maintains information relating to multi-hazard risks and protection measures. b) Provide a link on the Village's website to FEMA resources addressing flooding and flood protection, sheltering, evacuation procedures, disaster preparedness, post-disaster recovery, and mitigation techniques.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Village of Cedar Rock
Estimated Cost:	N/A (covered by Caldwell County)
Potential Funding Sources:	Maintain present activities under the funding available
Implementation Schedule:	Immediate through 2019
Priority (High, Moderate, Low):	High

Mitigation Action 7	In coordination with Caldwell County, the Village of Cedar Rock will continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. All parties will continue to pro-actively establish open space within the floodplain and floodway as grant funds become available to carry out this initiative.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Village of Cedar Rock; Caldwell County Building Inspections Department; Caldwell County Planning and Development Department
Estimated Cost:	$250,000+
Potential Funding Sources:	Grant fund resources; hazard mitigation of Lenoir EMS Base
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Low

Mitigation Action 8	In coordination with Caldwell County, the Village of Cedar Rock will maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Village of Cedar Rock; Caldwell County Emergency Management Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 9	In coordination with the Caldwell County Emergency Management Department, the Village of Cedar Rock will assist with the monitoring of water resources. When necessary, the Town will cooperate with the County in instituting measures to conserve water resources according to the County's Drought Management Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Drought; Wildfire
Lead Agency/Department Responsible:	Village of Cedar Rock; Caldwell County Water Department
Estimated Cost:	$1.5 million (covered by Caldwell County)
Potential Funding Sources:	Grants and tax-based funding
Implementation Schedule:	2016
Priority (High, Moderate, Low):	Low

Mitigation Action 10	Cooperate with Caldwell County in the implementation and enforcement of the County's comprehensive stormwater management program.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Village of Cedar Rock; City of Lenoir Planning and Building Inspections Department; administrative staff of Caldwell County
Estimated Cost:	$50,000 per year
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 11	Install generator transfer switch connections during the construction of new public facilities (schools, fire stations, public buildings, etc.).
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Village of Cedar Rock; Caldwell County Planning and Development Department
Estimated Cost:	To be determined
Potential Funding Sources:	Local, State, Federal Hazard Mitigation Grant Program (HMGP)
Implementation Schedule:	2019
Priority (High, Moderate, Low):	High

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	Caldwell County will assist all communities within the County, including property owners in unincorporated areas, in applying for FEMA-sponsored mitigation grant assistance for the acquisition and/or elevation of substantially damaged structures following a natural disaster.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department
Estimated Cost:	$1,200
Potential Funding Sources:	Unspecified
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed.**

Mitigation Action 2	Maintain a contract with a qualified post-disaster recovery service provider for essential services and equipment including generators and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Village of Cedar Rock Village Council
Estimated Cost:	Unspecified
Potential Funding Sources:	Unspecified
Implementation Schedule:	6 months
Priority (High, Moderate, Low):	Medium
2014 Status:	**Deleted. Not feasible for the Village to complete.**

Mitigation Action 3	Monitor water resources and when necessary institute measures to conserve water through Drought Management Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Caldwell County Water Department
Estimated Cost:	$1.5 million
Potential Funding Sources:	Grants and tax-based funding
Implementation Schedule:	Unspecified
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 4 above.)**

Mitigation Action 4	Support the North Carolina Office of Dam Safety; make sure dams are regularly inspected.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Dam Failure; Flood
Lead Agency/Department Responsible:	North Carolina Department of the Environment and Natural Resources (NCDENR), Dam Program
Estimated Cost:	Unspecified
Potential Funding Sources:	Unspecified
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 5 above.)**

Mitigation Action 5	Continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. Continue to pro-actively establish open space within the floodplain.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood; Dam Failure; Wildfire
Lead Agency/Department Responsible:	Caldwell County Planning Department
Estimated Cost:	$250,000+
Potential Funding Sources:	Grant funds; hazard mitigation of Lenoir EMS Base
Implementation Schedule:	2015
Priority (High, Moderate, Low):	High
2014 Status:	**Deleted. Not feasible for the Village to complete.**

Mitigation Action 6	Caldwell County Planning and Building Inspections Departments will make information regarding hazards and development regulations within the floodplain available through the following: library, link on website to FEMA addressing flood protection, disaster preparedness, and post-disaster recovery.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department
Estimated Cost:	$1,200
Potential Funding Sources:	General Budget
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Completed.**

Mitigation Action 7	Maintain a map information service about Flood Insurance Rate Maps (FIRMs), advertise annually in the paper, and provide information to inquirers about local floodplain management requirements.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood; Dam Failure
Lead Agency/Department Responsible:	Caldwell County Planning Department
Estimated Cost:	$85,000
Potential Funding Sources:	Tax-based funding
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Completed.**

Mitigation Action 8	Require flood elevation certificates for development within the Special Flood Hazard Area (SFHA).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department
Estimated Cost:	$50,000
Potential Funding Sources:	General budget
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Completed.**

Mitigation Action Plan—City of Claremont

2014 Mitigation Actions

Mitigation Action 1	**Maintain continued compliance with the National Flood Insurance Program (NFIP) through implementation of the following specific actions:** **a) Maintain digital FEMA elevation certificates for all construction in the floodplain.** **b) Establish a goal to have each plan reviewer attend a related training periodically.** **c) Encourage or require certain local staff positions to obtain and maintain Certified Floodplain Manager (CFM) certification.** **d) Send information about the flood hazard and promote the availability of flood insurance through regularly scheduled mailings (such as the dissemination of handouts with annual property tax notices, utility bills, etc.).**
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Claremont Planning and Zoning Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	Immediate and ongoing through 2015
Priority (High, Moderate, Low):	High

Mitigation Action 2	**Update Claremont Land Development Plan and Recreation Master Plan with current flood data and keep flood-prone areas designated for greenways.**
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Claremont Planning and Zoning Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	Short range
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	**Keep infrastructure database updated when repairs are made and new facilities are installed.**
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	City of Claremont Public Works Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	Short range
Priority (High, Moderate, Low):	High

Mitigation Action 4	Take part in regional public outreach programs about hazard potential in our areas.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	City of Claremont Planning and Zoning Department; City of Claremont Administration Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	Short range
Priority (High, Moderate, Low):	Moderate

Mitigation Action 5	Install quick-connect emergency generator hook-ups for remaining critical facilities: four (4) pump stations and City Hall.
Category:	Other
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Wildfire; Drought; Winter Weather; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	City of Claremont Public Works Department; City of Claremont Administration Department; City of Claremont Police Department; City of Claremont Fire Department
Estimated Cost:	Low
Potential Funding Sources:	Local; Department of Homeland Security (Emergency Management Performance Grants (EMPG), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program).
Implementation Schedule:	Short range
Priority (High, Moderate, Low):	High

Mitigation Action 6	Create a public outreach program for City citizens about specific hazards that impact Claremont and the resources available for mitigation using social media, the City website, City newsletter, etc.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	City of Claremont Planning and Zoning Department; City of Claremont Administration Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	Short range
Priority (High, Moderate, Low):	Moderate

Mitigation Action 7	Routinely inspect and maintain fire hydrants.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	City of Claremont Fire Department; City of Claremont Public Works Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	Immediate (all hydrants are to be tested once a year)
Priority (High, Moderate, Low):	Moderate

Mitigation Action 8	Using social media, the City website, and other public outreach, encourage residents to keep storm drains and ditches clear of debris during storms (to assist, not rely solely on Public Works).
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Claremont Public Works Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	Immediate (less than 1 year)
Priority (High, Moderate, Low):	Moderate

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	**Maintain continued compliance with the National Flood Insurance Program (NFIP) through implementation of the following specific actions:** **a) Maintain digital FEMA elevation certificates for all construction in the floodplain.** **b) Evaluate and consider the adoption of "higher standards" that are proven to reduce flood damage (including additional freeboard, setbacks, limitations on lower-level enclosure size, and the prohibition on use of fill).** **c) Establish a goal to have each plan reviewer and building inspector attend a related training periodically (for example, the North Carolina Association of Floodplain Managers Annual Conference or Fall Floodplain Institute).** **d) Encourage or require certain local staff positions to obtain and maintain Certified Floodplain Manager (CFM) certification.** **e) Send information about the flood hazard and promote the availability of flood insurance through regularly scheduled mailings (such as the dissemination of handouts with annual property tax notices, utility bills, etc.).**
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Claremont Planning and Zoning Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	Immediate and ongoing through 2015
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. There has been no new development in need of elevation certificates; the City adopted additional freeboard above minimum standards; staff has attended floodplain management workshops; citizen outreach needs to continue. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 1 above.)**

Mitigation Action 2	Install quick-connect emergency generator hook-ups for remaining critical facilities.
Category:	Emergency Services
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Wildfire; Drought; Winter Weather; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	City of Claremont Public Works Department; City of Claremont Administration Department; City of Claremont Police Department; City of Claremont Fire Department
Estimated Cost:	Low
Potential Funding Sources:	Local; Department of Homeland Security (Emergency Management Performance Grants (EMPG), Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM) program).
Implementation Schedule:	Short range
Priority (High, Moderate, Low):	High
2014 Status:	**Completed and ongoing. The City of Claremont Fire Department, Police Department, Public Works Department, McLin Sewer Treatment Plant, Rescue Squad, and one (of five) lift stations now have emergency generators. Two more generators for lift stations are budgeted over the next 3 years. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 5 above.)**

Mitigation Action 3	Encourage residents to continue with voluntary water restrictions and water conservation actions.
Category:	Prevention
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	City of Claremont Planning and Zoning Department; City of Claremont Public Works Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	Short range
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing during low precipitation periods; however, this action was not selected to be carried over to the 2014 list of mitigation actions.**

Mitigation Action 4	Verify height of manholes in flood zones with GPS and ensure proper equipment is present.
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Claremont Public Works Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	Short range
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed. The City collected GPS data for all water, sewer, and storm sewer facilities in 2011.**

Mitigation Action 5	Explore the feasibility of a Capital Improvement Plan to extend water lines to areas near the City with well problems.
Category:	Prevention
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	City of Claremont Planning and Zoning Department
Estimated Cost:	Study cost is minimal.
Potential Funding Sources:	Local
Implementation Schedule:	Moderate range
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Deferred due to budgetary reasons.**

Mitigation Action 6	Explore the feasibility of municipal purchase or private donations of floodplain areas for use as greenways.
Category:	Prevention/Natural Resource Protection
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Claremont Planning and Zoning Department
Estimated Cost:	Study cost is minimal.
Potential Funding Sources:	Local/private donation
Implementation Schedule:	Moderate range (2-3 years)
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. This is a staff priority when development occurs. These areas are still designated as greenway in the Claremont Land Development Plan.**

Mitigation Action 7	Routinely inspect and maintain fire hydrants.
Category:	Emergency Services
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	City of Claremont Fire Department; City of Claremont Public Works Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	Immediate (all hydrants are to be tested once a year)
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 7 above.)**

Mitigation Action 8	Encourage residents to keep storm drains clear of debris during storms (to assist, not rely solely on Public Works).
Category:	Property Protection
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Claremont Public Works Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	Immediate (less than 1 year)
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 8 above.)**

Mitigation Action Plan—Town of Connelly Springs

2014 Mitigation Actions

Mitigation Action 1	Track rebuilding activities after severe storms and consider policies to minimize repetitive losses.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman (Planning Board)
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 2	Require floodproofing for structures not elevated 2 feet above base flood elevation.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Connelly Springs Planning Board; Burke County Building Inspections Department
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Low

Mitigation Action 3	Require/maintain FEMA elevation certificates for all new permits for buildings or improvements in the floodplain.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman (Planning Board); Burke County Building Inspections Department
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Low

Mitigation Action 4	Receive and begin using regulatory floodplain maps.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman (Planning Board)
Estimated Cost:	N/A
Potential Funding Sources:	State, Local
Implementation Schedule:	2019
Priority (High, Moderate, Low):	High

Mitigation Action 5	Review zoning and subdivision regulations to better control future development in these susceptible areas.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman (Planning Board)
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 6	Work in cooperation with Burke County, surrounding local governments, and state and federal agencies to maintain appropriate mitigation strategies.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman (Planning Board)
Estimated Cost:	N/A
Potential Funding Sources:	Local
Implementation Schedule:	2019
Priority (High, Moderate, Low):	High

Mitigation Action 7	In cooperation with Burke County, assist in establishing a program for evaluating and improving critical services (roads, bridges, water, sewer, electricity, etc.) and critical facilities (fire, rescue, medical, etc.) to reduce risk to natural hazards.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman (Planning Board)
Estimated Cost:	N/A
Potential Funding Sources:	Local, State, Federal
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 8	In cooperation with Burke County, assist (as needed) in preparing a countywide stormwater management plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman (Planning Board)
Estimated Cost:	N/A
Potential Funding Sources:	Local, State
Implementation Schedule:	2019 (Revise in 2015)
Priority (High, Moderate, Low):	Moderate

Mitigation Action 9	Install generator transfer switch connections during the construction of new public facilities (schools, fire stations, public buildings, etc.).
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Connelly Springs Planning and Zoning Department
Estimated Cost:	To be determined
Potential Funding Sources:	Local, State, Federal Grants-Hazard Mitigation Grant Program (HMGP)
Implementation Schedule:	2019
Priority (High, Moderate, Low):	High

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	Adopt Flood Damage Prevention Ordinance.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	Complete
Priority (High, Moderate, Low):	High
2014 Status:	**Complete. Adopted August 6, 2007.**

Mitigation Action 2	Adopt Watershed Prevention Ordinance.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman (Planning Board)
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	Complete
Priority (High, Moderate, Low):	High
2014 Status:	**Complete. Adopted September 28, 1993.**

Mitigation Action 3	Require structures to be built in the floodplain to be constructed 2 feet above base flood elevation or be floodproofed.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Connelly Springs Planning Board; Burke County Building Inspections Department
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Low
2014 Status:	**Complete. The Town contracts with Burke County for services provided by the Certified Floodplain Manager (CFM) to review all development within the floodplain. No known development has occurred in the floodplain over the past five years.**

Mitigation Action 4	Track rebuilding activities after severe storms and consider policies to minimize repetitive losses.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman (Planning Board)
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. No severe storms have impacted the town in the past five years that would trigger this activity. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 1 above.)**

Mitigation Action 5	Require floodproofing for structures not elevated 2 feet above base flood elevation.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Connelly Springs Planning Board; Burke County Building Inspections Department
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Low
2014 Status:	**Ongoing. All development within the floodplain is reviewed by the Burke County Floodplain Manager in accordance with a Resolution of Intent adopted September 8, 2003. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 2 above.)**

Mitigation Action 6	Require/maintain FEMA elevation certificates for all new permits for buildings or improvements in the floodplain.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman (Planning Board); Burke County Building Inspections Department
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Low
2014 Status:	**Ongoing. No known new development has occurred in the floodplain. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 3 above.)**

Mitigation Action 7	Receive and begin using regulatory floodplain maps.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman (Planning Board)
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. The Town adopts and utilizes current North Carolina Floodplain Mapping Program data. Updates coincide with state map updates. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 4 above.)**

Mitigation Action 8	Review zoning and subdivision regulations to better control future development in these susceptible areas.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman (Planning Board)
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. The Town has contracted with Burke County to provide zoning and code enforcement services which has identified gaps in zoning enforcement which are currently being addressed. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 5 above.)**

Mitigation Action 9	Prepare Comprehensive Land Use Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman (Planning Board)
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	Complete
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Complete. Adopted October 5, 2005.**

Mitigation Action 10	Work in cooperation with Burke County, surrounding local governments, and state and federal agencies to maintain appropriate mitigation strategies.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Connelly Springs Board of Alderman (Planning Board)
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. The Town of Connelly Springs participates in interagency meetings organized by Burke County and encourages participation in projects developed at the county level to the residents of Connelly Springs such as the E-911 Addressing System and sign-up for the emergency notification system (Hyper Reach). Projects are shared with residents through town council meetings, traditional media, and community flyers. The Town currently contracts zoning and code enforcement activities with Burke County and planning duties with the Western Piedmont Council of Governments (WPCOG). (Ongoing elements of this action are reflected in the 2014 Mitigation Action 6 above.)**

Mitigation Action Plan—City of Conover

2014 Mitigation Actions

Mitigation Action 1	Maintain continued community compliance with the National Flood Insurance Program (NFIP). Provide education to property owners, elected officials, and appointed officials about flood prevention.
Category:	Local Plans and Regulations; Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Conover Planning and Economic Development Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 2	Provide education via website, social media, brochures, etc. regarding what to do before, during, and after storm events.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Thunderstorm, Lightning, and Hail; Winter Weather; Tornado
Lead Agency/Department Responsible:	City of Conover Fire Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	Educate public about maintenance of property and trimming of trees located near streets and power lines.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Winter Weather
Lead Agency/Department Responsible:	City of Conover Public Works Department; Duke Energy Corporation
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 4	Ensure firefighters are properly trained in brush fire fighting techniques.
Category:	Emergency Services
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	City of Conover Fire Department
Estimated Cost:	$1,400
Potential Funding Sources:	Local
Implementation Schedule:	5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 5	Install generator transfer switch connections during the construction of new public facilities (schools, fire stations, City buildings, etc.).
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	City of Conover Planning and Economic Development Department
Estimated Cost:	TBD
Potential Funding Sources:	Local, State; Federal Hazard Mitigation Grant Program (HMGP)
Implementation Schedule:	5 years
Priority (High, Moderate, Low):	High

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	**Maintain continued compliance with the National Flood Insurance Program (NFIP) through implementation of the following specific actions:** **a) Hold informative work sessions for newly elected officials and new appointees to planning commissions and appeals/variance boards, to provide an overview of floodplain management, the importance of participating in the NFIP, and the implications of failing to enforce the requirements of the program or failing to properly handle variance requests.** **b) Maintain supplies of FEMA/NFIP materials to help property owners evaluate measures to reduce potential hazard damage. Make available in public buildings, local library, website, etc. and inform people who they can call to learn more information.**
Category:	Public Education and Awareness
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Conover Planning and Economic Development Department
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	N/A
Implementation Schedule:	Within 1-2 years and ongoing as necessary
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed and ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 1 above.)**

Mitigation Action 2	**Work with the local media to highlight mitigation practices for homeowners during wildfire and winter storm seasons through the development of Public Service Announcements (PSAs).**
Category:	Public Education and Awareness
Hazard(s) Addressed:	Wildfire; Winter Weather
Lead Agency/Department Responsible:	City of Conover Fire Department
Estimated Cost:	TBD
Potential Funding Sources:	TBD
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Partially completed; ongoing. The City uses its website and social media to communicate with citizens about storm events. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 2 above.)**

Mitigation Action 3	Create a strategic energy plan for City facilities.
Category:	Energy Conservation
Hazard(s) Addressed:	Designed to address climate change and its long-term potential to increase the frequency and severity of natural hazards including flooding; hurricanes and tropical storms; severe thunderstorms and tornadoes; wildfires; drought; winter weather; and dam/levee failure.
Lead Agency/Department Responsible:	Environmental Planner
Estimated Cost:	TBD
Potential Funding Sources:	State Energy Office
Implementation Schedule:	1 year
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed March 2010 by W.K. Dickson Engineers; North Carolina Department of Energy Technical Assistance Program.**

Mitigation Action 4	Aggressively encourage tree trimming of large older trees near structures, power lines, and rights of way.
Category:	Property Protection; Public Education and Awareness
Hazard(s) Addressed:	Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Winter Weather
Lead Agency/Department Responsible:	City of Conover Public Works Department; Duke Energy Corporation
Estimated Cost:	TBD
Potential Funding Sources:	TBD
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. Staff works with property owners and the North Carolina Department of Transportation (NCDOT) when situations arise or dead or damaged trees are observed near the street rights of way. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 3 above.)**

Mitigation Action 5	Ensure firefighters are properly trained in brush/wildland fire fighting techniques.
Category:	Emergency Services
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	City of Conover Fire Department
Estimated Cost:	$1,200
Potential Funding Sources:	Local
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed and ongoing; completed annually. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 4 above.)**

Mitigation Action 6	Routinely inspect and maintain fire hydrants.
Category:	Emergency Services
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	City of Conover Fire Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed and ongoing; completed annually. However, this action was not selected to be carried over to the 2014 list of mitigation actions.**

Mitigation Action 7	Consider establishing a local reserve fund for public mitigation measures.
Category:	Prevention
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Wildfire; Drought; Winter Weather; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	City of Conover Finance Department; City of Conover Public Works Department; City of Conover Planning and Economic Development Department
Estimated Cost:	TBD
Potential Funding Sources:	TBD
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Partially complete. The City funds staff positions which implement guidelines of the adopted hazard mitigation plan. However, this action was not selected to be carried over to the list of 2014 mitigation actions.**

Mitigation Action Plan—Town of Drexel

2014 Mitigation Actions

Mitigation Action 1	Revise zoning and subdivision regulations in floodplain areas to better control future development in these hazard susceptible areas.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Drexel Zoning Board; Town Council
Estimated Cost:	To be determined (staff time only)
Potential Funding Sources:	Town of Drexel General Fund
Implementation Schedule:	2014-2015
Priority (High, Moderate, Low):	Moderate

Mitigation Action 2	Revise subdivision regulations to require all perennial and intermittent streams be shown on plats.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Drexel Zoning Board; Town Council
Estimated Cost:	To be determined (staff time only)
Potential Funding Sources:	Town of Drexel General Fund
Implementation Schedule:	2014-2015
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	In cooperation with Burke County, assist in establishing a program for evaluating and improving critical services (roads, bridges, water, sewer, electricity, etc.) and critical facilities (fire, rescue, medical, etc.) to reduce risk to natural hazards.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Drexel Town Council
Estimated Cost:	N/A
Potential Funding Sources:	Local; state; federal
Implementation Schedule:	Ongoing review
Priority (High, Moderate, Low):	Moderate

Mitigation Action 4	In cooperation with Burke County, assist (as needed) in preparing a countywide stormwater management plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Drexel Town Council
Estimated Cost:	N/A
Potential Funding Sources:	Local; state
Implementation Schedule:	Revise in 2015
Priority (High, Moderate, Low):	Moderate

Mitigation Action 5	Install generator transfer switch connections during the construction of new public facilities (schools, fire stations, public buildings, etc.).
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Drexel Planning and Zoning Department
Estimated Cost:	To be determined
Potential Funding Sources:	Local; State, Federal Hazard Mitigation Grant Program (HMGP)
Implementation Schedule:	Revise in 2019
Priority (High, Moderate, Low):	High

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	Revise zoning and subdivision regulations in floodplain areas to better control future development in these hazard susceptible areas.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Drexel Zoning Board; Town Council
Estimated Cost:	To be determined (staff time only)
Potential Funding Sources:	Town of Drexel General Fund
Implementation Schedule:	2014-2015
Priority (High, Moderate, Low):	Low
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 1 above.)**

Mitigation Action 2	Revise subdivision regulations to require all perennial and intermittent streams be shown on plats.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Drexel Zoning Board; Town Council
Estimated Cost:	To be determined (staff time only)
Potential Funding Sources:	Town of Drexel General Fund
Implementation Schedule:	2014-2015
Priority (High, Moderate, Low):	Low
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 2 above.)**

Mitigation Action Plan—Town of Gamewell

2014 Mitigation Actions

Mitigation Action 1	Update current land use plans to address floodplain development.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Thunderstorms; Hurricane and Tropical Storm
Lead Agency/Department Responsible:	Town of Gamewell Town Council; Western Piedmont Council of Governments (WPCOG)
Estimated Cost:	<$5,000
Potential Funding Sources:	Local
Implementation Schedule:	0-2 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 2	Work with Caldwell County Emergency Services to address potential wildfire issues.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Wildfire; Drought
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	<$5,000
Potential Funding Sources:	Grants; Local
Implementation Schedule:	0-2 years
Priority (High, Moderate, Low):	Low

Mitigation Action 3	Establish procedure for sounding fire department siren for tornado warnings and flash floods.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Tornado; Thunderstorm
Lead Agency/Department Responsible:	Town of Gamewell Volunteer Fire Department
Estimated Cost:	<$1,000
Potential Funding Sources:	Town/Vol. Fire Dept.
Implementation Schedule:	1 year
Priority (High, Moderate, Low):	High

Mitigation Action 4	Identify all possible emergency shelter buildings.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Gamewell Planning Department
Estimated Cost:	<$1,000
Potential Funding Sources:	Local
Implementation Schedule:	<1 year
Priority (High, Moderate, Low):	Low

Mitigation Action 5	Purchase backup generator for Town Hall (critical facility).
Category:	Structures and Infrastructure
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Gamewell Town Council
Estimated Cost:	$5,000
Potential Funding Sources:	Local, State and Federal Grants
Implementation Schedule:	0-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 6	Engage local citizens about the importance of watershed and stormwater protection.
Category:	Education and Outreach
Hazard(s) Addressed:	Flood; Severe Storm; Hurricane and Tropical Storm
Lead Agency/Department Responsible:	Town of Gamewell Planning Department
Estimated Cost:	<$5,000
Potential Funding Sources:	Local; grants
Implementation Schedule:	0-2 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 7	Maintain a contract with a qualified post-disaster recovery service provider for essential services and equipment including generators and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Gamewell Town Council; Town of Gamewell Administration
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	6 months – five years
Priority (High, Moderate, Low):	Medium

Mitigation Action 8	Support the North Carolina Office of Dam Safety; make sure dams are regularly inspected.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Dam Failure; Flood
Lead Agency/Department Responsible:	North Carolina Department of Environment and Natural Resources (NCDENR) Dams Program
Estimated Cost:	Unspecified
Potential Funding Sources:	Unspecified
Implementation Schedule:	2019
Priority (High, Moderate, Low):	High

Mitigation Action 9	In cooperation with the Caldwell County Planning and Development Department and the Caldwell County Building Inspections Department, make information regarding all hazards and development regulations within floodplains available through the following: a) Ensuring that the local library maintains information relating to multi-hazards, flooding, flood protection, and mitigation techniques. b) Provide a link on the Town's website to FEMA resources addressing flooding and flood protection, sheltering, evacuation procedures, disaster preparedness, post-disaster recovery, and mitigation techniques.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Gamewell
Estimated Cost:	N/A (covered by Caldwell County)
Potential Funding Sources:	Local
Implementation Schedule:	Immediate-2019
Priority (High, Moderate, Low):	High

Mitigation Action 10	In coordination with Caldwell County, the Town of Gamewell will continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. All parties will continue to pro-actively establish open space within the floodplain and floodway as grant funds become available to carry out this initiative.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Town of Gamewell; Caldwell County Building Inspections Department; Caldwell County Planning and Development Department
Estimated Cost:	$250,000+
Potential Funding Sources:	Grant fund resources; hazard mitigation of Lenoir EMS Base
Implementation Schedule:	2015
Priority (High, Moderate, Low):	Low

Mitigation Action 11	In coordination with Caldwell County, the Town of Gamewell will maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Gamewell; Caldwell County Emergency Management Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 12	In coordination with the Caldwell County Emergency Management Department, the Town of Gamewell will assist with the monitoring of water resources. When necessary, the Town will cooperate with the County in instituting measures to conserve water resources according to the County's Drought Management Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Drought; Wildfire
Lead Agency/Department Responsible:	Town of Gamewell; Caldwell County Water Department
Estimated Cost:	$1.5 million (covered by Caldwell County)
Potential Funding Sources:	Grants and tax-based funding
Implementation Schedule:	2016
Priority (High, Moderate, Low):	Low

Mitigation Action 13	Cooperate with Caldwell County in the implementation and enforcement of the County's comprehensive stormwater management program.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Gamewell; City of Lenoir Planning and Building Inspections Department; administrative staff of Caldwell County
Estimated Cost:	$50,000 per year
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Immediate-2019
Priority (High, Moderate, Low):	Moderate

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	Caldwell County will assist all communities within the county, including property owners in unincorporated areas, in applying for FEMA-sponsored mitigation grant assistance for the acquisition and/or elevation of substantially damaged structures following a natural disaster.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department
Estimated Cost:	$1,200
Potential Funding Sources:	Unspecified
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. Caldwell County has been and continues to provide assistance when communities are applying for funding to help landowners bring at-risk structures into compliance.**

Mitigation Action 2	Maintain a contract with a qualified post-disaster recovery service provider for essential services and equipment including generators and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Gamewell Town Council; Town of Gamewell Administration
Estimated Cost:	Unspecified
Potential Funding Sources:	Unspecified
Implementation Schedule:	6 months
Priority (High, Moderate, Low):	Medium
2014 Status:	**Not completed. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 7 above.)**

Mitigation Action 3	Monitor water resources and when necessary institute measures to conserve water through Drought Management Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Caldwell County Water Department
Estimated Cost:	$1.5 million
Potential Funding Sources:	Grants and tax-based funding
Implementation Schedule:	Unspecified
Priority (High, Moderate, Low):	High
2014 Status:	**Deleted. It is not feasible for the Town to institute drought management policies since it does not own or operate a water distribution facility.**

Mitigation Action 4	Support the North Carolina Office of Dam Safety; make sure dams are regularly inspected.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Dam Failure; Flood
Lead Agency/Department Responsible:	North Carolina Department of Environment and Natural Resources (NCDENR), Dams Program
Estimated Cost:	Unspecified
Potential Funding Sources:	Unspecified
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. Caldwell County has started a registry to track the location and depth of all ponds and dams within the county.**

Mitigation Action 5	Continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. Continue to pro-actively establish open space within the floodplain.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood; Dam Failure; Wildfire
Lead Agency/Department Responsible:	Caldwell County Planning Department
Estimated Cost:	$250,000+
Potential Funding Sources:	Grant funds; hazard mitigation of Lenoir EMS Base
Implementation Schedule:	2015
Priority (High, Moderate, Low):	High
2014 Status:	**Deleted. It is not feasible for the Town to fully accomplish this action.**

Mitigation Action 6	Caldwell County Planning and Building Inspections Departments will make information regarding hazards and development regulations within the floodplain available through the following: library, link on website to FEMA information addressing flood protection, disaster preparedness, and post-disaster recovery.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All hazards
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department
Estimated Cost:	$1,200
Potential Funding Sources:	General Budget
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Deleted. This activity is administered by Caldwell County.**

Mitigation Action 7	Maintain a map information service about Flood Insurance Rate Maps (FIRMs), advertise annually in the newspaper, and provide information to inquirers about local floodplain management requirements.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood; Dam Failure
Lead Agency/Department Responsible:	Caldwell County Planning Department
Estimated Cost:	$85,000
Potential Funding Sources:	Tax-based funding
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. Maps are kept on file at Town Hall and are also available on the County website.**

Mitigation Action 8	Require flood elevation certificates for development within the Special Flood Hazard Area (SFHA).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department
Estimated Cost:	$50,000
Potential Funding Sources:	General Budget
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. This will be a part of the new Flood Damage Prevention Ordinance to be adopted in late 2014 or early 2015.**

Mitigation Action Plan—Town of Glen Alpine

2014 Mitigation Actions

Mitigation Action 1	Continue the enforcement of the Town of Glen Alpine flood prevention ordinance. This ordinance regulates construction and new development in Special Flood Hazard Areas (SFHAs). Monitor and enforce NPDES Phase 2 stormwater regulations.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Glen Alpine Zoning Department/Code Enforcement Officer
Estimated Cost:	Ongoing budgeted activity
Potential Funding Sources:	General budget; grants
Implementation Schedule:	2014-2019
Priority (High, Moderate, Low):	High

Mitigation Action 2	Provide community outreach to educate the public about the hazards of flooding and the importance of stormwater and floodplain management.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Glen Alpine Zoning Department/Code Enforcement Officer
Estimated Cost:	$500
Potential Funding Sources:	General budget; grants
Implementation Schedule:	2014
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	Removal of obstructions to impaired streams and public drainage ways to lessen the risk of flooding and damage to roadways and bridges.
Category:	Natural Systems Protection; Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Glen Alpine Public Works Department
Estimated Cost:	$5,000
Potential Funding Sources:	General budget
Implementation Schedule:	2014-2019
Priority (High, Moderate, Low):	High

Mitigation Action 4	Continue to provide educational outreach to school children and civic groups as to the importance of fire safety and prevention.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	Town of Glen Alpine Fire Department
Estimated Cost:	Budgeted activity
Potential Funding Sources:	General fund budget
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 5	Implementation of annually pruning trees and clearing limbs and removal of diseased trees hanging over the rights of way to enhance safety and improve function.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Winter Weather; Thunderstorm; Tornado; Hurricane and Tropical Storm
Lead Agency/Department Responsible:	Town of Glen Alpine Public Works Department
Estimated Cost:	Implementation $5,000 plus annual expense
Potential Funding Sources:	General fund
Implementation Schedule:	2014-2019
Priority (High, Moderate, Low):	High

Mitigation Action 6	Through annual training, the Town of Glen Alpine Fire Department will be better prepared to handle a dam failure problem at Lake James and Catawba River.
Category:	Other
Hazard(s) Addressed:	Dam Failure
Lead Agency/Department Responsible:	Town of Glen Alpine Fire Department
Estimated Cost:	Minimal
Potential Funding Sources:	General budget; grants; Duke Energy Corporation
Implementation Schedule:	2014-2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 7	The Glen Alpine Fire Department, Burke County Emergency Management, and North Carolina Emergency Management will continue to evaluate and conduct a detailed needs assessment of emergency services, response, and critical needs.
Category:	Emergency Services
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Glen Alpine Fire Department
Estimated Cost:	$1,000
Potential Funding Sources:	General budget; grants
Implementation Schedule:	2019
Priority (High, Moderate, Low):	High

Mitigation Action 8	In cooperation with Burke County, assist in establishing a program for evaluating and improving critical services (roads, bridges, water, sewer, electricity, etc.) and critical facilities (fire, rescue, medical, etc.) to reduce risk to natural hazards.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Glen Alpine Public Works Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state; federal
Implementation Schedule:	Ongoing review
Priority (High, Moderate, Low):	Moderate

Mitigation Action 9	In cooperation with Burke County, assist (as needed) in preparing a countywide stormwater management plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Glen Alpine Public Works Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state
Implementation Schedule:	Revise in 2015
Priority (High, Moderate, Low):	Moderate

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	Maintain continued compliance with the National Flood Insurance Program (NFIP) and NPDES Phase 2 stormwater control compliance.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Glen Alpine Zoning Department/Code Enforcement Officer
Estimated Cost:	$1,000
Potential Funding Sources:	General budget
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing; the Town continues to review on an annual basis ordinances and compliance. Monitoring of stormwater drains and best management practices (BMPs) on all Town stormwater drains and property. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 1 above.)**

Mitigation Action 2	The Town, through ongoing programs, will offer education in fire prevention and safety training to the schools and citizens focusing on talks to civic groups, children, Town citizens, and elderly adults.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Glen Alpine Fire Department
Estimated Cost:	$500
Potential Funding Sources:	General budget
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. The Fire Department visits schools and civic clubs annually to present programs on fire prevention and safety. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 4 above.)**

Mitigation Action 3	The Planning Board reviews on an annual basis local zoning ordinances and land use plans for subdivisions, construction of new homes, and commercial development.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Glen Alpine Planning Board; Zoning Officer
Estimated Cost:	$2,000
Potential Funding Sources:	General fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed; ongoing. The Planning Board and staff meet monthly to review ordinances, subdivision plans, future projects, and public concerns. This is considered an institutionalized practice and as such has not been carried forward to the list of 2014 mitigation actions.**

Mitigation Action 4	The Glen Alpine Fire Department, Burke County Emergency Management, and North Carolina Emergency Management will continue to evaluate and conduct a detailed needs assessment of emergency services, response, and critical needs.
Category:	Emergency Services
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Glen Alpine Fire Department
Estimated Cost:	$1,000
Potential Funding Sources:	General budget; grants
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Completed; ongoing. The Fire Department, Burke County, and state emergency management review emergency service capabilities and needs. Drills and training is conducted annually with multiple agencies. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 7 above.)**

Mitigation Action Plan—Town of Granite Falls

2014 Mitigation Actions

Mitigation Action 1	Establish and maintain Temporary Disaster Debris Staging Area by selecting suitable site and submitting to the North Carolina Department of Environment and Natural Resources (NCDENR) for approval for use during a natural disaster.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Tornado; Winter Weather; Severe Thunderstorm; Hurricane and Tropical Storm
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; Town of Granite Falls Manager and Planning Department
Estimated Cost:	Staff time to be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Ongoing. Conditional approval received October 9, 2013 from NCDENR for Temporary Debris Staging Area at Granite Falls Recreation Center. Vegetative debris, white goods, and grinding areas defined.
Priority (High, Moderate, Low):	High

Mitigation Action 2	Implement educational outreach to citizens on recognizing potential conflicts between trees and overhead power lines, tree trimming techniques to reduce potential for power outages due to downed trees or falling tree limbs, and the benefits of hiring an arborist and safety tips for cleanup after a storm.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Tornado; Winter Weather; Severe Thunderstorm; Hurricane and Tropical Storm
Lead Agency/Department Responsible:	Town of Granite Falls Electric Department with assistance from ElectriCities
Estimated Cost:	Staff time
Potential Funding Sources:	Existing department, public power agency, and staff resources
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Mitigation Action 3	Evaluate infrastructure upgrades to fresh water intake on Lake Rhodhiss to ensure water supply during severe drought conditions.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Town of Granite Falls Water Department
Estimated Cost:	To be determined
Potential Funding Sources:	General fund, grant funding
Implementation Schedule:	3-4 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 4	Install generator transfer switch at Granite Falls Recreation Center, which serves as a designated emergency shelter, to facilitate quick connection of portable generator(s) or install permanent standby generator appropriately sized for the building's electrical load and fed by natural gas (Piedmont Natural Gas lines are available in Pinewood Road).
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Granite Falls Recreation Department; Town of Granite Falls Electric Department
Estimated Cost:	To be determined
Potential Funding Sources:	Existing department and staff resources, grant funding
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Mitigation Action 5	Incorporate hazard mitigation elements into the next update of the Town's Land Use Plan and any small area or corridor plans.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Granite Falls Planning Department
Estimated Cost:	Staff time, consultant fees to be determined
Potential Funding Sources:	General fund, grant funding
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 6	Caldwell County and all participating jurisdictions will continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. All parties will continue to pro-actively establish open space within the floodplain and floodway as grant funds become available to carry out this initiative.
Category:	Local Plans and Regulations; Natural Systems Protection
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Town of Granite Falls Town Council
Estimated Cost:	Unknown
Potential Funding Sources:	Grant fund resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High

Mitigation Action 7	Caldwell County, as well as all participating jurisdictions, will continue to support the North Carolina Office of Dam Safety's efforts to monitor and inspect all dams throughout the county, as well as the State of North Carolina. The County relies on this agency to ensure that all dam facilities, both public and private, are properly maintained and stable.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; Town of Granite Falls Town Council
Estimated Cost:	To be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High

Mitigation Action 8	Caldwell County Emergency Management will continue to coordinate with the County Public Works Department, as well as all participating jurisdictions, regarding the monitoring of water resources statewide. When necessary the County will institute measures to conserve water resources according to the County's Drought Management Plan.
Category:	Natural Systems Protection; Education and Awareness Programs
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Caldwell County Water Department; Town of Granite Falls Town Council
Estimated Cost:	To be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High

Mitigation Action 9	Caldwell County will assist all communities within the county, including property owners in unincorporated areas, in applying for FEMA-sponsored mitigation grant assistance for the acquisition and/or elevation of substantially damaged structures following a natural disaster.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	Staff time to be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Medium

Mitigation Action 10	Caldwell County Emergency Services will continue to work on the establishment of a comprehensive special needs registry. This effort will involve the cooperation of all participating jurisdictions.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	Staff time to be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Medium

Mitigation Action 11	The City of Lenoir will continue to serve an administrative role in the implementation and enforcement of the County's comprehensive stormwater management program. The stormwater regulations outlined within this program shall apply to Granite Falls, Gamewell, Cajah's Mountain, Lenoir, Hudson, and Sawmills.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	City of Lenoir Planning Department
Estimated Cost:	Staff time to be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High

Mitigation Action 12	Caldwell County, as well as all participating jurisdictions, will maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Other
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 13	The Town of Granite Falls will aim to draft a comprehensive Parks and Recreation Plan over the next five years. This plan will incorporate recommendations regarding the purchase and development of flood-prone land for recreational purposes.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Town of Granite Falls Town Council
Estimated Cost:	Staff time and consultant fees to be determined
Potential Funding Sources:	Existing department and staff resources; grant funding
Implementation Schedule:	2-5 years
Priority (High, Moderate, Low):	Medium

Mitigation Action 14	Maintain a map information service involving the following: a) Provide information relating to Flood Insurance Rate Maps (FIRMs) to all inquirers, including provision of information on whether a given property is located within a flood hazard area. b) Provide information regarding the flood insurance purchase requirement. c) Maintain historical and current FIRMs. d) Advertise once annually in the local newspaper. e) Provide information to inquirers about local floodplain management requirements.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Planning Department
Estimated Cost:	Staff time to be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	**Require a finished floor elevation certificate for all development within the Special Flood Hazard Area (SFHA) within both incorporated and unincorporated portions of the County. All elevation certificates should be submitted on an official FEMA elevation certificate. No certificate of occupancy shall be issued for any development within a defined SFHA without the submittal of the required elevation certificate.**
Category:	Natural Systems Protection; Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department
Estimated Cost:	Staff time to be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. The Town of Granite Falls Flood Damage Prevention Ordinance was updated to include "final as-built Elevation Certificate (FEMA Form 81-31)" as a prerequisite to a Certificate of Occupancy. Effective date: July 7, 2009.**

Mitigation Action 2	**Maintain a map information service involving the following:** **f) Provide information relating to Flood Insurance Rate Maps (FIRMs) to all inquirers, including provision of information on whether a given property is located within a flood hazard area.** **g) Provide information regarding the flood insurance purchase requirement.** **h) Maintain historical and current FIRMs.** **i) Advertise once annually in the local newspaper.** **j) Provide information to inquirers about local floodplain management requirements.**
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Planning Department
Estimated Cost:	Staff time to be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. Caldwell County Online GIS maps include updated flood hazard area overlays and Town staff are available to answer questions and make determinations. Current and previous FIRMs are available for review at Town offices. The Town of Granite Falls Flood Damage Prevention Ordinance is available on the Town website. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 14 above.)**

Mitigation Action 3	**The Caldwell County Planning and Building Inspections Departments will make information regarding hazards and development regulations within the floodplain available through the following:** **a) Ensuring that the local library maintains information relating to flooding and flood protection.** **b) Providing a link on their website to FEMA resources addressing flooding and flood protection.** **c) All participating jurisdictions, if a website is in place, will provide a link on their website to FEMA resources addressing flooding and flood protection, sheltering, evacuation procedures, disaster preparedness, and post-disaster recovery.**
Category:	Natural Systems Protection; Education and Awareness Programs
Hazard(s) Addressed:	Flood; Winter Weather; Wildfire; Severe Thunderstorm; Windstorm; Dam/Levee Failure; Tornado
Lead Agency/Department Responsible:	Caldwell County Planning and Building Inspections Departments
Estimated Cost:	Staff time to be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	2-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. The Town of Granite Falls has utilized its website and Twitter account to publicize FEMA resources for disaster preparedness. While this action is being considered complete and is not being carried over to the list of 2014 mitigation actions, the Town website and Twitter account will continue to be used for this function.**

Mitigation Action 4	**The Caldwell County Building Inspections Department will provide comprehensive services regarding planning and development activities within the defined Special Flood Hazard Area (SFHA) and issues relating to the construction of disaster resistant structures. These services will include:** **a) Providing site specific flood and flood-related information on an as-needed basis.** **b) Maintaining a list of contractors with experience in floodproofing and retrofit techniques.** **c) Providing information on windproofing construction methods for new and renovated structures.** **d) Maintaining materials providing an overview of how to select a qualified contractor.** **e) Making site visits upon request to review occurrences of flooding, drainage problems, and sewer problems. If applicable, the inspector should provide one-on-one advice to the property owner.** **f) Providing advice and assistance regarding CRS activity 530.** **g) Advertising the availability of this service once annually within the local newspaper.** **h) Maintaining a log of all individuals assisted through this County service including all site visits.**

Category:	Natural Systems Protection; Education and Awareness Programs
Hazard(s) Addressed:	Flood; Winter Weather; Wildfire; Thunderstorm; Windstorm
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department
Estimated Cost:	Staff time to be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	2-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Deleted. (This action is being deleted from the Town of Granite Falls Mitigation Action Plan but the activity is ongoing at the county level with the Caldwell County Building Inspections Department as the lead agency.)**

Mitigation Action 5	**Caldwell County and all participating jurisdictions will continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. All parties will continue to pro-actively establish open space within the floodplain and floodway as grant funds become available to carry out this initiative.**

Category:	Local Plans and Regulations; Natural Systems Protection
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Caldwell County Commissioners
Estimated Cost:	Unknown
Potential Funding Sources:	Grant fund resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 6 above.)**

Mitigation Action 6	The Caldwell County Mitigation Advisory Committee (MAC), in conjunction with all municipal jurisdictions participating in this plan update, will work on the five-year implementation of this Hazard Mitigation Plan Update. At the end of the five-year period, the County will again update the plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	To be determined
Potential Funding Sources:	General fund
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**The Town of Granite Falls has participated in the regionalization of the Caldwell County hazard mitigation plan and is now a participating jurisdiction in the Unifour Regional Hazard Mitigation Plan which has taken the place of the previously planned county-level 5-year plan update.**

Mitigation Action 7	Caldwell County, as well as all participating jurisdictions, will continue to support the North Carolina Office of Dam Safety's efforts to monitor and inspect all dams throughout the county, as well as the State of North Carolina. The County relies on this agency to ensure that all dam facilities, both public and private, are properly maintained and stable.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	To be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 7 above.)**

Mitigation Action 8	Caldwell County Emergency Management will continue to coordinate with the County Public Works Department, as well as all participating jurisdictions, regarding the monitoring of water resources statewide. When necessary the County will institute measures to conserve water resources according to the County's Drought Management Plan.
Category:	Natural Systems Protection; Education and Awareness Programs
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Caldwell County Water Department
Estimated Cost:	To be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. The Town of Granite Falls remains active in the Drought Management Advisory Group (DMAG). Water conservation measures are implemented when deemed necessary by the DMAG. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 8 above.)**

Mitigation Action 9	Caldwell County, as well as all participating jurisdictions, will maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Other
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	N/A
Potential Funding Sources:	N/A
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 12 above.)**

Mitigation Action 10	Caldwell County will assist all communities within the county, including property owners in unincorporated areas, in applying for FEMA-sponsored mitigation grant assistance for the acquisition and/or elevation of substantially damaged structures following a natural disaster.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department
Estimated Cost:	Staff time to be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Medium
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 9 above.)**

Mitigation Action 11	Caldwell County Emergency Services will continue to work on the establishment of a comprehensive special needs registry. This effort will involve the cooperation of all participating jurisdictions.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Emergency Services
Estimated Cost:	Staff time to be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Medium
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 10 above.)**

Mitigation Action 12	The City of Lenoir will continue to serve an administrative role in the implementation and enforcement of the County's comprehensive stormwater management program. The stormwater regulations outlined within this program shall apply to Granite Falls, Gamewell, Cajah's Mountain, Lenoir, Hudson, and Sawmills.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	City of Lenoir Planning Department
Estimated Cost:	Staff time to be determined
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 11 above.)**

Mitigation Action 13	The Town of Granite Falls will aim to draft a comprehensive Parks and Recreation Plan over the next five years. This plan will incorporate recommendations regarding the purchase and development of flood-prone land for recreational purposes.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Town of Granite Falls Town Council
Estimated Cost:	Staff time and consultant fees to be determined
Potential Funding Sources:	Existing department and staff resources; grant funding
Implementation Schedule:	2-5 years
Priority (High, Moderate, Low):	Medium
2014 Status:	**Ongoing. Funding for this action has not been acquired and other capital projects of more immediate concern have taken priority. Ongoing elements of this action are reflected in the 2014 Mitigation Action 13 above.**

Mitigation Action Plan—City of Hickory

2014 Mitigation Actions

Mitigation Action 1	Continue the enforcement of the City of Hickory 2007 Flood Damage Prevention Ordinance. This ordinance regulates construction and development activities within Special Flood Hazard Areas (SFHAs).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Hickory Planning and Development Services Department
Estimated Cost:	Budgeted activity
Potential Funding Sources:	City of Hickory General Fund
Implementation Schedule:	2014 through 2019
Priority (High, Moderate, Low):	High

Mitigation Action 2	Monitor and enforce the provisions of the City of Hickory's NPDES Phase 2 Stormwater Control Ordinance and continue to provide community outreach on the importance of stormwater management.
Category:	Local Plans and Regulations; Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Hickory Public Services Department, Engineering Division
Estimated Cost:	Budgeted activity
Potential Funding Sources:	City of Hickory General Fund
Implementation Schedule:	2014 through 2019
Priority (High, Moderate, Low):	High

Mitigation Action 3	Coordinate with willing, voluntary owners of repetitive loss properties to apply for hazard mitigation funding to implement projects that reduce or eliminate the long-term risk of future flood damages. This may be accomplished through property buyouts, elevation, or retrofit projects that remove or alter insured, at-risk repetitive loss structures.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Hickory Planning and Development Services Department
Estimated Cost:	To be determined on a case-by-case basis
Potential Funding Sources:	Federal and State Hazard Mitigation Assistance Grants
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 4	Remove obstructions from public drainage ways or where threats to public infrastructure have been identified. The removal of obstructions will lessen the risk of flooding and damage to roadway and bridges.
Category:	Natural Systems Protection; Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Hickory Public Services Department
Estimated Cost:	Ongoing and budgeted activity
Potential Funding Sources:	City of Hickory General Fund
Implementation Schedule:	2014 through 2019
Priority (High, Moderate, Low):	High

Mitigation Action 5	Purchase eleven (11) four-wheel drive vehicles with off-road capabilities. These vehicles will be utilized to reach citizens who become stranded or cut-off from services due to flooding, winter weather, or similar events.
Category:	Emergency Services
Hazard(s) Addressed:	Flood; Winter Weather
Lead Agency/Department Responsible:	City of Hickory Police and Fire Departments
Estimated Cost:	Budgeted activity
Potential Funding Sources:	City of Hickory General Fund
Implementation Schedule:	2014 through 2019
Priority (High, Moderate, Low):	High

Mitigation Action 6	Realignment of Fire Department command structure to add an additional Incident Commander per shift. This position will allow for better management of simultaneous multiple incidents and provide scene safety for public safety personnel.
Category:	Emergency Services
Hazard(s) Addressed:	All hazards
Lead Agency/Department Responsible:	City of Hickory Fire Department
Estimated Cost:	Budgeted activity
Potential Funding Sources:	City of Hickory General Fund
Implementation Schedule:	2014 through 2019
Priority (High, Moderate, Low):	High

Mitigation Action 7	Continue to provide educational outreach to civic groups, neighborhood groups, school children, and similar persons on the importance of fire safety and prevention.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	City of Hickory Fire Department, Fire Prevention Division
Estimated Cost:	Budgeted activity
Potential Funding Sources:	City of Hickory General Fund
Implementation Schedule:	2014 through 2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 8	In coordination with the Catawba County Emergency Services Department, conduct outreach to the public regarding the County's Community Alert System to educate them about how to obtain information both pre- and post-event and about mitigation strategies.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	City of Hickory; Catawba County Emergency Services Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	**Maintain continued compliance with the National Flood Insurance Program (NFIP) through implementation of the following specific actions:** **a) Evaluate permit application forms to determine possible modifications focused on flood hazard prevention.** **b) Develop a checklist for review of building/development permit plans and for inspection of development in floodplains.** **c) Sponsor a periodic NFIP workshop for local surveyors and builders.** **d) Encourage or require certain local staff positions to obtain and maintain Certified Floodplain Manager (CFM) certification.** **e) Develop handouts for permit applications on specific issues such as installation of manufactured homes in flood hazard areas according to HUD installation standards, or guidance on improving/repairing existing buildings to better withstand potential hazards.**
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Hickory Planning and Development Services Department
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	City of Hickory General Fund
Implementation Schedule:	Immediate and ongoing through 2015
Priority (High, Moderate, Low):	High
2014 Status:	**Complete and ongoing (ongoing elements of this action are reflected in the 2014 Mitigation Action 1 above).**

Mitigation Action 2	Contact owners of repetitive loss property #0102594 to inform them of the technical assistance and hazard mitigation grant funding assistance made available to owners of repetitively flooded properties through the North Carolina Division of Emergency Management (NCEM) and Federal Emergency Management Agency (FEMA). This includes information on the pre-disaster grant funding program provided by FEMA through its Hazard Mitigation Assistance (HMA) programs, and particularly the Repetitive Flood Claims (RFC) program that can provide up to 100% in federal funds for eligible hazard mitigation activities.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Hickory Planning and Development Services Department
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	City of Hickory General Fund
Implementation Schedule:	Complete by June 2010 (in advance of next FEMA HMA funding cycle)
Priority (High, Moderate, Low):	High
2014 Status:	**Contact was not established with a willing participant. This specific action item will be broadened to include any repetitive loss structures identified with the city, as reflected in the 2014 Mitigation Action 3 above.**

Mitigation Action 3	Continue to enforce the requirements of the City of Hickory's 2007 Flood Damage Prevention Ordinance. This ordinance regulates construction standards for development activities within Special Flood Hazard Areas (SFHAs).
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Hickory Planning and Engineering Departments
Estimated Cost:	Ongoing and budgeted activity
Potential Funding Sources:	City of Hickory General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Complete and ongoing. City staff continues to enforce the City's Flood Damage Prevention Ordinance. Additionally, the City recently completed a Community Assistance Visit (CAV) with the North Carolina Division of Emergency Management which indicated the City maintains a good standing in the National Flood Insurance Program (NFIP) program. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 1 above.)**

Mitigation Action 4	Monitor and enforce the provisions of the City of Hickory's NPDES Phase 2 Stormwater Control Ordinance and continue to provide community outreach to the general public as to the ordinance's requirements and the importance of adequate stormwater control.
Category:	Prevention; Public Education and Awareness
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Hickory Engineering Department
Estimated Cost:	Ongoing and budgeted activity
Potential Funding Sources:	City of Hickory General Fund and Stormwater Utility Fee
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Complete and ongoing. The City's stormwater engineering division continues to enforce and provide community outreach and education regarding its NPDES Phase 2 Program. Staff also continues to seek additional training to keep up-to-date on the latest legislation and engineering practices. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 2 above.)**

Mitigation Action 5	Remove obstructions from drainage ways where located on public property or where a threat to a public improvement such as a road or drainage structure is identified.
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Hickory Public Services Department
Estimated Cost:	On-going and budgeted activity
Potential Funding Sources:	City of Hickory General Fund
Implementation Schedule:	On-Going
Priority (High, Moderate, Low):	High
2014 Status:	**Complete and ongoing. The City's Public Services Department works continually to maintain public infrastructure and to clear obstructions from drainage ways. Recent storms in 2013 demonstrated the need to continues this maintenance. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 4 above.)**

Mitigation Action 6	Designate emergency thoroughfares and update to necessary standards. Work with North Carolina Department of Transportation (NCDOT) representatives to identify emergency thoroughfares and identify necessary improvements to enhance safety and improve functionality during emergency events.
Category:	Emergency Services
Hazard(s) Addressed:	Flood; Hurricanes and Tropical Storms; Severe Thunderstorms and Tornadoes; Wildfire; Drought; Winter Storms; Erosion; Dam/Levee Failure; Earthquakes; Sinkholes; Landslides
Lead Agency/Department Responsible:	City of Hickory Fire Department and NCDOT
Estimated Cost:	Not Determined
Potential Funding Sources:	City of Hickory General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Complete and ongoing. The City continues to work with NCDOT to identify and improve emergency routes. This helps to ensure emergency services and evacuations can be provided in the event of a hazard event. (Even though this coordination is ongoing, this action was not selected as one of the 2014 mitigation actions adopted above.)**

Mitigation Action 7	Continue to routinely prune trees and clear tree limbs hanging over rights of way to enhance safety and improve function during an emergency. In addition, continue policy requiring underground utility lines in new development and redevelopment projects.
Category:	Prevention
Hazard(s) Addressed:	Hurricanes and Tropical Storms; Severe Thunderstorms and Tornadoes; Winter Storms
Lead Agency/Department Responsible:	Hickory Planning and Public Services Departments
Estimated Cost:	Ongoing and budgeted activity
Potential Funding Sources:	City of Hickory General Fund and Private Developers
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Complete and ongoing. The maintenance of the tree canopy along rights-of-way helps to ensure transportation routes are not blocked and that power and telephone service is minimally impacted in the event of severe weather. (Even though this coordination is ongoing, this action was not selected as one of the 2014 mitigation actions adopted above.)**

Mitigation Action 8	Implement City of Hickory Police Department Radio Frequency Interoperability hardware, to prevent communication breakdowns due to compatibility issues between radio frequencies and telephone systems.
Category:	Emergency Services
Hazard(s) Addressed:	Flood; Hurricanes and Tropical Storms; Severe Thunderstorms and Tornadoes; Wildfire; Drought; Winter Storms; Erosion; Dam/Levee Failure; Earthquakes; Sinkholes; Landslides
Lead Agency/Department Responsible:	City of Hickory Police Department
Estimated Cost:	$20,000
Potential Funding Sources:	City of Hickory General Fund
Implementation Schedule:	In place by late 2009/early 2010
Priority (High, Moderate, Low):	High
2014 Status:	**Complete. The implementation of the interoperability hardware has been completed as described above. The City continues to update the system as needed, and provides training to other local government and emergency service groups as needed.**

Mitigation Action 9	Implementation of Skytower by Hickory Police Department. Skytower is an elevated platform capable of supporting police personnel and/or surveillance equipment.
Category:	Public Safety
Hazard(s) Addressed:	Flood; Hurricanes and Tropical Storms; Severe Thunderstorms and Tornadoes; Wildfire; Drought; Winter Storms; Erosion; Dam/Levee Failure; Earthquakes; Sinkholes; Landslides
Lead Agency/Department Responsible:	City of Hickory Police Department
Estimated Cost:	$119,000
Potential Funding Sources:	JAG grant
Implementation Schedule:	In place by 2010
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Complete. The Skytower is an important part of the Police Department's ability to provide first hand management of severe events. The apparatus is used to monitor crowds during large events, and also provides a means to observe areas impacted by severe weather.**

Mitigation Action 10	Implement second ladder company within the City of Hickory Fire Department. A second ladder company will provide the City with the ability to reduce the existing 43 square mile coverage area for the single ladder company into two 21.5 square mile coverage areas for the two companies.
Category:	Emergency Services
Hazard(s) Addressed:	Flood; Hurricanes and Tropical Storms; Severe Thunderstorms and Tornadoes; Wildfire; Drought; Winter Storms; Erosion; Dam/Levee Failure; Earthquakes; Sinkholes; Landslides
Lead Agency/Department Responsible:	City of Hickory Fire Department
Estimated Cost:	$475,000
Potential Funding Sources:	Five- year federal grant followed by funding by City of Hickory General Fund
Implementation Schedule:	In place by late 2009/early 2010
Priority (High, Moderate, Low):	High
2014 Status:	**Complete. The City's second ladder company has been successfully deployed and continues to provide fire protection services to the City and beyond.**

Mitigation Action 11	Takeover of duties of existing Hickory Rescue Light Rescue. The City of Hickory Fire Department will assume the responsibilities and response areas of the existing Hickory Rescue Light Rescue operated by Catawba County.
Category:	Emergency Services
Hazard(s) Addressed:	Flood; Hurricanes and Tropical Storms; Severe Thunderstorms and Tornadoes; Wildfire; Drought; Winter Storms; Erosion; Dam/Levee Failure; Earthquakes; Sinkholes; Landslides
Lead Agency/Department Responsible:	City of Hickory Fire Department
Estimated Cost:	Not Determined
Potential Funding Sources:	City of Hickory General Fund
Implementation Schedule:	In place by 2010
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Complete. The City has assumed these duties and continues to provide first responder and rescue services to the potentially affected populations.**

Mitigation Action Plan—Town of Hildebran

2014 Mitigation Actions

Mitigation Action 1	Install quick-connect emergency generator hook-ups for remaining critical facilities.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Hildebran Town Council
Estimated Cost:	$75,000
Potential Funding Sources:	Local funds; grants
Implementation Schedule:	0-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 2	Participate in public outreach on hazard mitigation both locally and regionally.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Hildebran Planning Department
Estimated Cost:	<$5000
Potential Funding Sources:	Local funds; grants
Implementation Schedule:	0-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	Inventory all critical facilities' capabilities and needs.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Hildebran Planning Department
Estimated Cost:	<$5,000
Potential Funding Sources:	Local funds
Implementation Schedule:	0-2 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 4	Maintain updated database of all infrastructure.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Hildebran Planning Department; Town of Hildebran Engineering Department
Estimated Cost:	<$5,000
Potential Funding Sources:	Local funds; grants
Implementation Schedule:	0-2 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 5	Manage future development in flood-prone areas.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Hildebran Planning Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Low

Mitigation Action 6	In cooperation with Burke County, assist in establishing a program for evaluating and improving critical services (roads, bridges, water, sewer, electricity, etc.) and critical facilities (fire, rescue, medical, etc.) to reduce risk to natural hazards.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Hildebran Planning Department; Town of Hildebran Engineering Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state; federal
Implementation Schedule:	Ongoing review
Priority (High, Moderate, Low):	Moderate

Mitigation Action 7	In cooperation with Burke County, assist (as needed) in preparing a countywide stormwater management plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Hildebran Planning Department; Town of Hildebran Engineering Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state
Implementation Schedule:	Revise in 2015
Priority (High, Moderate, Low):	Moderate

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	Adoption of Flood Damage Prevention Ordinance.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Hildebran Planning Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Unspecified
Implementation Schedule:	Within 5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. The ordinance was adopted in 2007.**

Mitigation Action 2	Management of future development in flood-prone areas.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Hildebran Planning Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	Long-term
Priority (High, Moderate, Low):	Low
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 5 above.) The Town will continue to work with property owners and developers to look at the BMP for development in flood-prone areas outside of the designated floodplain. At this time no development has occurred in flood-prone or floodplain areas.**

Mitigation Action 3	Phase II Stormwater Implementation.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Severe Storms
Lead Agency/Department Responsible:	Town of Hildebran Planning Department; Town of Hildebran Engineering Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Local funds; grants
Implementation Schedule:	Not immediate
Priority (High, Moderate, Low):	Low
2014 Status:	**Deleted. The Town received an exemption based on population.**

Mitigation Action Plan—Town of Hudson

2014 Mitigation Actions

Mitigation Action 1	Maintain street rights of way and ditches to prevent damage to streets and property.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Thunderstorm; Hurricane and Tropical Storm; Winter Weather
Lead Agency/Department Responsible:	Town of Hudson Public Works Department
Estimated Cost:	$100,000
Potential Funding Sources:	Power Bill
Implementation Schedule:	Yearly
Priority (High, Moderate, Low):	High

Mitigation Action 2	Update current land use plans to address floodplain development.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Severe Storms; Hurricane and Tropical Storm
Lead Agency/Department Responsible:	Town of Hudson Planning Department
Estimated Cost:	<$5,000
Potential Funding Sources:	General Fund
Implementation Schedule:	0-2 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	Work with Caldwell County Emergency Services to address potential wildfire issues.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Wildfire; Drought
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; Town of Hudson Planning Department
Estimated Cost:	<$5,000
Potential Funding Sources:	Grants; General Fund
Implementation Schedule:	0-2 years
Priority (High, Moderate, Low):	Low

Mitigation Action 4	Increase watershed and stormwater awareness.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood; Sinkhole; Erosion; Landslide
Lead Agency/Department Responsible:	Town of Hudson Planning Department
Estimated Cost:	<$1,000
Potential Funding Sources:	Local
Implementation Schedule:	3 years
Priority (High, Moderate, Low):	Low

Mitigation Action 5	Establish procedure for sounding fire department siren for tornado warnings and flash floods.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Tornado; Thunderstorm
Lead Agency/Department Responsible:	Town of Hudson Volunteer Fire Department
Estimated Cost:	<$1,000
Potential Funding Sources:	Town of Hudson Town Council; Town of Hudson Volunteer Fire Department
Implementation Schedule:	1 year
Priority (High, Moderate, Low):	High

Mitigation Action 6	Maintain backup, portable generator for emergency power needs.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Hudson Town Council
Estimated Cost:	>$10,000
Potential Funding Sources:	Local; grants
Implementation Schedule:	5 years
Priority (High, Moderate, Low):	High

Mitigation Action 7	Identify all possible emergency shelter buildings.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All
Lead Agency/Department Responsible:	Town of Hudson Administration Department
Estimated Cost:	<$1,000
Potential Funding Sources:	Local
Implementation Schedule:	<1 year
Priority (High, Moderate, Low):	Low

Mitigation Action 8	Monitor water resources and when necessary institute measures to conserve water through Drought Management Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Caldwell County Water Department; City of Lenoir; Town of Hudson Town Council
Estimated Cost:	$1.5 million
Potential Funding Sources:	Grants and tax-based funding
Implementation Schedule:	2 years
Priority (High, Moderate, Low):	High

Mitigation Action 9	Support the North Carolina Office of Dam Safety; make sure dams are regularly inspected.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Dam Failure; Flood
Lead Agency/Department Responsible:	North Carolina Department of Environment and Natural Resources (NCDENR) Dams Program; Town of Hudson Town Council
Estimated Cost:	Undetermined
Potential Funding Sources:	Undetermined
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 10	Continue to maintain all property acquired with the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. Continue to pro-actively establish open space within the floodplain.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood; Dam Failure; Wildfire
Lead Agency/Department Responsible:	Caldwell County Planning Department; Town of Hudson Town Council
Estimated Cost:	$250,000+
Potential Funding Sources:	Grant funds; hazard mitigation of Lenoir EMS Base
Implementation Schedule:	2015
Priority (High, Moderate, Low):	High

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	City of Lenoir to administer stormwater regulations.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Sinkhole; Erosion; Landslide
Lead Agency/Department Responsible:	City of Lenoir Planning and Building Inspections Department; Caldwell County; all participating jurisdictions in Caldwell County
Estimated Cost:	$50,000
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. The City of Lenoir continues to administer stormwater regulations for the Town of Hudson.**

Mitigation Action 2	Caldwell County will assist all communities within the county, including property owners in unincorporated areas, in applying for FEMA-sponsored mitigation grant assistance for the acquisition and/or elevation of substantially damaged structures following a natural disaster.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department
Estimated Cost:	$1,200
Potential Funding Sources:	Undetermined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. Caldwell County has been and continues to provide assistance when communities are applying for funding to help landowners bring at-risk structures into compliance.**

Mitigation Action 3	Maintain a contract with a qualified post-disaster recovery service provider for essential services and equipment including generators and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Hudson Administration Department; Town of Hudson Police Department
Estimated Cost:	Undetermined
Potential Funding Sources:	Undetermined
Implementation Schedule:	6 months
Priority (High, Moderate, Low):	Medium
2014 Status:	**Deleted. It is not feasible for the Town to complete this action.**

Mitigation Action 4	Monitor water resources and when necessary institute measures to conserve water through Drought Management Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Caldwell County Water Department
Estimated Cost:	$1.5 million
Potential Funding Sources:	Grants and tax-based funding
Implementation Schedule:	Undetermined
Priority (High, Moderate, Low):	High
2014 Status:	**Not completed. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 8 above.)**

Mitigation Action 5	Support the North Carolina Office of Dam Safety; make sure dams are regularly inspected.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Dam Failure; Flood
Lead Agency/Department Responsible:	North Carolina Department of Environment and Natural Resources (NCDENR) Dams Program
Estimated Cost:	Unspecified
Potential Funding Sources:	Unspecified
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. Caldwell County has started a registry to track the location and depth of all ponds and dams within the county.**

Mitigation Action 6	Continue to maintain all property acquired with the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. Continue to pro-actively establish open space within the floodplain.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood; Dam Failure; Wildfire
Lead Agency/Department Responsible:	Caldwell County Planning Department
Estimated Cost:	$250,000+
Potential Funding Sources:	Grant funds; hazard mitigation of Lenoir EMS Base
Implementation Schedule:	2015
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 10 above.) Action will continue when new Flood Damage Prevention Ordinance is adopted in late 2014/early 2015.**

Mitigation Action 7	Caldwell County Planning and Building Inspections Departments will make information regarding hazards and development regulations within the floodplain available through the following: library, link on website to FEMA information addressing flood protection, disaster preparedness, and post-disaster recovery.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood; All Hazards
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department
Estimated Cost:	$1,200
Potential Funding Sources:	General Budget
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Deleted. This activity is administered by Caldwell County.**

Mitigation Action 8	Maintain a map information service about Flood Insurance Rate Maps (FIRMs), advertise annually in the newspaper, and provide information to inquirers about local floodplain management requirements.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood; Dam Failure
Lead Agency/Department Responsible:	Caldwell County Planning Department
Estimated Cost:	$85,000
Potential Funding Sources:	Tax-based funding
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. Maps are kept on file at Hudson Town Hall and are available on the Caldwell County Tax Mapping website.**

Mitigation Action 9	Require flood elevation certificates for development within the Special Flood Hazard Area (SFHA).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department
Estimated Cost:	$50,000
Potential Funding Sources:	General Budget
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. This will be a part of the new Flood Damage Prevention Ordinance to be adopted in late 2014/early 2015.**

Mitigation Action Plan—City of Lenoir

2014 Mitigation Actions

Mitigation Action 1	Continue enforcement of Lenoir's Flood Damage Prevention Ordinance. This ordinance regulates construction and development activities within Special Flood Hazard Areas (SFHAs).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Lenoir Planning Department
Estimated Cost:	Existing staff resources
Potential Funding Sources:	General Fund; User Fees for Floodplain Development Permits
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 2	The City of Lenoir will continue to monitor and enforce the Caldwell County NPDES Phase 2 Stormwater Control program. The stormwater regulations outlined within this program shall apply to Gamewell, Cajah's Mountain, Lenoir, Hudson, Sawmills, and Granite Falls.
Category:	Local Plans and Regulations; Education and Awareness Programs
Hazard(s) Addressed:	Flood; Severe Storm
Lead Agency/Department Responsible:	City of Lenoir Planning Department
Estimated Cost:	Existing staff resources
Potential Funding Sources:	All participating jurisdictions help fund the stormwater program
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 3	Remove obstructions from public drainage ways or where threats to public infrastructure have been identified. The removal of obstructions will lessen the risk of flooding and damage to roadways and bridges.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood; Severe Storm; Wind
Lead Agency/Department Responsible:	City of Lenoir Public Works Department
Estimated Cost:	Existing staff resources
Potential Funding Sources:	General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 4	Continue to provide educational outreach to civic groups, neighborhood groups, school children, and similar persons as to the importance of fire safety and prevention.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Fire
Lead Agency/Department Responsible:	City of Lenoir Fire Department
Estimated Cost:	Existing staff resources
Potential Funding Sources:	General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate

Mitigation Action 5	Explore options for pruning trees, clearing tree limbs hanging over rights of way, and removal of dead trees on public and private property to enhance safety and improve function during an emergency. In addition, develop an informational handout with resources to encourage the private clearing/limbing of unhealthy or dead trees/limbs on private property.
Category:	Natural Systems Protection; Education and Awareness Programs
Hazard(s) Addressed:	Severe Storm; Wind; Fire
Lead Agency/Department Responsible:	City of Lenoir Public Works Department; Nuisance Abatement (Police and Planning Departments)
Estimated Cost:	$15,000
Potential Funding Sources:	Existing staff resources; General Fund; grants (City pruning currently unfunded)
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate

Mitigation Action 6	Identify and map the location of piped/underground streams throughout the City, and monitor these locations for signs of structural failure. Make property owners aware of piped streams on their properties.
Category:	Local Plans and Regulations; Education and Awareness Programs
Hazard(s) Addressed:	Severe Storm; Flood; Sinkhole
Lead Agency/Department Responsible:	City of Lenoir Planning Department
Estimated Cost:	Existing staff resources
Potential Funding Sources:	General Fund, stormwater utility fund, grants
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 7	Explore the feasibility of establishing a Stormwater Utility Fund to further develop all aspects of the Stormwater Management Program, including upgrades to stormwater infrastructure, education, facilities upgrades, etc.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Severe Storm
Lead Agency/Department Responsible:	City of Lenoir Planning Department; City of Lenoir Finance Department
Estimated Cost:	General Fund
Potential Funding Sources:	Existing staff resources
Implementation Schedule:	5 years
Priority (High, Moderate, Low):	High

Mitigation Action 8	Continue to enforce the City's Minimum Housing Ordinance to rehabilitate or remove unsafe structures. In addition, create a database of abandoned and at-risk structures in the city to aide enforcement.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Severe Storm; Wind; Fire
Lead Agency/Department Responsible:	City of Lenoir Planning Department
Estimated Cost:	Existing staff resources
Potential Funding Sources:	General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 9	Continue to explore the feasibility of erecting a back-up power generator to serve City Hall in the event of power failure. This ensures communication lines remain open during natural and manmade disasters that result in power failure, as all City communications are routed through City Hall.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All
Lead Agency/Department Responsible:	City of Lenoir Public Works Department; City of Lenoir Administration Department
Estimated Cost:	40,000
Potential Funding Sources:	General Fund; grants
Implementation Schedule:	5 years
Priority (High, Moderate, Low):	High

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	Continue enforcement of Lenoir's Flood Damage Prevention Ordinance. This ordinance regulates construction and development activities within Special Flood Hazard Areas (SFHAs).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Lenoir Planning Department
Estimated Cost:	Existing staff resources
Potential Funding Sources:	General Fund; User Fees for Floodplain Development Permits
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 1 above.)**

Mitigation Action 2	The City of Lenoir will continue to monitor and enforce the Caldwell County NPDES Phase 2 Stormwater Control program. The stormwater regulations outlined within this program shall apply to Gamewell, Cajah's Mountain, Lenoir, Hudson, Sawmills, and Granite Falls.
Category:	Local Plans and Regulations; Education and Awareness Programs
Hazard(s) Addressed:	Flood; Severe Storm
Lead Agency/Department Responsible:	City of Lenoir Planning Department
Estimated Cost:	Existing staff resources
Potential Funding Sources:	All participating jurisdictions help fund the stormwater program
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 2 above.)**

Mitigation Action 3	Remove obstructions from public drainage ways or where threats to public infrastructure have been identified. The removal of obstructions will lessen the risk of flooding and damage to roadways and bridges.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood; Severe Storm; Wind
Lead Agency/Department Responsible:	City of Lenoir Public Works Department
Estimated Cost:	Existing staff resources
Potential Funding Sources:	General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 3 above.)**

Mitigation Action 4	Continue to provide educational outreach to civic groups, neighborhood groups, school children, and similar persons as to the importance of fire safety and prevention.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Fire
Lead Agency/Department Responsible:	City of Lenoir Fire Department
Estimated Cost:	Existing staff resources
Potential Funding Sources:	General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 4 above.)**

Mitigation Action 5	Explore options for pruning trees, clearing tree limbs hanging over rights of way, and removal of dead trees on public and private property to enhance safety and improve function during an emergency. In addition, develop an informational handout with resources to encourage the private clearing/limbing of unhealthy or dead trees/limbs on private property.
Category:	Natural Systems Protection; Education and Awareness Programs
Hazard(s) Addressed:	Severe Storm; Wind; Fire
Lead Agency/Department Responsible:	City of Lenoir Public Works Department; Nuisance Abatement (Police and Planning Departments)
Estimated Cost:	$15,000
Potential Funding Sources:	Existing staff resources; General Fund; grants (City pruning currently unfunded)
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 5 above.)**

Mitigation Action 6	Identify and map the location of piped/underground streams throughout the City, and monitor these locations for signs of structural failure. Make property owners aware of piped streams on their properties.
Category:	Local Plans and Regulations; Education and Awareness Programs
Hazard(s) Addressed:	Severe Storm; Flood; Sinkhole
Lead Agency/Department Responsible:	City of Lenoir Planning Department
Estimated Cost:	Existing staff resources
Potential Funding Sources:	General Fund, stormwater utility fund, grants
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 6 above.)**

Mitigation Action 7	Explore the feasibility of establishing a Stormwater Utility Fund to further develop all aspects of the Stormwater Management Program, including upgrades to stormwater infrastructure, education, facilities upgrades, etc.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Severe Storm
Lead Agency/Department Responsible:	City of Lenoir Planning Department; City of Lenoir Finance Department
Estimated Cost:	General Fund
Potential Funding Sources:	Existing staff resources
Implementation Schedule:	5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 7 above.)**

Mitigation Action 8	Continue to enforce the City's Minimum Housing Ordinance to rehabilitate or remove unsafe structures. In addition, create a database of abandoned and at-risk structures in the city to aide enforcement.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Severe Storm; Wind; Fire
Lead Agency/Department Responsible:	City of Lenoir Planning Department
Estimated Cost:	Existing staff resources
Potential Funding Sources:	General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 8 above.)**

Mitigation Action 9	Continue to explore the feasibility of erecting a back-up power generator to serve City Hall in the event of power failure. This ensures communication lines remain open during natural and manmade disasters that result in power failure, as all City communications are routed through City Hall.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All
Lead Agency/Department Responsible:	City of Lenoir Public Works Department; City of Lenoir Administration Department
Estimated Cost:	40,000
Potential Funding Sources:	General Fund; grants
Implementation Schedule:	5 years
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 9 above.)**

Mitigation Action Plan—Town of Long View

2014 Mitigation Actions

Mitigation Action 1	Increase dimensions of drainage culverts in troublesome areas.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Long View Public Works Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Mitigation Action 2	Draft a new stormwater drain map.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Long View Planning Department; Town of Long View Public Works Department
Estimated Cost:	To be determined
Potential Funding Sources:	Local
Implementation Schedule:	1-3 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	Encourage residents to keep storm drains clear of debris before and after storms (to assist, not rely solely on Public Works).
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Long View Public Works Department; Town of Long View Planning Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	Immediate (less than 1 year)
Priority (High, Moderate, Low):	Moderate

Mitigation Action 4	Coordinate with local power companies to develop publicly acceptable tree trimming policies. Include public education for property owners on the benefits of proper tree trimming around power lines and clearing of debris around homes.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Winter Weather; Thunderstorm
Lead Agency/Department Responsible:	Town of Long View Planning Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	2-3 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 5	Develop Vulnerability Assessment Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Town of Long View Planning Department; Town of Long View Public Works Department; Town of Long View Fire Department
Estimated Cost:	To be determined
Potential Funding Sources:	Local
Implementation Schedule:	3-4 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 6	Require tree preservation and/or plantings for residential and non-residential development to reduce the impacts of stormwater runoff.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood; Landslide
Lead Agency/Department Responsible:	Town of Long View Planning Department
Estimated Cost:	Staff time only
Potential Funding Sources:	Local
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Mitigation Action 7	Establish a "Hazard Awareness Month" to promote hazard awareness throughout the Town.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Multiple Hazards
Lead Agency/Department Responsible:	Town of Long View Administration Department
Estimated Cost:	Cost of brochure
Potential Funding Sources:	To be determined
Implementation Schedule:	1 year
Priority (High, Moderate, Low):	Moderate

Mitigation Action 8	In coordination with the Catawba County Emergency Services Department, conduct outreach to the public regarding the County's Community Alert System to educate them about how to obtain information both pre- and post-event and about mitigation strategies.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Long View; Catawba County Emergency Services Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	**Maintain continued compliance with the National Flood Insurance Program (NFIP) through implementation of the following specific actions:** **a) Evaluate permit application forms to determine possible modifications focused on flood hazard prevention.** **b) Encourage or require certain local staff positions to obtain and maintain Certified Floodplain Manager (CFM) certification.** **c) Hold informative work sessions for newly elected officials and new appointees to planning commissions and appeals/variance boards to provide an overview of floodplain management, the importance of participating in the NFIP, and the implications of failing to properly handle variance requests.** **d) Conduct a review of other regulatory programs and planning tools, such as the comprehensive plan and zoning ordinance, and report on opportunities to improve consistency with the objectives of floodplain management.** **e) Maintain supplies of FEMA/NFIP materials to help property owners evaluate measures to reduce potential hazard damage. Make available in public buildings, the local library, website, etc. and inform people who they can call to learn more information.**
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Long View Planning Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	Immediate and ongoing through 2015
Priority (High, Moderate, Low):	High
2014 Status:	**Complete/ongoing.** **a) Permit forms such as zoning and permits for signs require the applicant to state whether or not the project is in a floodplain zone. If it is, a floodplain development permit is required. Density and built-upon criteria as part of Long View's Watershed IV Protected Area also address this issue.** **b) The Long View Town Planner is taking classes but has not obtained CFM certification yet.** **c) Informative work sessions are held for newly elected officials and new appointees to the Planning Board (also serving as the Board of Adjustment) on an as-needed basis to provide an overview of floodplain management.** **d) The Planning Board conducted a review of Long View's Zoning Ordinance and Land Development Plan and found them both to be consistent with the objectives of floodplain development as described in Long View's Floodplain Development Ordinance.** **e) Copies of the latest Flood Insurance Rate Maps for Long View are available at Town Hall. Flyers titled "Flood Preparation and Safety" are also available at Town Hall and have been distributed throughout the community.**

Mitigation Action 2	Routinely inspect and clear debris from drainage system.
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Long View Public Works Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	Immediate/ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Complete/ongoing. The Town of Long View Public Works Department routinely inspects and clears debris from drainage system both prior to and shortly after wet weather events. (Ongoing elements of this action are partially reflected in the 2014 Mitigation Actions 1-3 above.)**

Mitigation Action 3	Routinely prune trees and clear tree limbs hanging in the right of way.
Category:	Prevention
Hazard(s) Addressed:	Thunderstorm; Winter Weather
Lead Agency/Department Responsible:	Town of Long View Public Works Department
Estimated Cost:	Minimal/budgeted activity
Potential Funding Sources:	Local
Implementation Schedule:	Immediate/ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Complete/ongoing. The Public Works Department in conjunction with Duke Energy Corporation works to remove tree limbs and other obstructions from rights of way to ensure utility lines are not damaged during storms or similar events. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 4 above.)**

Mitigation Action 4	Require the burial of electrical, telephone, and cable lines for new development.
Category:	Prevention
Hazard(s) Addressed:	Thunderstorm; Winter Weather
Lead Agency/Department Responsible:	Town of Long View Planning Department
Estimated Cost:	Minimal cost to the developer; no cost to the Town.
Potential Funding Sources:	Private sector
Implementation Schedule:	Short range
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. Zoning Ordinance and Subdivision Ordinance require for all new utilities to be buried.**

Mitigation Action 5	Routinely inspect and maintain fire hydrants.
Category:	Emergency Services
Hazard(s) Addressed:	Fire
Lead Agency/Department Responsible:	Town of Long View Fire Department
Estimated Cost:	Minimal/budgeted activity
Potential Funding Sources:	Local
Implementation Schedule:	Immediate/ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Complete/ongoing. Hydrants are inspected twice a year. Maintenance is performed bi-annually and the hydrants are flowed once per year. This action was not selected to be carried over to the list of 2014 mitigation actions.**

Mitigation Action 6	Ensure firefighters are properly trained and equipped for brush/forest firefighting techniques.
Category:	Emergency Services
Hazard(s) Addressed:	Fire
Lead Agency/Department Responsible:	Town of Long View Fire Department
Estimated Cost:	Local
Potential Funding Sources:	Yearly budgeted activity
Implementation Schedule:	Immediate/ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Complete/ongoing. The Fire Department obtained wildland gear through a grant in 2010. Training is conducted 2-3 times per year. This action was not selected to be carried over to the list of 2014 mitigation actions.**

Mitigation Action 7	Provide hazard susceptibility checklist for homeowners to conduct their own inspections.
Category:	Public Information and Awareness
Hazard(s) Addressed:	Multiple Hazards
Lead Agency/Department Responsible:	Town of Long View Administration Department; Town of Long View Planning Department
Estimated Cost:	To be determined
Potential Funding Sources:	FEMA; American Red Cross
Implementation Schedule:	Short range
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Deferred. Town staff has had insufficient time to implement this action. Some materials may already be available from FEMA and the American Red Cross. The Town could identify these materials and make them available at Town Hall and on the Town's website.**

Mitigation Action 8	Explore the feasibility of municipal purchase or private donations of floodplain areas for use as greenways.
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Long View Planning Department
Estimated Cost:	Study cost is minimal
Potential Funding Sources:	Local
Implementation Schedule:	Moderate range (2-3 years)
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Deferred. Action is deferred due to a lack of funding. Greenways have been proposed along one floodplain area.**

Mitigation Action Plan—Town of Maiden

2014 Mitigation Actions

Mitigation Action 1	**Maintain continued compliance with the National Flood Insurance Program (NFIP) through implementation of the following specific actions:** **a) Evaluate permit application forms to determine possible modifications focused on flood hazard prevention.** **b) Develop a checklist for review of building/development permit plans and for inspection of development in floodplains (a model is available).** **c) Establish a goal to have each plan reviewer attend a related training periodically (for example, the North Carolina Association of Floodplain Managers Annual Conference or Fall Floodplain Institute).** **d) Maintain a map of areas that flood frequently (e.g., areas where repetitive loss properties are located) and prioritize those areas for inspection immediately after the next flood. If outside FEMA Special Flood Hazard Areas, consider requiring existing NFIP regulatory standards (compliance with existing ordinance) through overlay zoning, etc.** **e) Conduct a review of other regulatory programs and planning tools, such as the comprehensive plan and zoning ordinance, and report on opportunities to improve consistency with the objectives of floodplain management.**
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Maiden Planning Department
Estimated Cost:	staff time only
Potential Funding Sources:	Local
Implementation Schedule:	Immediate and ongoing through 2015
Priority (High, Moderate, Low):	High

Mitigation Action 2	**Continue to address the long-term maintenance and removal of the Maiden Water Supply dam structure with relevant state agencies.**
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Dam Failure; Flood
Lead Agency/Department Responsible:	Town of Maiden Public Works Department
Estimated Cost:	Undetermined
Potential Funding Sources:	Local; state; federal
Implementation Schedule:	2019
Priority (High, Moderate, Low):	High

Mitigation Action 3	Continue with the installation of more effective risers to sewer manholes to reduce infiltration and inflow during heavy rains.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Maiden Public Works Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	Short range
Priority (High, Moderate, Low):	High

Mitigation Action 4	Routinely prune trees and clear tree limbs hanging near electrical lines.
Category:	Other
Hazard(s) Addressed:	Hurricane and Tropical Storm; Thunderstorm; Hail; Lightning; Tornado; Winter Weather
Lead Agency/Department Responsible:	Town of Maiden Public Works Department, Electrical Division
Estimated Cost:	$25,000 annually
Potential Funding Sources:	Local
Implementation Schedule:	2019
Priority (High, Moderate, Low):	High

Mitigation Action 5	Routinely inspect and clean debris from drainage system.
Category:	Other
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Maiden Public Works Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 6	Explore the feasibility of municipal purchase and/or private donation of floodplain areas for use as greenways.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Maiden Planning Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 7	Continue to routinely inspect and maintain fire hydrants.
Category:	Other
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	Town of Maiden Fire Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	Annually
Priority (High, Moderate, Low):	Moderate

Mitigation Action 8	Continue to ensure firefighters are properly trained and equipped for brush/wildland firefighting techniques.
Category:	Other
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	Town of Maiden Fire Department
Estimated Cost:	$1,000 per firefighter
Potential Funding Sources:	Local
Implementation Schedule:	Short range (1-2 years)
Priority (High, Moderate, Low):	Moderate

Mitigation Action 9	Continue to encourage residents to keep storm drains clear of debris during storms (to assist, not rely solely on Public Works).
Category:	Other
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Maiden Public Works Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	Immediate (less than 1 year)
Priority (High, Moderate, Low):	Moderate

Mitigation Action 10	In coordination with the Catawba County Emergency Services Department, conduct outreach to the public regarding the County's Community Alert System to educate them about how to obtain information both pre- and post-event and about mitigation strategies.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Maiden; Catawba County Emergency Services Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	**Maintain continued compliance with the National Flood Insurance Program (NFIP) through implementation of the following specific actions:** **a) Evaluate permit application forms to determine possible modifications focused on flood hazard prevention.** **b) Develop a checklist for review of building/development permit plans and for inspection of development in floodplains (a model is available).** **c) Establish a goal to have each plan reviewer and building inspector attend a related training periodically (for example, the North Carolina Association of Floodplain Managers Annual Conference or Fall Floodplain Institute).** **d) Maintain a map of areas that flood frequently (e.g., areas where repetitive loss properties are located) and prioritize those areas for inspection immediately after the next flood. If outside FEMA Special Flood Hazard Areas, consider requiring existing NFIP regulatory standards (compliance with existing ordinance) through overlay zoning, etc.** **e) Conduct a review of other regulatory programs and planning tools, such as the comprehensive plan and zoning ordinance, and report on opportunities to improve consistency with the objectives of floodplain management.**
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Maiden Planning Department
Estimated Cost:	N/A (staff time only)
Potential Funding Sources:	N/A
Implementation Schedule:	Immediate and ongoing through 2015
Priority (High, Moderate, Low):	High
2014 Status:	**Established permitting checklist; incorporated flood protection ordinance into the Town of Maiden Unified Development Ordinance (UDO). (Ongoing elements of this action are reflected in the 2014 Mitigation Action 1 above.)**

Mitigation Action 2	Develop a dam failure study for the Maiden Reservoir Dam and continue to address the long-term maintenance or removal of the dam structure with relevant state agencies.
Category:	Prevention
Hazard(s) Addressed:	Dam Failure; Flood
Lead Agency/Department Responsible:	Town of Maiden Public Works Department
Estimated Cost:	To be determined
Potential Funding Sources:	Local; state; federal
Implementation Schedule:	Short range
Priority (High, Moderate, Low):	High
2014 Status:	**Received a North Carolina Department of Environmental and Natural Resources (NC DENR) grant to improve the dam. A multiple phase plan has been developed to resolve this issue by FY 2019-2020. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 2.)**

Mitigation Action 3	Continue with the installation of more effective risers to sewer manholes to reduce infiltration and inflow during heavy rains.
Category:	Structural Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Maiden Public Works Department
Estimated Cost:	Low
Potential Funding Sources:	Local
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing; allocating $10,000 annually towards installation of risers. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 3 above.)**

Mitigation Action 4	Routinely prune trees and clear tree limbs hanging near electrical lines.
Category:	Prevention
Hazard(s) Addressed:	Hurricane and Tropical Storm; Thunderstorm; Tornado; Winter Weather
Lead Agency/Department Responsible:	Town of Maiden Public Works Department, Electrical Division
Estimated Cost:	$25,000 annually
Potential Funding Sources:	Local
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Completed; continuous maintenance required. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 4 above.)**

Mitigation Action 5	Routinely inspect and clean debris from drainage system.
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Maiden Public Works Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	Continuous
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed; ongoing. Public Works staff routinely inspects and cleans debris from the drainage system. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 5 above.)**

Mitigation Action 6	Explore the feasibility of municipal purchase and/or private donation of floodplain areas for use as greenways.
Category:	Prevention; Natural Resource Protection
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Maiden Planning Department
Estimated Cost:	Study cost is minimal
Potential Funding Sources:	Local
Implementation Schedule:	Annually
Priority (High, Moderate, Low):	Moderate
2014 Status:	**None purchased. Purchasing opportunities and donation of land is being sought. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 6 above.)**

Mitigation Action 7	Continue to routinely inspect and maintain fire hydrants.
Category:	Emergency Services
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	Town of Maiden Fire Department; Town of Maiden Public Works Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	Annually
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed; ongoing. The Fire Department inspects and tests hydrants at least once a year. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 7 above.)**

Mitigation Action 8	Continue to ensure firefighters are properly trained and equipped for brush/wildland firefighting techniques.
Category:	Emergency Services
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	Town of Maiden Fire Department
Estimated Cost:	$1,000 per firefighter
Potential Funding Sources:	Local
Implementation Schedule:	Short range (1-2 years)
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Purchased equipment, plan to attend Forest Service training. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 8 above.)**

Mitigation Action 9	Continue to encourage residents to keep storm drains clear of debris during storms (to assist, not rely solely on Public Works).
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Maiden Public Works Department
Estimated Cost:	Minimal
Potential Funding Sources:	Local
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Increasing public awareness through the Town's newsletter.**

Mitigation Action 10	Construct a remote fire station to house at least two trucks and additional firefighting and life/safety equipment necessary for first responders during periods of emergency or disasters.
Category:	Emergency Services
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Wildfire; Drought; Winter Weather; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	Town of Maiden Fire Department; Town of Maiden Administration Department
Estimated Cost:	Moderate
Potential Funding Sources:	Grants; taxes
Implementation Schedule:	2-5 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed. A fire station was built at the intersection of Elbow Road and Startown Road.**

Mitigation Action Plan—City of Morganton

2014 Mitigation Actions

Mitigation Action 1	Review/update Flood Damage Prevention Ordinance to ensure maximum protection from flood hazard events (CRS 430).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Morganton Planning Commission; City Council
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	Immediate-2019
Priority (High, Moderate, Low):	High

Mitigation Action 2	Merge E-911 dispatch programs to include all municipalities within the county to cover the entire county with one system.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	E-911/MIS
Estimated Cost:	$7 million
Potential Funding Sources:	Local; State
Implementation Schedule:	2016
Priority (High, Moderate, Low):	High

Mitigation Action 3	Establish/maintain coordinated Drainage System Inspection Program.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Morganton Public Works Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	Immediate-2019
Priority (High, Moderate, Low):	High

Mitigation Action 4	Install an early warning system to ensure adequate evacuation time in case of a major hazard event.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	City of Morganton Public Safety Department; Burke County Emergency Services
Estimated Cost:	Unspecified
Potential Funding Sources:	Local; State
Implementation Schedule:	2014-2019
Priority (High, Moderate, Low):	High

Mitigation Action 5	Establish and maintain a list of priority properties for acquisition in the event of another natural disaster.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Morganton Development & Design Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	2014-2019
Priority (High, Moderate, Low):	High

Mitigation Action 6	Evaluate flood or access problems for critical facilities; develop recommendations for protecting critical parts (e.g., police and fire command centers); and identify alternate command posts, if necessary.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Morganton Public Safety Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	Immediate-2019
Priority (High, Moderate, Low):	High

Mitigation Action 7	Develop and implement a hazard awareness program to include: a) Elevation certificates. b) Flood Insurance Rate Map (FIRM) data. c) Bulletin on property protection measures and flood insurance. d) Other activities under CRS 310/320/330/340/440.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Morganton Development & Design Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	2014-2019
Priority (High, Moderate, Low):	High

Mitigation Action 8	Develop a tracking system to evaluate progress and revise mitigation activities as necessary.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Morganton Development & Design Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	2014-2019
Priority (High, Moderate, Low):	High

Mitigation Action 9	In cooperation with Burke County, assist in establishing a program for evaluating and improving critical services (roads, bridges, water, sewer, electricity, etc.) and critical facilities (fire, rescue, medical, etc.) to reduce risk to natural hazards.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	City of Morganton Development & Design Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state; federal
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 10	In cooperation with Burke County, assist (as needed) in preparing a countywide stormwater management plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Morganton Development & Design Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state
Implementation Schedule:	Revise in 2015
Priority (High, Moderate, Low):	Moderate

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	Review/update Flood Damage Prevention Ordinance to ensure maximum protection from flood hazard events (CRS 430).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Morganton Planning Commission; City Council
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. The City is currently in the process of amending its Zoning Regulations to require appropriate open space preservation in flood hazard areas. The City is also working with the surrounding jurisdictions to promote consistent land use policies, preserve open space, and maintain consistent utility extension policies in flood-prone areas.**

Mitigation Action 2	Revise/update regulatory floodplain maps (CRS 410).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Federal Emergency Management Agency (FEMA); North Carolina Department of Environment and Natural Resources (NCDENR); North Carolina Division of Emergency Management (NCDEM)
Estimated Cost:	Unspecified
Potential Funding Sources:	Local; State; FEMA
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Completed in 2007. The City continues to work with FEMA and NCEM to appropriately adopt updated flood maps as released.**

Mitigation Action 3	Update Land Development Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Morganton Planning Commission; City Council
Estimated Cost:	$175,000
Potential Funding Sources:	Local
Implementation Schedule:	2018
Priority (High, Moderate, Low):	High
2014 Status:	**Completed new Mission 203 Land Development Plan in 2009. This 20-year plan initiates new policies that encourage preservation of open space along flood hazard areas. The plan will be reviewed and updated in 2019.**

Mitigation Action 4	Merge E-911 dispatch programs to include all municipalities within the county to cover the entire county with one system.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	E-911/MIS
Estimated Cost:	$7 million
Potential Funding Sources:	Local; State
Implementation Schedule:	2014
Priority (High, Moderate, Low):	High
2014 Status:	**City and local jurisdictions are currently in the process of combining 911 dispatch through the construction of a new call center and consolidation of services. Completion and implementation is scheduled for Fall 2014.**

Mitigation Action 5	Establish/maintain coordinated Drainage System Inspection Program.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Morganton Public Works Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**The City Public Works Department appropriates funding in each fiscal year to address deficiencies in City maintained drainage systems. This includes annual cleaning and inspection of critical systems and repair and replacement of failed systems.**

Mitigation Action 6	Utilize an early warning system to ensure adequate evacuation time in case of a major hazard event.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	City of Morganton Public Safety Department; Burke County Emergency Services
Estimated Cost:	Unspecified
Potential Funding Sources:	Local; State
Implementation Schedule:	2014-2019
Priority (High, Moderate, Low):	High
2014 Status:	**Duke Energy maintains the early warning system for dam failures and potential hazards dealing with Lake James. Hyper-Reach is used for a reverse 911 system to notify residences of potential hazardous conditions. A local radio station is used for National Weather Service severe weather.**

Mitigation Action 7	Establish a list of priority properties for acquisition in the event of another natural disaster.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Morganton Development & Design Department, Public Information Office
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	2014-2019
Priority (High, Moderate, Low):	High
2014 Status:	**The City continues to identify and acquire high risk properties as funding is made available to eliminate catastrophic loss of life and damage to property. The majority of these properties are incorporated into parks and greenways within flood-prone areas.**

Mitigation Action 8	Evaluate flood or access problems for critical facilities; develop recommendations for protecting critical parts (e.g., police and fire command centers); and identify alternate command posts, if necessary.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Morganton Public Safety Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**The City is currently undertaking major upgrades to the City's wastewater sewer systems including plant renovations and line upgrades. These actions will help prevent infiltration of sewage during flooding events through upgrades. The City has also recently installed a new water plant generator in a location above flood hazard areas. This generator will serve as a power source backup during catastrophic events to maintain system drinking water.**

Mitigation Action 9	Develop and implement a hazard awareness program to include: a) Elevation certificates. b) Flood Insurance Rate Map (FIRM) data. c) Bulletin on property protection measures and flood insurance. d) Other activities under CRS 310/320/330/340/440.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Morganton Development & Design Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	2014-2019
Priority (High, Moderate, Low):	High
2014 Status:	**The City offers access to online Flood Elevation Certificates, FIRMs, and other flood mapping protection services through NCEM. City staff consults with property owners and developers as to how to access this information and obtain guidance on a routine basis.**

Mitigation Action 10	Develop a tracking system to evaluate progress and revise mitigation activities as necessary.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Morganton Public Information Office
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	2014-2019
Priority (High, Moderate, Low):	High
2014 Status:	**Each year the City evaluates and improves upon the information it provides to the general public regarding mitigation activities. Weekly department head assessment meetings and interdepartmental review of the information provided generates routine updates through the City's website, CoMPAS Cable Programing, public awareness notices, press releases, and other educational brochures.**

Mitigation Action Plan—City of Newton

2014 Mitigation Actions

Mitigation Action 1	Maintain continued compliance with the National Flood Insurance Program (NFIP) through implementation of the following specific actions: a) Maintain FEMA digital elevation certificates for all construction in the floodplain. b) Establish a goal to have each plan reviewer and building inspector attend a related training periodically (for example, the North Carolina Association of Floodplain Managers Annual Conference or Fall Floodplain Institute).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Newton Planning and Zoning Department
Estimated Cost:	N/A (staff and travel)
Potential Funding Sources:	N/A
Implementation Schedule:	Immediate and through 2019
Priority (High, Moderate, Low):	High

Mitigation Action 2	Routinely inspect and clear debris from drainage system.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Newton Public Works Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High

Mitigation Action 3	Routinely prune trees and clear tree limbs hanging in right of way.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Winter Weather
Lead Agency/Department Responsible:	City of Newton Public Works Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High

Mitigation Action 4	Maintain a comprehensive infrastructure mapping system to document locations and attributes of infrastructure systems.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	City of Newton Public Works Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High

Mitigation Action 5	Evaluate existing utility network and create a list of infrastructure protection projects based on highest potential hazard impacts.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	City of Newton Public Works Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High

Mitigation Action 6	Train fire personnel in wildfire, brush, and forest fire firefighting techniques and practices.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	City of Newton Fire Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Moderate

Mitigation Action 7	Increase dimensions of drainage culverts in troublesome areas.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Newton Public Works Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Moderate

Mitigation Action 8	Work with local media to establish a public wildfire awareness program.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	City of Newton Fire Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Moderate

Mitigation Action 9	Maintain a seasonal hazard awareness campaign.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	City of Newton Public Information Officer
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Low

Mitigation Action 10	In coordination with the Catawba County Emergency Services Department, conduct outreach to the public regarding the County's Community Alert System to educate them about how to obtain information both pre- and post-event and about mitigation strategies.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Newton; Catawba County Emergency Services Department
Estimated Cost:	Staff time
Potential Funding Sources:	General Fund
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	**Maintain continued compliance with the National Flood Insurance Program (NFIP) through implementation of the following specific actions:** **a) Maintain FEMA digital elevation certificates for all construction in the floodplain.** **b) Evaluate permit application forms to determine possible modifications focused on flood hazard prevention.** **c) Develop a checklist for review of building/development permit plans and for inspection of development in floodplains.** **d) Establish a goal to have each plan reviewer and building inspector attend a related training periodically (for example, the North Carolina Association of Floodplain Managers Annual Conference or Fall Floodplain Institute).**
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Newton Planning and Zoning Department
Estimated Cost:	N/A (staff and travel)
Potential Funding Sources:	N/A
Implementation Schedule:	Immediate and ongoing through 2015
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. The Planning Department has continued to maintain digital elevation certificates for all construction in the floodplain, included ongoing development. A flood hazard focus during the City's annual zoning permit revisions included flood management in the development checklist, and budgeted for floodplain training for proceeding five years. This resulted in the City's Floodplain Program receiving a clean audit by the State in 2013. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 1 above.)**

Mitigation Action 2	**Routinely inspect and clear debris from drainage system.**
Category:	Prevention
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Newton Public Works Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. The City of Newton Public Works staff cleans and inspects the drainage system as needed, including problem areas before and after heavy rain events. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 2 above.)**

Mitigation Action 3	Routinely prune trees and clear tree limbs hanging in right of way.
Category:	Prevention
Hazard(s) Addressed:	Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Winter Weather
Lead Agency/Department Responsible:	City of Newton Public Works Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. The City of Newton has hired a tree trimming crew to keep trees and limbs clear of electric lines. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 3 above.)**

Mitigation Action 4	Maintain a comprehensive infrastructure mapping system to document locations and attributes of infrastructure systems.
Category:	Prevention
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	City of Newton Public Works Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. The City has collected the majority of all known infrastructure and is working diligently to maintain this information. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 4 above.)**

Mitigation Action 5	Evaluate existing utility network and create a list of infrastructure protection projects based on highest potential hazard impacts.
Category:	Prevention
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	City of Newton Public Works Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. The City has a Capital Improvement Plan that plans capital cost for a five-year period. Hazard mitigation is a category for ranking projects. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 5 above.)**

Mitigation Action 6	Increase dimensions of drainage culverts in troublesome areas.
Category:	Structural Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	City of Newton Public Works Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. The City has undertaken several culvert projects over the last several years, which involved replacing undersized culverts with larger sized pipes. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 7 above.)**

Mitigation Action 7	Train fire personnel in wildfire, brush, and forest fire firefighting techniques and practices.
Category:	Emergency Services
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	City of Newton Fire Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. The Fire Department trains each of its personnel in wildfire, brush, and forest fire techniques on an annual basis. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 6 above.)**

Mitigation Action 8	Work with local media to establish a public wildfire awareness program.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	City of Newton Fire Department
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Ongoing. Over the past 5 years, the Fire Department has worked with the City's PIO and local media to educate the public about wildfire hazards. The City's efforts to educate the public on wildfires includes adopting a proclamation for a Fire Safety Week each year. The City has also included relevant articles in its quarterly newsletter which goes out to all utility customers, as well as including information on the City's website, Facebook page, and Twitter. In addition, the Fire Department has a Fire Educator that speaks to groups of all ages about fire safety topics, which includes wildfire awareness. Specific groups visited by the Fire Educator include schools, childcare centers, and civic groups. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 8 above.)**

Mitigation Action 9	Maintain a seasonal hazard awareness campaign.
Category:	Public Education and Awareness
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm, Lightning, and Hail; Tornado; Wildfire; Drought; Winter Weather; Erosion; Dam/Levee Failure; Earthquake; Sinkhole; Landslide
Lead Agency/Department Responsible:	City of Newton Public Information Officer
Estimated Cost:	To be determined
Potential Funding Sources:	To be determined
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Low
2014 Status:	**Ongoing. The City's PIO through the local media, newsletters, and social media worked to educate the public on seasonal hazards. The City has included articles about hazard awareness in its quarterly newsletter which is sent out to all utility customers, as well as including information on the City's website, Facebook page, and Twitter. Also, the PIO has prepared and obtained brochures to distribute as needed to educate the public on hazard awareness, focusing on flood; hurricane and tropical storm; thunderstorm, lightning, and hail; tornado; wildfire; drought; winter weather; and erosion. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 9 above.)**

Mitigation Action Plan—Town of Rhodhiss

2014 Mitigation Actions

Mitigation Action 1	The Town of Rhodhiss Fire Department will assist Burke County and Caldwell County in compiling the information necessary to enforce elevation certificates for all new development within the Special Flood Hazard Area (SFHA).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Town of Rhodhiss Fire Department
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Existing staff and administrative resources
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Low

Mitigation Action 2	The Town Manager will continue to assist Town citizens with access to the Flood Insurance Rate Maps (FIRMs) for the community at the Town Manager's office and will respond to questions and facilitate requests for additional information as needed.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Town Manager
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Existing staff and administrative resources
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	The Town of Rhodhiss is actively talking with a property owner about creating a greenway along the Catawba River. The Town has purchased property on the Burke County side of the Town to develop a park. A Parks and Recreation Trust Fund (PARTF) grant was received in order to implement this action.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Town of Rhodhiss; help from surrounding counties
Estimated Cost:	Undetermined
Potential Funding Sources:	Matching grants
Implementation Schedule:	4-5 years for park
Priority (High, Moderate, Low):	Moderate

Mitigation Action 4	**Update and/or replace critical equipment and facilities over the next 10 years, to consist of:** **a) One new fire truck.** **b) Rescue tools and in-service for using rescue tools.** **c) Rehabilitation of the existing fire department or construction of a new facility. Needs at present time are: fluorescent lights replaced, sprinkler system installed, handicap accessibility, complete rewiring, plumbing, heating, sheet rock and paint upstairs, and installation of a phone or alarm for rescue assistance at fire department (push button alarm).**
Category:	Other
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Rhodhiss Fire Department
Estimated Cost:	Undetermined
Potential Funding Sources:	State and federal grants
Implementation Schedule:	Approx. 10 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 5	**The Caldwell County Planning and Development Department and the Caldwell County Building Inspections Department will make information regarding all hazards and development regulations within floodplains available through the following methods:** **a) Ensuring that the local library maintains information relating to all hazards, flooding, flood protection, and mitigation techniques.** **b) Providing a link on the Caldwell County website to FEMA resources addressing all hazards, flooding, flood protection, and mitigation techniques.** **c) All municipal jurisdictions, if a website is in place, will provide a link on their website to FEMA resources addressing flooding and flood protection, sheltering, evacuation procedures, disaster preparedness, and post disaster recovery.** **The Town of Rhodhiss supports this county-level action specifically by posting announcements, newsletters, and other information at the Town Hall, Post Office, various stores in Town, etc. to inform citizens.**
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Primary Responsible Party: Caldwell County Planning and Development Department; Caldwell County Building Inspections Department. Secondary Responsible Party: Administrative staff of all participating jurisdictions in Caldwell County: Town of Rhodhiss; Town of Cajah's Mountain; Town of Gamewell; Village of Cedar Rock; Town of Granite Falls; Town of Sawmills; City of Lenoir; Town of Hudson.
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Immediate-2019
Priority (High, Moderate, Low):	High

Mitigation Action 6	The Town of Rhodhiss will continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. All parties will continue to pro-actively establish open space within the floodplain and floodway as grant funds become available to carry out this initiative. The Town has already implemented acquiring property on the Burke County side of the Town for a park on the Catawba River that will join the Catawba River Trail.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Town Manager
Estimated Cost:	To be determined on a case-by-case basis
Potential Funding Sources:	Federal and state grants
Implementation Schedule:	As opportunities arise
Priority (High, Moderate, Low):	Moderate

Mitigation Action 7	Caldwell County and its municipal jurisdictions, in cooperation with Duke Energy, will continue to support the North Carolina Office of Dam Safety efforts to monitor and inspect all dams throughout the County. The County relies on this agency to ensure that all dam facilities, both public and private, are properly maintained and stable. The Town of Rhodhiss provides Town staff to assist with annual site visits to understand any changes made at the structure within the past year and how that might affect the Town and Town citizens.
Category:	Prevention
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Primary Responsible Party: Caldwell County Emergency Services. Secondary Responsible Party: Town of Rhodhiss.
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Annually-2019
Priority (High, Moderate, Low):	High

Mitigation Action 8	In cooperation with the Caldwell County Planning and Development Department and the Caldwell County Building Inspections Department, make information regarding hazards and development regulations within floodplains available through the following: a) Ensuring that the local library maintains information relating to flooding and flood protection. b) Provide a link on the Town's website to FEMA resources addressing flooding and flood protection, sheltering, evacuation procedures, disaster preparedness, and post-disaster recovery.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood; Winter Weather; Thunderstorm; Dam/Levee Failure; Tornado
Lead Agency/Department Responsible:	Town of Rhodhiss
Estimated Cost:	N/A (covered by Caldwell County)
Potential Funding Sources:	Maintain present activities under the funding available
Implementation Schedule:	2019
Priority (High, Moderate, Low):	High

Mitigation Action 9	In coordination with Caldwell County, the Town of Rhodhiss will continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. All parties will continue to pro-actively establish open space within the floodplain and floodway as grant funds become available to carry out this initiative.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Town of Rhodhiss; Caldwell County Building Inspections Department; Caldwell County Planning and Development Department
Estimated Cost:	$250,000+
Potential Funding Sources:	Grant fund resources; hazard mitigation of Lenoir EMS Base
Implementation Schedule:	2015
Priority (High, Moderate, Low):	Low

Mitigation Action 10	In coordination with Caldwell County, the Town of Rhodhiss will maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Rhodhiss; Caldwell County Emergency Management Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 11	In coordination with the Caldwell County Emergency Management Department, the Town of Rhodhiss will assist with the monitoring of water resources. When necessary, the Town will cooperate with the County in instituting measures to conserve water resources according to the County's Drought Management Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Drought; Wildfire
Lead Agency/Department Responsible:	Town of Rhodhiss; Caldwell County Water Department
Estimated Cost:	$1.5 million (covered by Caldwell County)
Potential Funding Sources:	Grants and tax-based funding
Implementation Schedule:	Annually-2019
Priority (High, Moderate, Low):	Low

Mitigation Action 12	Cooperate with Caldwell County in the implementation and enforcement of the County's comprehensive stormwater management program.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Rhodhiss; City of Lenoir Planning and Building Inspections Department; administrative staff of Caldwell County
Estimated Cost:	$50,000 per year
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Annually-2019
Priority (High, Moderate, Low):	Moderate

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	Require a finished floor elevation certificate for all development within the Special Flood Hazard Area (SFHA) within both incorporated and unincorporated portions of the County. All elevation certificates should be submitted on an official FEMA elevation certificate. No certificate of occupancy shall be issued for any development within a defined SFHA without the submittal of the required elevation certificate.
Category:	Prevention; Property Protection
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Burke County Building Inspections Department; Caldwell County Building Inspections Department
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Existing staff and administrative resources
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**This process is in place. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 1 above.)**

Mitigation Action 2	Maintain a map information service involving the following: a) Provide information relating to Flood Insurance Rate Maps (FIRMs) to all inquirers, including provision of information on whether a given property is located within a flood hazard area. b) Provide information regarding the flood insurance purchase requirement. c) Maintain historical and current FIRMs. d) Advertise once annually in the local newspaper. e) Provide information to inquirers about local floodplain management requirements.
Category:	Local Plans and Regulations; Education and Awareness Programs
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Burke County; Caldwell County; Town of Rhodhiss
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**The Town is actively involved in assisting the North Carolina Floodplain Mapping Program in achieving their goals. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 2 above.)**

Mitigation Action 3	Caldwell County and its municipal jurisdictions will continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. All parties will continue to pro-actively establish open space within the floodplain and floodway as grant funds become available to carry out this initiative.
Category:	Prevention
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Surrounding counties; Town of Rhodhiss
Estimated Cost:	To be determined on a case-by-case basis
Potential Funding Sources:	State and federal grant resources
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Continuing discussions with a property owner to create a greenway along the Catawba River. The Town has purchased property on the Burke County side of Town to develop a park on the Catawba River. The Town received a PARTF grant which will help in making this happen. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 7 above.)**

Mitigation Action 4	**The Caldwell County Building Inspections Department will provide comprehensive services regarding planning and development activities within the defined Special Flood Hazard Area (SFHA) and issues relating to the construction of disaster resistant structures. These services will include:** **a) Providing site-specific flood and flood-related information on an as-needed basis.** **b) Maintaining a list of contractors with experience in floodproofing and retrofit techniques.** **c) Providing information on windproofing construction methods for new and renovated structures.** **d) Maintaining materials providing an overview of how to select a qualified contractor.** **e) Making site visits upon request to review occurrences of flooding, drainage problems, and sewer problems. If applicable, the inspector should provide one-on-one advice to the property owner.** **f) Providing advice and assistance regarding CRS activity 530.** **g) Advertising the availability of this service once annually within the local newspaper.** **h) Maintaining a log of all individuals assisted through this County service including all site visits.**
Category:	Prevention
Hazard(s) Addressed:	Flood; Winter Weather; Wildfire; Thunderstorms, Lightning, and Hail; Dam/Levee Failure; Tornado
Lead Agency/Department Responsible:	Primary Responsible Party: Caldwell County Building Inspections Department. Secondary Responsible Party: Caldwell County Planning and Development Department
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**The Town of Rhodhiss relies on Caldwell County to implement the actions described above. Therefore, this action is not reflected in the Town's 2014 Mitigation Actions above.**

Mitigation Action 5	The Caldwell County Mitigation Advisory Committee (MAC), in conjunction with all municipal jurisdictions participating in the plan update, will work on the five-year implementation of this Hazard Mitigation Plan Update. At the end of the five-year period, the County will again update the plan.
Category:	Planning
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Primary Responsible Party: Caldwell County Emergency Services. Secondary Responsible Party: Caldwell County Mitigation Advisory Committee.
Estimated Cost:	To be determined based on future scope of work for 5-year plan update
Potential Funding Sources:	Funding for annual maintenance and implementation of the hazard mitigation plan will be provided through the Caldwell County annual budget ordinance.
Implementation Schedule:	5-year interval
Priority (High, Moderate, Low):	High
2014 Status:	**The Town of Rhodhiss has participated in the regionalization of the Caldwell County hazard mitigation plan and is now a participating jurisdiction in the Unifour Regional Hazard Mitigation Plan, which has taken the place of the previously planned county-level 5-year plan update.**

Mitigation Action 6	Caldwell County, as well as all participating jurisdictions, including Duke Energy, will continue to support the North Carolina Office of Dam Safety efforts to monitor and inspect all dams throughout the County, as well as the State of North Carolina. The County relies on this agency to ensure that all dam facilities, both public and private, are properly maintained and stable.
Category:	Prevention
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Primary Responsible Party: Caldwell County Emergency Services. Secondary Responsible Party: Town of Rhodhiss.
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in 2014 Mitigation Action 7 above.)**

Mitigation Action 7	Caldwell County Emergency Management will continue to coordinate with the County Public Works Department, as well as all participating jurisdictions, regarding the monitoring of water resources statewide. When necessary, the County will institute measures to conserve water resources according to the County's Drought Management Plan.
Category:	Prevention
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Primary Responsible Party: Burke County Water Department and Caldwell County Water Department Secondary Responsible Party: Town of Rhodhiss
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	When need arises
Priority (High, Moderate, Low):	High
2014 Status:	**Complete: implemented a Water Shortage Response Plan in 2010.**

Mitigation Action 8	Caldwell County, as well as all participating jurisdictions, will maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Emergency Services
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Primary Responsible Party: Caldwell County Emergency Services. Secondary Responsible Party: Town of Rhodhiss
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Complete: a contract has been in place over the past 5-year period.**

Mitigation Action 9	Caldwell County will assist all communities within the County, including property owners in unincorporated areas, in applying for FEMA-sponsored mitigation grant assistance for the acquisition and/or elevation of substantially damaged structures following a natural disaster.
Category:	Property Protection
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Primary Responsible Party: Caldwell County Emergency Services. Secondary Responsible Party: Elected boards of all participating jurisdictions.
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Complete: the assistance was available but there was not an appropriate opportunity to elevate or acquire a flood-prone structure within the past 5-year period and no potential mitigation projects of this nature are currently identified.**

Mitigation Action 10	Caldwell County Emergency Services will continue to work on the establishment of a comprehensive special needs registry. This effort will involve the cooperation of all participating jurisdictions.
Category:	Planning
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Primary Responsible Party: Caldwell County Emergency Services. Secondary Responsible Party: Town of Rhodhiss.
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Complete: the Town has assisted the County with this action over the past 5-year period and will continue to do so in the future; however, this is not considered an action item that needs to be carried over to the Town's list of 2014 Mitigation Actions above.**

Mitigation Action 11	**In order to provide comprehensive and effective emergency response services to all Town residents, the Town of Rhodhiss will take steps to update and/or acquire the following equipment over the course of the next five years:** **a) One new fire truck.** **b) Emergency communication equipment (hand-held radios).** **c) Rescue tools (per the recommendation of Caldwell County Emergency Services).** **d) One set of Jaws of Life (Hurst Tools).** **e) It should also be noted that the Town of Rhodhiss needs to rehabilitate the Town's existing fire department, or build a new facility. This effort will involve the replacement of all equipment.**
Category:	Preparedness
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Primary Responsible Party: Town of Rhodhiss Town Council. Secondary Responsible Party: Caldwell County Emergency Services.
Estimated Cost:	$1,000,000 +
Potential Funding Sources:	State and federal grants
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**The Town of Rhodhiss fire department has acquired the emergency communication equipment (hand-held radios). The fire department cannot perform rescues because of a lack of availability of funding to purchase needed equipment and certification in rescue would be needed. We have made some improvements in the fire department such as: partial wiring of the upstairs and main breaker box; re-flooring the downstairs area and painting it; dividing the upstairs areas into individual rooms/wiring what can be done at present. We continue to apply for federal grants to help with the purchase of a new fire truck and the state grants have helped with purchasing turn-out gear. We are replacing turn-out gear as we can afford to do so. The following will be done as monies may be acquired: a sprinkler system, insulation, finish wiring, and a phone or alarm for rescue assistance at fire department (push button alarm). (Ongoing elements of this action are reflected in 2014 Mitigation Action 4 above.)** **The Town of Rhodhiss requires additional grant management assistance to fully complete this Mitigation Action.**

Mitigation Action 12	**The Town of Rhodhiss has several infrastructure components that are located within flood-prone areas, including two pump stations and the Town's water treatment plant. The Town will continue to monitor these facilities, and when feasible will work to relocate these facilities to a location that is not susceptible to flooding. *It should be noted that the Town of Rhodhiss is working with the Town of Granite Falls to establish a solution whereby the existing water treatment plant may be abandoned and demolished. This effort is contingent upon grant funding.**
Category:	Property Protection
Hazard(s) Addressed:	Flood; Dam/Levee Failure
Lead Agency/Department Responsible:	Primary Responsible Party: Town of Rhodhiss Town Council. Secondary Responsible Party: Town of Rhodhiss Administrative Staff.
Estimated Cost:	Over $1.3 million
Potential Funding Sources:	Rural Center; Clean Water Management; Town of Rhodhiss; state and federal grants would be needed for future improvements.
Implementation Schedule:	Completion of de-commissioning wastewater treatment plant
Priority (High, Moderate, Low):	High
2014 Status:	**Complete. Over $1.3 million was spent to de-commission the wastewater treatment plant. The Town of Granite Falls could not handle our sewer therefore the Town of Rhodhiss is now sending the sewer to Burke County.**

Mitigation Action Plan—Town of Rutherford College

2014 Mitigation Actions

Mitigation Action 1	Establish a severe weather shelter, possibly in the elementary school.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Tornado; Thunderstorm; Winter Weather; Hailstorm; Lightning
Lead Agency/Department Responsible:	Burke County Emergency Management; Town of Rutherford College Town Council
Estimated Cost:	$300,000
Potential Funding Sources:	Federal and State Grants
Implementation Schedule:	3 years
Priority (High, Moderate, Low):	High

Mitigation Action 2	Establish a post-disaster shelter.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Emergency Management; Town of Rutherford College Town Council
Estimated Cost:	$300,000
Potential Funding Sources:	Federal and State Grants
Implementation Schedule:	3 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	Research maintaining contracts with qualified post-disaster service companies, or prequalify and prepare regular town contractors to submit documents to FEMA for reimbursement. Evaluate post-disaster processes for green debris, white goods, and road/brush clearance.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Rutherford College Public Works Department
Estimated Cost:	None
Potential Funding Sources:	Existing staff resources
Implementation Schedule:	6 months
Priority (High, Moderate, Low):	Moderate

Mitigation Action 4	Establish a secondary water source from Lake Hickory. Project might entail forming a partnership with the Valdese Hospital, building a pump house and 3 million gallon water tank. The Town of Rutherford College owns a suitable site for a tank; it was the site of a former tank.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Rutherford College; Town of Valdese
Estimated Cost:	$1.5 million
Potential Funding Sources:	Grants and tax-based funding
Implementation Schedule:	5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 5	Create an emergency communications plan for disastrous events that destroy cell phone reception in partnership with Burke County Emergency Management and Lovelady Fire Department.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Rutherford College Administration Department
Estimated Cost:	None
Potential Funding Sources:	Existing staff time
Implementation Schedule:	1 year
Priority (High, Moderate, Low):	High

Mitigation Action 6	Prepare and implement a town-wide stormwater management plan to meet federal Phase II stormwater regulations. Complete stormwater map and conduct stormwater outreach.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Erosion; Sinkhole
Lead Agency/Department Responsible:	Town of Rutherford College Town Council
Estimated Cost:	$5,000
Potential Funding Sources:	Local
Implementation Schedule:	6 months
Priority (High, Moderate, Low):	High

Mitigation Action 7	Obtain short-wave radio to provide direct communication with Burke County EMS, or use existing walkie-talkies with number assigned to Burke County EMS.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Rutherford College Public Works Department
Estimated Cost:	$1,000
Potential Funding Sources:	Local
Implementation Schedule:	2014
Priority (High, Moderate, Low):	Medium

Mitigation Action 8	In cooperation with Burke County, assist in establishing a program for evaluating and improving critical services (roads, bridges, water, sewer, electricity, etc.) and critical facilities (fire, rescue, medical, etc.) to reduce risk to natural hazards.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Rutherford College Public Works Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state; federal
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 9	In cooperation with Burke County, assist (as needed) in preparing a countywide stormwater management plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Rutherford College Public Works Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state
Implementation Schedule:	Revise in 2015
Priority (High, Moderate, Low):	Moderate

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	Require and maintain FEMA elevation certificates for new buildings or improvements to buildings on lots including portions of the 100-year floodplain (CRS 31).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Rutherford College Planning Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Low
2014 Status:	**Completed.**

Mitigation Action 2	Revise/update regulatory floodplain maps (CRS 410).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Federal Emergency Management Agency (FEMA)
Estimated Cost:	Unspecified
Potential Funding Sources:	State funding
Implementation Schedule:	As needed
Priority (High, Moderate, Low):	Low
2014 Status:	**Completed.**

Mitigation Action 3	Revise zoning and subdivision regulations in floodplain areas to better control future development in these hazard-susceptible areas.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Rutherford College Town Council
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	2009-2010
Priority (High, Moderate, Low):	Low
2014 Status:	**Deleted from 2014 list of mitigation actions. The Town participates in the National Flood Insurance Program (NFIP) and believes this is adequate to address subdivision and zoning regulations in the floodplain. (The Town has very few properties in the floodplain.)**

Mitigation Action 4	Prepare and implement a town-wide stormwater management plan to meet federal Phase II stormwater regulations. Complete stormwater map and conduct stormwater outreach.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Erosion; Sinkhole
Lead Agency/Department Responsible:	Town of Rutherford College Town Council
Estimated Cost:	$5,000
Potential Funding Sources:	Local
Implementation Schedule:	6 months
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 6 above.)**

Mitigation Action 5	Require 50-foot buffers for new development activities along the Catawba River.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	North Carolina Department of Water Quality
Estimated Cost:	Unspecified
Potential Funding Sources:	State
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Low
2014 Status:	**Completed.**

Mitigation Action 6	Administer a minimum housing ordinance.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Rutherford College Town Council; Burke County Building Inspections Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Deleted from 2014 list of mitigation actions. The Town Council is not currently in favor of having a minimum housing ordinance.**

Mitigation Action 7	Maintain portable backup generator for emergency power needs.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Rutherford College Town Council
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Completed.**

Mitigation Action 8	Obtain short-wave radio to provide direct communication with Burke County EMS, or use existing walkie-talkies with number assigned to Burke County EMS.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Rutherford College Public Works Department
Estimated Cost:	$1,000
Potential Funding Sources:	Local
Implementation Schedule:	2014
Priority (High, Moderate, Low):	Medium
2014 Status:	**Ongoing.**

Mitigation Action 9	Revise subdivision regulations to require all perennial and intermittent streams be shown on subdivision plats.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Rutherford College Administration Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	2009-2010
Priority (High, Moderate, Low):	Medium
2014 Status:	**Completed.**

Mitigation Action 10	Trim trees along town power lines as needed.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Winter Weather
Lead Agency/Department Responsible:	Duke Energy
Estimated Cost:	Unspecified
Potential Funding Sources:	Local
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Completed.**

Mitigation Action Plan—Town of Sawmills

2014 Mitigation Actions

Mitigation Action 1	Increase watershed and stormwater awareness.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood; Sinkhole; Erosion; Landslide
Lead Agency/Department Responsible:	Town of Sawmills Planning Department
Estimated Cost:	<$1,000
Potential Funding Sources:	Town budget
Implementation Schedule:	3 years
Priority (High, Moderate, Low):	Low

Mitigation Action 2	Establish Shoreline Protection Ordinance stricter than the State's riparian buffer and watershed regulations.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Sinkhole; Erosion; Landslide
Lead Agency/Department Responsible:	Caldwell County Planning and Development Department; Town of Sawmills; Town of Granite Falls; Town of Rhodhiss
Estimated Cost:	None
Potential Funding Sources:	Existing staff time
Implementation Schedule:	4 years
Priority (High, Moderate, Low):	Low

Mitigation Action 3	Establish procedure for sounding fire department siren for tornado warnings and flash floods.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Tornado; Thunderstorm
Lead Agency/Department Responsible:	Town of Sawmills Volunteer Fire and Rescue Department
Estimated Cost:	None
Potential Funding Sources:	Existing staff time
Implementation Schedule:	1 year
Priority (High, Moderate, Low):	High

Mitigation Action 4	Maintain portable backup generator for emergency power needs.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Sawmills Town Council
Estimated Cost:	<$3,000
Potential Funding Sources:	Caldwell County Emergency Management
Implementation Schedule:	5 years
Priority (High, Moderate, Low):	High

Mitigation Action 5	Retrofit the Town of Sawmill's Public Works and Sanitation Department's existing radios to connect with Caldwell County Emergency Services.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Sawmills Public Works and Sanitation Department
Estimated Cost:	<$1,000
Potential Funding Sources:	Town budget
Implementation Schedule:	1 year
Priority (High, Moderate, Low):	High

Mitigation Action 6	Send out notices in water and tax bills to promote accessible heating and cooling centers in the community (for extreme weather).
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Extreme Weather
Lead Agency/Department Responsible:	Town of Sawmills Administration Department
Estimated Cost:	None
Potential Funding Sources:	Town budget
Implementation Schedule:	2 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 7	Establish "green infrastructure" program to link, manage, and expand existing parks, preserves, greenways, etc.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Sinkhole; Erosion; Landslide
Lead Agency/Department Responsible:	Town of Sawmills Town Council
Estimated Cost:	>$1,000,000
Potential Funding Sources:	Parks and recreation grants; Community Development Block Grant (CDBG) sewer grants
Implementation Schedule:	4 years
Priority (High, Moderate, Low):	Low

Mitigation Action 8	Send representative (council or planning board member) to regional Water Resources Committee to bring together resources for analysis, planning, and decision-making; particularly to establish a secondary water source in case of emergency.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Sawmills Town Council
Estimated Cost:	Quarterly travel
Potential Funding Sources:	Town budget
Implementation Schedule:	2014-2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 9	Support "Firewise" class in schools, civic clubs, Town Hall, or during festivals.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Wildfire
Lead Agency/Department Responsible:	North Carolina Forest Service; Caldwell County Emergency Management Department; Town of Sawmills Planning Department
Estimated Cost:	$10,000
Potential Funding Sources:	Grant funding
Implementation Schedule:	2015-2019
Priority (High, Moderate, Low):	High

Mitigation Action 10	Host Weather Spotters Class at Sawmills Town Hall, to include information about lightning. Provide booklet about design and construction of storm shelters.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Tornado; Thunderstorm
Lead Agency/Department Responsible:	Caldwell County Emergency Management Department; Town of Sawmills Planning Department
Estimated Cost:	$2,000
Potential Funding Sources:	Emergency management budget
Implementation Schedule:	2 years
Priority (High, Moderate, Low):	Low

Mitigation Action 11	Research maintaining contracts with qualified post-disaster service companies, or prepare regular town contractors to submit documents to FEMA for reimbursement if necessary. Consider post-disaster processes for green debris, white goods, and road/brush clearance.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Sawmills Public Works and Sanitation Department
Estimated Cost:	None
Potential Funding Sources:	Existing staff resources
Implementation Schedule:	6 months-2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 12	Help to build a 100,000-gallon water tank in Sawmills or nearby as the Caldwell County Water Department builds new, larger water lines.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Water Department, Town of Sawmills Public Works
Estimated Cost:	$1.5 million
Potential Funding Sources:	Grants and tax base funding
Implementation Schedule:	5 years
Priority (High, Moderate, Low):	High

Mitigation Action 13	Locate dams in Sawmills' jurisdiction; share information with Caldwell County Emergency Management.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Dam Failure; Flood
Lead Agency/Department Responsible:	Town of Sawmills Public Works and Sanitation Department
Estimated Cost:	Existing staff time
Potential Funding Sources:	N/A
Implementation Schedule:	Immediate-2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 14	In cooperation with the Caldwell County Planning and Development Department and the Caldwell County Building Inspections Department, make information regarding hazards and development regulations within floodplains available through the following: a) Ensuring that the local library maintains information relating to flooding and flood protection. b) Provide a link on the Town's website to FEMA resources addressing flooding and flood protection, sheltering, evacuation procedures, disaster preparedness, and post-disaster recovery.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood; Winter Weather; Thunderstorm; Dam/Levee Failure; Tornado
Lead Agency/Department Responsible:	Town of Sawmills
Estimated Cost:	N/A (covered by Caldwell County)
Potential Funding Sources:	Maintain present activities under the funding available
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High

Mitigation Action 15	In coordination with Caldwell County, the Town of Sawmills will continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. All parties will continue to pro-actively establish open space within the floodplain and floodway as grant funds become available to carry out this initiative.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Dam/Levee Failure; Wildfire
Lead Agency/Department Responsible:	Town of Sawmills; Caldwell County Building Inspections Department; Caldwell County Planning and Development Department
Estimated Cost:	$250,000+
Potential Funding Sources:	Grant fund resources; hazard mitigation of Lenoir EMS Base
Implementation Schedule:	2015
Priority (High, Moderate, Low):	Low

Mitigation Action 16	In coordination with Caldwell County, the Town of Sawmills will maintain a contract with a qualified post-disaster recovery service provider. This contract will include the provision of essential services and equipment, including generators, and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Sawmills; Caldwell County Emergency Management Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 17	In coordination with the Caldwell County Emergency Management Department, the Town of Sawmills will assist with the monitoring of water resources. When necessary, the Town will cooperate with the County in instituting measures to conserve water resources according to the County's Drought Management Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Drought; Wildfire
Lead Agency/Department Responsible:	Town of Sawmills; Caldwell County Water Department
Estimated Cost:	$1.5 million (covered by Caldwell County)
Potential Funding Sources:	Grants and tax-based funding
Implementation Schedule:	2016
Priority (High, Moderate, Low):	Low

Mitigation Action 18	Cooperate with Caldwell County in the implementation and enforcement of the County's comprehensive stormwater management program.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Sawmills; City of Lenoir Planning and Building Inspections Department; administrative staff of Caldwell County
Estimated Cost:	$50,000 per year
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	City of Lenoir to administer stormwater regulations.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Sinkhole; Erosion; Landslide
Lead Agency/Department Responsible:	City of Lenoir Planning Department; Caldwell County; all participating jurisdictions in Caldwell County
Estimated Cost:	$50,000
Potential Funding Sources:	Existing department and staff resources
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Completed.**

Mitigation Action 2	Caldwell County will assist all communities within the county, including property owners in unincorporated areas, in applying for FEMA-sponsored mitigation grant assistance for the acquisition and/or elevation of substantially damaged structures following a natural disaster.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department
Estimated Cost:	$1,200
Potential Funding Sources:	Unspecified
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Completed.**

Mitigation Action 3	Maintain a contract with a qualified post-disaster recovery service provider for essential services and equipment including generators and will include documentation required for reimbursement from FEMA/NCEM.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Sawmills Public Works and Sanitation Department
Estimated Cost:	Unspecified
Potential Funding Sources:	Unspecified
Implementation Schedule:	6 months
Priority (High, Moderate, Low):	Medium
2014 Status:	**Not completed. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 11 above.)**

Mitigation Action 4	Monitor water resources and when necessary institute measures to conserve water through Drought Management Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Drought
Lead Agency/Department Responsible:	Caldwell County Water Department
Estimated Cost:	$1.5 million
Potential Funding Sources:	Grants and tax-based funding
Implementation Schedule:	Unspecified
Priority (High, Moderate, Low):	High
2014 Status:	**Not completed. (Ongoing elements of this action are reflected in the 2014 Mitigation Actions 8 and 12 above.)**

Mitigation Action 5	Support the North Carolina Office of Dam Safety; make sure dams are regularly inspected.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Dam Failure; Flood
Lead Agency/Department Responsible:	North Carolina Department of Environment and Natural Resources (NCDENR) Dams Program
Estimated Cost:	Unspecified
Potential Funding Sources:	Unspecified
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Partially completed. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 13 above.)**

Mitigation Action 6	Continue to maintain all property acquired within the Special Flood Hazard Area (SFHA) as undisturbed open space in perpetuity. Pro-actively establish open space within the floodplain.
Category:	Natural Systems Protection
Hazard(s) Addressed:	Flood; Dam Failure; Wildfire
Lead Agency/Department Responsible:	Caldwell County Planning Department
Estimated Cost:	$250,000+
Potential Funding Sources:	Grant funds; mitigation of Lenoir EMS Base
Implementation Schedule:	2015
Priority (High, Moderate, Low):	High
2014 Status:	**Deferred. The Town of Sawmills is no longer willing to buy property in the floodplain because of costs.**

Mitigation Action 7	Caldwell County Planning and Building Inspections Departments will make information regarding hazards and development regulations within floodplain available through the following: library, link on website to FEMA addressing flood protection, disaster preparedness, and post-disaster recovery.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department
Estimated Cost:	$1,200
Potential Funding Sources:	General Budget
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Completed.**

Mitigation Action 8	Maintain a map information service about Flood Insurance Rate Maps (FIRMs), advertise annually in the paper, and provide information to inquirers about local floodplain management requirements.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Flood; Dam Failure
Lead Agency/Department Responsible:	Caldwell County Planning Department
Estimated Cost:	$85,000
Potential Funding Sources:	Tax-based funding
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Completed.**

Mitigation Action 9	Require flood elevation certificates for development within the Special Flood Hazard Area (SFHA).
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Caldwell County Building Inspections Department
Estimated Cost:	$50,000
Potential Funding Sources:	General Budget
Implementation Schedule:	Immediate
Priority (High, Moderate, Low):	High
2014 Status:	**Completed.**

Mitigation Action Plan—Town of Taylorsville

2014 Mitigation Actions

Mitigation Action 1	Maintain street rights of way and ditches to prevent damage to streets and property in the event of a natural hazard occurrence.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood; Thunderstorm, Lightning, and Hail; Hurricane and Tropical Storm; Winter Weather
Lead Agency/Department Responsible:	Town of Taylorsville Public Works
Estimated Cost:	$100,000
Potential Funding Sources:	Power bill
Implementation Schedule:	Yearly through 2019
Priority (High, Moderate, Low):	High

Mitigation Action 2	Improve drainage on Muddy Creek.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Floods; Thunderstorms; Hurricanes and Tropical Storms
Lead Agency/Department Responsible:	Town of Taylorsville; North Carolina Department of Transportation (NCDOT); Alexander County
Estimated Cost:	>$200,000
Potential Funding Sources:	State/federal grants
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	Assist Alexander County with all mitigation actions that have a countywide impact and that benefit the Town of Taylorsville.
Category:	Multiple
Hazard(s) Addressed:	Multiple
Lead Agency/Department Responsible:	Town of Taylorsville
Estimated Cost:	As funded by the County
Potential Funding Sources:	Multiple, as identified by the County
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Low

Mitigation Action 4	In coordination with Alexander County, conduct outreach to the public regarding Alexander County's Community Alert System to educate them on how to obtain information both pre- and post- disaster event.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Taylorsville
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Alexander County General Fund
Implementation Schedule:	1-2 years
Priority (High, Moderate, Low):	High

Mitigation Action 5	To establish, where feasible, additional emergency response forces, by at least 10%, that are trained, equipped and prepared to respond to a variety of emergency and disaster situations. This concept is concurred by Alexander County and the Town of Taylorsville.
Category:	Other
Hazard(s) Addressed:	Flood; Hurricane and Tropical Storm; Thunderstorm, Lightning and Hail; Tornado; Wildfire; Drought; Winter Weather
Lead Agency/Department Responsible:	Town of Taylorsville
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Alexander County General Fund
Implementation Schedule:	3-5 years
Priority (High, Moderate, Low):	Low

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	Improve drainage on Muddy Creek.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Floods; Thunderstorms; Hurricanes and Tropical Storms
Lead Agency/Department Responsible:	Town of Taylorsville; North Carolina Department of Transportation (NCDOT); Alexander County
Estimated Cost:	>$200,000
Potential Funding Sources:	State/federal grants
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Not complete. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 2 above.)**

Mitigation Action Plan—Unifour Regional Actions

2014 Mitigation Actions

Mitigation Action 1	Enhance local citizens' disaster preparedness through continuous outreach and education efforts in coordination with the American Red Cross and other support organizations.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Unifour Hazard Mitigation Planning Committee
Estimated Cost:	Minimal
Potential Funding Sources:	Volunteer staff time
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 2	Provide coordination and facilitation support for improved information sharing with Duke Energy regarding its operational procedures for the movement of water through its hydro-electric systems on the Catawba River.
Category:	Other
Hazard(s) Addressed:	Flood; Dam Failure
Lead Agency/Department Responsible:	Unifour Hazard Mitigation Planning Committee
Estimated Cost:	Minimal
Potential Funding Sources:	Volunteer staff time
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 3	Promote mutual aid agreements with counties outside the Unifour Region to augment local inspection personnel and other needed personnel after a significant hazard occurrence.
Category:	Other
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Unifour Hazard Mitigation Planning Committee
Estimated Cost:	Minimal
Potential Funding Sources:	Volunteer staff time
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 4	Coordinate seasonal event information sharing, such as unified billboards during tornado or thunderstorm spring season.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Seasonal Hazards
Lead Agency/Department Responsible:	Unifour Hazard Mitigation Planning Committee
Estimated Cost:	Minimal
Potential Funding Sources:	Volunteer staff time
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High

Mitigation Action 5	Establish a program for middle school and high school students in environmental science classes to create short tornado safety/awareness videos.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	Tornado
Lead Agency/Department Responsible:	Unifour Hazard Mitigation Planning Committee
Estimated Cost:	Minimal
Potential Funding Sources:	Volunteer staff time
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Low

Status of Previously Adopted Mitigation Actions

There are no previously adopted mitigation actions for the Unifour Region.

Mitigation Action Plan—Town of Valdese

2014 Mitigation Actions

Mitigation Action 1	Promote the advancement of early warning to the public by providing All Hazard Weather Alert radios at little or no cost to the general public and ensuring the placement of the radios in all schools, daycares, churches, etc.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Valdese Fire Department; Burke County Emergency Management
Estimated Cost:	To be determined
Potential Funding Sources:	Hazard Mitigation Assistance (HMA) grants; Homeland Security grants; emergency management grants; local funding
Implementation Schedule:	1-3 years
Priority (High, Moderate, Low):	High

Mitigation Action 2	Conduct outreach to educate the public on pre-disaster preparation targeting schools, churches, civic groups, etc.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Valdese Fire Department
Estimated Cost:	To be determined
Potential Funding Sources:	Hazard Mitigation Assistance (HMA) grants; Homeland Security grants; emergency management grants; local funding
Implementation Schedule:	1-3 years
Priority (High, Moderate, Low):	High

Mitigation Action 3	Install quick-connect emergency generator transfer switch at Town of Valdese Water Department Pump Station.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Valdese Water Department
Estimated Cost:	$90,000
Potential Funding Sources:	Hazard Mitigation Assistance (HMA) grants; Homeland Security grants; emergency management grants; local funding
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	High

Mitigation Action 4	Maintain routine inspection and clearing of storm drainage system.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Valdese Public Works Department
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Town of Valdese General Fund
Implementation Schedule:	2019
Priority (High, Moderate, Low):	High

Mitigation Action 5	Maintain compliance with the National Flood Insurance Program (NFIP) by: a) Providing related training periodically for Town Planning Director and Town Emergency Management Coordinator. b) Encouraging or requiring certain staff positions to obtain Certified Floodplain Manager (CFM) certification.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Valdese Planning Department
Estimated Cost:	To be determined
Potential Funding Sources:	Town of Valdese General Fund
Implementation Schedule:	1-3 years
Priority (High, Moderate, Low):	Moderate

Mitigation Action 6	In cooperation with Burke County, assist in establishing a program for evaluating and improving critical services (roads, bridges, water, sewer, electricity, etc.) and critical facilities (fire, rescue, medical, etc.) to reduce risk to natural hazards.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Valdese Public Works Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state; federal
Implementation Schedule:	2019
Priority (High, Moderate, Low):	Moderate

Mitigation Action 7	In cooperation with Burke County, assist (as needed) in preparing a countywide stormwater management plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Valdese Public Works Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state
Implementation Schedule:	Revise in 2015
Priority (High, Moderate, Low):	Moderate

Status of Previously Adopted Mitigation Actions

Mitigation Action 1	Develop a Comprehensive Land Use Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Town of Valdese Planning Department
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Town of Valdese General Fund
Implementation Schedule:	By December 2013
Priority (High, Moderate, Low):	High
2014 Status:	**Completed as of December 2013.**

Mitigation Action 2	Develop an open space plan, target properties for acquisition, and fund an acquisition program.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Valdese Planning Department
Estimated Cost:	Unfunded
Potential Funding Sources:	Undetermined
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Deferred due to a lack of funding.**

Mitigation Action 3	Implement drainage system management project.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Valdese Public Works Department
Estimated Cost:	Minimal (staff time only)
Potential Funding Sources:	Town of Valdese General Fund
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**This project is addressed in the Town of Valdese Storm Water and Watershed Ordinances and will be ongoing as part of that mechanism. It is also related to the 2014 Mitigation Action 4 above.**

Mitigation Action 4	Implement an early warning system.
Category:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Emergency Management; Town of Valdese Fire Department
Estimated Cost:	To be determined
Potential Funding Sources:	Hazard Mitigation Assistance (HMA) grants; Homeland Security grants; emergency management grants; local funding
Implementation Schedule:	Ongoing
Priority (High, Moderate, Low):	High
2014 Status:	**Ongoing. (Ongoing elements of this action are reflected in the 2014 Mitigation Action 1 above.)**

Mitigation Action 5	Establishment of reserve fund for relocating damaged infrastructure.
Category:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood
Lead Agency/Department Responsible:	Town of Valdese Administration
Estimated Cost:	To be determined
Potential Funding Sources:	Undetermined
Implementation Schedule:	1-5 years
Priority (High, Moderate, Low):	Moderate
2014 Status:	**Deferred due to lack of funding.**

Mitigation Action 6	Improve Hazard Warning and Response Plan.
Category:	Local Plans and Regulations
Hazard(s) Addressed:	All Hazards
Lead Agency/Department Responsible:	Burke County Emergency Management; Town of Valdese Fire Department
Estimated Cost:	N/A
Potential Funding Sources:	Local; state; federal
Implementation Schedule:	Continuous review
Priority (High, Moderate, Low):	High
2014 Status:	**Completed. Although this action is technically ongoing because a continuous review cycle has been put into place, there is no need to identify this as a 2014 Mitigation Action.**

Section 8: Plan Maintenance Procedures

The *Plan Maintenance Procedures* section discusses how the *Mitigation Strategy* and *Mitigation Action Plans* will be implemented by participating jurisdictions and how the overall Regional Hazard Mitigation Plan will be evaluated and enhanced over time. This section also discusses how the public will continue to be involved in the hazard mitigation planning process. It consists of the following three subsections:

8.1 Implementation
8.2 Monitoring, Evaluation, and Enhancement
8.3 Continued Public Involvement

8.1 Implementation

Each jurisdiction participating in this Plan is responsible for implementing specific mitigation actions as prescribed in their locally adopted *Mitigation Action Plan* (Section 7). In each *Mitigation Action Plan*, every proposed action is assigned to a specific local department or agency in order to assign responsibility and accountability and increase the likelihood of subsequent implementation. This approach enables individual jurisdictions to update their own unique mitigation action list as needed without altering the broader focus of the regional Plan. The separate adoption of locally specific actions also ensures that each jurisdiction is not held responsible for the monitoring and implementation of actions belonging to other jurisdictions involved in the planning process.

In addition to the assignment of a local lead department or agency, an implementation time period or a specific implementation date or window has been assigned to each mitigation action to help assess whether actions are being implemented in a timely fashion. The jurisdictions present within the Unifour Region will seek outside funding sources to implement mitigation projects in both the pre-disaster and post-disaster environments. When applicable, potential funding sources have been identified for proposed actions listed in the *Mitigation Action Plans*.

It will be the responsibility of each participating jurisdiction to determine additional implementation procedures beyond those listed within their *Mitigation Action Plan*. This includes integrating the requirements of the Regional Hazard Mitigation Plan into other local planning documents, processes, or mechanisms such as comprehensive or capital improvement plans, when appropriate. The members of the Hazard Mitigation Planning Committee (HMPC) will remain charged with ensuring that the goals and strategies of new and updated local planning documents for their jurisdictions or agencies are consistent with the goals and actions of the Regional Hazard Mitigation Plan, and will not contribute to increased hazard vulnerability in the Unifour Region. Opportunities to integrate the requirements of this Plan into other local planning mechanisms shall continue to be identified through future meetings of the HMPC and through the five-year review process described herein. Although it is recognized that there are many possible benefits to integrating components of this Plan into other local planning mechanisms, the development and maintenance of this stand-alone Regional Hazard Mitigation Plan is deemed by the HMPC to be the most effective and appropriate method to implement local hazard mitigation actions at this time.

In each county the integration of the hazard mitigation plan is primarily done at the county level as each of the four counties has a county level consolidated planning and development program and emergency operations plan. These plans address zoning ordinances, building codes, floodplain

management, subdivision development emergency planning, mitigation planning, and response and recovery actions. Some examples of this integration for each county include:

- Alexander County integrates hazard mitigation planning into their Comprehensive Plan, Watershed Ordinance, Zoning Ordinance, Subdivision Ordinance, and Flood Damage Prevention Ordinance.
- Burke County integrates this plan into their Master Zoning Ordinance, Master County Subdivision Ordinance, and Environmental Compliance Ordinance.
- Caldwell County includes hazard mitigation planning in their Zoning Ordinance, Subdivision Ordinance, Flood Ordinance, Ridge Law, and Watershed Ordinance.
- Catawba County integrates hazard mitigation planning into their Unified Development Ordinance and small area plans as well as zoning ordinances, subdivision planning, and floodplain plans and ordinance.

The Unifour Regional Hazard Mitigation Plan will be highlighted whenever possible in Annual Reports prepared by each county and included in departmental or agency reports as deemed appropriate. In addition, each of the municipal jurisdictions will seek to implement the goals and strategies of this plan by incorporating the recommendations into annual action plans adopted by their respective City or Town Councils. This plan will be incorporated by reference into other planning mechanisms whenever appropriate.

8.2 Monitoring, Evaluation, and Enhancement

The agency with the overall responsibility for monitoring this Plan is the Catawba County Planning, Parks and Development Department. Periodic revisions and updates of the Regional Hazard Mitigation Plan are required to ensure that the goals of the Plan are kept current, taking into account potential changes in hazard vulnerability and mitigation priorities. In addition, revisions may be necessary to ensure that the Plan is in full compliance with applicable federal and state regulations. Periodic evaluation of the Plan will also ensure that specific mitigation actions are being reviewed and carried out according to each jurisdiction's individual *Mitigation Action Plan*.

The Unifour HMPC will continue to meet regularly, as determined by the Catawba County Planning, Parks and Development Department. These regular meetings will take place in the fall of each year so that sufficient time is available to prepare public outreach messages and assess the status of any mitigation actions relevant to the upcoming severe seasonal spring weather and the start of hurricane season. Meetings will also be convened as necessary following any disaster events warranting a reexamination of the mitigation actions being implemented or proposed by the participating jurisdictions.

County and local staff of each participating jurisdiction will also continue to attend training workshops sponsored by the North Carolina Division of Emergency Management or others as appropriate in order to keep up-to-date with any changing guidance or planning requirements and to communicate that information to other representatives of participating jurisdictions.

As part of this monitoring, evaluation, and enhancement process, each participating jurisdiction will be expected to provide an annual status update to Catawba County for their respective *Mitigation Action Plans* in order to evaluate the Plan's implementation effectiveness. This will ensure that the Plan is continuously maintained and updated to reflect changing conditions and needs within the Unifour Region. If determined appropriate or as requested, an annual report on the Plan will be

developed and presented to local governing bodies of participating jurisdictions in order to report progress on the actions identified in the Plan and to provide information on the latest legislative requirements and/or changes to those requirements.

Five (5) Year Plan Review
The Plan will be reviewed by the HMPC every five years to determine whether there have been any significant changes in the Unifour Region that may, in turn, necessitate changes in the types of mitigation actions proposed. New development in identified hazard areas, an increased exposure to hazards, the increase or decrease in capability to address hazards, and changes to federal or state legislation are examples of factors that may affect the necessary content of the Plan.

The plan review provides community officials 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 review also provides the opportunity to address mitigation actions that may not have been successfully implemented as assigned. The Catawba County Planning, Parks and Development Department will be responsible for reconvening the HMPC and conducting the five-year review.

During the five-year plan review process, the following questions will be considered as criteria for assessing the effectiveness and appropriateness of the Plan:

- Do the goals address current and expected conditions?
- Has the nature or magnitude of risks changed?
- Are the current resources appropriate for implementing the Plan?
- Are there implementation problems, such as technical, political, legal, or coordination issues with other agencies?
- Have the outcomes occurred as expected?
- Did the jurisdictions, agencies, and other partners participate in the plan implementation process as proposed?

Following the five-year review, any revisions deemed necessary will be summarized and implemented according to the reporting procedures outlined herein. Upon completion of the review and update/amendment process, the Unifour Regional Hazard Mitigation Plan will be submitted to the State Hazard Mitigation Officer at the North Carolina Division of Emergency Management for final review and approval in coordination with the Federal Emergency Management Agency.

Disaster Declaration
Following a disaster declaration, the Plan will be revised as necessary to reflect lessons learned, or to address specific issues and circumstances arising from the event. It will be the responsibility of the Catawba County Planning, Parks and Development Department to reconvene the HMPC and ensure the appropriate stakeholders are invited to participate in the plan revision and update process following declared disaster events.

Reporting Procedures
The results of the five-year review will be summarized by the HMPC in the relevant sections of the updated plan. This includes: a comprehensive description of the plan update process including an evaluation of plan effectiveness (Section 2); any updates to the planning area profile (Section 3);

any notable revisions or updates to the risk assessment (Section 4) or capability assessment (Section 5); updated mitigation goals and consideration of mitigation action alternatives (Section 6); status updates on previously adopted mitigation action plans (including the identification of reasons for delays or obstacles to their implementation) as well as the identification of newly proposed mitigation actions (Section 7); and revisions or updates to plan maintenance procedures (Section 8).

Any necessary revisions or changes to the countywide Plan elements must follow the monitoring, evaluation, and enhancement procedures outlined herein. For changes and updates to the individual *Mitigation Action Plans*, appropriate local designees will assign responsibility for the completion of the task.

8.3 Continued Public Involvement

Public participation is an integral component of the mitigation planning process and will continue to be essential as this Plan evolves and is updated over time.

The most appropriate and meaningful opportunities for the general public to be involved in the maintenance and implementation of the Unifour Regional Hazard Mitigation Plan is during the five-year plan review process as described earlier in this section. As demonstrated in Section 2: *Planning Process*, the participating jurisdictions of the Unifour Region have been diligent and successful in gaining widespread public involvement during the five-year plan review process through multiple methods. While the five-year plan review process represents the greatest opportunity for such involvement, other efforts to involve the public in the maintenance, evaluation, and revision process will continue to be made as necessary. These efforts may include:

- Advertising meetings of the HMPC in local newspapers, public bulletin boards, and/or City and County office buildings;
- Designating willing and voluntary citizens and private sector representatives as official members of the HMPC;
- Working with children through school programs and other appropriate venues in an effort to engage parents and other adults;
- Utilizing local media to update the public of any maintenance and/or periodic review activities taking place;
- Utilizing City and County Web sites to advertise any maintenance and/or periodic review activities taking place;
- Keeping copies of the Plan in public libraries; and
- Posting any Annual Reports on the Plan to City and County Web sites.

Appendix A: Plan Adoption

This appendix to the Unifour Regional Hazard Mitigation Plan includes copies of the local resolutions passed by each participating jurisdiction requesting approval of the Plan. The jurisdictions are listed below in the order that the plan adoption resolutions are included in this appendix.

- **Alexander County**
- Town of Taylorsville

- **Burke County**
- Town of Connelly Springs
- Town of Drexel
- Town of Glen Alpine
- Town of Hildebran
- City of Morganton
- Town of Rutherford College
  Town of Valdese

- **Caldwell County**
- Town of Cajah's Mountain
- Village of Cedar Rock
- Town of Gamewell
- Town of Granite Falls
- Town of Hudson
- City of Lenoir
- Town of Rhodhiss
- Town of Sawmills

- **Catawba County**
- Town of Brookford
- Town of Catawba
- City of Claremont
- City of Conover
- City of Hickory
- Town of Long View
- Town of Maiden
- City of Newton

LOCAL MITIGATION PLAN REVIEW TOOL

The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA's evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan's strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

Jurisdictions: Alexander, Burke, Caldwell, and Catawba Counties and all incorporated municipalities	**Title of Plan: Unifour Regional Hazard Mitigation Plan**	**Date of Plan: February 2014**
Local Point of Contact: Karyn Yaussy	**Address: P.O. Box 389 Government Center 100-A Southwest Blvd Newton, NC 28658**	
Title: Catawba County Emergency Management Coordinator		
Agency: Catawba County Emergency Management		
Phone Number: 828.465.8989	**E-Mail: kyaussy@catawbacountync.gov**	

State Reviewer:	**Title:**	**Date:**

FEMA Reviewer:	**Title:**	**Date:**
Date Received in FEMA Region ***(insert #)***		
Plan Not Approved		
Plan Approvable Pending Adoption		
Plan Approved		

SECTION 1:
REGULATION CHECKLIST

INSTRUCTIONS: The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been 'Met' or 'Not Met.' The 'Required Revisions' summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is 'Not Met.' Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan (section and/or page number)**	**Met**	**Not Met**
ELEMENT A. PLANNING PROCESS			
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	Section 2: Planning Process		
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	Section 2 throughout and specifically Sections 2.6 and 2.7. Meeting advertisements can be found in Appendix E.		
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Section 2.6		
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Sections 2.2 and 2.3		
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Section 8.3		
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	Section 8: Plan Maintenance Procedures		
ELEMENT A: REQUIRED REVISIONS			
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT			

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	Section 4: Risk Assessment, specifically Section 4.5		
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	Section 4.5		
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	Sections 4.5 and 4.6		
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Section 4.5		
ELEMENT B: REQUIRED REVISIONS			
ELEMENT C. MITIGATION STRATEGY			
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	Section 5: Capability Assessment		
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Section 5, specifically Sections 5.3.1 and 5.3.1.3		
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Section 6: Mitigation Strategy		
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Section 7: Mitigation Action Plans		
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Section 7: Mitigation Action Plans		
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	Section 8.1		
ELEMENT C: REQUIRED REVISIONS			
ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION (applicable to plan updates only)			

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	Section 4: Risk Assessment (as described in Section 4, specifically in Section 4.2, the latest GIS data available was used to determine vulnerabilities to existing development beyond what was addressed in previous plan updates)		
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	Section 7 (the Mitigation Action Plan for each jurisdiction includes an update on previously adopted actions)		
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	Section 7 (the Mitigation Action Plan for each jurisdiction includes an update on previously adopted actions, including changes in priorities)		
ELEMENT D: REQUIRED REVISIONS			
ELEMENT E. PLAN ADOPTION			
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	This will be included in Appendix A		
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	This will be included in Appendix A		
ELEMENT E: REQUIRED REVISIONS			
ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)			

1. REGULATION CHECKLIST **Regulation** (44 CFR 201.6 Local Mitigation Plans)	**Location in Plan** (section and/or page number)	**Met**	**Not Met**
F1.			
F2.			
ELEMENT F: REQUIRED REVISIONS			

SECTION 2:
PLAN ASSESSMENT

INSTRUCTIONS: The purpose of the Plan Assessment is to offer the local community more comprehensive feedback to the community on the quality and utility of the plan in a narrative format. The audience for the Plan Assessment is not only the plan developer/local community planner, but also elected officials, local departments and agencies, and others involved in implementing the Local Mitigation Plan. The Plan Assessment must be completed by FEMA. The Assessment is an opportunity for FEMA to provide feedback and information to the community on: 1) suggested improvements to the Plan; 2) specific sections in the Plan where the community has gone above and beyond minimum requirements; 3) recommendations for plan implementation; and 4) ongoing partnership(s) and information on other FEMA programs, specifically RiskMAP and Hazard Mitigation Assistance programs. The Plan Assessment is divided into two sections:

1. Plan Strengths and Opportunities for Improvement
2. Resources for Implementing Your Approved Plan

Plan Strengths and Opportunities for Improvement is organized according to the plan Elements listed in the Regulation Checklist. Each Element includes a series of italicized bulleted items that are suggested topics for consideration while evaluating plans, but it is not intended to be a comprehensive list. FEMA Mitigation Planners are not required to answer each bullet item, and should use them as a guide to paraphrase their own written assessment (2-3 sentences) of each Element.

The Plan Assessment must not reiterate the required revisions from the Regulation Checklist or be regulatory in nature, and should be open-ended and to provide the community with suggestions for improvements or recommended revisions. The recommended revisions are suggestions for improvement and are not required to be made for the Plan to meet Federal regulatory requirements. The italicized text should be deleted once FEMA has added comments regarding strengths of the plan and potential improvements for future plan revisions. It is recommended that the Plan Assessment be a short synopsis of the overall strengths and weaknesses of the Plan (no longer than two pages), rather than a complete recap section by section.

Resources for Implementing Your Approved Plan provides a place for FEMA to offer information, data sources and general suggestions on the overall plan implementation and maintenance process. Information on other possible sources of assistance including, but not limited to, existing publications, grant funding or training opportunities, can be provided. States may add state and local resources, if available.

A. Plan Strengths and Opportunities for Improvement

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

Element A: Planning Process

How does the Plan go above and beyond minimum requirements to document the planning process with respect to:

- *Involvement of stakeholders (elected officials/decision makers, plan implementers, business owners, academic institutions, utility companies, water/sanitation districts, etc.);*
- *Involvement of Planning, Emergency Management, Public Works Departments or other planning agencies (i.e., regional planning councils);*
- *Diverse methods of participation (meetings, surveys, online, etc.); and*
- *Reflective of an open and inclusive public involvement process.*

Element B: Hazard Identification and Risk Assessment

In addition to the requirements listed in the Regulation Checklist, 44 CFR 201.6 Local Mitigation Plans identifies additional elements that should be included as part of a plan's risk assessment. The plan should describe vulnerability in terms of:

1) *A general description of land uses and future development trends within the community so that mitigation options can be considered in future land use decisions;*
2) *The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas; and*
3) *A description of potential dollar losses to vulnerable structures, and a description of the methodology used to prepare the estimate.*

How does the Plan go above and beyond minimum requirements to document the Hazard Identification and Risk Assessment with respect to:

- *Use of best available data (flood maps, HAZUS, flood studies) to describe significant hazards;*
- *Communication of risk on people, property, and infrastructure to the public (through tables, charts, maps, photos, etc.);*
- *Incorporation of techniques and methodologies to estimate dollar losses to vulnerable structures;*
- *Incorporation of Risk MAP products (i.e., depth grids, Flood Risk Report, Changes Since Last FIRM, Areas of Mitigation Interest, etc.); and*
- *Identification of any data gaps that can be filled as new data became available.*

Element C: Mitigation Strategy

How does the Plan go above and beyond minimum requirements to document the Mitigation Strategy with respect to:

- *Key problems identified in, and linkages to, the vulnerability assessment;*
- *Serving as a blueprint for reducing potential losses identified in the Hazard Identification and Risk Assessment;*
- *Plan content flow from the risk assessment (problem identification) to goal setting to mitigation action development;*
- *An understanding of mitigation principles (diversity of actions that include structural projects, preventative measures, outreach activities, property protection measures, post-disaster actions, etc);*
- *Specific mitigation actions for each participating jurisdictions that reflects their unique risks and capabilities;*
- *Integration of mitigation actions with existing local authorities, policies, programs, and resources; and*
- *Discussion of existing programs (including the NFIP), plans, and policies that could be used to implement mitigation, as well as document past projects.*

Element D: Plan Update, Evaluation, and Implementation (*Plan Updates Only*)

How does the Plan go above and beyond minimum requirements to document the 5-year Evaluation and Implementation measures with respect to:

- *Status of previously recommended mitigation actions;*
- *Identification of barriers or obstacles to successful implementation or completion of mitigation actions, along with possible solutions for overcoming risk;*
- *Documentation of annual reviews and committee involvement;*
- *Identification of a lead person to take ownership of, and champion the Plan;*
- *Reducing risks from natural hazards and serving as a guide for decisions makers as they commit resources to reducing the effects of natural hazards;*
- *An approach to evaluating future conditions (i.e. socio-economic, environmental, demographic, change in built environment etc.);*
- *Discussion of how changing conditions and opportunities could impact community resilience in the long term; and*
- *Discussion of how the mitigation goals and actions support the long-term community vision for increased resilience.*

B. Resources for Implementing Your Approved Plan

Ideas may be offered on moving the mitigation plan forward and continuing the relationship with key mitigation stakeholders such as the following:

- *What FEMA assistance (funding) programs are available (for example, Hazard Mitigation Assistance (HMA)) to the jurisdiction(s) to assist with implementing the mitigation actions?*
- *What other Federal programs (National Flood Insurance Program (NFIP), Community Rating System (CRS), Risk MAP, etc.) may provide assistance for mitigation activities?*
- *What publications, technical guidance or other resources are available to the jurisdiction(s) relevant to the identified mitigation actions?*
- *Are there upcoming trainings/workshops (Benefit-Cost Analysis (BCA), HMA, etc.) to assist the jurisdictions(s)?*
- *What mitigation actions can be funded by other Federal agencies (for example, U.S. Forest Service, National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA) Smart Growth, Housing and Urban Development (HUD) Sustainable Communities, etc.) and/or state and local agencies?*

SECTION 3:
MULTI-JURISDICTION SUMMARY SHEET (OPTIONAL)

INSTRUCTIONS: For multi-jurisdictional plans, a Multi-jurisdiction Summary Spreadsheet may be completed by listing each participating jurisdiction, which required Elements for each jurisdiction were 'Met' or 'Not Met,' and when the adoption resolutions were received. This Summary Sheet does not imply that a mini-plan be developed for each jurisdiction; it should be used as an optional worksheet to ensure that each jurisdiction participating in the Plan has been documented and has met the requirements for those Elements (A through E).

MULTI-JURISDICTION SUMMARY SHEET												
#	Jurisdiction Name	Jurisdiction Type (city/borough/ township/ village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Require-ments
1	**Catawba**	**County (Lead)**										
2	Brookford	Town										
3	Catawba	Town										
4	Claremont	City										
5	Conover	City										
6	Hickory	City										
7	Long View	Town										
8	Maiden	Town										
9	Newton	City										

MULTI-JURISDICTION SUMMARY SHEET													
#	Jurisdiction Name	Jurisdiction Type (city/borough/ township/ village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Require-ments
10	**Alexander**	**County**										
11	Taylorsville	Town										
12	**Burke**	**County**										
13	Connelly Springs	Town										
14	Drexel	Town										
15	Glen Alpine	Town										
16	Hildebran	Town										
17	Morganton	City										
18	Rutherford College	Town										
19	Valdese	Town										
20	**Caldwell**	**County**										
21	Cajah's Mountain	Town										
22	Cedar Rock	Village										
23	Gamewell	Town										

MULTI-JURISDICTION SUMMARY SHEET													
#	Jurisdiction Name	Jurisdiction Type (city/borough/ township/ village, etc.)	Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
							A. Planning Process	B. Hazard Identification & Risk Assessment	C. Mitigation Strategy	D. Plan Review, Evaluation & Implementation	E. Plan Adoption	F. State Require-ments
24	Granite Falls	Town										
25	Hudson	Town										
26	Lenoir	City										
27	Rhodhiss	Town										
28	Sawmills	Town										

Appendix C: Public Outreach Strategy

This appendix to the Unifour Regional Hazard Mitigation Plan contains a copy of the Public Outreach Strategy finalized on July 30, 2013 to guide the public outreach element of the mitigation planning process.

Public Outreach Strategy
July 30, 2013

Project Summary

The counties of Alexander, Burke, Caldwell and Catawba, in coordination with their participating municipal jurisdictions, are preparing a regional hazard mitigation plan that will cover the four-county Unifour area. The Unifour Regional Hazard Mitigation Plan will identify local policies and actions for reducing risk and future losses from natural hazards such as floods, severe storms, wildfires, and winter weather. It will build upon four separate hazard mitigation plans that were initially prepared by each county in coordination with their municipalities.

The plan will also serve to meet key federal planning regulations which require local governments to develop a hazard mitigation plan as a condition for receiving certain types of non-emergency disaster assistance, including funding for hazard mitigation projects. These mitigation planning requirements stem from the Disaster Mitigation Act of 2000, which was passed by the U.S. Congress in October of 2000. This Act amended federal law to require that all states and local governments must have hazard mitigation plans in place in order to be eligible to apply for funding under such programs as the Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation (PDM) program.

Public Outreach

A key element in the mitigation planning process is the discussion it promotes among community members about creating a safer, more disaster-resilient community. A plan that accurately reflects the community's values and priorities is likely to have greater legitimacy and "buy-in" and greater success in implementing mitigation actions and projects to reduce risk.[1] Therefore, the purpose of the Unifour Regional Hazard Mitigation Plan Public Outreach Strategy is to:

- Generate public interest;
- Solicit citizen input; and
- Engage additional partners in the planning process.

The following specific public outreach opportunities and methods have been identified for citizens and targeted stakeholders to participate at various points in the mitigation planning process, and are presented in more detail on the following pages:

1. In-person public meetings (2)
2. Public information website (including social media integration)
3. Project information fact sheet
4. Planning resources
5. Public participation survey

[1] FEMA, *Local Mitigation Planning Handbook*, March 2013.

OUTREACH METHOD 1
In-Person Public Meetings (2)
AVAILABILITY
September 2013 and December 2013. Specific dates TBD.
BRIEF DESCRIPTION
Two public meetings will be scheduled at key points in the project timeline, one following completion of the draft risk and capability assessments and one following completion of the draft plan (and prior to the plan's local adoption). These meetings will be coordinated and arranged by Catawba County with facilitation support from AECOM.
DETAILS
For both public meetings: • The purpose will be to inform the public on the process and current status of the regional planning process, as well as gain input to the process during the drafting stage and prior to plan completion and approval • AECOM will prepare presentation and handout materials to help facilitate two-way communication with public meeting attendees
LEAD AGENCY
Catawba County/AECOM

OUTREACH METHOD 2
Public Information Website (including Social Media Integration)
AVAILABILITY
July 24, 2013
BRIEF DESCRIPTION
A project information website will be hosted by Catawba County Emergency Management and will be available to the general public and to members of the Hazard Mitigation Planning Committee for the duration of the project at the following web address: http://www.catawbacountync.gov/EmergencyServices/Hazard/RegionalPlan.asp. The primary purpose of this site will be to share information relevant to the 2014 Unifour Regional Hazard Mitigation Plan planning process.
DETAILS
Specific resources to be included on this site include: • Project information fact sheet • Drafts of Unifour Regional Hazard Mitigation Plan sections • List of Unifour Local Jurisdiction Leads • List of project tasks and subtasks with schedule • PowerPoint files from Hazard Mitigation Planning Committee meetings • PDFs of existing county-level hazard mitigation plans for reference during the plan update process • Links to planning resources, including recently published FEMA hazard mitigation planning guidance • Social media integration including, but not limited to, Facebook, Twitter, Tumblr, and Pinterest
LEAD AGENCY
Catawba County

OUTREACH METHOD 3

Project Information Fact Sheet

AVAILABILITY

July 24, 2013

BRIEF DESCRIPTION

A 1-page (double-sided) project information fact sheet will be available online in PDF format for the duration of the project. The primary purpose of this document will be to provide information on the regional planning process and to provide project contact information and links for interested parties to engage in the planning effort. This resource will be available on the project information website described above in Outreach Method 3. Printed copies may be made available on an as-needed basis.

DETAILS

Specific information to be provided in this fact sheet includes:

- Project overview
- Overview of the regional hazard mitigation planning process, including:
  - Public outreach
  - Risk assessment
  - Capability assessment
  - Mitigation strategy development
  - Plan maintenance
  - Plan adoption
- Explanation of project leadership
- Project schedule
- Contact information and links to project information website
- Project graphics/illustrations

LEAD AGENCY

Catawba County/AECOM

OUTREACH METHOD 4

Planning Resources

AVAILABILITY

July 24, 2013

BRIEF DESCRIPTION

Mitigation planning resources will be made available for Hazard Mitigation Planning Committee members and other interested parties in order to promote education and participation in the mitigation planning process.

DETAILS

Specific planning resources will include:

- FEMA mitigation planning guidance
  - *Local Mitigation Planning Handbook*
  - *Mitigation Ideas*
  - *Integrating Hazard Mitigation Into Local Planning*
- Other appropriate planning resources as identified throughout the duration of the planning process

LEAD AGENCY

Catawba County/AECOM

OUTREACH METHOD 5

Public Participation Survey

AVAILABILITY

August 13, 2013 through November 15, 2013

BRIEF DESCRIPTION

An online public participation survey will be hosted by AECOM using the SurveyMonkey web hosting service and will be open to the public for a duration of three months. The primary purpose of this survey will be to solicit input from any interested parties in the planning area and will be used so that individuals throughout the planning area have the opportunity to provide valuable information and feedback to the project team. The online survey will give individuals that are unable to attend the in-person meetings the opportunity to participate in the plan update process. Information from the online survey will allow the project team to better understand the types of hazards that most concern the public and the mitigation actions that are of particular interest. The survey will be made accessible through hyperlinks posted on the project information website and can be circulated via email, Facebook, etc. Additionally, hard copies of the survey will be distributed at the in-person public meetings. The feedback received will be evaluated and incorporated into the Hazard Mitigation Planning Committee's decision making process and the final plan.

DETAILS

Types of specific questions to be asked as part of this survey include:

- Personal history with natural hazards
- Natural hazard concerns
- Perception of vulnerable community assets
- Importance of community assets
- Priorities concerning natural hazard preparedness
- Steps local government can take to reduce natural hazard risk
- Types of mitigation activities deemed important
- Personal interest in natural hazard mitigation
- Effective ways to communicate with residents
- Location in the floodplain
- Questions regarding flood insurance
- Personal actions to mitigate property
- Mitigation activities planned for the respondent's household
- Location within the planning area
- Age (optional)*
- Gender (optional)
- Highest level of education (optional)
- Length of time living in the planning area
- Ownership of property versus rental status
- Type of dwelling
- Open comments**

** All information will be kept strictly confidential*

*** Information will be processed and summarized by AECOM in order to produce summary statistics and summary responses*

LEAD AGENCY

Catawba County/AECOM

Appendix D: Public Participation Survey

This appendix to the Unifour Regional Hazard Mitigation Plan contains a summary of the results obtained through the public participation survey offered from August 13 to November 15, 2013. The survey was conducted online through SurveyMonkey, an online survey software provider, and was also made available in print form at public meetings and at other locations throughout the planning area. These written responses were added to the online database and are reflected in the summary report provided in this appendix.

Natural Hazard Mitigation Public Participation Survey

1. Have you ever experienced or been impacted by a disaster?

		Response Percent	Response Count
Yes		**77.1%**	**135**
No		22.9%	40
	answered question		**175**
	skipped question		**3**

2. If yes, which of these natural hazards have you experienced or been impacted by? (Check all that apply.)

	Response Percent	Response Count
Dam/Levee Failure	4.3%	6
Drought/Extreme Heat	41.3%	57
Earthquake	7.2%	10
Erosion	13.0%	18
Flooding	54.3%	75
Hurricane/Tropical Storm	**74.6%**	**103**
Landslide	4.3%	6
Severe Thunderstorm	59.4%	82
Severe Winter Storm	63.8%	88
Sinkhole	8.7%	12
Tornado	24.6%	34
Wildfire	11.6%	16
Other (please specify)	5.1%	7
	answered question	**138**
	skipped question	**40**

3. How concerned are you about the possibility of your community being impacted by each of these natural hazards? (Check the corresponding circle for each natural hazard.)

	Very Concerned	Somewhat Concerned	Not Concerned	Rating Count
Dam/Levee Failure	8.7% (15)	45.3% (78)	**45.9% (79)**	172
Drought/Extreme Heat	29.9% (52)	**61.5% (107)**	8.6% (15)	174
Earthquake	6.4% (11)	42.4% (73)	**51.2% (88)**	172
Erosion	19.3% (33)	**43.3% (74)**	37.4% (64)	171
Flooding	**48.3% (85)**	40.3% (71)	11.4% (20)	176
Hurricane/Tropical Storm	34.5% (60)	**53.4% (93)**	12.1% (21)	174
Landslide	7.1% (12)	31.8% (54)	**61.2% (104)**	170
Severe Thunderstorm	**66.3% (116)**	31.4% (55)	2.3% (4)	175
Severe Winter Storm	**59.5% (103)**	33.5% (58)	6.9% (12)	173
Sinkhole	27.7% (46)	**38.6% (64)**	33.7% (56)	166
Tornado	**50.0% (86)**	44.2% (76)	5.8% (10)	172
Wildfire	19.3% (33)	**52.0% (89)**	28.7% (49)	171
Other (from previous question)	6.9% (4)	12.1% (7)	**81.0% (47)**	58
			answered question	**176**
			skipped question	**2**

4. In your opinion, which of the following categories are most susceptible to natural hazards in your community? (Rank the community assets in order of vulnerability, 1 being most vulnerable and 6 being least vulnerable.) Please note, the list will automatically re-order itself as you make your selections. You can also drag and drop the items on the list to reorder them.

	1	2	3	4	5	6	Rating Average	Rating Count
Cultural/Historic: Damage or loss of libraries, museums, historic properties, etc.	3.0% (5)	1.8% (3)	5.5% (9)	11.6% (19)	26.8% (44)	**51.2% (84)**	5.11	164
Economic: Business interruptions/closures, job losses, etc.	10.4% (17)	25.0% (41)	**28.7% (47)**	21.3% (35)	11.0% (18)	3.7% (6)	3.09	164
Environmental: Damage, contamination or loss of forests, wetlands, waterways, etc.	6.7% (11)	12.2% (20)	17.1% (28)	22.6% (37)	**28.0% (46)**	13.4% (22)	3.93	164
Governance: Ability to maintain order and/or provide public amenities and services	3.0% (5)	11.0% (18)	15.9% (26)	**28.7% (47)**	20.1% (33)	21.3% (35)	4.16	164
Infrastructure: Damage/loss of roads, bridges, utilities, schools, etc.	25.0% (41)	**34.8% (57)**	20.7% (34)	8.5% (14)	8.5% (14)	2.4% (4)	2.48	164
People: Loss of life and/or injuries	**51.8% (85)**	15.2% (25)	12.2% (20)	7.3% (12)	5.5% (9)	7.9% (13)	2.23	164
						answered question		**164**
						skipped question		**14**

5. How important is each of the following specific community assets to you? (Check the appropriate circle for each asset.)

	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important	Rating Count
Airports	14.2% (23)	25.3% (41)	**25.9% (42)**	18.5% (30)	16.0% (26)	162
Colleges/Universities	29.0% (47)	**34.6% (56)**	23.5% (38)	6.8% (11)	6.2% (10)	162
Day Care Facilities	30.2% (49)	**32.1% (52)**	24.7% (40)	7.4% (12)	5.6% (9)	162
Elder Care Facilities	**46.9% (76)**	33.3% (54)	11.7% (19)	4.9% (8)	3.1% (5)	162
EMS Facilities	**82.6% (133)**	14.3% (23)	2.5% (4)	0.6% (1)	0.0% (0)	161
Emergency Operations Centers	**79.1% (129)**	16.6% (27)	3.7% (6)	0.6% (1)	0.0% (0)	163
Emergency Shelters	**71.2% (116)**	20.2% (33)	6.7% (11)	1.8% (3)	0.0% (0)	163
Fire Stations	**87.0% (141)**	10.5% (17)	0.6% (1)	1.2% (2)	0.6% (1)	162
Historic Buildings	13.8% (22)	**34.0% (54)**	**34.0% (54)**	11.3% (18)	6.9% (11)	159
Hospitals and Medical Facilities	**90.2% (147)**	8.0% (13)	1.2% (2)	0.0% (0)	0.6% (1)	163
Major Bridges	**77.9% (127)**	19.0% (31)	2.5% (4)	0.6% (1)	0.0% (0)	163
Major Employers	**54.3% (88)**	29.0% (47)	13.0% (21)	2.5% (4)	1.2% (2)	162
Parks	15.0% (24)	**41.3% (66)**	26.9% (43)	12.5% (20)	4.4% (7)	160
Police Stations	**84.7% (138)**	10.4% (17)	3.7% (6)	1.2% (2)	0.0% (0)	163
Schools (K-12)	**65.4% (106)**	24.1% (39)	9.3% (15)	0.6% (1)	0.6% (1)	162
Small Businesses	**42.2% (68)**	**42.2% (68)**	13.0% (21)	1.2% (2)	1.2% (2)	161
Town Hall/Courthouse	32.9% (53)	**39.8% (64)**	19.3% (31)	3.7% (6)	4.3% (7)	161
				Other (please specify)		8

answered question	**163**
skipped question	**15**

6. Natural hazards can have a significant impact on a community, but planning for these types of events can help lessen the impacts. The following statements will help us determine citizen priorities regarding planning for natural hazards in your community. Please tell us how important each statement is to you by checking the appropriate circle for each.

	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important	Rating Count
Protecting private property	**57.4% (89)**	34.8% (54)	5.8% (9)	1.9% (3)	0.0% (0)	155
Protecting critical facilities (for example, hospitals, police stations, fire stations, etc.)	**97.5% (153)**	1.9% (3)	0.6% (1)	0.0% (0)	0.0% (0)	157
Preventing development in hazard areas	**52.2% (82)**	35.0% (55)	9.6% (15)	1.3% (2)	1.9% (3)	157
Enhancing the function of natural features (for example, streams, wetlands, etc.)	38.2% (60)	**38.9% (61)**	18.5% (29)	3.2% (5)	1.3% (2)	157
Protecting historical and cultural landmarks	12.7% (20)	**45.2% (71)**	30.6% (48)	6.4% (10)	5.1% (8)	157
Protecting and reducing damage to utilities	**76.9% (120)**	20.5% (32)	1.9% (3)	0.6% (1)	0.0% (0)	156
Strengthening emergency services (for example, police, fire, ambulance)	**85.9% (134)**	10.3% (16)	3.8% (6)	0.0% (0)	0.0% (0)	156
Promoting cooperation among public agencies, citizens, non-profit organizations, and businesses	**67.5% (106)**	28.7% (45)	3.8% (6)	0.0% (0)	0.0% (0)	157
					answered question	**157**
					skipped question	**21**

7. What are some steps that your local government could take to reduce or eliminate the risk of future natural hazard damages in your neighborhood?

	Response Count
	71
answered question	**71**
skipped question	**107**

8. A number of community-wide activities can reduce risk from natural hazards. In general, these activities fall into one of the following six broad categories. Please tell us how important you think each one is for your community to consider pursuing.

	Very Important	Neutral	Not Important	Rating Count
Prevention: Administrative or regulatory actions that influence the way land is developed and buildings are built.	**74.8% (113)**	21.9% (33)	3.3% (5)	151
Property Protection: Actions that involve the modification of existing buildings to protect them from a hazard or removal from the hazard area.	**52.3% (79)**	41.7% (63)	6.0% (9)	151
Natural Resource Protection: Actions that, in addition to minimizing hazard losses, also preserve or restore the functions of natural systems.	**65.3% (98)**	31.3% (47)	3.3% (5)	150
Structural Projects: Actions intended to lessen the impact of a hazard by modifying the natural progression of the hazard.	**63.3% (95)**	35.3% (53)	1.3% (2)	150
Emergency Services: Actions that protect people and property during and immediately after a hazard event.	**96.7% (146)**	2.6% (4)	0.7% (1)	151
Public Education and Awareness: Actions to inform citizens about hazards and the techniques they can use to protect themselves and their property.	**86.1% (130)**	11.3% (17)	2.6% (4)	151
			answered question	**151**
			skipped question	**27**

9. Are you interested in making your home or neighborhood more resistant to natural hazards?

		Response Percent	Response Count
Yes		**91.9%**	**136**
No		8.1%	12
	answered question		**148**
	skipped question		**30**

10. What are the most effective ways for you to receive information about how to make your home and neighborhood more resistant to natural hazards?

	Response Percent	Response Count
Internet (Social Media)	54.1%	80
Internet (Web Pages)	**63.5%**	**94**
Mail	51.4%	76
Mobile Messages/Alerts	40.5%	60
Newspaper	43.2%	64
Public meetings/workshops	26.4%	39
Radio News	22.3%	33
Radio Programs	10.1%	15
Radio Ads	9.5%	14
Television News	48.0%	71
Television Programs	18.2%	27
Television Ads	16.2%	24
Other (please specify)	7.4%	11
	answered question	**148**
	skipped question	**30**

11. Is your home located in a floodplain?

	Response Percent	Response Count
Yes	5.4%	8
No	**86.6%**	**129**
I don’t know	8.1%	12
	answered question	**149**
	skipped question	**29**

12. Do you have flood insurance?

	Response Percent	Response Count
Yes	10.1%	15
No	**88.5%**	**131**
I don’t know	1.4%	2
	answered question	**148**
	skipped question	**30**

13. If “No,” why not?

	Response Percent	Response Count
Not located in a floodplain	**53.7%**	**72**
Too expensive	7.5%	10
Not necessary because it never floods	1.5%	2
Not necessary because I’m elevated or otherwise protected	26.9%	36
Never really considered it	10.4%	14
	answered question	**134**
	skipped question	**44**

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

	Have Done	Plan To Do	Not Done	Unable To Do	Rating Count
Attended meetings or received written information on natural disasters or emergency preparedness?	**50.3% (74)**	6.8% (10)	41.5% (61)	1.4% (2)	147
Talked with members in your household about what to do in case of a natural disaster or emergency?	**74.1% (109)**	12.2% (18)	13.6% (20)	0.0% (0)	147
Developed a “Household/Family Emergency Plan” in order to decide what everyone would do in the event of a disaster?	**47.6% (70)**	32.0% (47)	20.4% (30)	0.0% (0)	147
Prepared a “Disaster Supply Kit” (stored extra food, water, batteries or other emergency supplies)?	**38.1% (56)**	**38.1% (56)**	23.8% (35)	0.0% (0)	147
In the last year, has anyone in your household been trained in First Aid or Cardio-Pulmonary Resuscitation (CPR)?	**57.1% (84)**	6.8% (10)	36.1% (53)	0.0% (0)	147
Prepared your home by installing smoke detectors on each level of the house?	**95.2% (139)**	2.7% (4)	2.1% (3)	0.0% (0)	146
Discussed or created a utility shutoff procedure in the event of a natural disaster?	24.1% (35)	26.2% (38)	**47.6% (69)**	2.1% (3)	145
				Other (please specify)	5
				answered question	**147**
				skipped question	**31**

15. Where do you live?

	Response Percent	Response Count
Brookford	0.0%	0
Cajah's Mountain	0.7%	1
Catawba	1.4%	2
Cedar Rock	0.0%	0
Claremont	3.4%	5
Connelly Springs	0.7%	1
Conover	8.8%	13
Drexel	0.0%	0
Gamewell	1.4%	2
Glen Alpine	0.7%	1
Granite Falls	9.5%	14
Hickory	11.6%	17
Hildebran	0.0%	0
Hudson	0.0%	0
Lenoir	2.7%	4
Long View	2.7%	4
Maiden	2.0%	3
Morganton	2.0%	3
Newton	**12.2%**	**18**
Rhodhiss	0.0%	0
Rutherford College	0.0%	0
Sawmills	1.4%	2
Taylorsville	8.8%	13

Valdese		5.4%	8
Unincorporated Alexander County		4.1%	6
Unincorporated Burke County		3.4%	5
Unincorporated Caldwell County		0.0%	0
Unincorporated Catawba County		8.8%	13
Other (please specify)		8.2%	12
		answered question	**147**
		skipped question	**31**

16. How long have you lived in the Unifour area?

		Response Percent	Response Count
Less than one year		4.1%	6
1-5 years		8.2%	12
6-9 years		12.3%	18
10-19 years		19.2%	28
20 years or more		**56.2%**	**82**
		answered question	**146**
		skipped question	**32**

17. Do you own or rent your home?

	Response Percent	Response Count
Own	**90.3%**	**130**
Rent	9.7%	14
	answered question	**144**
	skipped question	**34**

18. What type of building do you live in?

	Response Percent	Response Count
Single-family home	**90.4%**	**132**
Duplex	0.7%	1
Apartment (3-4 units in structure)	0.7%	1
Apartment (5 or more units in structure)	0.7%	1
Condominium	2.1%	3
Manufactured home	5.5%	8
Other (please specify)	0.0%	0
	answered question	**146**
	skipped question	**32**

19. Additional Comments

	Response Count
	19
answered question	**19**
skipped question	**159**

Page 2, Q2. If yes, which of these natural hazards have you experienced or been impacted by? (Check all that apply.)		
1	water shortage	Oct 11, 2013 9:55 AM
2	Local plant fire (Chemicals) town evacuated. Was a child in PA.	Sep 21, 2013 2:33 AM
3	coronal mass ejection from sun	Sep 20, 2013 6:48 AM
4	HAIL STORM	Sep 4, 2013 10:21 AM
5	Strong wind damage from thunderstorms	Sep 2, 2013 8:58 AM
6	flooded basement	Aug 31, 2013 8:31 AM
7	improper storm drain system in Conover	Aug 27, 2013 6:30 PM

Page 3, Q5. How important is each of the following specific community assets to you? (Check the appropriate circle for each asset.)		
1	Libraries-important	Nov 20, 2013 11:22 AM
2	sewagelines	Oct 11, 2013 9:57 AM
3	sources of food, meds, energy, protection = Very Important	Sep 21, 2013 2:44 AM
4	Utilities	Sep 20, 2013 6:50 AM
5	Grocery Stores	Sep 7, 2013 6:36 PM
6	Farms, animal shelter	Sep 4, 2013 6:29 AM
7	Very important to protect farmers land,equipment and livestock	Sep 2, 2013 9:47 AM
8	Access to food, fresh water, gasoline supplies.	Aug 28, 2013 4:37 PM

Page 4, Q7. What are some steps that your local government could take to reduce or eliminate the risk of future natural hazard damages in your neighborhood?		
1	Better rain & water run off	Nov 20, 2013 11:42 AM
2	Promote the construction of lakes & ponds. Promote controlled burningof forest understory.	Nov 20, 2013 11:38 AM
3	Planning Mitigation Recovery	Nov 12, 2013 7:12 AM
4	Provide appropriate funding to achieve a high or enhanced level of service.	Oct 30, 2013 10:45 AM
5	more sewage line and roadside plants	Oct 11, 2013 9:58 AM
6	Pre-Incident Hazard mitigation of the I-40 and the railroad system through the county. Second would be the maintance to the early warning system for the Dams maintained by Duke Engery	Oct 9, 2013 7:48 AM
7	Install sirens for Tornados and Thunderstorms.	Oct 2, 2013 6:12 AM
8	follow up after. we still dont know if we are going to get assistant and there was no one to help up find out. they said they would send a letter. It is very nerve racking to wait. And leaves a family waiting on something that might never come and not knowing what to do NEXT!!	Oct 1, 2013 6:37 AM
9	Help those who live on "private" roads and are succeptable to flooding. There should be some kind of community grant to help these type of neighborhoods when they are flooded (ie roads and bridges get washed away)	Sep 30, 2013 10:12 AM
10	Being prepared.	Sep 30, 2013 9:01 AM
11	Provide more funding for emergency services preparedness.	Sep 27, 2013 12:32 AM
12	Neighborhood drills with prior education could help prepare people to properly prepare for particular situations.	Sep 26, 2013 5:48 AM
13	Not allow development in flood prone areas.	Sep 25, 2013 12:20 PM
14	Encourage the use of house and building id numbers,	Sep 25, 2013 10:52 AM
15	Get a hospital	Sep 25, 2013 10:41 AM
16	Need to improve the drainage system in Newton,NC to prevent flooding of homes	Sep 25, 2013 9:51 AM
17	Raising awareness in preparing for natural disaster such as what to do during flooding, what do you know if you house gets flooded, ways to prevent extensive flood damage etc.	Sep 25, 2013 9:48 AM
18	Not clear cutting trees in potential flood areas.	Sep 25, 2013 9:47 AM
19	We already are on the Emergency Alert for Catawba County. This is a great asset.	Sep 25, 2013 9:34 AM
20	Have an effective plan in place to deal with possible emergency situations- Pre-planning will help reduce chaos and provide a scaffolding to adhere to in	Sep 24, 2013 9:21 AM

Page 4, Q7. What are some steps that your local government could take to reduce or eliminate the risk of future natural hazard damages in your neighborhood?		
	responding to emergency situations rather than just operating off-the-cuff. Making a plan prior to any emergency situation allows for thinking through the options and making the best possible choices of actions to be taken. Involve all the local public agencies, organizations, and businesses so as to take advantage of their skills and expertise in an actual emergency situation.	
21	Planning is important, but communication of the plan is essential. People need to know how to access the plans to put them in place otherwise they are useless.	Sep 23, 2013 7:44 AM
22	Warning systems. Ongoing education for personal preparedness. Plans of cooperation between local government and churches for relief work.	Sep 21, 2013 1:41 PM
23	Plans that would cover a number of worst case scenerios. That Key people are organized & know what their part is & initiate it. The public needs to know the plan on a house basis to the bigger plan of where to go & how to help. Vague I know....sorry....but everyone needs to be prepared for all the worst case scenarios.....because we never know when or where it may happen.	Sep 21, 2013 9:35 AM
24	I appreciate all of our emergency management officials in Catawba County. I was impressed with how Catawba County handled our recent flood. We got the robocalls telling people to stay home, and signs were quickly posted where roads were washed out. It did seem the culverts were the ones washing out but the bridges fared well. Perhaps another look at culvert design needs to be taken. Our culvert was fairly new, having been put in in the early 2000s, and it washed out and took the road with it. They are fixing it now but won't this happen again with the next flood? Also, people who are out joyriding in the flood and have to be rescued should be made to pay for their rescue.	Sep 21, 2013 8:27 AM
25	Make the neighbourhood aware of any plans that are already exist and what option surround it. Are there provisions for the community staying in place and/or evacuation. What supply sources are there for food, medical, and energy?	Sep 21, 2013 2:50 AM
26	Offer classes for emergency preparedness, offer free first aid training for any interested, have back ups in place for critical infrastructure (power grid components, communications)	Sep 20, 2013 6:52 AM
27	nothing. that is the nature of 'natural disasters'	Sep 18, 2013 10:08 AM
28	Focus (and engage) on improving and upgrading infrastructure. Increase emergency response personnel. Take maintenance and preparedness programs seriously.	Sep 17, 2013 11:11 AM
29	Create erosion laws to protect property from damage occuring from water drainage from other properties. Reinforce small bridge systems to help prevent the bridges washing away during flooding.	Sep 16, 2013 12:05 PM
30	Professional assesment of the area.	Sep 16, 2013 7:27 AM
31	provide more money to volunteer agencies such as fire departments and rescue squads for training and equipment due to them responding and staying on scene until not needed any further and them being away from their families during these emergencies with no pay for themselves. I have seen them on scene when	Sep 12, 2013 8:04 PM

Page 4, Q7. What are some steps that your local government could take to reduce or eliminate the risk of future natural hazard damages in your neighborhood?		
	no paid person from the county was there and never complain of what was needed of them.	
32	More public education and specilazed training for emergency workers	Sep 11, 2013 12:21 PM
33	FLOOD MANAGEMENT AND MIDIGATION	Sep 11, 2013 7:32 AM
34	Keep high quality employees in positions that protect the community.	Sep 9, 2013 5:49 PM
35	Early warning systems for severe weather (some counties already have this in place via text alerts)	Sep 9, 2013 9:59 AM
36	Knowing that certain areas are more prone to natural disasters the counties should focus on communicating with landowners in those areas to make them aware of the risks and promote preventative actions. Good preparation now could be the difference between your house washing away or burning down or surviving the storm.	Sep 9, 2013 5:50 AM
37	Forest reduction burns, utility Right of Way clearing trimming, slope stabilization and seeding	Sep 9, 2013 3:44 AM
38	You cant ever stop or protect yourself completely from the wrath mother nature. Its going to do whatever it wants no matter what we do. We can always strengthen outdated bridges, roads utilities widen creeks and spend millions doing so but I suggest educating first responders and the public on how to best deal with the natural hazards that are most likely to affect them first. Text alerts of hazards and what the person should do or not do are also great. With education we can survive until you get it fixed.	Sep 7, 2013 6:46 PM
39	Continue to prepare and pre-plan for disaster events	Sep 5, 2013 11:46 AM
40	By closing government agencies when road conditions are hazardous and encouraging others to stay off the road during winter storms and major flood events.	Sep 5, 2013 10:32 AM
41	water flow management	Sep 4, 2013 11:33 AM
42	improve public awareness of impending disasters.	Sep 4, 2013 11:08 AM
43	Regular community meetings pertaining to readiness.	Sep 4, 2013 10:32 AM
44	Trim entire trees that run along power lines, not just the portion on the line.	Sep 4, 2013 10:25 AM
45	Be well trained	Sep 4, 2013 8:34 AM
46	Maintain resources for preventive maintenance, i.e. tree trimming, road paving/patching, more underground wiring, replace old infrastructure, protect funding for powell bill, etc.	Sep 4, 2013 6:32 AM
47	Try to get Duke Energy to better prepare for large rain events and lower the Lookout Lake therefor preventing flooding of structures there.	Sep 2, 2013 9:47 AM
48	put more of the power lines underground	Aug 30, 2013 6:13 PM

Page 4, Q7. What are some steps that your local government could take to reduce or eliminate the risk of future natural hazard damages in your neighborhood?		
49	Pre-planning, training, and public education of all the possible community natural hazard threats.	Aug 29, 2013 10:46 AM
50	most are weather related and unsure of what would reduce risk	Aug 29, 2013 9:38 AM
51	Updating older infrastructure	Aug 29, 2013 7:36 AM
52	More signage for areas that are subject to flooding.	Aug 29, 2013 4:51 AM
53	Remove limbs near power lines or force burying of power lines.	Aug 28, 2013 4:40 PM
54	Keep fire hydr ants in good repair. Cut trees more often that could fall on homes. I love the call system that Catawba county has for weather issues Send notices regularly about where the shelters are and try to include other languages Spanish and Hmong.	Aug 28, 2013 2:48 PM
55	Identfy and understand the weak areas and attempt to develope an economic plan to mitagate damages	Aug 28, 2013 11:49 AM
56	Designate a location for staging disaster related debris	Aug 28, 2013 11:16 AM
57	controlling building in possible hazard area	Aug 28, 2013 8:18 AM
58	Shared use of public facilities and good communication and dialogue will reduce the redundancy if facilities.	Aug 28, 2013 7:54 AM
59	Plan	Aug 28, 2013 7:38 AM
60	Promote resiliency at the micro levels by encouraging smart design of homes, neighborhoods and businesses. Ask the question: how would this home/neighborhood/business function during a prolonged loss of utilities and/or interruption of supply chain? Passive solar heating/cooling, building orientation, insulation levels, backup generators for critical systems, extra supplies, etc. could all be promoted to reduce the demands for emergency services during natural disasters.	Aug 28, 2013 7:27 AM
61	Conover, Catawba County and NC State should add additional Storm Drains in the City of Conover to better handle the water run off. My home has been flooded three times in the last 7 years and I can not get Flood Insurance because it's not in a Flood Plain.	Aug 27, 2013 6:39 PM
62	there are many unstable trees that should be cut down. The street drains don't function well in some of the extreme downpours we have been experiencing.	Aug 27, 2013 4:14 PM
63	Have more awareness materials avalible & promote awareness more!	Aug 27, 2013 4:01 PM
64	Trim trees away from power lines, encourage folks to trim/remove trees close to houses/businesses.	Aug 27, 2013 12:22 PM
65	1. Prevent development in flood-prone or disaster-prone areas. 2. Increase public awareness on what to do in case of a natural disaster.	Aug 27, 2013 11:26 AM
66	Local government cannot prevent weather. However, ensuring that the	Aug 27, 2013 10:14 AM

Page 4, Q7. What are some steps that your local government could take to reduce or eliminate the risk of future natural hazard damages in your neighborhood?		
	government can still provide for its citizens in the event of a disaster is extremely important. Emergency responders need to be able to respond in a timely fashion. Repairing utilities as soon as possible is very important, especially for vulnerable populations.	
67	Ensure the security of the dams on the Catawba River.	Aug 26, 2013 11:25 AM
68	Working with other jurisdictions collaborativel	Aug 26, 2013 2:25 AM
69	Better weather forecasts and quicker warning systems.	Aug 23, 2013 8:03 AM
70	Encourage and maintain knowledge, strength and cooperative among emergency services	Aug 23, 2013 5:14 AM
71	Stop interfering with code officials for the sake of business creation	Aug 22, 2013 11:32 AM

Page 6, Q10. What are the most effective ways for you to receive information about how to make your home and neighborhood more resistant to natural hazards?		
1	a highspeed hdtv / phone line down hyw 16	Oct 11, 2013 10:02 AM
2	E-mail	Oct 9, 2013 10:27 AM
3	email	Sep 26, 2013 6:55 AM
4	Distributed through workplace	Sep 26, 2013 5:50 AM
5	Flyers	Sep 25, 2013 9:50 AM
6	email	Sep 20, 2013 6:55 AM
7	e-mail	Sep 9, 2013 5:52 AM
8	email blasts, flyers in monthly bills	Sep 4, 2013 6:34 AM
9	Call system	Aug 29, 2013 8:09 AM
10	Email	Aug 27, 2013 6:40 PM
11	email	Aug 27, 2013 4:16 PM

Page 7, Q14. In the following list, please check the activities that you have done in your household, plan to do in the near future, have not done, or are unable to do. (Please check one response for each preparedness activity.)		
1	maintenance of stormwater systems	Nov 20, 2013 11:39 AM
2	111111111	Oct 11, 2013 10:03 AM
3	Have been actively involved in preparedness planning at home, work, church & educating others.	Sep 21, 2013 2:58 AM
4	Have a designated "safe Room"	Sep 9, 2013 10:02 AM
5	registered for the community alert system	Sep 5, 2013 10:36 AM

Page 8, Q15. Where do you live?		
1	right outside Longview on the Burke County Side	Nov 5, 2013 8:56 AM
2	none	Oct 11, 2013 10:04 AM
3	Out side of Glen Alpine	Oct 9, 2013 7:51 AM
4	Mooresville	Sep 25, 2013 9:31 AM
5	South Mountain	Sep 17, 2013 11:15 AM
6	Bethlehem	Sep 17, 2013 10:46 AM
7	St Stephens/Springs Rd area	Sep 16, 2013 12:09 PM
8	Bethlehem - Alexander County	Sep 9, 2013 10:03 AM
9	Bethlehem, NC. Alexander County	Sep 4, 2013 10:04 PM
10	County, Granite Falls address	Sep 4, 2013 6:37 AM
11	Mountain View	Aug 29, 2013 4:53 AM
12	Morganton in Chesterfield area	Aug 23, 2013 8:06 AM

Page 9, Q19. Additional Comments		
1	None.	Oct 30, 2013 10:49 AM
2	000000000000000000000	Oct 11, 2013 10:04 AM
3	initial response was great. I just felt there needed some follow up. Also needed damaged contents taken to dump but no way of getting it there. too large for our car would have been nice for limbs to have been picked up along with damaged items. Still have them waiting on use of a friends truck :(	Oct 1, 2013 7:07 AM
4	Alexander Co needs a hospital or urgent care facility	Sep 25, 2013 10:46 AM
5	more use of CodeRED alert system but specific to smaller areas in the County - for example, if I leave in South Newton, I may not need to know about a problem in North Hickory or the other side of Conover.	Sep 25, 2013 10:45 AM
6	Having worked with the issue of Safe Schools planning, I am well aware of the need for having a pre-planned course of action for any possible emergency situations. Having to react to emergencies without having a well-thought out plan to use as guidance can have disastrous results as it is very difficult to think clearly and to determine the appropriate steps of action in the midst of an emergency. The best course of action is always being proactive rather than reactive.	Sep 24, 2013 9:28 AM
7	This may not fall under the category of "natural hazard," but I am very concerned that the unifour area be prepared for civil unrest and other difficulties in the event of an economic breakdown or a terrorist attack that does major damage to infrastructure. Is there a plan in place if there is a major disruption of goods and services, i.e. no power, no water, disruption in the food supply? Is there a plan for dealing with riots? I would like to see county officials encourage citizens to have a longer-term plan than just three days. This would include having disaster supplies and several weeks worth of food and water, or more, if possible. Also, it would be smart for people to have a plan to relocate if necessary. People should be strongly encouraged not to depend on the government to help as their first resource, but to prepare themselves and their loved ones now to be self-sustaining for several weeks or even longer. People should also be encouraged to think about their neighbors. If people would do some long-term preparing, it would go a long way in keeping order and quelling panic. I think it could be very helpful in a public information campaign to introduce people to the idea that government resources should not be counted on in a disaster, and that people need to take long-term personal responsibility for themselves and their families and their neighborhoods.	Sep 21, 2013 9:37 AM
8	Our assets are our people, they just need to be individually aware and prepared. If each family can care for themselves and one neighbour in times of crisis, we can handle most if not all event that could happen. It would also go a long way to strengthen the community to know that each person has the other person's back.	Sep 21, 2013 3:03 AM
9	Please make yourselves aware of risk of electro-magnetic pulse, which could result from a coronal mass ejection from the sun or from a terrorist attack. This could shut down our power grid indefinitely if we don't have back-up hardware already here and protected.	Sep 20, 2013 6:59 AM
10	I feel the town uses the air raid siren for the wrong reason. It should only be	Sep 16, 2013 7:38 AM

Page 9, Q19. Additional Comments		
	used to let the residences know to take shelter in the case of an inpending desaster. Right now it is only used to summon the fire dept. - and they send a police officer door to door and put the officers life in danger and everyone elses to notify us to take shelter. The air raid siren would notify everyone all at the same time and the officers and other emergy personel could also know what this means and could go ahead and get prepaired to spring into action according to what desaster is comming.	
11	Having lived thru Hugo, and several severe ice storms, I believe all 4 counties in this area do a good job with resources during weather disasters	Sep 9, 2013 10:04 AM
12	There are many programs available that can assist with this process one of which I have personally utilized for wildfire protection. This program is funded through the American Recovery and Re-investment Act (ARRA) and can be used to install fuel breaks in wooded areas near developed areas and conduct hazard reduction burns. The hardest part of this is getting people to understand that it is important. The biggest thing with these projects is that they are free as long as the landowner will let it be done.	Sep 9, 2013 5:57 AM
13	If I did not work for a local government, I would not have been able to list as many proactive activities that the Town has provided me as part of my job. As an ordinary citizen, I would only have the local newscast and newspaper to rely on for instruction and information.	Sep 4, 2013 6:39 AM
14	Could not get answers in #4 to work properly,so they don't represent the order I would prefer.	Sep 2, 2013 9:49 AM
15	Certain types of disasters, such as river floods, are a greater risk in some areas. County should identify those very high risk areas and focus education efforts there, rather than trying to get attention of entire county. When a countywide effort is necessary, advertisements in the Observer News Enterprise are the best way to get the message across. Putting it in the HDR is a good way for the message to have no credibility.	Aug 28, 2013 4:46 PM
16	Develop a team of local volunteers to help with natural disaster ears Look to Colorado with their trained volunteers	Aug 28, 2013 2:56 PM
17	Conover must improve the Storm Drain System. The streets can not handle the rain / water runoff for a 3-4 inch rain. Anything more, and it floods the streets, the business' and some homes.	Aug 27, 2013 6:43 PM
18	Just want to add that all the emergency services in the Newton area do an excellent job of responding to emergencies. The local policy especially are present, involved and alert!	Aug 27, 2013 4:18 PM
19	I really felt Catawba County done a great job during the recent flooding in protecting & caring for it's citizens.	Aug 27, 2013 4:06 PM

Unifour Regional Hazard Mitigation Plan

Project Kickoff Meeting

July 9, 2013
9:30 a.m. – 11:30 a.m.
Western Piedmont Council of Governments
1880 2nd Ave. NW, Hickory
Conference Room A1

AGENDA

1. Welcome and Introductions 9:30 – 9:40

2. Project Overview 9:40 – 9:55
   - Purpose, scope and schedule
   - Roles and responsibilities

3. Review and Discussion of Existing Plans 9:55 – 10:35

4. Plan Update and Integration Process 10:35 – 11:05
   - Planning team organization
   - Leveraging existing resources
   - Communications
   - Data collection
   - Public outreach/stakeholder engagement

5. Open Discussion 11:05 – 11:25
   - Potential opportunities or synergies
   - Potential barriers or impediments
   - Other local issues, concerns, or ideas

6. Next Steps 11:25 – 11:30

Unifour Regional Hazard Mitigation Plan
Project Kickoff Meeting - July 9, 2013

NAME	TITLE / AFFILIATION	PHONE	E-MAIL
David Wright	NC Forest Service County Ranger	828 465-8443	David.Wright @NCAGR.GOV
Ashley Simmons	Burke Co. Health Department Preparedness Coordinator	828-764-9219	ashley.simmons@co.burke.nc.us
Mike Helton	Catawba Valley Medical Center Emevergency Management Coordinato	828-326-3620	mhelton e Catawbavalleymc.org
KENNETH A. TEAGUE	EMERGENCY MANAGEMENT CALDWELL COUNTY	828-757-1419	kteague@caldwell countync.org
Chase Keller	Emergency Management Caldwell County (Intern)	828-493-0376	Kellercc@appstate.edu
Michael P. Long	Burke County Emergency Management	828-764-9321	mike.long@burkenc.org
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Jeff Church	Assistant Superintendent Caldwell Co. Schools	828-728-8407-142 828-312-2051	jeffchurch@caldwellschools.com
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Greg Wilson	Town of Granite Falls Planner	396-3131	Wilson@granitefallsnc.com

Unifour Regional Hazard Mitigation Plan
Project Kickoff Meeting - July 9, 2013

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Mark Robinson	FRMC Emergency Preparedness	828-962-5027	donald.robinson@tenethealth
Lee Anderson	City of Morganton	828-438-5270	landerson@ci.morganton.nc.us
Jenny Wheelock	Planning Director/ City of Lenoir	828-757-2168	jwheelock@lenoir-nc.gov
Craig Adams	Code Enforcement Officer	980-322-6287	cadams@ci.lenoir.nc.us
Shelley Stevens	Planner, WPCOG/Town of Catawba	828-485-4238	Shelley.stevens@wpcog.org
Laurie LoCicero	WPCOG Planner, City of Claremont Town of Cajah's Mtn Town of Valdese	828-485-4240	laurie.bradshaw@wpcog.org
Charles Mullis	Town of Long View Planner	828-322-3921	charles.mullis@mail.ci.longview.nc.us

Unifour Regional Hazard Mitigation Plan
Project Kickoff Meeting - July 9, 2013

NAME	TITLE / AFFILIATION	PHONE	E-MAIL
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MIKE TOWNSEND	DISASTER ACTION TEAM COORDINATOR ALEXANDER, CALDWELL, BURKE, CATAWBA AMERICAN RED CROSS	828-381-1859	MIKE.TOWNSEND@REDCROSS.ORG
CHARLES AVERY	Regional Readiness & Response Manager American Red Cross Alexander, Burke, Caldwell, Catawba	(828)406-5581	Charles.Avery@RedCross.org
John Marshall	WPCOG Planning Director	(828)485-4232	john.marshall@wpcog.org
Cal Overby	City of Hickory Principal Planner	828.323.7487	Coverby@hickorync.gov
Steve MOORE	City of Hickory DEPUTY Fire Chief	828 323-7522	Smoore@hickoryNC.gov
Johnny Wear	Environmental Planner WPCOG	828-485-4283	john.wear@wpcog.org
Kelly Larkins	WPCOG Transportation Planner	828-485-4231	Kelly.larkins@wpcog.org
Scott Carpenter	Burke Co. Planning Dir.	828-367-8825	scott.carpenter@burkenc.org
Kimberly Edmisten	Caldwell Memorial Hospital (Caldwell Co.)	828-406-5314 757-5423	kedmisten@caldwell-mem.org

Unifour Regional Hazard Mitigation Plan
Project Kickoff Meeting - July 9, 2013

NAME	TITLE / AFFILIATION	PHONE	E-MAIL
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Seth Harris	Alexander County Planning	632-1114	Sharris@alexandercounty[illegible]
Russell Green	Alexander Co. Ext. Rep	632-9331	rgreen.5 alexander.ces.ncsu.edu
Jimmy Drum	Deputy chief	493-1916	rhodhissfire@yahoo.com
Sherri Bradshaw	Town of Drexel - Manager	437-7421	sbradshaw@townofdrexel.net
Karyn Yaussy	Catawba Co EM	465-8989	KYaussy@CatawbaCountyNC.gov

Catawba County
Unifour Regional Hazard Mitigation Plan
Project Kickoff Meeting

AECOM

Darrin Punchard, Project Manager
Mike Robinson, Lead Planner

July 9, 2013

AECOM

Agenda

- Welcome and introductions
- Project overview
- Review and discussion of existing plans
- Plan update and integration process
- Open discussion
- Next steps

AECOM

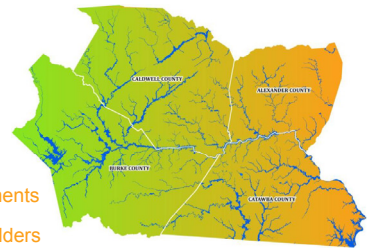
Handouts

- Meeting agenda
- Meeting sign-in sheet
- Designated "Local Jurisdiction Leads" sign-up sheet

AECOM

Welcome and Introductions

- Unifour
  - Alexander County
  - Burke County
  - Caldwell County
  - Catawba County
- Western Piedmont Council of Governments
- Other local stakeholders
- State and federal partners
- AECOM



AECOM

Project Overview

- Purpose
  - To prepare a Regional Hazard Mitigation Plan for the Unifour area, consisting of four updated multi-jurisdictional hazard mitigation plans incorporated into one regional plan
- Scope
  - Counties of Alexander, Burke, Caldwell and Catawba
  - 28 participating jurisdictions
  - Key tasks and subtasks (shown on following slides)
- Schedule
  - Complete final draft plan for NCEM / FEMA review by January 1, 2014

AECOM

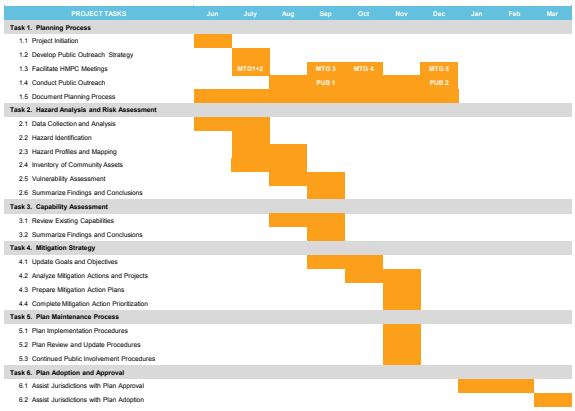
Key Project Tasks

1. Planning Process
   - 1.1 Project Initiation
   - 1.2 Develop Public Outreach Strategy
   - 1.3 Facilitate Regional Planning Team Meetings
   - 1.4 Conduct Public Outreach
   - 1.5 Document Planning Process
2. Risk Assessment
   - 2.1 Data Collection and Analysis
   - 2.2 Hazard Identification
   - 2.3 Hazard Profiles and Mapping
   - 2.4 Inventory of Community Assets
   - 2.5 Vulnerability Assessment
   - 2.6 Summarize Findings and Conclusions

AECOM

Key Project Tasks

3. Capability Assessment
   - 3.1 Review Existing Capabilities
   - 3.2 Summarize Findings and Conclusions
4. Mitigation Strategy
   - 4.1 Update Goals and Objectives
   - 4.2 Analyze Mitigation Actions and Projects
   - 4.3 Prepare Mitigation Action Plans
   - 4.4 Complete Mitigation Action Prioritization
5. Plan Maintenance Procedures
   - 5.1 Plan Implementation
   - 5.2 Plan Review and Update
   - 5.3 Continued Public Involvement



Plan Update Process







Project Overview

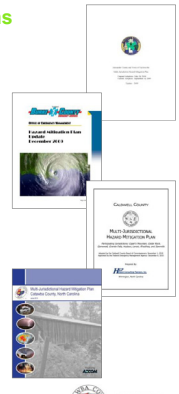
- Roles and responsibilities
  - AECOM
    - Oversee, manage and document the completion of all key project tasks
    - Monthly progress reports
  - Catawba County
    - Serving as lead coordinating agency
    - Designation of local project manager
    - Assistance with the collection of documents, data and other information
    - Logistics for project meetings
    - Hosting and managing project website
    - Responding to general questions or inquiries from the public or stakeholders
    - Coordinating with participating jurisdictions

Project Overview

- Roles and responsibilities
  - All participating jurisdictions
    - Designate local jurisdiction lead
    - Attend Hazard Mitigation Planning Committee meetings
    - Coordination between counties, municipalities and local stakeholders
    - Data collection and information sharing
    - Mitigation strategy development (Mitigation Action Plans)
    - Assist with public outreach
    - Review and comment on draft plan materials

Review and Discussion of Existing Plans

- Alexander County and Town of Taylorsville Multi-Jurisdiction Hazard Mitigation Plan
  - (September 2009)
- Burke County Hazard Mitigation Plan
  - (December 2009)
- Caldwell County Multi-Jurisdictional Hazard Mitigation Plan
  - (December 2010)
- Catawba County Multi-Jurisdictional Hazard Mitigation Plan
  - (June 2010)



Hazards Addressed

- Climate change
- Dam/levee failure
- Drought/extreme heat
- Earthquake
- Erosion
- Flood
- Hail
- Hurricane
- Landslide
- Lightning
- Nor'easter
- Thunderstorm
- Tornado
- Wildfire
- Winter weather
- Technological

Hazards Addressed

ALEXANDER	BURKE	CALDWELL	CATAWBA	STATE HMP
			Climate Change	
(Covered under flood)	Dam Failure	Dam/Levee Failure	Dam/Levee Failure	Dam Failure
Drought	Drought	Drought/Extreme Heat	Drought/Extreme Heat	Drought
Earthquakes	Earthquake		Earthquakes, Sinkholes and Landslides	Earthquakes
			Erosion	
Flooding (includes riverine flooding, flash floods, dam break floods, local drainage or high groundwater levels, and fluctuating lake levels)	Flood	Flooding (includes riverine flooding, flash floods, dam break floods, local drainage or high groundwater levels, and fluctuating lake levels)	Flood	Floods
Fixed Nuclear Facility				
				Geological (includes debris flow/landslide, subsidence, acidic soil, geochemical-related, mine collapse, sinkholes, and expansive soil)
Forest/Wildfires	Wildfire	Wildfire	Wildfire	Wildfire
	Hail			(Covered with thunderstorm)
Hazardous Materials (includes fixed and mobile)				
Hurricanes	Hurricane		Hurricanes, Tropical Storms, and Nor'easters	Hurricanes and Coastal Hazards
				Infectious Disease
	Landslide	Landslides		(Covered under geological)
		Lightning		(Covered with thunderstorm)
	Nor'easter		(Covered with hurricanes)	(Covered with hurricanes)
	Severe Heat		(Covered under drought)	(Covered under drought)
Terrorist Activity (includes biological threats, weapons of mass destruction, and other)	Terrorism			
Severe Thunderstorms	Thunderstorm	Severe Thunderstorms and Windstorms	Severe Thunderstorms and Tornadoes	Thunderstorm
Tornados	Tornado	Tornados	(Covered with severe thunderstorms)	Tornado
Winter Storms	Severe Winter Storm	Severe Winter Storms	Winter Storms and Freezes	Severe Winter Weather

Types of Maps Included

- Community profile(s)
- Community assets
- Historical hazard occurrences
- Hazard boundaries
- Land use/zoning
- National maps
- State-level maps
- Local maps

Types of Maps Included

ALEXANDER	BURKE	CALDWELL	CATAWBA
100-year Floodplain	Floodplain Areas	Flood Zone	Potential Flood Hazard Areas Countywide
500-year Floodplain		Flood Zone	Potential Flood Hazard Areas
		Areas of Anticipated Growth	
			Average Annual Number of Thunder Events (nationwide)
			Commercial Exposure
	Community Profile (3)	Regional Location	Community Profile
Critical Facilities	Critical Structures	Critical Facilities	
Critical Facilities + Future Land Use			
			Critical Facilities + Flood Hazard Areas
			Critical Facilities + Wildfire Hazard Areas
Dam Inundation Map	Dam Failure Inundation Area		Dams in Relation to Population Density
		Degrees of Slope	
			Empirical Probability of a Named Storm
			Five Year Lightning Flash Density Map (nationwide)
Existing Land Use	Zoning (3)	Land Use	Current Land Use
			Current Land Use + Flood Hazard Areas
			Current Land Use + Wildfire Hazard Areas
Future Land Use			
			Flood-prone Road and Bridge Segments
Geological and Seismic Information for NC			Geological and Seismic Information for North Carolina
			Geological and Seismic Information for Catawba County
Haamat Transportation Corridor Maps (4)			HAZMAT Sites Intersecting Floodplain
			HAZMAT Sites in Relation to Population Density
			High Potential Loss Maps
			Historical Storm Tracks within 75 Miles of Catawba County
			Industrial Dollar Exposure
			Landslide Overview Map of the Conterminous United States
			Landslide Potential
			Landslide Risk in Relation to Population Density
			Observed Tornadoes per County (statewide)
			Palmer Drought Severity Index Summary Map for the United States
			Peak Acceleration with 10 Percent Probability of Exceedance in 50 Years (nationwide)
			Population Density
			Residential Dollar Exposure
			Seismic Risk in Relation to Population Density
			Small Area Plans
Special Concern Areas (2)			
			State-Regulated Dams
Streets and Highways			
			Tornado Activity (nationwide)
Tornados			Tornado Strikes
	Urban Wildfire/Landslide Interface		
	Urbanization and Hazard Areas		
U.S. Drought Monitor (nationwide)		U.S. Drought Monitor (statewide)	U.S. Drought Monitor (nationwide)
			Wildfire Potential
			Wildfire Potential in Relation to Population Density
			Wind Zones in the United States

Mitigation Strategy

- Strategies
- Goals
- Objectives
- Actions
- Implementation plans

Mitigation Goals, Strategies and Actions

ALEXANDER	BURKE	CALDWELL	CATAWBA
Strategy Elements (9)		Strategies (17)	
Mitigation Goals (15)	Planning Goals (11)	Community Goals (7)	Mitigation Goals (8)
	Plan Objectives (7)	Hazard Mitigation Objectives (14)	
Action Plans (similar to implementation plans) (6)			
Detailed goals (similar to projects or actions) (6)	Hazard mitigation activities (178)	Mitigation Strategies (similar to actions) (24)	Mitigation Actions (88)

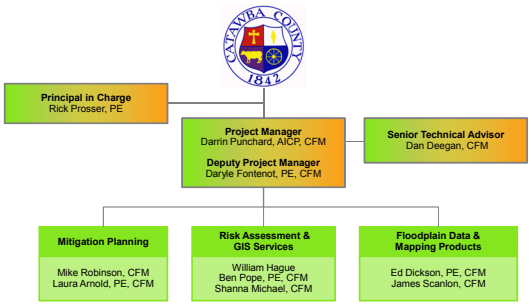
Capability Assessment

ALEXANDER	BURKE	CALDWELL	CATAWBA
Included in Section V: Hazard and Vulnerability Mitigation	Included in Appendix C. County Capability Assessment	Included in Section 4. Community Capability Assessment	Included in Section 7: Capability Assessment

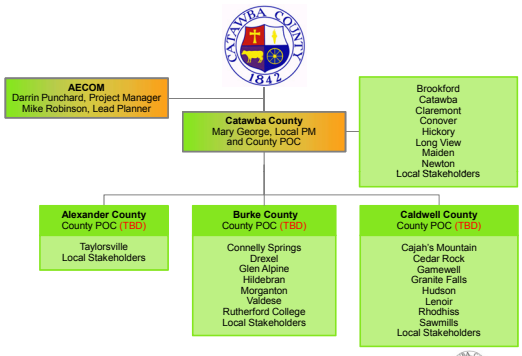
Plan Update and Integration Process

- Planning team organization
- Leveraging existing resources
- Communication
- Data collection
- Public outreach/stakeholder engagement

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Planning Team Organization



Leveraging Existing Resources

- Existing plans, studies and reports
  - Including existing mitigation plans
- Existing data and information
  - Including GIS data
- Local knowledge sharing
- Other resources?

Planning Resources

- FEMA planning guidance
  - *Local Mitigation Planning Handbook*
  - *Mitigation Ideas*
  - *Integrating Hazard Mitigation Into Local Planning*



- Links to other online planning resources

Communication

- Planning team organization
- Work through channels (2-way communication)
  - Electronic worksheets and surveys to be used for collecting information from all local participating jurisdictions
  - Jurisdictions Leads / POCs assigned primary responsibility, but must coordinate with other local staff
- Project website
- Responsiveness in light of aggressive schedule
- Participation is crucial!

Data Collection

- GIS data collection "wish list"
  - Political boundaries
  - Parcel boundaries and tax information
  - Buildings, infrastructure and critical facilities
  - Transportation
  - Land use
  - Hazard data
- Use same communication channels
- Best readily available data in usable format
- Reasonable consistency across the planning area
- NC OneMap

Public Outreach Strategy

- Goals
  - Generate public interest
  - Solicit citizen input
  - Engage additional partners in the planning process
- Identification of specific opportunities for participation
  - In-person meetings (2)
  - Project information website
  - Web-based survey(s)
  - Social media (Facebook, Twitter, RSS, etc.)
- Products/resources
  - Project information fact sheet

Open Discussion

- Potential opportunities or synergies
- Potential barriers or impediments
- Other local issues, concerns or ideas

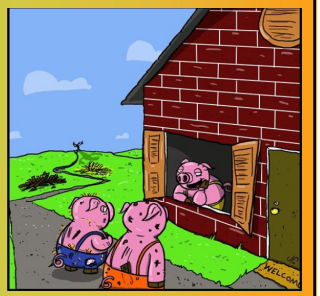
Next Steps

- Assignment of Jurisdiction Leads / POCs (**ASAP**)
- Data collection (through **July 31**)
- Finalize *Public Outreach Strategy* (by **July 30**)
- Prepare preliminary risk assessment decisions, analysis and map templates (by **July 30**)
- Next meeting: **July 30**

Thank You

darrin.punchard@aecom.com

mike.robinson@aecom.com



"Mitigation isn't so funny now, is it?"

Unifour Regional Hazard Mitigation Plan

Hazard Mitigation Planning Committee Meeting #2

July 30, 2013
9:30 a.m. – 11:30 a.m.
Western Piedmont Council of Governments
1880 2nd Ave. NW, Hickory
Conference Room A1

AGENDA

1. Welcome and Introductions	9:30 – 9:40
2. Public Outreach Strategy	9:40 – 10:05
3. Hazard Identification Exercise and Risk Assessment Recommendations	10:05 – 10:30
4. Capability Assessment/Safe Growth Survey	10:30 – 10:40
5. Vision Statement and Mitigation Goals	10:40 – 11:05
6. Data Collection Progress	11:05 – 11:15
7. Open Discussion	11:15 – 11:25
8. Next Steps	11:25 – 11:30

Unifour Regional Hazard Mitigation Plan

HMPC Meeting #2

AECOM

Mike Robinson, Lead Planner
William Hague, GIS Specialist

July 30, 2013

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Agenda

- Welcome and introductions
- Public outreach strategy
- Hazard ID exercise and risk assessment recommendations
- Capability assessment/safe growth survey
- Vision statement and mitigation goals
- Data collection progress
- Open discussion
- Next steps

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Handouts

- Meeting agenda
- Meeting sign-in sheet
- Public Outreach Strategy
- Capability Assessment Survey
- Safe Growth Survey
- Sample maps

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Public Outreach Strategy

Public Outreach Strategy

- Refer to handout
- Goals
  - Generate public interest
  - Solicit citizen input
  - Engage additional partners in the planning process
- Outreach opportunities and resources
  - In-person public meetings (2)
  - Project information website with social media integration
  - Project information fact sheet
  - Web-based public participation survey
  - Links to planning resources for interested parties

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In-Person Public Meetings (2)

- Scheduled at key points during the project timeline
  - Following completion of the draft risk and capability assessments
  - Following completion of the draft plan
- Inform the public on the process and current status of the regional planning process
- Gain input to the process during the drafting stage and prior to plan completion and approval
- AECOM will prepare presentation and handout materials to help facilitate two-way communication with public meeting attendees

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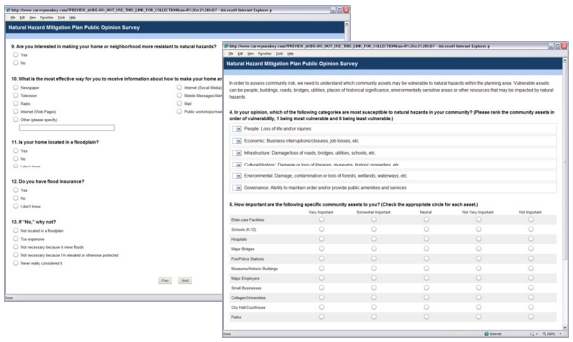
Project Information Website



Project Information Fact Sheet



Online Public Participation Survey



Planning Resources

- FEMA mitigation planning guidance
  - *Local Mitigation Planning Handbook*
  - *Mitigation Ideas*
  - *Integrating Hazard Mitigation Into Local Planning*



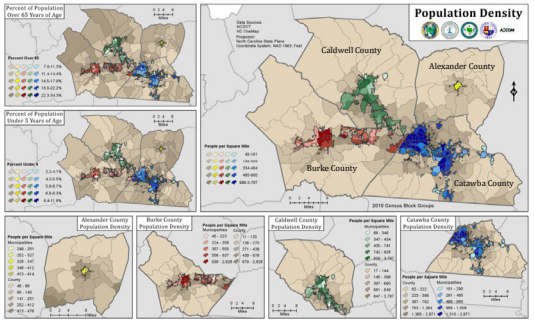
- Links to other online planning resources

Hazard Identification Exercise and Risk Assessment Recommendations

"Mayor For the Day"

- Dam/levee failure
- Drought/extreme heat
- Earthquake
- Erosion
- Flood
- Hail
- Hurricane
- Landslide
- Lightning
- Nor'easter
- Thunderstorm
- Tornado
- Wildfire
- Winter weather

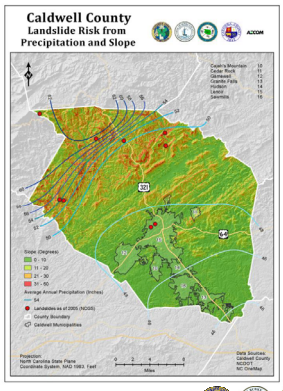
Sample 11x17 Map w/Insets



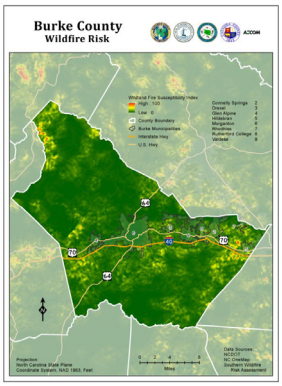
Sample 8.5x11 Landscape Community Profile Map



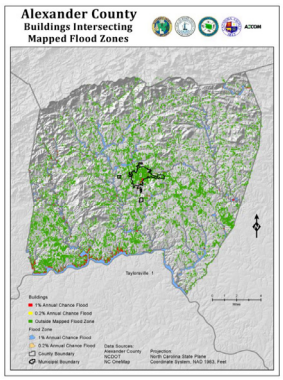
Sample 8.5x11 Portrait County Map – Landslide



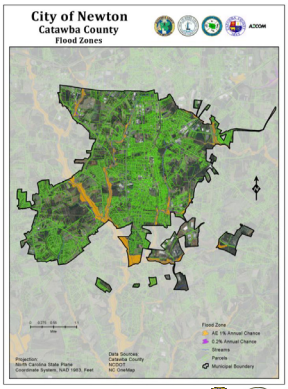
Sample 8.5x11 Portrait County Map – Wildfire



Sample 8.5x11 Portrait County – At-Risk Structures



Sample 8.5x11 Portrait Municipal Map – Flood



Capability Assessment/ Safe Growth Survey

Capability Assessment Survey

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Education and outreach capability
- Political capability
- Self assessment
- Deadline

Safe Growth Survey

- Comprehensive Plan
  - Land use
  - Transportation
  - Environmental management
  - Public safety
- Zoning ordinance
- Subdivision regulations
- Capital improvement program and infrastructure policies
- Other

Vision Statement and Mitigation Goals

Vision Statement

- Captures the overall purpose of the planning process
- Expresses the outcome that the participating jurisdictions seek to accomplish as the plan is implemented
- Helps drive the planning process
- Unites the planning team around a common purpose
- Provides a foundation for the rest of the planning process
- Communicates the reason for the plan to stakeholders, elected officials and the public

Vision Statement

"Through a cohesive regional planning effort, create and implement an effective hazard mitigation plan that will identify and reduce risk to natural hazards in order to protect the health, safety, quality of life, environment and economy of the Unifour area."

Mitigation Goals

ALEXANDER	BURKE	CALDWELL	CATAWBA
Strategy Elements		Strategies	
Mitigation Goals	Planning Goals	Community Goals	Mitigation Goals
	Plan Objectives	Hazard Mitigation Objectives	
Action Plans (similar to implementation plans)			
Detailed goals (similar to projects or actions)	Hazard mitigation activities	Mitigation Strategies (similar to actions)	Mitigation Actions

- Goals: Long-term policy type statements
- Objectives: Define specific steps needed to achieve goals
- Actions: Specific, usually short-term, projects or activities

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Data Collection Progress

Data Collection Status

- Received data for Alexander, Caldwell and Catawba counties
- GIS data collection "wish list"
  - Political boundaries
  - Parcel boundaries and tax information
  - Buildings, infrastructure and critical facilities
  - Transportation
  - Land use
  - Hazard data
- Use same communication channels
- Best readily available data in usable format
- NC OneMap

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Open Discussion

Next Steps

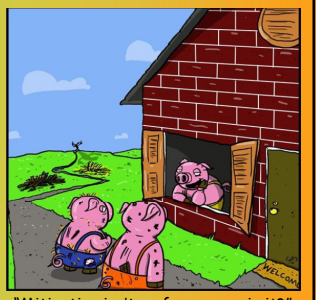
- Data collection (through **July 31**)
- Final draft risk assessment results
- Final draft capability assessment results
- Next meeting (Mitigation Strategy Workshop)

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Thank You

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"Mitigation isn't so funny now, is it?"

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Unifour Regional Hazard Mitigation Plan

Hazard Mitigation Planning Committee Meeting #3

October 1, 2013
10:00 a.m. – 2:00 p.m.
Western Piedmont Council of Governments
1880 2nd Ave. NW, Hickory
Conference Room A1

AGENDA

1. Welcome and Introductions	10:00 – 10:10
2. Risk Assessment Results	10:10 – 11:40
3. Capability Assessment Results	11:40 – 12:00
4. Pizza Break	12:00 – 12:20
5. Update on Public Outreach	12:20 – 12:30
6. Mitigation Strategy Development	12:30 – 1:45
7. Open Discussion	1:45 – 1:55
8. Next Steps	1:55 – 2:00

Unifour Regional Hazard Mitigation Plan
HMPC Meeting #3 - October 1, 2013

NAME	TITLE / AFFILIATION	PHONE	E-MAIL
Barbara Harmon	Town Manager - Rhodhiss	828-396-8400	bh.rhodhiss@yahoo.com
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Kenneth A. Teague	Caldwell County - EM	828-757-1419	kteague@caldwellcountync.org
Charles Mullis	Town Planner - Long View	828-322-3921	charles.mullis@mail.ci.longview.nc.us
BROCK HALL	BURKE COUNTY COMMUNITY DEVELOPMENT	828-764-9050	brock.hall@burkenc.org
LANCE HIGHT	CONOVER	828-464-1171	LANCE.HIGHT@CONOVERNC.GOV
Elinar Hiltz	planner Sawmills Rutherford College	828.485.4248	elinar.hiltz@wpcog.org
Carl Overby	Principal Planner City of Hickory	828-323-7437	Coverb@hickorync.gov
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Alex Fulbright	Asst. Planning Director Newton, NC	ex 695432C	afulbright@Newtonnc.gov

Unifour Regional Hazard Mitigation Plan
HMPC Meeting #3 - October 1, 2013

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Jimmy Orem	Deputy Chief Rhodhiss Fire Dept	(828) 493-1916	rhodhissfire@yahoo.com
Jon Pilkenton	Planner / WPCOG Hildebran Granewell, Taylorsville, Hudson	828-485-4225	jon.pilkenton@wpcog.org
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CHARLES WATTS	VALDESE FIRE DEPT	828-879-2103	cwatts@ci.valdese.nc.us
WILLIAM BUMP	CLAREMONT FIRE DEPT	828-459-9296	WBUMP@CITYOFCLAREMONT.ORG
GEORGE GALLEHER	DUKE ENERGY	704-382-5236	george.galleher@duke-energy.com
ROBIN NICHOLSON	DUKE ENERGY	828-323-2833	ROBIN.NICHOLSON@DUKE-ENERGY.COM
John Marshall	WPCOG	828-485-4232	john.marshall@wpcog.org

Unifour Regional Hazard Mitigation Plan
HMPC Meeting #3 - October 1, 2013

NAME	TITLE / AFFILIATION	PHONE	E-MAIL
Laurie LoCicero	Valdese - Asst. Planner Claremont City Planner	828 485 4240	laurie.bradshaw@wpcog.org
Shelley Stevens	Town of Catawba - Town Planner	828-485-4238	shelley.stevens@wpcog.org
Russell Greene	Emergency Services Alexander County	828-632-9330	rgreene@alexandercountync.gov

Unifour Regional Hazard Mitigation Plan

HMPC Meeting #3

AECOM

Mike Robinson, Lead Planner
William Hague, GIS Specialist

October 1, 2013

Agenda

- Welcome and introductions
- Risk assessment results
- Capability assessment results
- Pizza break
- Public outreach update
- Mitigation strategy development
- Open discussion
- Next steps

Handouts

- Meeting agenda
- Meeting sign-in sheet
- Results tables
- Maps (for circulation)

Risk Assessment Results

Planning Area



Hazards Being Addressed

- Hydrologic Hazards (Water Hazards)
  - Flood
  - Erosion
  - Dam/Levee Failure
  - Drought/Extreme Heat
- Atmospheric Hazards (Severe Storms)
  - Thunderstorm, Lightning, and Hail
  - Tornado
  - Winter Weather
  - Hurricane and Tropical Storm
- Geologic Hazards
  - Landslide
  - Earthquake
  - Sinkhole
- Other Hazards
  - Wildfire

Major Disaster Declarations

- 10 since 1974

Event	Declaration Date	Declaration Number	County(s) in the Planning Area Declared
Tornadoes	04/12/1974	DR-428	Burke, Caldwell
Severe Storms and Flooding	11/09/1977	DR-542	Burke, Caldwell, Catawba
Tornadoes	05/10/1989	DR-827	Catawba
Hurricane Hugo	09/25/1989	DR-844	Alexander, Burke, Caldwell, Catawba
Blizzard of '96	01/13/1996	DR-1087	Alexander, Burke, Caldwell, Catawba
Storms/Flooding	02/23/1996	DR-1103	Alexander, Burke, Caldwell, Catawba
Severe Ice Storm	12/12/2002	DR-1448	Alexander, Burke, Caldwell, Catawba
Tropical Storm Frances	09/10/2004	DR-1546	Alexander, Burke, Caldwell, Catawba
Hurricane Ivan	09/18/2004	DR-1553	Burke, Caldwell
Severe Winter Storms and Flooding	02/02/2010	DR-1871	Burke, Caldwell

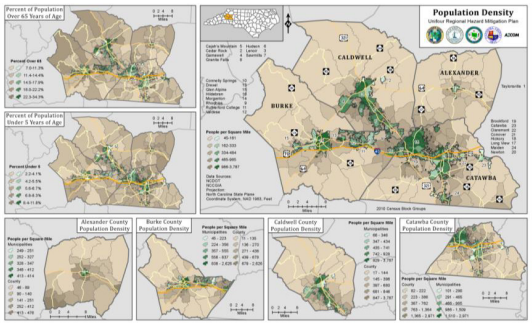
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Population Inventory

Jurisdiction	2010 Census Population	Elderly (Age 65 and Over)	Children (Age 5 and Under)
Alexander County (Unincorporated Area)	35,100	5,102	2,055
Taylorsville	2,098	525	154
Subtotal Alexander	***37,198***	***5,627***	***2,209***
Burke County (Unincorporated Area)	59,578	8,865	3,085
Connelly Springs	1,669	289	86
Drexel	1,858	398	94
Glen Alpine	1,517	255	104
Hildebran	2,023	398	118
Morganton	16,918	3,079	1,150
Valdese	4,490	900	265
Rutherford College	1,341	234	78
Subtotal Burke	***90,912***	***14,673***	***5,068***
Caldwell County (Unincorporated Area)	43,501	6,141	2,264
Cajah's Mountain	2,823	519	184
Cedar Rock	300	93	7
Gamewell	4,051	625	215
Granite Falls	4,722	667	332
Hudson	3,776	655	204
Lenoir	18,228	3,373	1,109
Rhodhiss	1,070	149	67
Sawmills	5,240	697	302
Subtotal Caldwell	***83,029***	***12,816***	***4,645***
Catawba County (Unincorporated Area)	83,533	11,124	4,809
Brookford	382	72	18
Catawba	603	130	27
Claremont	1,352	196	77
Conover	8,165	1,389	563
Hickory	40,010	5,733	2,719
Long View	4,871	770	343
Maiden	3,310	456	208
Newton	12,968	2,056	955
Subtotal Catawba	***154,358***	***21,773***	***9,670***
TOTAL UNIFOUR	**365,497**	**54,889**	**21,582**

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Population Inventory



AECOM

Parcels and Buildings

Jurisdiction	Parcel Count	Building Count	Building Value
Alexander County	22,700	45,332	$1,347,565,360
Taylorsville	1,276	1,964	$135,674,552
Subtotal Alexander	***23,976***	***47,296***	***$1,483,239,912***
Burke County	40,817	32,589	$2,104,478,844
Connelly Springs	1,238	862	$58,744,312
Drexel	866	769	$77,219,195
Glen Alpine	945	723	$58,307,152
Hildebran	1,069	1,058	$93,714,888
Morganton	7,818	7,468	$991,355,959
Valdese	796	713	$60,761,106
Rutherford College	2,806	2,073	$246,727,313
Subtotal Burke	***56,355***	***46,255***	***$3,691,308,769***
Caldwell County	30,345	26,257	$1,593,124,250
Cajah's Mountain	1,359	1,338	$112,893,800
Cedar Rock	230	140	$37,048,600
Gamewell	1,976	2,058	$125,991,900
Granite Falls	2,609	1,997	$269,868,250
Hudson	1,943	1,665	$244,247,500
Lenoir	10,001	8,631	$1,090,178,404
Rhodhiss	199	182	$7,519,100
Sawmills	2,443	2,613	$161,156,400
Subtotal Caldwell	***51,530***	***45,182***	***$3,662,721,835***
Catawba County	51,668	86,663	$4,943,884,600
Brookford	288	465	$15,166,700
Catawba	569	745	$50,115,900
Claremont	964	1,132	$193,177,000
Conover	4,383	5,378	$698,896,200
Hickory	17,953	20,228	$3,249,206,200
Long View	2,241	3,109	$175,341,400
Maiden	2,040	2,884	$210,768,400
Newton	6,473	8,977	$847,798,000
Subtotal Catawba	***87,132***	***130,054***	***$10,481,702,043***
TOTAL UNIFOUR	**218,993**	**277,045**	**$19,318,972,559**

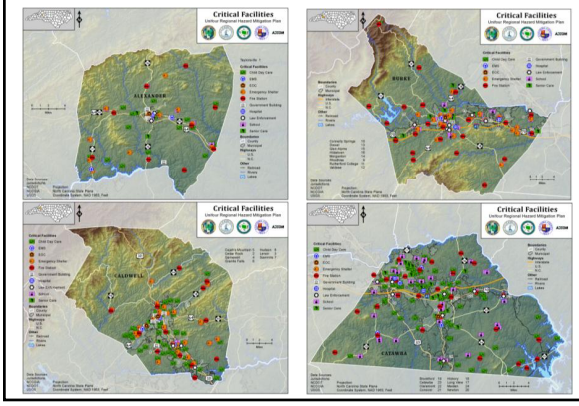
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Critical Facilities

Jurisdiction	Day Care	EMS	EOCs	Fire Stations	Govt. Buildings	Hospitals	Police Stations	Schools	Senior Care	Shelters
Alexander County	21	2	0	9	6	0	0	8	3	9
Taylorsville	4	0	1	1	15	1	2	2	2	2
Subtotal Alexander	***25***	***2***	***1***	***10***	***21***	***1***	***2***	***10***	***5***	***11***
Burke County	-	2	0	17	-	0	0	12	6	12
Connelly Springs	-	0	0	1	-	0	***	0	0	0
Drexel	-	0	0	1	-	0	1	1	1	2
Glen Alpine	-	1	0	1	-	0	1	1	0	1
Hildebran	-	1	0	1	-	0	***	1	1	1
Morganton	-	2	1	3	-	1	4	11	5	10
Valdese	-	1	0	2	-	1	1	3	1	1
Rutherford College	-	0	0	2	-	1	***	3	0	1
Subtotal Burke	-	***7***	***1***	***27***	-	***2***	***7***	***30***	***14***	***28***
Caldwell County	26	1	0	6	-	0	0	11	1	12
Cajah's Mountain	0	1	0	1	1	0	0	0	1	0
Cedar Rock	0	0	0	0	0	0	0	0	0	0
Gamewell	7	1	0	1	1	0	0	2	0	2
Granite Falls	6	1	0	1	1	0	1	2	1	2
Hudson	5	1	0	1	1	0	2	5	0	3
Lenoir	24	1	2	3	11	1	2	6	7	7
Rhodhiss	0	0	0	2	0	0	1	0	0	0
Sawmills	6	0	0	1	1	0	0	1	0	2
Subtotal Caldwell	***74***	***6***	***2***	***15***	***16***	***1***	***6***	***27***	***10***	***28***
Catawba County	54	4	0	16	-	0	0	18	1	19
Brookford	0	0	0	0	-	0	1	0	0	0
Catawba	3	1	0	1	-	0	1	1	0	1
Claremont	4	0	0	1	-	0	1	1	0	2
Conover	12	0	0	3	-	0	1	1	4	1
Hickory	39	1	0	5	-	2	1	9	8	12
Long View	5	0	0	1	-	0	1	2	0	2
Maiden	5	0	0	1	-	0	1	3	0	2
Newton	17	1	1	3	-	0	1	5	3	6
Subtotal Catawba	***139***	***7***	***1***	***31***	-	***2***	***9***	***40***	***16***	***45***
TOTAL UNIFOUR	**238**	**22**	**5**	**83**	**37**	**6**	**24**	**107**	**45**	**112**

AECOM

Critical Facilities

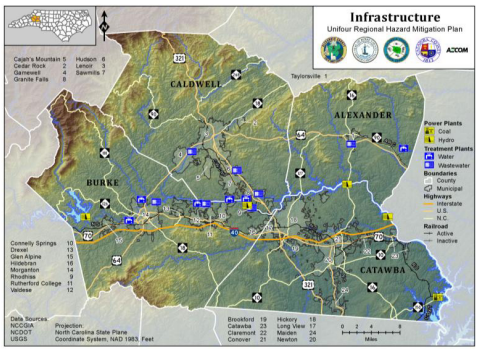


Infrastructure

Jurisdiction	Major Roads	Railroad	Power Plants	Water/Wastewater Facilities	Water/Wastewater Lines
Alexander County	51.8	8.0	0	1	384.6
Taylorsville	4.3	1.7	0	1	43.5
Subtotal Alexander	***56.1***	***9.7***	***0***	***2***	***428.1***
Burke County	139.5	18.0	1	1	362.8
Connelly Springs	2.1	1.8	0	0	8.2
Drexel	0.6	1.0	0	0	30.2
Glen Alpine	1.2	1.3	0	0	15.6
Hildebran	1.9	1.9	0	0	34.6
Morganton	31.4	7.7	0	2	307.2
Valdese	2.5	0.6	0	2	103.2
Rutherford College	3.2	2.5	0	0	21.1
Subtotal Burke	***182.4***	***34.8***	***1***	***5***	***882.9***
Caldwell County	95.8	1.5	1	2	317.6
Cajah's Mountain	0.0	0.0	0	0	31.1
Cedar Rock	0.0	0.0	0	0	6.3
Gamewell	3.2	0.0	0	0	9.8
Granite Falls	6.1	3.2	0	1	96.2
Hudson	7.5	2.5	0	0	72.9
Lenoir	21.2	12.1	0	3	337.1
Rhodhiss	0.0	0.6	0	1	8.6
Sawmills	4.4	2.4	0	0	20.1
Subtotal Caldwell	***138.2***	***22.3***	***1***	***7***	***891.3***
Catawba County	119.2	41.3	2	-	-
Brookford	1.6	0.0	0	-	-
Catawba	2.3	5.1	0	-	-
Claremont	2.6	3.9	0	-	-
Conover	17.8	9.1	0	-	-
Hickory	32.2	11.7	0	-	1.4
Long View	5.0	2.2	0	-	11.1
Maiden	6.0	0.0	0	-	-
Newton	14.6	4.9	0	-	-
Subtotal Catawba	***201.3***	***78.2***	***2***	-	***12.5***
TOTAL UNIFOUR	**578.0**	**141.8**	**4**	**14**	**2,214.8**

AECOM

Infrastructure



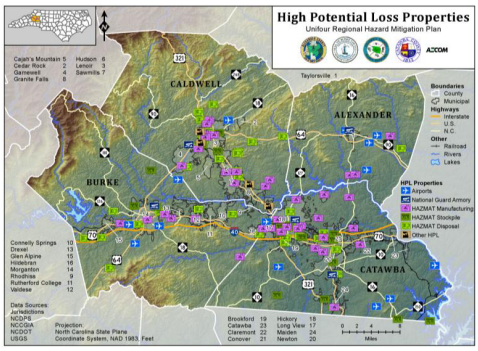
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High Potential Loss Properties

Jurisdiction	Airports	Dams	Military Facilities	Hazardous Materials Sites	Other
Alexander County	4	42	1	6	-
Taylorsville	0	1	0	0	-
Subtotal Alexander	***4***	***43***	***1***	***6***	-
Burke County	2	37	0	9	-
Connelly Springs	0	0	0	0	-
Drexel	0	0	0	0	-
Glen Alpine	0	0	0	0	-
Hildebran	0	0	0	1	-
Morganton	1	6	1	10	-
Valdese	0	0	0	2	-
Rutherford College	0	0	0	0	-
Subtotal Burke	***3***	***43***	***1***	***22***	-
Caldwell County	2	32	0	7	-
Cajah's Mountain	0	0	0	0	-
Cedar Rock	0	0	0	0	-
Gamewell	0	2	0	2	-
Granite Falls	0	1	0	0	1
Hudson	0	0	0	3	-
Lenoir	0	4	1	24	2
Rhodhiss	0	0	0	0	-
Sawmills	0	1	0	2	-
Subtotal Caldwell	***2***	***40***	***1***	***38***	***3***
Catawba County	5	74	0	5	-
Brookford	0	1	0	2	-
Catawba	0	2	0	0	-
Claremont	0	0	0	1	-
Conover	0	1	0	8	-
Hickory	1	5	1	23	1
Long View	0	0	0	3	-
Maiden	0	2	0	3	-
Newton	0	2	1	5	-
Subtotal Catawba	***6***	***87***	***2***	***50***	***1***
TOTAL UNIFOUR	**15**	**213**	**5**	**116**	**4**

AECOM

High Potential Loss Properties



AECOM

Historic Properties

Jurisdiction	Districts	Buildings	Other
Alexander County	0	1	0
Taylorsville	0	0	0
Subtotal Alexander	***0***	***1***	***0***
Burke County	0	8	1
Connelly Springs	0	0	0
Drexel	0	0	0
Glen Alpine	0	0	0
Hildebran	0	0	0
Morganton	9	25	1
Valdese	0	2	0
Rutherford College	0	0	0
Subtotal Burke	***9***	***35***	***2***
Caldwell County	2	7	0
Cajah's Mountain	0	0	0
Cedar Rock	0	0	0
Gamewell	0	0	0
Granite Falls	0	0	0
Hudson	0	0	0
Lenoir	1	44	0
Rhodhiss	0	0	0
Sawmills	0	0	0
Subtotal Caldwell	***3***	***51***	***0***
Catawba County	6	21	1
Brookford	0	0	0
Catawba	1	0	0
Claremont	0	0	0
Conover	1	1	1
Hickory	5	15	0
Long View	0	1	0
Maiden	0	2	0
Newton	3	7	0
Subtotal Catawba	***16***	***47***	***2***
TOTAL UNIFOUR	**56**	**268**	**8**

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Basic Assumptions

- That the hazard data is accurate
- That the built environment data (building footprints, parcel data, etc.) is accurate

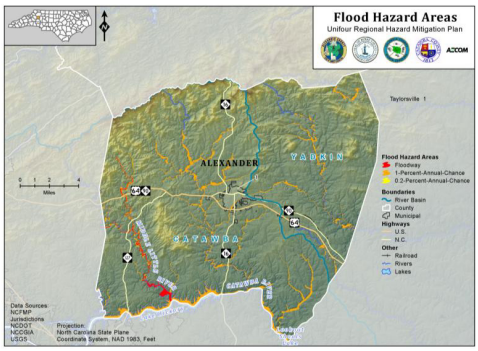
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Flood Hazard Map (Regional)



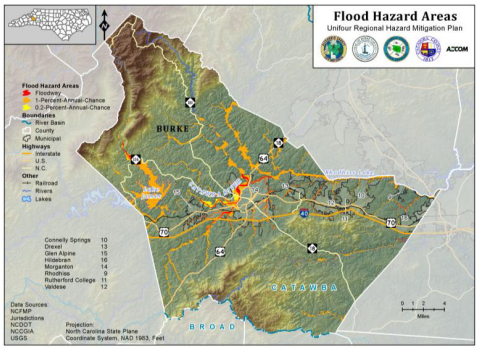
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Flood Hazard Map (County Level)



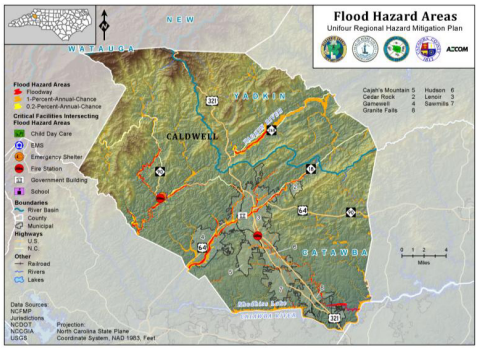
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Flood Hazard Map (County Level)



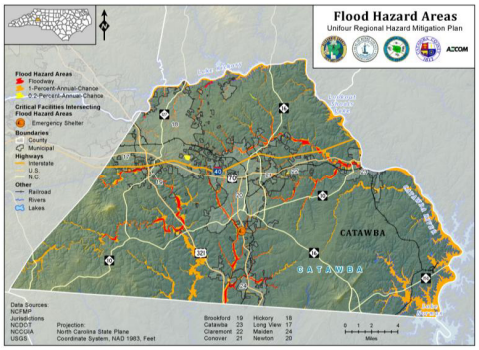
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Flood Hazard Map (County Level)



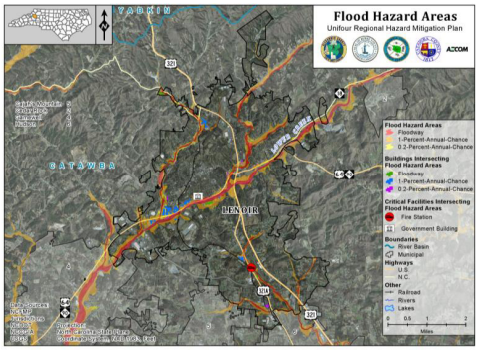
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Flood Hazard Map (County Level)



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Flood Hazard Map (Municipal Level)



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Flood Hazard Exposure (1-Percent-Annual-Chance)

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Number of Pre-FIRM Buildings At Risk		Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per	Num	Per
Alexander County	1,549	9.49%	657	10.31%	709	1.56%	$45,271,498	164	0.67%	863	2.46%	98	1.92%	26	1.36%
Taylorsville	49	4.67%	7	3.10%	16	0.81%	$4,326,333	16	0.93%	31	1.48%	16	3.05%	0	0.00%
Subtotal Alexander	***1,598***	***9.20%***	***664***	***10.06%***	***725***	***1.53%***	***$49,597,831***	***180***	***0.69%***	***894***	***2.40%***	***114***	***2.03%***	***28***	***1.27%***
Burke County	1,336	5.65%	1,566	9.13%	291	0.89%	$21,059,047	138	0.66%	1,950	3.27%	261	2.94%	73	2.37%
Connelly Springs	37	5.48%	179	31.79%	4	0.46%	$656,465	4	0.57%	30	1.80%	3	1.04%	0	0.00%
Drexel	6	0.89%	6	3.17%	1	0.13%	$0	0	0.00%	8	0.43%	1	0.25%	0	0.00%
Glen Alpine	8	1.25%	4	1.30%	1	0.14%	$54,634	1	0.15%	6	0.40%	1	0.39%	0	0.00%
Hildebran	7	0.87%	8	3.04%	0	0.00%	$0	0	0.00%	8	0.40%	3	0.75%	0	0.00%
Morganton	97	1.62%	60	3.29%	70	0.94%	$43,667,873	42	0.72%	555	3.28%	113	3.67%	32	2.78%
Valdese	40	2.19%	181	18.47%	18	0.87%	$1,934,517	8	0.49%	110	2.45%	16	1.78%	2	0.75%
Rutherford College	14	2.48%	15	6.49%	2	0.28%	$28,968	2	0.31%	13	0.97%	2	0.85%	0	0.00%
Subtotal Burke	***1,545***	***4.42%***	***2,019***	***9.39%***	***387***	***0.84%***	***$67,401,504***	***195***	***0.61%***	***2,680***	***2.85%***	***400***	***2.77%***	***107***	***2.15%***
Caldwell County	1,739	8.83%	1,161	10.91%	581	2.21%	$32,984,800	348	2.42%	1,232	2.83%	175	2.85%	35	1.55%
Cajah's Mountain	34	3.04%	6	2.48%	1	0.07%	$14,100	1	0.10%	35	1.24%	5	0.96%	2	1.09%
Cedar Rock	7	4.76%	3	3.61%	0	0.00%	$0	0	0.00%	16	5.33%	6	6.45%	0	0.00%
Gamewell	64	4.12%	41	9.72%	21	1.02%	$1,844,600	13	0.88%	255	6.29%	38	6.08%	13	6.05%
Granite Falls	67	3.51%	84	12.02%	8	0.40%	$968,800	4	0.33%	58	1.23%	6	0.90%	5	1.51%
Hudson	39	2.57%	15	3.54%	17	1.02%	$8,040,600	12	0.99%	150	3.97%	16	2.44%	10	4.90%
Lenoir	374	4.82%	112	4.99%	310	3.59%	$65,869,700	241	3.65%	822	4.51%	114	3.38%	44	3.97%
Rhodhiss	19	4.34%	29	15.59%	12	2.48%	$967,694	5	1.50%	29	2.71%	3	2.01%	1	1.49%
Sawmills	95	5.06%	49	8.67%	11	0.42%	$668,700	8	0.40%	93	1.77%	4	0.57%	2	0.66%
Subtotal Caldwell	***2,438***	***6.77%***	***1,500***	***9.67%***	***961***	***2.13%***	***$111,358,994***	***632***	***2.23%***	***2,690***	***3.24%***	***367***	***2.86%***	***112***	***2.41%***
Catawba County	3,742	9.77%	1,360	10.18%	2,591	2.99%	$156,642,300	356	0.90%	2,080	2.48%	240	2.16%	67	1.39%
Brookford	8	3.38%	3	5.88%	13	2.80%	$1,523,800	8	2.14%	11	2.88%	2	2.78%	0	0.00%
Catawba	16	4.08%	27	15.25%	11	1.48%	$1,922,800	6	1.19%	27	4.48%	3	2.31%	1	3.70%
Claremont	9	1.20%	18	8.29%	4	0.35%	$501,200	4	0.39%	9	0.67%	1	0.51%	0	0.00%
Conover	58	1.68%	23	2.48%	59	1.10%	$8,279,900	36	1.10%	193	2.36%	15	1.08%	12	2.13%
Hickory	237	1.62%	82	2.42%	137	0.67%	$33,990,800	62	0.48%	581	1.45%	61	1.06%	27	0.99%
Long View	15	0.67%	8	1.72%	21	0.60%	$6,970,946	19	0.69%	65	1.33%	7	0.91%	3	0.87%
Maiden	47	2.95%	24	5.39%	21	0.73%	$19,224,600	13	0.65%	50	1.51%	4	0.88%	3	1.44%
Newton	98	1.86%	49	4.08%	71	0.79%	$14,811,400	42	0.64%	267	2.06%	35	1.70%	12	1.26%
Subtotal Catawba	***4,230***	***6.32%***	***1,594***	***7.88%***	***2,928***	***2.25%***	***$243,867,746***	***546***	***0.79%***	***3,283***	***2.13%***	***368***	***1.69%***	***125***	***1.29%***
TOTAL UNIFOUR	9,811	6.32%	5,777	9.05%	5,001	1.81%	$472,226,075	1,553	1.00%	9,547	2.61%	1,249	2.29%	372	1.73%



Flood Hazard Exposure (0.2-Percent-Annual-Chance)

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Number of Pre-FIRM Buildings At Risk		Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per	Num	Per
Alexander County	6	0.04%	2	0.03%	13	0.03%	$655,002	4	0.02%	3	0.01%	0	0.00%	0	0.00%
Taylorsville	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Subtotal Alexander	***6***	***0.03%***	***2***	***0.03%***	***13***	***0.03%***	***$655,002***	***4***	***0.02%***	***3***	***0.01%***	***0***	***0.00%***	***0***	***0.00%***
Burke County	28	0.12%	15	0.09%	39	0.12%	$3,169,024	23	0.11%	112	0.19%	17	0.19%	2	0.06%
Connelly Springs	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Drexel	3	0.44%	0	0.00%	0	0.00%	$0	0	0.00%	2	0.11%	0	0.00%	0	0.00%
Glen Alpine	4	0.63%	8	2.61%	2	0.28%	$260,877	2	0.31%	16	1.05%	2	0.78%	1	0.96%
Hildebran	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	1	0.05%	0	0.00%	0	0.00%
Morganton	81	1.35%	40	2.20%	95	1.27%	$31,433,111	50	0.86%	110	0.65%	13	0.42%	6	0.52%
Valdese	5	0.27%	1	0.10%	6	0.29%	$334,991	0	0.00%	5	0.11%	0	0.00%	2	0.75%
Rutherford College	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Subtotal Burke	***121***	***0.35%***	***64***	***0.30%***	***142***	***0.31%***	***$35,198,603***	***75***	***0.23%***	***246***	***0.27%***	***32***	***0.22%***	***9***	***0.18%***
Caldwell County	84	0.43%	56	0.53%	128	0.49%	$7,381,600	102	0.71%	62	0.14%	6	0.10%	0	0.00%
Cajah's Mountain	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Cedar Rock	2	1.36%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Gamewell	20	1.29%	2	0.47%	25	1.21%	$2,944,200	17	1.15%	29	0.72%	1	0.16%	0	0.00%
Granite Falls	3	0.16%	2	0.29%	0	0.00%	$0	0	0.00%	1	0.02%	0	0.00%	0	0.00%
Hudson	8	0.53%	7	1.65%	6	0.36%	$7,484,200	3	0.25%	17	0.45%	0	0.00%	0	0.00%
Lenoir	107	1.38%	34	1.51%	123	1.43%	$170,290,400	90	1.36%	191	1.05%	14	0.42%	5	0.45%
Rhodhiss	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Sawmills	2	0.11%	0	0.00%	1	0.04%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Subtotal Caldwell	***226***	***0.63%***	***101***	***0.65%***	***283***	***0.63%***	***$188,100,400***	***212***	***0.75%***	***300***	***0.36%***	***21***	***0.16%***	***5***	***0.11%***
Catawba County	81	0.21%	32	0.24%	81	0.09%	$27,549,400	25	0.06%	177	0.21%	5	0.04%	1	0.02%
Brookford	5	2.11%	0	0.00%	4	0.86%	$214,100	4	1.07%	2	0.52%	0	0.00%	0	0.00%
Catawba	5	1.28%	0	0.00%	2	0.27%	$179,800	1	0.20%	4	0.66%	0	0.00%	0	0.00%
Claremont	2	0.27%	3	1.38%	2	0.18%	$629,400	1	0.10%	2	0.15%	0	0.00%	0	0.00%
Conover	10	0.29%	6	0.65%	11	0.20%	$2,353,600	6	0.18%	21	0.26%	1	0.07%	0	0.00%
Hickory	43	0.29%	14	0.41%	66	0.33%	$17,599,000	26	0.20%	167	0.42%	13	0.23%	4	0.15%
Long View	5	0.22%	0	0.00%	5	0.14%	$246,761	5	0.18%	7	0.14%	0	0.00%	0	0.00%
Maiden	0	0.00%	1	0.22%	1	0.03%	$14,400	0	0.00%	1	0.03%	0	0.00%	0	0.00%
Newton	22	0.42%	13	1.08%	33	0.37%	$8,672,100	24	0.37%	40	0.31%	1	0.05%	1	0.10%
Subtotal Catawba	***173***	***0.26%***	***69***	***0.34%***	***205***	***0.16%***	***$57,458,561***	***92***	***0.13%***	***421***	***0.27%***	***20***	***0.09%***	***6***	***0.06%***
TOTAL UNIFOUR	526	0.34%	236	0.37%	643	0.23%	$281,412,566	383	0.25%	970	0.27%	73	0.13%	20	0.09%



Flood Hazard Exposure (Floodway)

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings at Risk	Number of Pre-FIRM Buildings At Risk		Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per	Num	Per
Alexander County	176	1.08%	91	1.43%	60	0.13%	$844,280	4	0.02%	70	0.20%	7	0.14%	2	0.10%
Taylorsville	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Subtotal Alexander	***176***	***1.01%***	***91***	***1.38%***	***60***	***0.13%***	***$844,280***	***4***	***0.02%***	***70***	***0.19%***	***7***	***0.12%***	***2***	***0.09%***
Burke County	333	1.41%	304	1.77%	47	0.14%	$3,079,577	29	0.14%	253	0.42%	33	0.37%	4	0.13%
Connelly Springs	0	0.00%	1	0.18%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Drexel	8	1.18%	2	1.06%	1	0.13%	$69,072	1	0.16%	5	0.27%	1	0.25%	0	0.00%
Glen Alpine	5	0.78%	10	3.26%	1	0.14%	$0	0	0.00%	12	0.79%	2	0.78%	0	0.00%
Hildebran	13	1.61%	5	1.90%	0	0.00%	$0	0	0.00%	3	0.15%	0	0.00%	0	0.00%
Morganton	195	3.25%	144	7.91%	11	0.15%	$3,436,598	4	0.07%	277	1.64%	78	2.53%	12	1.04%
Valdese	48	2.63%	48	4.90%	10	0.48%	$1,352,736	4	0.25%	39	0.87%	5	0.56%	0	0.00%
Rutherford College	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Subtotal Burke	***602***	***1.73%***	***514***	***2.39%***	***70***	***0.15%***	***$7,937,983***	***38***	***0.12%***	***589***	***0.63%***	***119***	***0.83%***	***16***	***0.32%***
Caldwell County	477	2.42%	335	3.15%	29	0.11%	$1,606,800	19	0.13%	295	0.68%	33	0.54%	8	0.35%
Cajah's Mountain	2	0.18%	2	0.83%	0	0.00%	$0	0	0.00%	2	0.07%	0	0.00%	0	0.00%
Cedar Rock	2	1.36%	2	2.41%	0	0.00%	$0	0	0.00%	8	2.67%	3	3.13%	0	0.00%
Gamewell	37	2.38%	29	6.87%	4	0.19%	$298,500	1	0.07%	180	4.44%	19	3.04%	10	4.65%
Granite Falls	13	0.68%	22	3.15%	0	0.00%	$0	0	0.00%	4	0.08%	1	0.15%	0	0.00%
Hudson	41	2.70%	40	9.43%	1	0.06%	$499,800	1	0.08%	83	2.20%	10	1.53%	4	1.96%
Lenoir	407	5.25%	171	7.62%	88	1.02%	$17,547,700	59	0.89%	535	2.94%	85	2.52%	25	2.25%
Rhodhiss	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Sawmills	45	2.40%	29	5.13%	0	0.00%	$0	0	0.00%	20	0.38%	2	0.29%	0	0.00%
Subtotal Caldwell	***1,024***	***2.84%***	***630***	***4.06%***	***122***	***0.27%***	***$19,952,800***	***80***	***0.28%***	***1,127***	***1.36%***	***153***	***1.19%***	***47***	***1.01%***
Catawba County	762	2.04%	608	4.55%	89	0.10%	$14,993,300	22	0.06%	887	1.06%	96	0.86%	30	0.67%
Brookford	29	12.24%	12	23.53%	2	0.43%	$498,500	2	0.53%	12	3.14%	2	2.78%	0	0.00%
Catawba	38	9.69%	18	10.17%	2	0.27%	$182,700	1	0.20%	24	3.98%	4	3.08%	1	3.70%
Claremont	11	1.47%	8	3.69%	0	0.00%	$0	0	0.00%	8	0.59%	1	0.51%	0	0.00%
Conover	112	3.24%	58	6.26%	10	0.19%	$8,880,500	5	0.15%	106	1.30%	14	1.01%	8	1.42%
Hickory	516	3.52%	257	7.57%	43	0.21%	$13,596,100	29	0.22%	403	1.01%	40	0.70%	21	0.77%
Long View	50	2.24%	24	5.16%	7	0.20%	$3,321,875	5	0.18%	33	0.68%	4	0.52%	2	0.58%
Maiden	25	1.57%	18	4.04%	0	0.00%	$0	0	0.00%	30	0.91%	3	0.66%	1	0.48%
Newton	202	3.83%	122	10.16%	6	0.07%	$232,700	3	0.05%	171	1.32%	25	1.22%	8	0.84%
Subtotal Catawba	***1,765***	***2.64%***	***1,125***	***5.56%***	***159***	***0.12%***	***$41,705,675***	***67***	***0.10%***	***1,674***	***1.08%***	***189***	***0.87%***	***73***	***0.75%***
TOTAL UNIFOUR	3,567	2.30%	2,360	3.70%	411	0.15%	$70,440,738	189	0.12%	3,460	0.95%	468	0.86%	138	0.64%



Flood Hazard Exposure (Facilities and Assets)

- 6 critical facilities in 1-percent-annual-chance floodplain
  - Includes day care, fire station, government building, school and shelters
- 2 critical facilities in 0.2-percent-annual-chance floodplain
  - Includes EMS and fire station
- 5 high potential loss properties in flood hazard areas
  - Includes airport, military facility and hazardous materials sites
- 15 historic properties in flood hazard areas



Flood Hazard History

- Regional summary of historical occurrences (NCDC)
  - 109 recorded instances of floods and flash floods since 1993
  - $13,667,300 in reported property losses
  - $1,500,000 in reported crop losses
  - 0 deaths
  - 0 injuries



Flood Hazard History

- Listing of historical occurrences

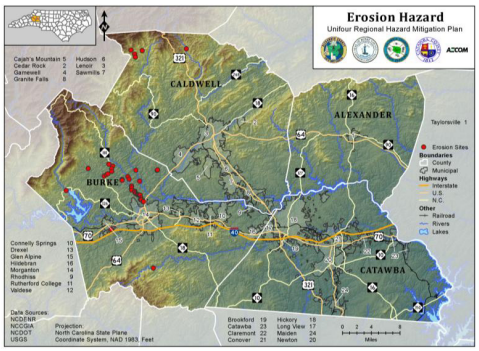
Location	Date	Type	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
ALEXANDER COUNTY						
Countywide	03/23/93	Flash Flood	N/A	N/A	N/A	N/A
Countywide	03/20/03	Flash Flood	0	0	$0	$0
Bethlehem	06/16/03	Flash Flood	0	0	$0	$0
Countywide	09/07/04	Flood	0	0	$100,000	$0
Vashti	05/26/09	Flash Flood	0	0	$0	$0
All Healing Springs	06/03/09	Flash Flood	0	0	$0	$0
All Healing Springs	01/24/10	Flash Flood	0	0	$0	$0
Millersville	01/24/10	Flash Flood	0	0	$0	$0
All Healing Springs	05/14/12	Flash Flood	0	0	$0	$0
Subtotal Alexander	**9 Events**		**0**	**0**	**$100,000**	**$0**

- Summary of historical occurrences by jurisdiction

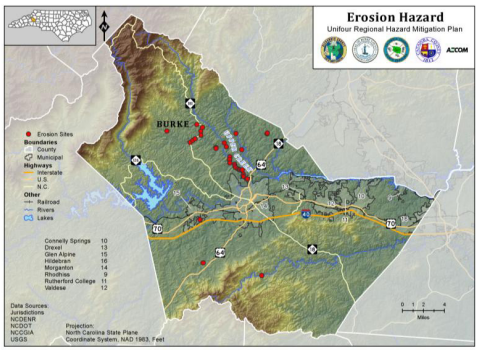
Jurisdiction	Number of Occurrences	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Burke County	27	0	0	$9,002,000	$0
Connelly Springs	0	0	0	$0	$0
Drexel	0	0	0	$0	$0
Glen Alpine	0	0	0	$0	$0
Hildebran	1	0	0	$0	$0
Morganton	12	0	0	$4,300	$0
Valdese	0	0	0	$0	$0
Rutherford College	0	0	0	$0	$0
Subtotal Burke	**40**	**0**	**0**	**$9,006,300**	**$0**



Erosion Hazard Map



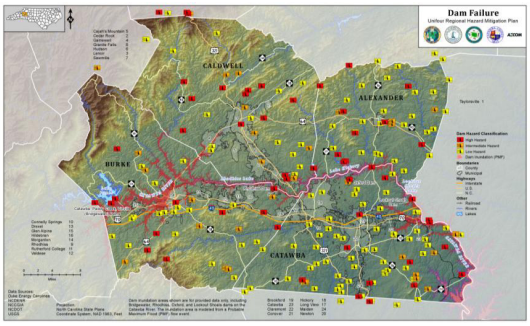
Erosion Hazard Map



Erosion Hazard History

- Regional summary of historical occurrences (NCDC)
  - No information available

Dam/Levee Failure Hazard Map



Dam Failure Exposure (Bridgewater)

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	%	Num	%	Num	Perc		Num	Per	Num	Per	Num	Per
Alexander County	1,016	6.22%	393	6.17%	1,599	3.53%	$166,340,648	720	2.05%	143	2.80%	30	1.46%
Taylorsville	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Subtotal Alexander	***1,016***	***5.85%***	***393***	***5.95%***	***1,599***	***3.38%***	***$166,340,648***	***720***	***1.94%***	***143***	***2.54%***	***30***	***1.36%***
Burke County	1,333	5.63%	1,167	6.80%	904	2.77%	$102,649,208	2,980	5.00%	466	5.26%	149	4.83%
Connelly Springs	6	0.89%	179	31.79%	1	0.12%	$415,298	9	0.54%	1	0.35%	0	0.00%
Drexel	1	0.15%	1	0.53%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Glen Alpine	47	7.37%	51	16.61%	36	4.98%	$4,989,057	151	9.95%	17	6.67%	13	12.50%
Hildebran	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Morganton	1,069	17.83%	542	29.76%	1,002	13.42%	$481,192,793	2,787	16.47%	554	17.99%	188	16.35%
Valdese	9	0.49%	183	18.67%	7	0.34%	$2,387,181	58	4.33%	6	2.56%	4	5.13%
Rutherford College	0	0.00%	1	0.43%	0	0.00%	$0	1	0.02%	0	0.00%	0	0.00%
Subtotal Burke	***2,465***	***7.07%***	***2,124***	***9.87%***	***1,950***	***4.22%***	***$591,633,537***	***5,986***	***6.58%***	***1,044***	***7.24%***	***354***	***7.11%***
Caldwell County	588	2.98%	502	4.72%	385	1.47%	$63,574,000	764	1.76%	99	1.61%	38	1.68%
Cajah's Mountain	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Cedar Rock	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Gamewell	100	6.44%	61	14.45%	49	2.38%	$5,044,200	455	11.23%	57	9.12%	25	11.63%
Granite Falls	31	1.62%	105	15.02%	18	0.90%	$7,480,700	37	0.78%	4	0.60%	3	0.90%
Hudson	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Lenoir	8	0.10%	2	0.09%	0	0.00%	$0	32	0.18%	2	0.06%	1	0.09%
Rhodhiss	85	19.41%	67	36.02%	47	9.73%	$3,477,843	135	12.62%	17	11.41%	7	10.45%
Sawmills	31	1.65%	40	7.08%	15	0.57%	$4,671,800	36	0.69%	4	0.57%	1	0.33%
Subtotal Caldwell	***843***	***2.34%***	***777***	***5.01%***	***524***	***1.14%***	***$84,248,543***	***1,459***	***1.76%***	***183***	***1.43%***	***75***	***1.61%***
Catawba County	3,411	8.90%	1,221	5.14%	4,326	4.99%	$537,144,900	1,705	2.04%	294	2.64%	61	1.27%
Brookford	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Catawba	56	14.29%	57	32.20%	38	5.10%	$4,066,100	87	14.43%	17	13.08%	4	14.81%
Claremont	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Conover	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Hickory	323	2.20%	147	4.33%	218	1.07%	$73,935,700	601	1.50%	83	1.45%	27	0.99%
Long View	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Maiden	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Newton	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Subtotal Catawba	***3,807***	***5.69%***	***1,435***	***7.09%***	***4,598***	***3.54%***	***$617,024,347***	***2,416***	***1.57%***	***403***	***1.85%***	***92***	***0.95%***
TOTAL UNIFOUR	8,131	5.24%	4,729	7.41%	8,661	3.13%	$1,459,247,075	10,581	2.89%	1,773	3.25%	551	2.56%

Dam Failure Exposure (Lookout Shoals)

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	%	Num	%	Num	Perc		Num	Per	Num	Per	Num	Per
Alexander County	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Taylorsville	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Subtotal Alexander	***0***	***0.00%***	***0***	***0.00%***	***0***	***0.00%***	***$0***	***0***	***0.00%***	***0***	***0.00%***	***0***	***0.00%***
Burke County	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Connelly Springs	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Drexel	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Glen Alpine	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Hildebran	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Morganton	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Valdese	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Rutherford College	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Subtotal Burke	***0***	***0.00%***	***0***	***0.00%***	***0***	***0.00%***	***$0***	***0***	***0.00%***	***0***	***0.00%***	***0***	***0.00%***
Caldwell County	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Cajah's Mountain	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Cedar Rock	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Gamewell	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Granite Falls	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Hudson	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Lenoir	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Rhodhiss	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Sawmills	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Subtotal Caldwell	***0***	***0.00%***	***0***	***0.00%***	***0***	***0.00%***	***$0***	***0***	***0.00%***	***0***	***0.00%***	***0***	***0.00%***
Catawba County	443	1.16%	282	2.11%	534	0.62%	$45,620,600	747	0.89%	96	0.86%	42	0.87%
Brookford	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Catawba	107	27.30%	78	44.07%	102	13.69%	$18,145,800	148	24.54%	33	25.38%	5	18.52%
Claremont	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Conover	0	0.00%	0	0.00%	0	0.00%	$0	2	0.02%	0	0.00%	0	0.00%
Hickory	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Long View	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Maiden	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Newton	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Subtotal Catawba	***550***	***0.82%***	***360***	***1.78%***	***636***	***0.49%***	***$63,766,400***	***897***	***0.58%***	***129***	***0.59%***	***47***	***0.49%***
TOTAL UNIFOUR	550	0.35%	360	0.56%	636	0.23%	$63,766,400	897	0.25%	129	0.24%	47	0.22%

Dam Failure Exposure (Oxford)

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per
Alexander County	113	0.69%	73	1.15%	107	0.24%	$5,174,020	152	0.43%	13	0.25%	9	0.44%
Taylorsville	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Subtotal Alexander	***113***	***0.69%***	***73***	***1.11%***	***107***	***0.23%***	***$5,174,020***	***152***	***0.41%***	***13***	***0.23%***	***9***	***0.41%***
Burke County	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Connelly Springs	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Drexel	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Glen Alpine	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Hildebran	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Morganton	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Valdese	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Rutherford College	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Subtotal Burke	***0***	***0.00%***	***0***	***0.00%***	***0***	***0.00%***	***$0***	***0***	***0.00%***	***0***	***0.00%***	***0***	***0.00%***
Caldwell County	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Cajah's Mountain	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Cedar Rock	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Gamewell	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Granite Falls	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Hudson	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Lenoir	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Rhodhiss	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Sawmills	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Subtotal Caldwell	***0***	***0.00%***	***0***	***0.00%***	***0***	***0.00%***	***$0***	***0***	***0.00%***	***0***	***0.00%***	***0***	***0.00%***
Catawba County	3,117	8.14%	1,172	8.78%	4,020	4.64%	$532,021,000	1,990	2.38%	316	2.84%	88	1.83%
Brookford	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Catawba	100	25.51%	70	39.55%	95	12.75%	$12,340,800	135	22.39%	28	21.54%	4	14.81%
Claremont	0	0.00%	1	0.46%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Conover	2	0.06%	9	0.97%	0	0.00%	$0	4	0.05%	0	0.00%	0	0.00%
Hickory	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Long View	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Maiden	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Newton	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Subtotal Catawba	***3,219***	***4.81%***	***1,252***	***6.19%***	***4,115***	***3.16%***	***$544,361,800***	***2,129***	***1.38%***	***344***	***1.58%***	***92***	***0.95%***
TOTAL UNIFOUR	3,332	2.15%	1,325	2.08%	4,222	1.52%	$549,535,820	2,281	0.62%	357	0.65%	101	0.47%

Dam Failure Exposure (Rhodhiss)

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings at Risk	Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per
Alexander County	930	5.70%	325	5.10%	1,379	3.04%	$130,209,490	546	1.56%	102	2.00%	25	1.22%
Taylorsville	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Subtotal Alexander	***930***	***5.35%***	***325***	***4.92%***	***1,379***	***2.92%***	***$130,209,490***	***546***	***1.47%***	***102***	***1.81%***	***25***	***1.13%***
Burke County	177	0.75%	107	1.15%	104	0.32%	$7,737,832	107	0.67%	53	0.60%	19	0.62%
Connelly Springs	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Drexel	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Glen Alpine	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Hildebran	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Morganton	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Valdese	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Rutherford College	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Subtotal Burke	***177***	***0.51%***	***107***	***0.92%***	***104***	***0.22%***	***$7,737,832***	***107***	***0.44%***	***53***	***0.37%***	***19***	***0.38%***
Caldwell County	480	2.44%	411	3.86%	308	1.17%	$54,642,800	562	1.29%	74	1.21%	28	1.24%
Cajah's Mountain	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Cedar Rock	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Gamewell	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Granite Falls	14	0.73%	43	6.15%	4	0.20%	$2,599,700	12	0.25%	1	0.15%	1	0.30%
Hudson	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Lenoir	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Rhodhiss	87	19.86%	63	33.87%	56	11.59%	$3,799,095	146	13.64%	21	14.09%	8	11.94%
Sawmills	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Subtotal Caldwell	***581***	***1.61%***	***517***	***3.33%***	***368***	***0.81%***	***$61,041,595***	***720***	***0.87%***	***96***	***0.75%***	***37***	***0.80%***
Catawba County	1,566	4.09%	730	5.47%	2,165	2.50%	$273,594,900	952	1.14%	149	1.34%	42	0.87%
Brookford	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Catawba	43	10.97%	53	29.94%	30	4.03%	$3,722,700	71	11.77%	14	10.77%	4	14.81%
Claremont	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Conover	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Hickory	270	1.84%	157	4.62%	163	0.80%	$54,693,300	462	1.15%	61	1.06%	20	0.74%
Long View	2	0.09%	5	1.08%	3	0.09%	$1,008,300	10	0.21%	0	0.00%	2	0.58%
Maiden	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Newton	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Subtotal Catawba	***1,880***	***2.81%***	***912***	***4.51%***	***2,368***	***1.82%***	***$331,490,325***	***1,497***	***0.97%***	***229***	***1.05%***	***67***	***0.69%***
TOTAL UNIFOUR	3,568	2.30%	1,951	3.06%	4,219	1.52%	$530,479,242	3,160	0.86%	480	0.88%	148	0.69%

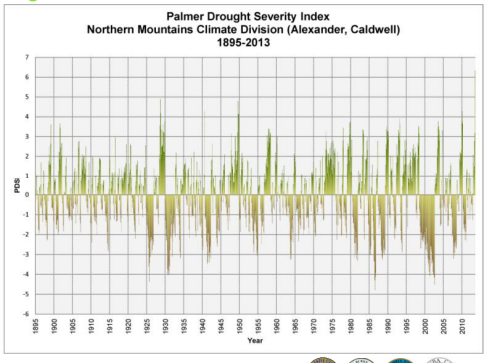
Dam Failure Exposure (Facilities and Assets)

- 10 critical facilities in a mapped inundation area
  - Includes fire stations, police stations, schools, shelters
- 3 high potential loss properties in a mapped inundation area
  - Includes airport and HAZMAT sites
- 17 historic properties
  - Includes historic districts, historic buildings and other historic assets

Dam/Levee Failure Hazard History

- Regional summary of historical occurrences (NCDC)
  - No reported incidents

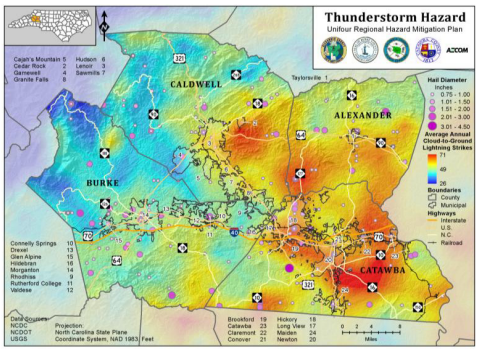
Drought/Extreme Heat Charts



Drought/Extreme Heat Hazard History

- Regional summary of historical occurrences (NCDC)
  - 8 recorded instances of prolonged drought conditions since 1998
  - $0 in reported property losses
  - $0 in reported crop losses
  - 0 deaths
  - 0 injuries

Thunderstorm, Lightning, and Hail Hazard Map



AECOM

Thunderstorm, Lightning, and Hail Hazard History

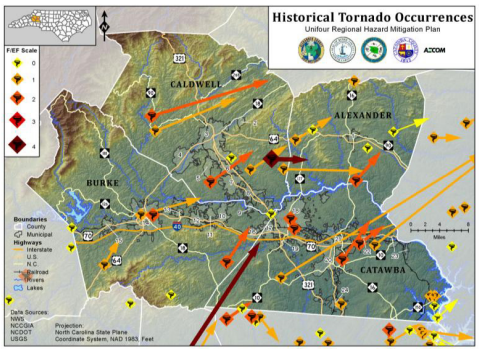
- Regional summary of historical occurrences (NCDC)
  - 764 recorded instances of thunderstorm, lightning, and hail conditions since 1996
  - $13,649,000 in reported property losses
  - $0 in reported crop losses
  - 0 deaths
  - 19 injuries

AECOM

Thunderstorm, Lightning, and Hail Hazard History

Jurisdiction	Number of Thunderstorm High Wind Events	Number of Lightning Events	Number of Hail Events	Deaths	Injuries	Reported Property Damage	Reported Crop Damage
Alexander County	43	3	16	0	2	$243,000	$0
Taylorsville	23	3	20	0	0	$1,100,000	$0
Subtotal Alexander	**66**	**6**	**36**	**0**	**2**	**$1,343,000**	**$0**
Burke County	40	2	23	0	1	$1,040,000	$0
Connelly Springs	3	0	1	0	0	$0	$0
Drexel	2	0	5	0	0	$0	$0
Glen Alpine	6	2	14	0	1	$50,000	$0
Hildebran	1	1	4	0	1	$0	$0
Morganton	42	8	62	0	11	$183,000	$0
Valdese	4	0	3	0	0	$0	$0
Rutherford College	3	1	2	0	1	$25,000	$0
Subtotal Burke	**101**	**14**	**114**	**0**	**15**	**$1,298,000**	**$0**
Caldwell County	32	2	41	0	0	$100,000	$0
Cajah's Mountain	0	0	0	0	0	$0	$0
Cedar Rock	0	0	0	0	0	$0	$0
Gamewell	1	0	3	0	0	$0	$0
Granite Falls	6	1	7	0	0	$20,000	$0
Hudson	2	1	0	0	0	$100,000	$0
Lenoir	29	4	27	0	0	$137,000	$0
Rhodhiss	1	0	0	0	0	$0	$0
Sawmills	3	0	0	0	0	$3,000	$0
Subtotal Caldwell	**74**	**8**	**78**	**0**	**0**	**$260,000**	**$0**
Catawba County	35	4	17	0	0	$115,000	$0
Brookford	0	0	3	0	0	$0	$0
Catawba	8	0	6	0	0	$20,000	$0
Claremont	13	2	8	0	1	$85,000	$0
Conover	8	2	9	0	0	$11,000	$0
Hickory	45	10	29	0	1	$449,000	$0
Long View	4	0	5	0	0	$10,000	$0
Maiden	8	0	14	0	0	$1,000	$0
Newton	19	2	16	0	0	$10,057,000	$0
Subtotal Catawba	**140**	**20**	**107**	**0**	**2**	**$10,748,000**	**$0**
TOTAL UNIFOUR	**381**	**48**	**335**	**0**	**19**	**$13,649,000**	**$0**

Tornado Hazard Map



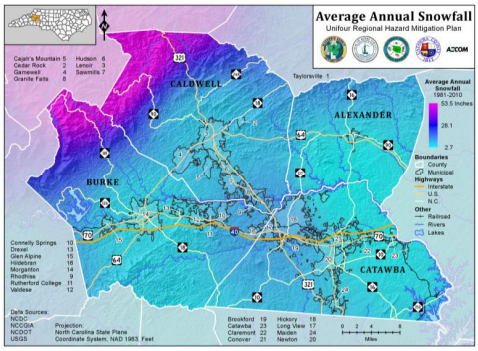
AECOM

Tornado Hazard History

- Regional summary of historical occurrences (NCDC)
  - 36 recorded instances of tornadoes since 1950
  - $50,089,000 in reported property losses
  - $0 in reported crop losses
  - 0 deaths
  - 17 injuries
  - Highest magnitude: F4 (Caldwell County and Catawba County)
  - Lowest magnitude: F0

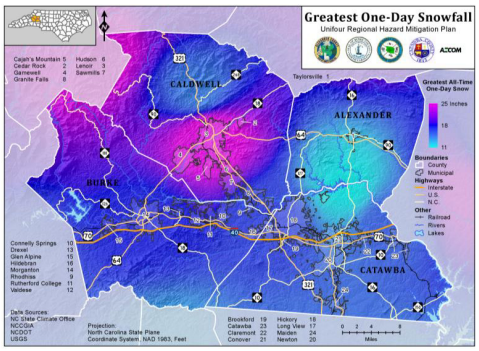
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Winter Weather Hazard Map



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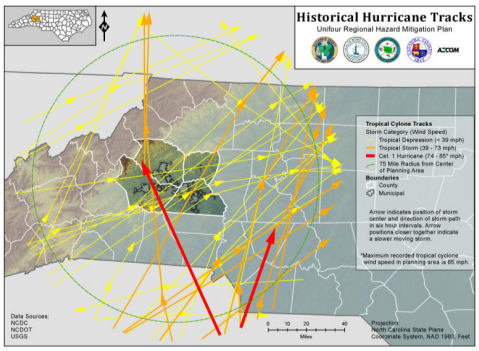
Winter Weather Hazard Map



Winter Weather Hazard History

- Regional summary of historical occurrences (NCDC)
  - 64 recorded instances of winter weather since 1996
    - 31 general winter weather events, 3 frost/freeze events, 23 heavy snow events, and 7 sleet events
  - Less than $5,000 in reported property losses
  - $1 million in reported crop losses (due to freezes)
  - 0 deaths
  - 0 injuries

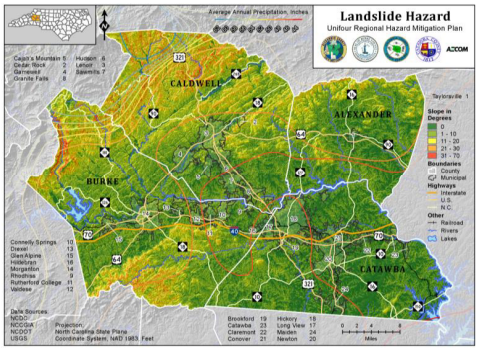
Hurricane and Tropical Storm Hazard Map



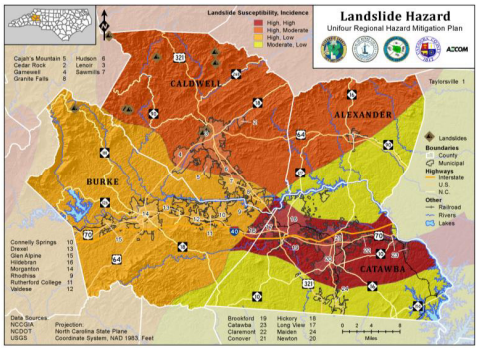
Hurricane and Tropical Storm Hazard History

- Regional summary of historical occurrences (NHC)
  - 34 hurricane and tropical storm paths have crossed within a 75 statute mile radius of the mean center of the planning area from 1859 to 2011
  - 1 Category 1 storm (Unnamed in 1893)
  - 1 Category 2 storm (Hugo in 1989)

Landslide Hazard Map (1)



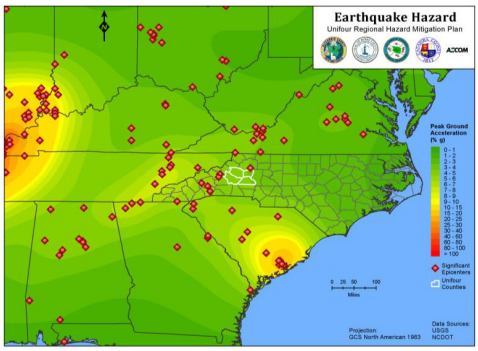
Landslide Hazard Map (2)



Landslide Hazard History

- Regional summary of historical occurrences (local data)
  - 4 recorded instances of landslides since 2003

Earthquake Hazard Map



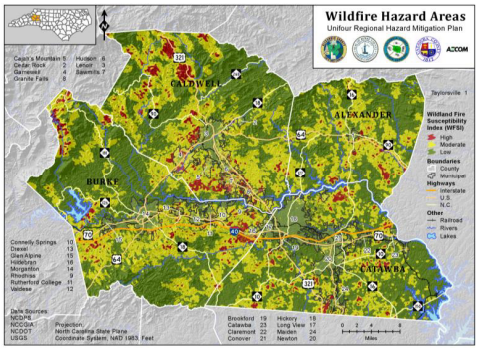
Earthquake Hazard History

- Regional summary of historical occurrences (NGDC)
  - 10 recorded instances of earthquake activity since 1886
  - Earliest known event was in 1886 (MMI VI, 337 miles from epicenter)
  - Most recent event was in 1976 (MMI II, 109 miles from epicenter)

Sinkhole Hazard

- No official recorded instances
- No hazard mapping data available
- We do have definitions provided by NCGS for four sinkhole types/causes that we can use for narrative write-up
  - Geologic related to dissolving of limestone or other carbonate rocks
  - Debris decomposition
  - Failure of buried infrastructure
  - Mine collapse

Wildfire Hazard Map



Wildfire Hazard Exposure (High Risk)

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per
Alexander County	985	6.03%	337	5.29%	1,735	3.83%	$857,106,350	1,787	5.09%	188	3.68%	100	4.87%
Taylorsville	32	3.05%	9	3.98%	34	1.73%	$4,124,642	20	0.95%	1	0.19%	3	1.95%
Subtotal Alexander	**1,017**	**5.85%**	**346**	**5.24%**	**1,769**	**3.74%**	**$861,230,992**	**1,807**	**4.86%**	**189**	**3.36%**	**103**	**4.66%**
Burke County	2,913	12.31%	1,529	8.91%	2,770	8.50%	$271,394,958	4,238	7.11%	600	6.77%	218	7.07%
Connelly Springs	60	8.89%	28	4.97%	39	4.52%	$7,466,477	65	3.89%	18	6.23%	3	3.49%
Drexel	167	24.67%	43	22.75%	84	10.92%	$21,281,980	194	10.44%	24	6.03%	8	8.51%
Glen Alpine	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Hildebran	293	36.35%	88	33.46%	223	21.08%	$29,772,702	232	11.47%	32	8.04%	8	6.78%
Morganton	2	0.03%	2	0.11%	12	0.16%	$0	72	0.43%	3	0.10%	0	0.00%
Valdese	20	1.10%	7	0.71%	10	0.48%	$18,466,427	34	0.76%	24	2.67%	0	0.00%
Rutherford College	183	32.39%	70	30.30%	117	16.41%	$11,406,995	129	9.62%	17	7.26%	4	5.13%
Subtotal Burke	**3,638**	**10.44%**	**1,767**	**8.21%**	**3,255**	**7.04%**	**$359,789,539**	**4,964**	**5.46%**	**718**	**4.98%**	**241**	**4.84%**
Caldwell County	2,970	15.07%	1,320	12.41%	2,872	10.94%	$258,502,900	4,172	9.59%	633	10.31%	204	9.01%
Cajah's Mountain	62	5.55%	19	7.85%	53	3.96%	$4,850,200	80	2.83%	15	2.89%	4	2.17%
Cedar Rock	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Gamewell	441	28.38%	90	21.33%	436	21.19%	$39,468,900	927	22.88%	122	19.52%	47	21.86%
Granite Falls	629	32.93%	184	26.32%	484	24.24%	$105,621,300	1,064	22.53%	169	25.34%	55	16.57%
Hudson	222	14.61%	64	15.09%	149	8.95%	$22,413,900	276	7.31%	39	5.95%	8	3.92%
Lenoir	348	4.49%	96	4.28%	273	3.16%	$32,010,600	617	3.38%	106	3.14%	39	3.52%
Rhodhiss	166	37.90%	50	26.88%	143	29.61%	$6,526,081	243	22.71%	32	21.48%	13	19.40%
Sawmills	866	46.11%	204	36.11%	761	29.12%	$65,905,800	1,229	23.45%	152	21.81%	56	18.54%
Subtotal Caldwell	**5,704**	**15.83%**	**2,027**	**13.07%**	**5,171**	**11.44%**	**$535,299,681**	**8,608**	**10.37%**	**1,268**	**9.89%**	**426**	**9.17%**
Catawba County	2,320	6.06%	552	4.13%	1,786	4.37%	$607,754,500	3,059	3.66%	366	3.29%	185	3.85%
Brookford	0	0.00%	0	0.00%	0	0.00%	$0	0	0.00%	0	0.00%	0	0.00%
Catawba	8	2.04%	9	5.08%	2	0.27%	$3,698,700	4	0.66%	1	0.77%	0	0.00%
Claremont	1	0.13%	1	0.46%	7	0.62%	$119,700	0	0.00%	0	0.00%	0	0.00%
Conover	21	0.61%	6	0.65%	20	0.37%	$2,167,900	44	0.54%	2	0.14%	5	0.89%
Hickory	68	0.46%	33	0.97%	45	0.22%	$20,779,200	90	0.22%	9	0.16%	4	0.15%
Long View	19	0.85%	9	1.94%	13	0.37%	$871,551	14	0.29%	1	0.13%	1	0.29%
Maiden	92	5.77%	28	6.29%	76	2.64%	$10,622,300	50	1.51%	5	1.10%	2	0.96%
Newton	52	0.99%	16	1.33%	59	0.66%	$7,091,600	151	1.16%	11	0.54%	14	1.47%
Subtotal Catawba	**2,581**	**3.86%**	**654**	**3.23%**	**4,008**	**3.08%**	**$653,105,451**	**3,412**	**2.21%**	**395**	**1.81%**	**211**	**2.18%**
TOTAL UNIFOUR	**12,940**	**8.34%**	**4,794**	**7.51%**	**14,203**	**5.13%**	**$2,409,425,663**	**18,791**	**5.14%**	**2,570**	**4.70%**	**981**	**4.56%**

Wildfire Hazard Exposure (Moderate Risk)

Jurisdiction	Number of Developed Parcels At Risk		Number of Undeveloped Parcels At Risk		Number of Buildings At Risk		Value of Buildings At Risk	Population At Risk		Elderly Population At Risk		Children At Risk	
	Num	Per	Num	Per	Num	Per		Num	Per	Num	Per	Num	Per
Alexander County	9,582	58.69%	3,574	56.07%	22,792	50.28%	$1,744,425,209	16,710	47.61%	2,378	46.61%	941	45.79%
Taylorsville	697	66.38%	151	66.81%	853	43.43%	$215,679,965	788	37.56%	206	39.24%	51	33.12%
Subtotal Alexander	**10,279**	**59.16%**	**3,725**	**56.44%**	**23,645**	**49.99%**	**$1,960,105,174**	**17,498**	**47.04%**	**2,584**	**45.92%**	**992**	**44.91%**
Burke County	15,603	65.94%	10,100	58.87%	19,279	59.16%	$2,198,039,876	33,332	55.95%	4,766	53.76%	1,724	55.88%
Connelly Springs	576	85.33%	257	45.65%	729	84.57%	$51,120,087	1,212	72.62%	203	70.24%	58	67.44%
Drexel	394	58.20%	113	59.79%	371	48.24%	$49,568,550	829	44.62%	180	45.23%	27	28.72%
Glen Alpine	90	14.11%	28	9.12%	60	8.30%	$3,383,074	107	7.05%	25	9.80%	6	5.77%
Hildebran	458	56.82%	162	61.60%	602	56.90%	$71,243,861	1,150	56.85%	222	55.78%	57	48.31%
Morganton	680	11.34%	283	15.54%	683	9.15%	$344,727,303	1,494	8.83%	284	9.22%	79	6.87%
Valdese	1,075	58.87%	505	51.53%	839	40.47%	$194,942,965	1,598	35.59%	308	34.22%	78	29.43%
Rutherford College	292	51.68%	129	55.84%	342	47.97%	$32,675,699	588	43.85%	93	39.74%	33	42.31%
Subtotal Burke	**19,168**	**55.01%**	**11,577**	**53.82%**	**22,905**	**49.52%**	**$2,945,701,415**	**40,310**	**44.34%**	**6,081**	**42.18%**	**2,062**	**41.41%**
Caldwell County	11,904	60.41%	5,641	53.02%	14,773	56.26%	$1,366,900,900	23,873	54.88%	3,218	52.40%	1,240	54.77%
Cajah's Mountain	890	79.68%	179	73.97%	879	65.70%	$104,268,700	1,667	59.05%	283	54.53%	111	60.33%
Cedar Rock	85	57.82%	43	51.81%	71	50.71%	$19,764,200	127	42.33%	40	43.01%	1	14.29%
Gamewell	1,079	69.43%	327	77.49%	1,451	70.51%	$109,369,100	2,549	62.92%	388	62.08%	131	60.93%
Granite Falls	1,091	57.12%	357	51.07%	1,170	58.59%	$196,303,550	2,569	54.40%	341	51.12%	176	53.01%
Hudson	930	61.22%	298	70.28%	868	52.13%	$269,713,400	1,748	46.29%	288	43.97%	94	46.08%
Lenoir	2,954	38.09%	845	37.64%	2,543	29.46%	$416,870,900	4,387	24.07%	787	23.33%	190	17.13%
Rhodhiss	193	44.06%	95	51.08%	220	45.55%	$17,249,786	571	53.36%	75	50.34%	38	56.72%
Sawmills	811	43.18%	270	47.79%	1,428	54.65%	$95,025,800	2,416	46.11%	301	43.19%	114	37.75%
Subtotal Caldwell	**19,937**	**55.34%**	**8,055**	**51.85%**	**23,403**	**51.80%**	**$2,595,466,336**	**39,907**	**48.06%**	**5,721**	**44.64%**	**2,095**	**45.10%**
Catawba County	18,934	49.42%	5,661	42.39%	36,277	41.86%	$4,830,667,000	31,030	37.15%	3,943	35.45%	1,726	35.89%
Brookford	16	6.75%	4	7.84%	36	7.74%	$2,140,500	31	8.12%	8	11.11%	2	11.11%
Catawba	165	42.09%	56	31.64%	232	31.14%	$30,506,200	162	26.87%	31	23.85%	7	25.93%
Claremont	115	15.39%	43	19.82%	113	9.98%	$45,812,600	99	7.32%	8	4.08%	3	3.90%
Conover	701	20.28%	241	26.03%	856	15.93%	$306,374,300	1,025	12.55%	119	8.57%	73	12.97%
Hickory	1,811	12.36%	502	14.79%	1,552	7.65%	$729,369,200	2,926	7.31%	280	4.88%	156	5.74%
Long View	373	16.69%	126	27.10%	309	8.80%	$30,946,398	482	9.90%	51	6.62%	31	9.04%
Maiden	887	55.61%	275	61.80%	1,107	38.38%	$256,029,600	1,031	31.15%	119	26.10%	54	25.96%
Newton	769	14.59%	197	16.40%	1,045	11.64%	$401,680,700	1,274	9.82%	310	15.08%	81	8.48%
Subtotal Catawba	**23,771**	**35.53%**	**7,105**	**35.12%**	**41,527**	**31.93%**	**$6,633,526,498**	**38,060**	**24.66%**	**4,869**	**22.36%**	**2,133**	**22.06%**
TOTAL UNIFOUR	**73,155**	**47.15%**	**30,462**	**47.71%**	**111,480**	**40.24%**	**$14,134,799,423**	**135,775**	**37.15%**	**19,255**	**35.24%**	**7,282**	**33.86%**

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Wildfire Hazard Exposure

- 31 critical facilities in high hazard areas
  - Includes day cares, fire stations, government buildings, schools, senior care and shelters
- 203 critical facilities in moderate hazard areas
  - Includes day cares, EMS, EOC, fire stations, government buildings, hospitals, schools, senior care and shelters
- 24 high potential loss properties in moderate hazard areas
  - Includes airports, military facilities and hazardous materials sites
- 24 historic properties/sites in high hazard areas

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Wildfire Hazard History

- Regional summary of historical occurrences (NCDFR)
  - 5-year average number of fires: 1,197
  - 5-year average number of acres burned: 1,082.4

County	5-Year Average Number of Fires	5-Year Average Number of Acres Burned
Alexander	163	133.5
Burke	286	221.2
Caldwell	472	614.8
Catawba	276	112.9
TOTAL UNIFOUR	**1,197**	**1,082.4**

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Annualized Loss Ranking

1. Tornado (ALE: $2,504,450)
2. Flood (ALE: $758,365)
3. Thunderstorm (ALE: $682,450)
4. Winter Weather (ALE: $100,200)
5. All others: ALE less than $5,000 or insufficient data to determine an ALE

(ALE = Annualized Loss Estimate)

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Conclusions on Hazard Risk (Preliminary)

HIGH	Flood Dam/Levee Failure Tornado Winter Weather Thunderstorm, Lightning, and Hail
MODERATE	Wildfire Landslide Hurricane and Tropical Storm Drought/Extreme Heat
LOW	Erosion Sinkhole Earthquake

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Capability Assessment Results

Capability Assessment Survey

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Education and outreach capability
- Political capability
- Self assessment

Capability Assessment Survey

- 100% participation!
  - 28 out of 28 surveys returned
- Thank you!

Capability Assessment Survey

- Points System for Capability Ranking
  - 0-24 points = Limited overall capability
  - 25-49 points = Moderate overall capability
  - 50-82 points = High overall capability
- Average overall score for the region: **48**
  - Moderate overall capability
- The full Capability Assessment section will be available for review prior to finalizing

Capability Assessment Survey

High	Moderate	Limited
Alexander County	Cajah's Mountain	Drexel
Brookford	Catawba	
Burke County	Cedar Rock	
Caldwell County	Connelly Springs	
Catawba County	Gamewell	
Claremont	Granite Falls	
Conover	Hildebran	
Glen Alpine	Hudson	
Hickory	Rhodhiss	
Lenoir	Rutherford College	
Long View	Sawmills	
Maiden	Taylorsville	
Morganton		
Newton		
Valdese		

Public Outreach Update

Public Outreach Update

- Public Participation Survey
  - 160 started, 131 completed
- 1st public meeting
  - October 1 from 5 to 8 p.m.
- Promoting the survey and project information website

Mitigation Strategy Development

Vision Statement

"Through a coordinated regional planning effort, create and implement an effective hazard mitigation plan that will identify and prioritize risk reduction measures for natural hazards in order to protect the health, safety, quality of life, environment and economy of the Unifour area."

Structure of Mitigation Strategy Section

- Vision Statement
  - Regional Mitigation Goals
    - Regional Mitigation Actions
    - Local Mitigation Actions

Mitigation Actions

- Develop an action plan that is holistic
  - It should address multiple hazards/objectives/issues, but should be focused on highest risks
- Keep it realistic in terms of local capabilities and resources
- Each action should be specific, actionable, measureable, and achievable

Types of Mitigation Actions

- Local Plans and Regulations
- Structure and Infrastructure Projects
- Natural Systems Protection
- Education and Awareness Programs

Question 1 (10-15 minutes)

What would have to happen for the Unifour region to be more resilient to natural hazards?

Question 2 (15-20 minutes)

What specific actions would need to be taken to accomplish this?

Question 3 (30 minutes)

How do all of our ideas come together?

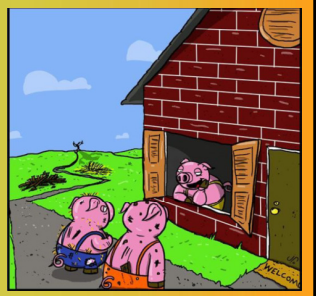
Open Discussion

Next Steps

- Mitigation Action Plan "homework"

Thank You

mike.robinson@aecom.com
darrin.punchard@aecom.com



"Mitigation isn't so funny now, is it?"

Unifour Regional Hazard Mitigation Plan

Hazard Mitigation Planning Committee Meeting #4

December 10, 2013
1:00 p.m. – 3:00 p.m.
Western Piedmont Council of Governments
1880 2nd Ave. NW, Hickory
Conference Room A1

AGENDA

1. Welcome and Introductions 1:00 – 1:10

2. Overview of Working Draft Hazard Mitigation Plan 1:10 – 1:40
   - Table of Contents
   - Status on Plan Sections
   - Review/Comment Process
   - Suggested Areas of Focus
   - Availability of Files

3. Public Participation Survey Results 1:40 – 1:50

4. Mitigation Action Exercise 1:50 – 2:15

5. Plan Maintenance Procedures 2:15 – 2:25

6. Next Steps 2:25 – 2:35
   - Final Draft
   - State and FEMA Review
   - Local Adoption

7. Open Discussion 2:35 – 2:40

8. Nature's Fury Presentation, Oxford Elementary School 2:40 – 3:00

Unifour Regional Hazard Mitigation Plan
HMPC Meeting #4 - December 10, 2013

NAME	TITLE / AFFILIATION	PHONE	E-MAIL
MICHAEL TOWNSEND	AMERICAN RED CROSS	828-322-4151	MIKE.TOWNSEND@REDCROSS.ORG
Jimmy Drum	Town of Rhodhiss	828-493-1916	rhodhissfire@yahoo.com
Michael P. Long	Burke County Emergency Management	828-764-9321	mike.long@burkenc.org
Travis Ramsey	Maiden Town Planner	828-312-2262	tramsey@maidennc.gov
Cal Overby	City of Hickory	323-323-7487	coverby@hickorync.gov
LANCE HIGHT	CONOVER	828-464-1191	LANCE.HIGHT@CONOVERNCGOV
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LEE ANDERSON	City of Morganton	828-438-5270	landerson@ci.morganton.nc.us
Charles Mullis	Town of Long View	828-322-3921	charles.mullis@mail.ci.longview.nc.us
Grey Wilson	Town of Granite Falls	828-396-3131	wilsond@granitefallsnc.com

Unifour Regional Hazard Mitigation Plan
HMPC Meeting #4 - December 10, 2013

NAME	TITLE / AFFILIATION	PHONE	E-MAIL
Elinor Hiltz	Planner Sawmills RC	485.4248	elinor.hiltz@wpcog.org
Kaeyn Yaussy	Catawba Co EM	465-8989	KYaussy@CatawbaCountyNC.gov
Barbara Harmon	Manager, Town of Rhodhiss	396-8400	bh.rhodhiss@yahoo.com
Shelley Stevens	CCG / Planner	485 4238	shelley.stevens@wpcog.org
Russ Gee	Alex EM	632-9336	rgreene@alexandercountync.gov
Seth Harris	Alexander County	630-1114	sharris@alexandercountync.gov
Alex Fulbright	Newton	695 4326	afulbright@newtonnc.gov
Kenneth A. Teague	Caldwell Co EM	850-3947	kteague@caldwellcountync.org
Jason G. Potter	Caldwell Co. EM/EM	850-0998	js.potter@caldwellcountync.org
Jon Pilkenton	WPCOG / Planner	485-4225	jon.pilkenton@wpcog.org

Unifour Regional Hazard Mitigation Plan
HMPC Meeting #4 - December 10, 2013

NAME	TITLE / AFFILIATION	PHONE	E-MAIL
Jerry Causby	Fire Chief Glen Alpine	828 430-0874	jerrycausby@bellsouth.net
John Marshall	WPCOG / MPO	828-485-4232	john.marshall@wpcog.org
Darrin Punchard	AECOM	919-247-5784	darrin.punchard@aecom.com
Robin Nicholson	Duke Energy	828-323-2833	ROBIN.NICHOLSON@DUKE-ENERGY.COM
Laurie LoCicero	WPCOG	828 485 4240	laurie.bradshaw@wpcog.org

Unifour Regional Hazard Mitigation Plan

HMPC Meeting #4

AECOM

Darrin Punchard, Project Manager
Mike Robinson, Lead Planner

December 10, 2013

Agenda

- Welcome and introductions
- Overview of working draft
- Public Participation Survey results
- Mitigation Action Plan exercise
- Plan Maintenance Procedures
- Next steps
- Open discussion
- Nature's Fury Presentation, Oxford Elementary School

Handouts

- Meeting agenda
- Meeting sign-in sheet
- Mitigation Strategy and Mitigation Action Plans for each jurisdiction

Overview of Working Draft

Hazard Mitigation Plan

Overview of Working Draft

- Plan organization (Table of Contents)
- Quick status update on each section
- Explanation of review/comment process
- Suggested areas of focus
- Availability of files
- Instructions for submitting review comments

Plan Organization (Table of Contents)

- Plan Sections
  - Section 1: Introduction
  - Section 2: Planning Process
  - Section 3: Community Profile
  - Section 4: Risk Assessment
  - Section 5: Capability Assessment
  - Section 6: Mitigation Strategy
  - Section 7: Mitigation Action Plans
  - Section 8: Plan Maintenance Procedures

Plan Organization (Table of Contents)

- Appendices
  - Appendix A: Plan Adoption
  - Appendix B: Local Hazard Mitigation Plan Update Checklist
  - Appendix C: Public Outreach Strategy
  - Appendix D: Public Participation Survey Results
  - Appendix E: Copies of Meeting Agendas, Sign-in Sheets and PPT Slides
  - Appendix F: Project Information Fact Sheet
  - Appendix G: Local Capability Assessments
  - Appendix H: Safe Growth Survey

Instructions for Review/Comment Period

- Location of files
  - Project information website, under Planning Committee link
- Line numbering
  - Use these while organizing comments
  - Line numbering starts over with each new section
  - Reference section number and line number in your comments
- Deadline for Comments
  - Friday, December 20?
- Submit all comments to Mary George

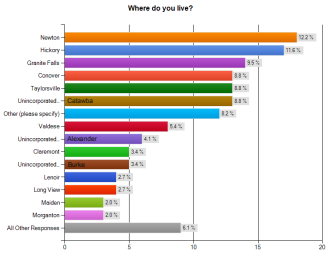
Example Review Comments

- Section 1: Introduction
  - Line 14: Maybe add wildfire to list of example hazards
  - Line 116: Add "Town of" to Rutherford College
- Section 2: Planning Process
  - Line 3: Maybe state upfront the duration of the planning process
  - Line 161: Add more information about the WPCOG
- Section 4: Risk Assessment
  - Line 1099: The legend on Figure 4.43 should include x, y and z.

Public Participation Survey Results

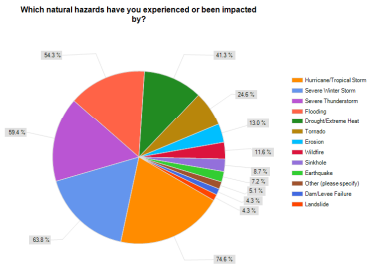
Overview of Participation

- Opened August 13
- Closed November 15
- 178 surveys started
- 148 (83.1%) finished
- 5 hand-entered

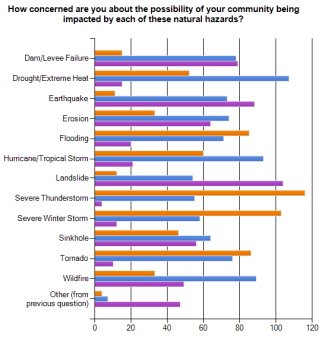


Experience with Natural Hazards

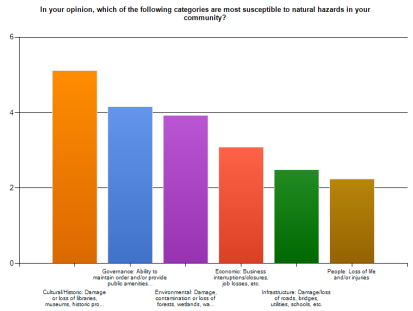
- 77.1% said they have been personally impacted by a disaster



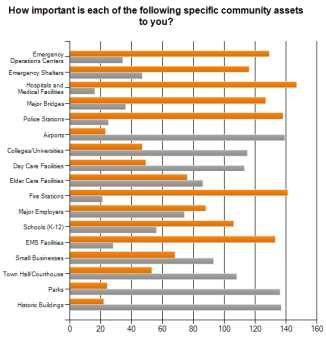
Greatest Concerns



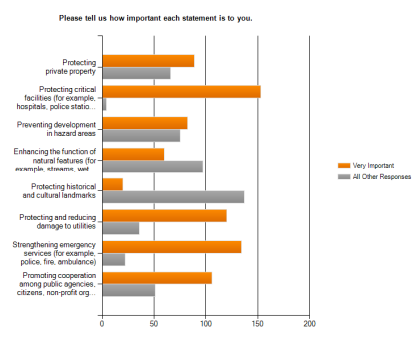
Most Susceptible Assets



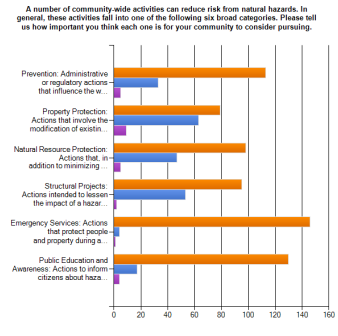
Importance of Community Assets



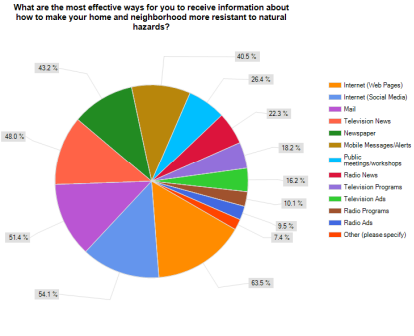
Importance of Mitigation Actions



Importance of Mitigation Techniques



Most Effective Ways of Receiving Information



Miscellaneous Responses

- 91.9% said they are interested in making their home or neighborhood more hazard resistant
- 86.6% said their home is not located in the floodplain
- 88.5% said they do not carry flood insurance
- 56.2% said they have lived in the Unifour area 20+ years
- 90.3% said they own their home
- 90.4% live in a single-family home

Mitigation Action Exercise

Mitigation Action Review

- Pair up with others from your jurisdiction
- Review Mitigation Strategy, including regional mitigation goals
- Review 2014 Mitigation Actions for your jurisdiction
- Review status of 2009 Mitigation Actions for your jurisdiction
- Make additional changes as needed
- Ask questions about Mitigation Actions you're unsure of

Plan Maintenance Procedures

Plan Maintenance Questions

- Who will be the lead agency for future mitigation planning meetings, updates, progress reports, etc.?
- What will be the schedule for any ongoing meetings of the HMPC, prior to the next 5-year plan update?
  - Annual meetings, bi-annual meetings, "as-needed" meetings, etc.
- To what extent will you seek to integrate the regional plan with other local plans, policies and programs?
  - Comprehensive plans, land use plans, emergency operations plans, etc.
- What other implementation strategies can you use?

Plan Maintenance Questions

- What criteria will be used for 5-year plan updates?
  - Do the goals address current and expected conditions?
  - Has the nature or magnitude of risk changed?
  - Are the current resources appropriate for implementing the plan?
  - Are there implementation problems?
  - Have the outcomes occurred as expected?
  - Did the jurisdictions, agencies and other partners participate in the plan implementation process as expected?

Plan Maintenance Questions

- What kind(s) of reporting procedures would you like to adopt?
  - Just what is included in the next 5-year plan update?
  - Annual progress reports?
    - Who would they be submitted to and by whom?
  - Interim progress report halfway to the next 5-year plan update?
    - Who would it be submitted to and by whom?
- How will you keep the public involved?
- How will you keep stakeholders involved?

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Next Steps

- Review/comment period
- Final draft
- State and FEMA review
- Local adoption

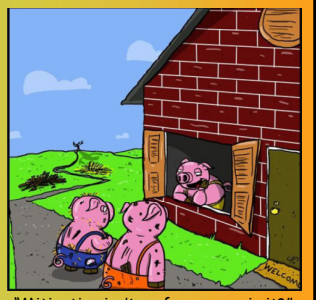
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Open Discussion

Welcome Oxford Elementary School

Thank You

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"Mitigation isn't so funny now, is it?"

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Area officials seek input on disaster plan

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Posted: Friday, November 29, 2013 4:54 pm

By Staff Reports news@hickoryrecord.com

HICKORY, NC — Officials want input from the public on an updated disaster plan.

A public meeting is set from 4-7 p.m. Dec. 10 at the Western Piedmont Council of Governments, located at 1880 Second Avenue NW, Hickory. Greater Hickory Metro's county officials have come up with a draft of the area's Hazard Mitigation Plan.



"The Dec. 10 meeting will be set up for citizens to come and go as they wish between 4 and 7 p.m.," Catawba County assistant planning director Mary George said. "We invite all of the residents of Alexander, Burke, Caldwell and Catawba counties to drop by the meeting, see the ways their community has identified to address local hazards and give us their feedback on the proposals."

The 28 municipal and county governments in the four counties will have a single plan, but there will be specific action items identified within it for each, according to a release from Catawba County. The items include such things as educating the public on what do to during a storm, tree trimming, maintaining storm drainage systems and installing generator transfer switches, the release said.

The Federal Emergency Management Agency requires hazard mitigation plans be updated every five years. An updated plan ensures counties, towns and cities are eligible for state and federal disaster assistance and preparedness activities, the release said.

A draft of the plan and the action steps for each county and municipality in the area will be available online starting Dec. 6 at www.catawbacountync.gov/EmergencyServices/Hazard/RegionalPlan.asp.

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We're always interested in hearing about news in our community. Let us know what's going on!

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Polling official Lynn Seabock (right) verifies the address of Linda Shade as she prepares to vote on the first day of early voting at Highland Recreation Center on Thursday.

Voting

From Page 1A

everybody, and I beat him to the punch," Sculthorpe said.

Ed Farthing, an election official, said Wright was first while challenger Ernie Masche was third.

The atmosphere Thursday was largely genial. Farthing said that a friend of mayoral candidate Candice Harold wanted her picture taken and Masche, a freelance photographer, took it for her.

"I think that exemplifies local politics at its finest," Farthing said.

Sculthorpe and Harold had been canvassing for hours when Jane Johnson from the Inglefield campaign offered to make a Bojangles' run for the two of them.

"These are the real important things about the campaign," Johnson said.

Gertrude Peacock was one of the voters who came out Thursday afternoon. She said she was voting for Wright.

"He's the right one," Peacock said.

Farthing said the next few days will be slow, but turnout will pick up closer to October.

"I encourage people to come vote now, so they can get in and out," Farthing said.

Residents asked for ideas to prepare community for natural disasters

HICKORY — The July 27 flooding that brought severe damage to parts of Catawba County was a stark reminder that natural disasters can happen here. Anyone who lived through the tornadoes that struck the Vale and Claremont areas in 2010 or eastern Burke County in 2012, or Hurricane Hugo in 1989 also understands the risks.

Do you have any ideas for ways to help the county be better prepared to face a natural disaster in the future? Officials will soon be asking citizens in Catawba, Alexander, Burke and Caldwell counties to share their ideas at a public meeting.

Those counties were already scheduled to update a plan, first created in 2004 to be better prepared for future natural hazards, before the flooding hit in July. Now they're hoping the recent experiences of some residents might help reduce the impact of such events if they ever occur again.

A public meeting has been scheduled for Tuesday, Oct. 1, from 5 until 8 p.m. at the Western Piedmont Council of Governments at 1880 Second Ave., NW, Hickory, (town of Long View), in Conference Room A1.

"We need the help of the citizens of Catawba, Alexander, Burke and Caldwell counties," said Karyn Yaussy, Catawba County's emergency management coordinator. "We're preparing to update our Multi-jurisdictional Hazard Mitigation Plan. The purpose of this plan is to identify and assess our community's natural hazard risks (such as flooding, winter storms, tornadoes and wildfires) and determine how to best minimize or manage those risks. We are asking everyone who has suggestions about how we can reduce our risks from natural hazards, or be better prepared to meet natural hazards, to give us their input either at the Oct. 1 meeting or through an online survey."

A full page of information on the hazard mitigation update is available through a story at www.catawbacountync.gov/. Those who wish to go directly to the survey may visit www.surveymonkey.com/s/unifourhazardsurvey.

The Oct. 1 meeting is set up for people to come and go as they wish between 5 and 8 p.m., said Mary George, Catawba County's assistant planning director. "You're invited to bring your thoughts and local knowledge to the meeting as we update the individual hazard mitigation plans of Alexander, Burke, Caldwell and Catawba counties."

The Federal Emergency Management Agency requires local hazard mitigation plans be updated every five years. Catawba County's current plan was last updated in 2010 but the new plan will be regional in nature for Alexander, Burke, Caldwell and Catawba counties. Having a FEMA-approved plan in place assures that the counties and municipal jurisdictions remain eligible for a range of state and federal disaster assistance and preparedness activities.

The hazard mitigation plan update process is being coordinated by Catawba County's Emergency Management and Planning, Parks and Development departments but involves representatives from the four counties and the incorporated municipalities in each. A private consulting firm, AECOM, will assist in the process of ensuring the updated plan remains in compliance with new state and federal guidelines for hazard mitigation plans.

For more information on the update of the Multi-jurisdictional Hazard Mitigation Plan update or the survey now available via www.catawbacountync.gov, contact Mary George at the Catawba County Planning & Parks Department, at 828-465-8264 or mary@catawbacountync.gov.

Volunteers sought for senior support

NEWTON — PACE@Home is seeking volunteers to help support local seniors as they participate in social and recreational activities. Free training will take place on Friday, Oct. 11, from 9 a.m. to noon.

PACE (the Program of All-Inclusive Care for the Elderly) provides comprehensive care for qualified seniors who are eligible for nursing home residency but who prefer to remain in their own homes.

PACE participants receive monitoring and support from a team of doctors, nurses, social workers and therapists during regular daytime visits to the PACE Center (at the corner of Fairgrove Church Road and U.S. 70 in Conover).

PACE volunteers will engage with participants at the Center, offer companionship within the facility, and assist with reception and clerical tasks.

To become a volunteer or to learn more, contact Brenda Brooks, PACE@Home's activities coordinator, at 828-468-3980, or visit www.pace-at-home.org.

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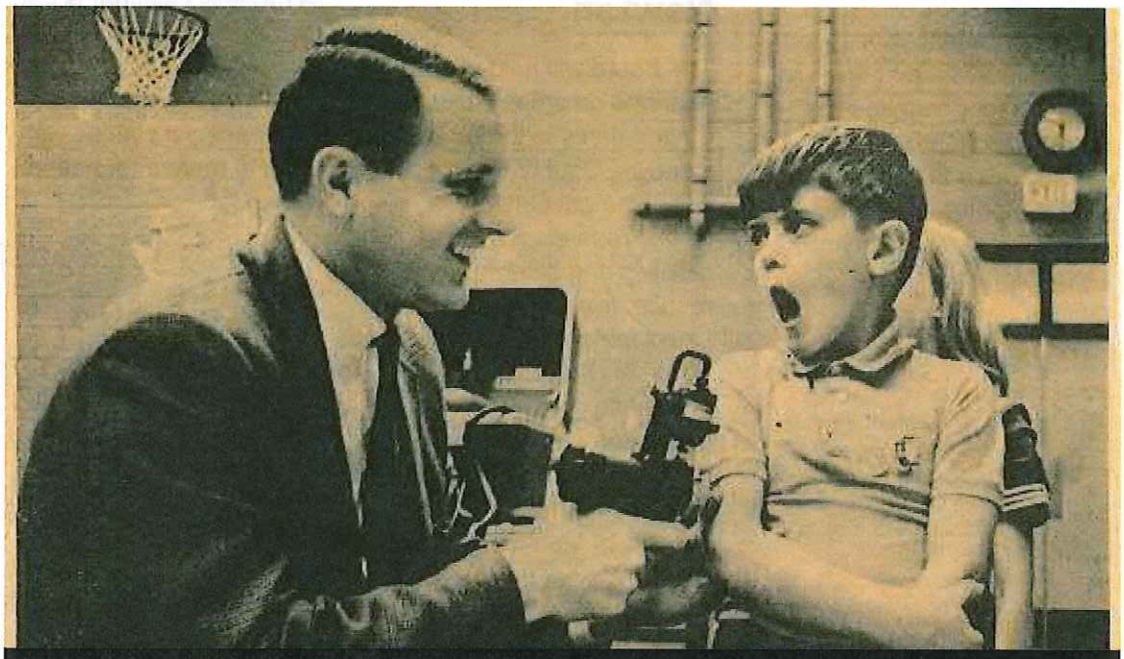
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Catawba County E-News

September 13, 2013

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Public Health begins commemorating its 75th birthday this year.

To help celebrate, Public Health invites residents to share their input on Public Health's past and future through the "75 Years of Public Health" campaign. Full story



Do you have ideas for ways to help the county be better prepared to face natural disasters?

We want to hear your ideas! Catawba and the other Unifour counties are updating a plan first created in 2004 to better prepare for future natural hazards. Take the survey More information



Next Board of Commissioners meeting, 7 p.m, Monday, September 16, 1924 Courthouse, Newton.

The Board will hold public hearings on proposed amendments to the Catawba County Unified Development Ordinance (UDO) regarding wireless facilities and solar farms, a request from the Economic Development Corporation Board of Directors for greater flexibility when considering applications for the Demolition Fee Waiver Program, and other items. Full agenda



Keep up with Catawba County activities through our online calendar.

A monthly calendar is kept current with reminders of when various boards and committees meet and other special events, with links to more information. Calendar







Poker Run to raise funds for Children's Advocacy and Protection Council

10 a.m. Saturday, September 21 at Blue Ridge Harley-Davidson in Hickory. Rain date September 28. Riders may register at Blue Ridge Harley-Davidson. For more information, call 828-327-3030. Cost is $20 per rider and $10 per passenger. Full story

Southern Kitchen Master Sheri Castle one of two authors visiting Catawba County Library

Castle will prepare two dishes when she visits the Main Library in Newton at 6:30 p.m. on Wednesday, October 9, 2013: Cider-Braised Cabbage with Apples and Fennel, and Fresh Apple Cake with Caramel Glaze. She will use local ingredients for both. Full story

Catawba County Extension and Community Association celebrates 100th birthday

In 2013, North Carolina's Extension and Community Associations celebrate 100 years of home demonstration and community development across the state. Full story

Information and agendas for meetings Catawba County's main boards and committees

Operating hours for Catawba County Convenience Centers (waste collection locations)

Information from North Carolina Department of Transportation on Catawba County road projects

Employment with Catawba County Job Information page

Catawba County Government Events Calendar

Links to cities and towns in Catawba County

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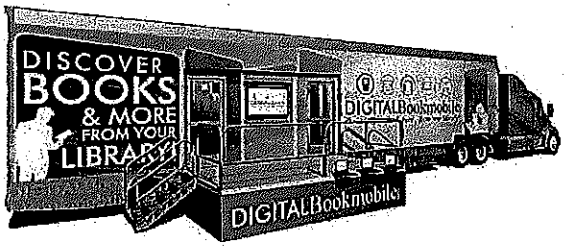
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CATAWBA COUNTY North Carolina Library

Digital Bookmobile coming to Hickory

by
Tammy Wilson



The Digital Bookmobile will be in Hickory Oct. 8 at the SALT Block, thanks to a joint venture of Hickory Public and Catawba County library systems.

The bookmobile will showcase the free eBook download service from websites of both libraries from 10 a.m. to 4 p.m. that Tuesday. Readers of all ages will learn how to download eBooks from N.C. Digital Library through interactive demonstrations and high-definition instructional videos. A gadget gallery—featuring Kindle®, iPod® touch, Android™ tablet, NOOK™, Sony® Reader™, BlackBerry®, Windows® Phone and more—will help visitors discover portable devices that are compatible with the library's download service.

Library card holders of either library system can check out and download digital titles anytime, anywhere by visiting either http://www.catawbacountync.gov/library or http://www.hickorync.gov/library/.

"Local library users are becoming increasingly interested in digital media and we are excited to offer this hands-on exhibit," said Louise Humphrey, director for the Hickory Public Library System.

The Digital Bookmobile is housed inside an 18-wheel tractor-trailer. This 74-foot community outreach vehicle is a high-tech update of the traditional bookmobile. The vehicle is equipped with broadband Internet-connected PCs, high definition monitors, premium sound systems, and a variety of portable media players, all of which help visitors explore the North Carolina Digital Library's download service. Interactive learning stations give visitors an opportunity to search the library's digital media collection, use supported mobile devices, and sample eBooks, audiobooks, music, and video.

Library customers can take advantage of the download service 24/7 when they visit the library's website. From there, they can browse the growing collection of bestselling, new release, and classic titles, and check out a digital title with a valid library card. Once downloaded, digital titles can be enjoyed on a computer or transferred to supported mobile devices. Many audio titles can also be burned to audio CD. At the end of the lending period, titles will automatically expire and are returned to the digital collection. There are never late fees or damaged items.

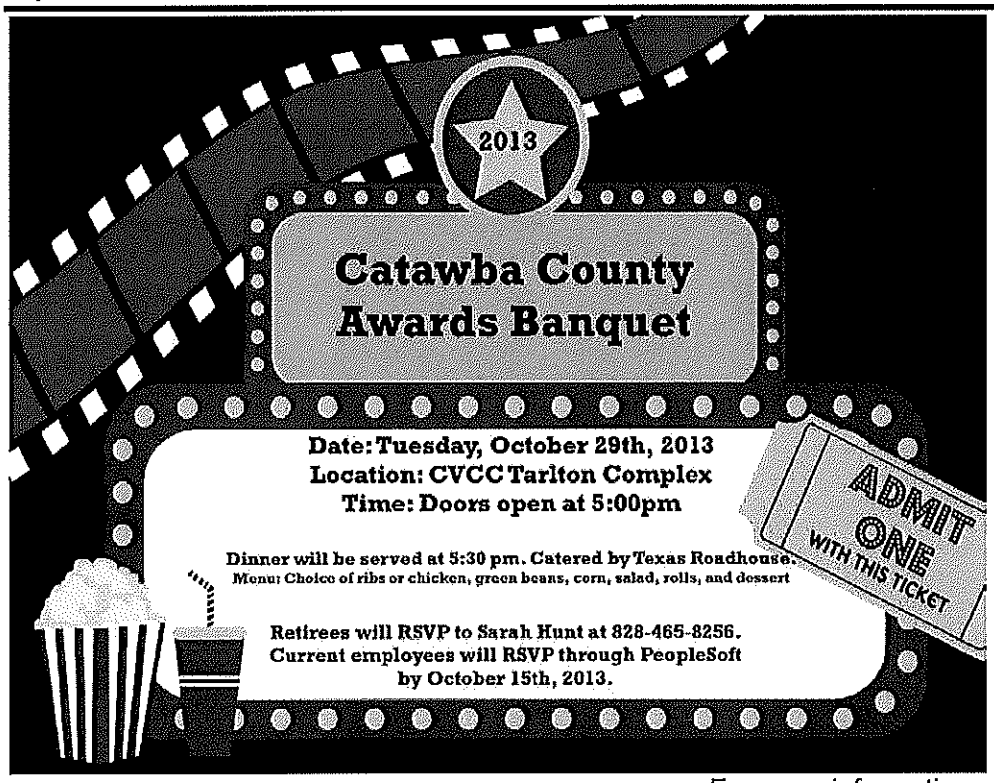
The Digital Bookmobile is operated by OverDrive, Inc. To check out and download digital books and more, visit the website of either Catawba County or Hickory Public library system. For more information about the bookmobile, log on to www.digitalbookmobile.com.

DO YOU HAVE IDEAS TO BETTER PREPARE US FOR ANY FUTURE NATURAL DISASTERS?

Do you have any ideas for ways to help the county be better prepared to face a natural disaster in the future? Officials will soon be asking citizens in Catawba, Alexander, Burke and Caldwell Counties to share their ideas at a public meeting.

A public meeting has been scheduled for Tuesday, October 1, 2013, from 5 until 8 p.m. at the Western Piedmont Council of Governments at 1880 2nd Ave. NW, Hickory, (Town of Long View), in Conference Room A1.

(see Hazard, pg. 14)



HAZARD PLAN UPDATE
(cont. from pg. 8)

"We need the help of the citizens of Catawba, Alexander, Burke and Caldwell Counties", said Karyn Yaussy, Emergency Management Coordinator. "We're preparing to update our *Multi-jurisdictional Hazard Mitigation Plan*. The purpose of this plan is to identify and assess our community's natural hazard risks (such as flooding, winter storms, tornadoes and wildfires) and determine how to best minimize or manage those risks. We are asking everyone who has suggestions about how we can reduce our risks from natural hazards, or be better prepared to meet natural hazards, to give us their input either at the October 1 meeting or through an online survey."

A full page of information on the *Hazard Mitigation Update* is available through a story at http://www.catawbacountync.gov/. Those who wish to go directly to the survey may visit https://www.surveymonkey.com/s/unifourhazardsurvey

The Federal Emergency Management Agency (FEMA) requires that local hazard mitigation plans be updated every five years. Catawba County's current plan was last updated in 2010 but the new plan will be regional in nature for Alexander, Burke, Caldwell and Catawba Counties. Having a FEMA-approved plan in place assures that the Counties and municipal jurisdictions remain eligible for a range of State and Federal disaster assistance and preparedness activities.

For more information on the update of the Multi-jurisdictional Hazard Mitigation Plan update or the survey now available via www.catawbacountync.gov, you may contact Mary George at the Catawba County Planning & Parks Department, at (828) 465-8264 or mary@catawbacountync.gov.

AUGUST DEADLINES

September 27- Story concepts, for which we must budget a lot of space

October 4- Short submissions and FINAL deadline.

Submissions are placed on a first come, first served basis as long as space permits

CATAWBA COUNTY SPIRIT

Designers/Writers:
Glennie Daniels
Mary Furtado
Dave Hardin
Marcia Hardy
Amy McDonald
Miriam Powell
Kelly Schermerhorn
Tammy Wilson
Various nominators

Photography:
Tyler Garrison
Shonda Hollis
Martha Knox
Tammy Wilson

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Mary George

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Catawba County E-News

November 27, 2013

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Public meeting scheduled for December 10th on draft plan to

better meet future natural hazards.

A draft of a plan to help Unifour county officials be better prepared for future natural disasters has been completed. Citizens in Catawba, Alexander, Burke and Caldwell Counties will be asked to to share their feedback on the draft from 4-7 p.m. on December 10 at the Western Piedmont Council of Governments at 1880 2nd Avenue NW, Hickory. Full story



Board of Commissioners named County Commissioners of the Year by N.C. School Boards Association

In its nomination, the Catawba County Board of Education recognized the Board of Commissioners for increasing local support to public schools at a time when federal and state support is declining, for its commitment to safety in schools and the health of students, and for the commissioners' personal commitment to the schools. Full story



Brookford, Conover, Claremont join County in adopting tobacco-free campus policies.

The new guidelines support healthier environments in local communities by prohibiting tobacco use in government-owned or leased buildings and grounds, including parks. Support for employees interested in quitting smoking is provided by these municipalities, similar to the support the County provided to its employees when its smoke-free campus policy was enacted in 2011. Full story



Board of Commissioners meeting, 9:30 a.m., Monday, December 2, 2013, 1924 Courthouse, Newton.

The Catawba County Board of Commissioners will consider a partnership with the City of Claremont and the EDC Committee of 100 to encourage the private development of a shell manufacturing building to facilitate creation of new jobs and future tax base, hear a report on the annual County audit, and consider other items. Full story

Announcement

Unifour Regional Hazard Mitigation Plan Public Meeting

WHAT: Public meeting to discuss your thoughts and concerns about natural hazards

WHEN: Tuesday, October 1, 2013
"Come and go" anytime from 5 p.m. to 8 p.m.

WHERE: Western Piedmont Council of Governments
1880 2nd Ave. NW, Hickory
Conference Room A1







Floods, Wildfires, Tornadoes, Winter Storms, Hurricanes...What Concerns You?

Do you have ideas for helping our community become better prepared for future natural disasters?

You are invited to bring your thoughts and local knowledge to a Public Meeting on the development of the Unifour Regional Hazard Mitigation Plan, which is an update to the individual hazard mitigation plans of Alexander, Burke, Caldwell and Catawba counties.

About the Unifour Regional Hazard Mitigation Plan

The counties of Alexander, Burke, Caldwell and Catawba, in coordination with their participating municipal jurisdictions, are preparing a regional hazard mitigation plan that will cover the four-county Unifour area. The Unifour Regional Hazard Mitigation Plan will identify local policies and actions for reducing risk and future losses from natural hazards such as floods, severe storms, wildfires, and winter weather. It will build upon four separate hazard mitigation plans that were initially prepared by each county in coordination with their municipalities.

For More Information

If you would like to learn more about how you can participate in the development of our Hazard Mitigation Plan, please contact one of the following county coordinators for this project:

Russell Greene, Alexander County Emergency Services
828.632.9336 / rgreene@alexandercountync.gov

Kenneth Teague, Caldwell County Emergency Management
828.850.3947 / kteague@caldwellcountync.org

Michael Long, Burke County Emergency Management
828.764.9321 / mike.long@burkenc.org

Mary George, Catawba County Planning
828.465.8264 / mary@catawbacountync.gov

You can also visit http://www.catawbacountync.gov/emergencyServices/hazard/regionalPlan.asp for more information and to participate in an online public participation survey.

We hope to see you on October 1st!

2013 Regional Hazard Mitigation Plan
OPEN PUBLIC MEETING
October 1, 2013

NAME	ADDRESS	PHONE / E-MAIL
Walt Thomas	5269 Stonewood Dr. Hickory NC 28602	WThomas@Charter.Net 828-294-4311

Announcement

Unifour Regional Hazard Mitigation Plan Public Meeting

WHAT: Public meeting to help finalize the Unifour Regional Hazard Mitigation Plan

WHEN: Tuesday, December 10, 2013
"Come and go" anytime from 4 p.m. to 7 p.m.

WHERE: Western Piedmont Council of Governments
1880 2nd Ave. NW, Hickory
Conference Room A1







Floods, Wildfires, Tornadoes, Winter Storms, Hurricanes...What Concerns You?

Do you have ideas for helping our community become better prepared for future natural disasters?

You are invited to come have a first look at a draft of your community's latest mitigation action items and leave your comments for the final decision-making process. This will be our final public meeting as part of this planning effort so don't miss this important opportunity to participate!

About the Unifour Regional Hazard Mitigation Plan

The counties of Alexander, Burke, Caldwell and Catawba, in coordination with their participating municipal jurisdictions, are finalizing a regional hazard mitigation plan that covers the four-county Unifour area. The Unifour Regional Hazard Mitigation Plan identifies local policies and actions for reducing risk and future losses from natural hazards such as floods, severe storms, wildfires, and winter weather. It builds upon four separate hazard mitigation plans that were initially prepared by each county in coordination with their municipalities.

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828.850.3947 / kteague@caldwellcountync.org

Michael Long, Burke County Emergency Management
828.764.9321 / mike.long@burkenc.org

Mary George, Catawba County Planning
828.465.8264 / mary@catawbacountync.gov

You can also visit http://www.catawbacountync.gov/emergencyServices/hazard/regionalPlan.asp for more information.

We hope to see you on December 10!

2013 Regional Hazard Mitigation Plan
OPEN PUBLIC MEETING
December 10, 2013

NAME	ADDRESS	PHONE / E-MAIL
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Lorraine Kordoski	2203 Smoke House Hollow	7046575185
SAM ERWIN	COG	485-4229


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