

MITIGATION STRATEGY

This section of the Plan provides the blueprint for Catawba County and its municipal jurisdictions to follow in becoming less vulnerable to natural hazards. It is based on general consensus of the Mitigation Advisory Committee along with the findings and conclusions of the *Capability Assessment* and *Risk Assessment*. It consists of the following four subsections:

- Introduction
- Mitigation Goals
- Identification and Analysis of Mitigation Techniques
- Selection of Mitigation Techniques for Catawba County

Introduction

The intent of the *Mitigation Strategy* is to provide Catawba County and its municipal jurisdictions with the goals that will serve as the guiding principles for future mitigation policy and project administration, along with a listing of proposed actions deemed necessary to meet those goals and reduce the impact of natural hazards. It is designed to be comprehensive and strategic in nature.

In being comprehensive, the development of the strategy included a thorough review of all natural hazards and identifies far-reaching policies and projects intended to not only reduce the future impacts of hazards, but also to assist the county and municipalities achieve compatible economic, environmental and social goals. In being strategic, the development of the strategy ensures that all policies and projects are 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* includes the identification of countywide *Mitigation Goals*. *Mitigation Goals* represent broad statements that are achieved through the implementation of more specific, action-oriented objectives listed in each jurisdiction's Mitigation Action Plan. These actions include both hazard mitigation policies (such as the regulation of land in known hazard areas through a local ordinance), and hazard mitigation projects that seek to address specifically targeted hazard risks (such as the acquisition and relocation of a repetitive loss structure). During the 2009 plan update, each of the Mitigation Goals established in 2004 were reviewed and discussed with the Mitigation Advisory Committee, as well as members of the general public, and revised accordingly (for more information on this process, please see *Section 2: Planning Process*).

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 as described in *Section 2: Planning Process* and *Section 10: Plan Maintenance Procedures*. Alternative mitigation measures will continue to be considered as future mitigation opportunities become identified, as data and technology improve, as mitigation funding becomes available, and as this Plan is updated and maintained over time.

The third and last step in designing the *Mitigation Strategy* is the creation of the local *Mitigation Action Plans (MAPs)*, which are provided separately in *Section 9: Mitigation Actions Plans*. The

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MAPs represent unambiguous plans for action, and are considered to be the most essential outcome of the mitigation planning process. They include a prioritized listing of proposed hazard mitigation actions (policies and projects) for each of Catawba County's local jurisdictions along with accompanying information such as those agencies or individuals assigned responsibility for their implementation, potential funding sources and an estimated target date for completion. The MAPs provide those individuals or agencies responsible for implementing mitigation actions with a clear roadmap that also serves as an important tool for monitoring progress over time. The cohesive collection of actions listed in each jurisdiction's MAP also can serve as an easily understood menu of mitigation policies and projects for those local decision makers who want to quickly review their jurisdiction's respective element of the countywide Plan.

In preparing and updating their own individual Mitigation Actions Plans, each jurisdiction considered their overall hazard risk and capability to mitigate natural hazards as recorded through the risk and capability assessment process, in addition to meeting the adopted countywide mitigation goals and the unique needs of their community. Prioritizing mitigation actions for each jurisdiction was based on the following five (5) factors: (1) effect on overall risk to life and property; (2); ease of implementation; (3) political and community support; (4) a general economic cost/benefit review¹; and (5) funding availability.

Mitigation Goals

The goals of the Catawba County Multi-jurisdictional Hazard Mitigation Plan were crafted early in the initial 2004 planning process through a facilitated discussion and brainstorming session with the Mitigation Advisory Committee, and were again revisited and subsequently reaffirmed (with slight revision) by the Committee during the 2009 plan update process (for more details, please see the summaries of Mitigation Advisory Committee meetings in Section 3: *Planning Process*). Each of the following goal statements represent a broad target for Catawba County and its jurisdictions to achieve through the implementation of their own specific Mitigation Actions Plans before the next Plan update.

44 CFR Requirement

44 CFR Part 201.6(c)(3)(i):
The mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Goal #1 **Design and implement regulatory policies that will prevent natural hazards from threatening life, safety and property in Catawba County.**

Goal #2 **Increase public awareness of the natural hazard risks in Catawba County while also educating residents and businesses on the mitigation measures available to minimize those risks. This includes promoting the countywide availability of flood insurance.**

¹ Only a general economic cost/benefit review was considered through the process of selecting and prioritizing mitigation actions for each jurisdiction. Mitigation actions with "high" priority were determined to be the most cost effective and most compatible with each jurisdiction's unique needs. A more detailed cost/benefit analysis will be applied to particular projects prior to the application for or obligation of funding, as appropriate.

- Goal #3** Enhance emergency warning and outreach strategies for the timely dissemination of information to the public regarding imminent hazards, including the immediate preparedness steps or mitigation measures that can be taken to reduce their impact.
- Goal #4** Protect the natural and beneficial functions of Catawba County's known floodplain areas through accurate mapping and land use management practices.
- Goal #5** Eliminate the potential for flood-related damages throughout Catawba County by ensuring development standards meet or go beyond the minimum standards of the National Flood Insurance Program.
- Goal #6** Improve local stormwater management programs and drainage maintenance practices to reduce the damage and disruptions caused by regular heavy rain events.
- Goal #7** Minimize the potential for widespread power outages through the protection of power lines and enhance the ability of Catawba County to provide emergency power to critical facilities and shelters during widespread power outages.
- Goal #8** Establish and sustain public-private partnerships between local governments, business and industry to advance hazard mitigation practices throughout Catawba County.

Note: A stated objective of the Disaster Mitigation Act of 2000 is to improve the coordination of risk reduction measures between state and local government authorities. Linking local and state mitigation planning goals is an important first step. It has been determined by the Catawba County Mitigation Advisory Committee that the above goal statements are consistent with the State of North Carolina's current mitigation planning goals as identified in the State Hazard Mitigation Plan promulgated by the North Carolina Division of Emergency Management.

Identification and Analysis of Mitigation Techniques

In formulating Catawba County's *Mitigation Strategy*, a wide range of activities were considered in order to help achieve the general countywide goals in addition to the specific hazard concerns of each participating jurisdiction. This includes multiple, detailed discussions of potential mitigation activities with Mitigation Advisory Committee members during the 2009 plan update process. In addition, a wide range of publications (including NCEM's "Decision Tree") and other resources were posted to a dedicated project FTP site for Committee members to review and consider on their own time (further described in Section 2: Planning Process). Similar to the initial plan development process in 2004, all activities considered by the Mitigation Advisory

44 CFR Requirement

44 CFR Part 201.6(c)(3)(ii):

The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effect of each hazard, with particular emphasis on new and existing buildings and infrastructure.

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Committee can be classified under one of the following six (6) broad categories of mitigation techniques:

1. Prevention

Preventative activities are intended to keep hazard problems from getting worse, and are typically administered through government programs or regulatory actions that influence the way land is developed and buildings are built. They are particularly effective in reducing a community's future vulnerability, especially in areas where development has not occurred or capital improvements have not been substantial.

Examples of preventative activities include:

- Planning and zoning
- Building codes
- Open space preservation
- Floodplain regulations
- Stormwater management regulations
- Drainage system maintenance
- Capital improvements programming
- Shoreline / riverine / fault zone setbacks

2. Property Protection

Property protection measures involve the modification of existing buildings and structures to help them better withstand the forces of a hazard, or removal of the structures from hazardous locations. Examples include:

- Acquisition
- Relocation
- Building elevation
- Critical facilities protection
- Retrofitting (e.g., windproofing, floodproofing, seismic design techniques, etc.)
- Safe rooms, shutters, shatter-resistant glass
- Insurance

3. Natural Resource Protection

Natural resource protection activities reduce the impact of natural hazards by preserving or restoring natural areas and their protective functions. Such areas include floodplains, wetlands, steep slopes and sand dunes. Parks, recreation or conservation agencies and organizations often implement these protective measures. Examples include:

- Floodplain protection
- Watershed management
- Beach and dune preservation
- Riparian buffers
- Forest and vegetation management (e.g., fire resistant landscaping, fuel breaks, etc.)
- Erosion and sediment control
- Wetland preservation and restoration
- Habitat preservation
- Slope stabilization

4. Structural Projects

Structural mitigation projects are intended to lessen the impact of a hazard by modifying the environmental natural progression of the hazard event through construction. They are

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usually designed by engineers and managed or maintained by public works staff. Examples include:

- Reservoirs
- Dams / levees / dikes / floodwalls / seawalls
- Diversions / detention / retention
- Channel modification
- Beach nourishment
- Storm sewers

5. Emergency Services

Although not typically considered a “mitigation” technique, emergency service measures do minimize the impact of a hazard event on people and property. These commonly are actions taken immediately prior to, during, or in response to a hazard event. Examples include:

- Warning systems
- Evacuation planning and management
- Emergency response training and exercises
- Sandbagging for flood protection
- Installing temporary shutters for wind protection

6. Public Education and Awareness

Public education and awareness activities are used to advise residents, elected officials, business owners, potential property buyers, and visitors about hazards, hazardous areas, and mitigation techniques they can use to protect themselves and their property. Examples of measures to educate and inform the public include:

- Outreach projects
- Speaker series / demonstration events
- Hazard map information
- Real estate disclosure
- Library materials
- School children educational programs
- Hazard expositions

Selection of Mitigation Techniques for Catawba County

In order to determine the most appropriate mitigation techniques for Catawba County and its municipal jurisdictions, local government officials reviewed and considered the findings of the *Risk Assessment* and the *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).

FEMA guidance for meeting the planning requirements of the Disaster Mitigation Act of 2000 also specifies that local governments should prioritize their mitigation actions based on the level of risk a hazard poses to the lives and property of a given jurisdiction. In response to this requirement, a Mitigation Technique Matrix (**Figure 8.1**) was completed to make certain the Catawba County Mitigation Advisory Committee addressed, at a minimum, those hazards posing the greatest threat. The matrix provides the committee with the opportunity to cross-reference each of the priority hazards (as determined by through the *Risk Assessment*) with the aforementioned comprehensive range available mitigation techniques, including prevention; property protection; natural resource protection; structural projects; emergency services; and public education and

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awareness. However, it is important to note that Catawba County’s individual Mitigation Action Plans include an array of actions targeting multiple hazards, not just those classified as either high or moderate risk.

**Figure 8.1
Mitigation Technique Matrix**

MITIGATION TECHNIQUE	HIGH RISK HAZARDS			MODERATE RISK HAZARDS		
	Flood	Hurricanes & Tropical Storms	Winter Storms	Severe Thunderstorms & Tornadoes	Earthquakes	Wildfire
Prevention	✓	✓	✓	✓	✓	✓
Property Protection	✓	✓	✓	✓		✓
Natural Resource Protection	✓					✓
Structural Projects	✓					
Emergency Services	✓	✓	✓	✓	✓	✓
Public Education & Awareness	✓	✓	✓	✓	✓	✓