

# I. Introduction/Planning Process

## **A. Statement of the Problem**

Natural hazards are a part of the world in which we live. Floods, hurricanes, tornadoes, winter storms, wildfires, and other hazardous events are natural phenomena. Natural hazards are inevitable and there is little humans can do to control force and intensity. However, how the natural and the built environments interact with hazards is quite different.

The natural environment is amazingly recuperative from the forces of wind, rain, fire and earth and can regenerate with resiliency, restoring habitat and ecosystems in time for the next generation of plant and animal life to begin anew. The built environment, however, is not as resilient. Natural disasters occur when human activity in the form of buildings, infrastructure, agriculture and other land uses are located in the path of the destructive forces of nature.<sup>1-1</sup> Since the built environment is more susceptible to natural hazards and cannot recuperate like the natural environment, communities impacted by a natural hazard often recover only over a long period of time and at great social and economic cost.

In recent years, the frequency and impact of natural disasters has increased not because natural hazards occur more frequently but because more people are choosing to live and work in locations that put them and their property at risk. "By the year 2010 the number of people residing in the most hurricane-prone counties throughout the nation will have doubled. Likewise, while floods have caused a greater loss of life and property and have disrupted more families and communities than all other natural hazards combined, the rate of development in flood-prone areas continues to escalate, putting more people and property in danger."<sup>1-2</sup>

While natural hazards cannot be prevented, local communities can use various means to reduce the vulnerability of people and property to damage. Communities can reduce exposure to future natural hazards by managing the location and characteristics of both the existing and future built environment. By utilizing location and construction techniques, a community can mitigate negative impacts and reduce future damage to both human lives and property.

Preparing for natural hazards involves establishing a comprehensive emergency management system consisting of the following four component activities:

1. Preparedness activities undertaken to improve a community's ability to respond immediately after a disaster. Preparedness activities include the development of response procedures, design and installation of warning systems, exercises to test emergency operational procedures, and training of emergency personnel.
2. Response activities designed to meet the urgent needs of disaster victims. Response activities occur during the disaster and include rescue operations, evacuation, emergency medical care, and shelter programs.
3. Recovery activities designed to rebuild after a disaster. These activities include repairs to damaged public facilities such as roads and bridges, restoration of public services such as power and water, and other activities that help restore normal services to a community.
4. Hazard mitigation activities designed to reduce or eliminate damages from future hazardous events. These activities can occur before, during, and after a disaster and overlap all phases of emergency management.

Hazard mitigation is defined as “any action taken to eliminate or reduce the long-term risk to human life and property from natural and technological hazards.”<sup>1-3</sup> Mitigation activities are ongoing and overlap all phases of emergency management.

Hazard mitigation includes three types of activities:

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

“A fundamental premise of mitigation strategy is that current dollars invested in mitigation activities will significantly reduce the demand for future dollars by reducing the amount needed for emergency recovery, repair, and reconstruction following a disaster. Mitigation also calls for conservation of natural and ecologically sensitive areas (such as wetlands, floodplains, and dunes) which enables the environment to absorb some of the impact of hazard events. In this manner, mitigation programs help communities attain a level of *sustainability*, ensuring long-term economic vitality and environmental health for the community as a whole.”<sup>1-4</sup>

The concept of sustainable development has emerged in recent years as a means to emphasize the need to regain a balance between the built and natural environment. Sustainable development is defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.<sup>1-5</sup> Sustainable development centers on the type of development rather than quantity and is not intended to be a no-growth or slow-growth initiative.

“Sustainable development through mitigation is not an impediment to growth. By building a community that is resilient to natural hazards, citizens strengthen the local economy. A locality that reduces its vulnerability will experience less restoration time, shortened business downtime, and less social disruption following a disaster, freeing resources that would otherwise be devoted to response and recovery, and more quickly improving citizens’ lives.”<sup>1-6</sup>

## **B. Purpose of the Plan**

The purpose of the Plan is:

1. To demonstrate local commitment to hazard mitigation planning principles;
2. To reduce natural hazard vulnerability by reducing the potential for future damages and economic losses;
3. To speed recovery and redevelopment following future natural hazard events;
4. To comply with both State and Federal legislative requirements for local hazard mitigation planning; and
5. To qualify for additional grant funding, in both pre-disaster and post-disaster situations.

**C. Authority**

Once approved by NC Emergency Management, the Wake County Hazard Mitigation Plan (a single jurisdiction plan) will be adopted by the Wake County Board of Commissioners under the authority and police powers granted to the counties and municipalities of the State of North Carolina by North Carolina General Statutes (N.C.G.S., Chapter 153A). The Plan was developed in accordance with current criteria governing the development of local hazard mitigation plans including 1) 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) and 2) the Disaster Mitigation Act of 2000 (Public Law 106-390, October 30, 2000) that amended the Robert T. Stafford Relief and Emergency Assistance Act.

**D. Participants in the Planning Process**

The planning process was overseen by the Wake County Hazard Mitigation Planning Team which met regularly during the planning process. The Team consisted of representatives from interested County departments and the consulting planners. Through letters and email messages, the County invited neighboring communities, agencies, business, academia, nonprofits, and other interested parties to be involved in the planning process.

**Table I-1: Wake County HMP Team Members**

Local Government/Agency	Name	Position
<b>Wake County</b>		
Planning	Keith Lankford, AICP	Planner III/Project Manager
Environmental Services	Mike Coughlin, CFM, CPESC	Environmental Engineer/ Planner
Emergency Mgmt Services	Martin Chriscoe	Director
Geographic Information Services	Mike Ping	GIS Analyst
General Services Administration	Michael Stearley	Administrative Services Coordinator
Finance	Kate George	Risk Manager
Environmental Services	Mike Jennings	Program Coordinator
<b>Consulting Planners</b>		
The Wooten Company	Patt Crissman, AICP	Consulting Project Manager
The Wooten Company	Ashton Slate	Associate Planner
<b>Municipalities</b>		
Town of Apex	Kent Jackson	
Town of Cary	Terry Warren	Stormwater Engineer
Town of Fuquay-Varina	Mike Sorensen	Planning Director
Town of Garner	Rodney Dickerson	Assistant to the Manager
Town of Knightdale	Lisa Patterson	Withers & Ravenel
Town of Knightdale	Vance Moore	Withers & Ravenel
Town of Morrisville	Mike Koivisto	Assistant Town Manager
City of Raleigh	Danny Bowden	Central Engineering
City of Raleigh	Ben Brown	Central Engineering
Town of Rolesville	Don Dubay	Town Manager (former)
Town of Rolesville	Matt Livingston	Town Manager
Town of Wake Forest	Agnes Wanman	Planner
Town of Wendell	Tim Burgess	Town Manager
Town of Zebulon	Richard Hardin	Manager
<b>Other Members</b>		
NC League of Women Voters	Louise Romanow	Citizen

The County also contacted community citizen groups through agency/group/special interest network. Each association (Table I-2) was contacted by email or letter and given the opportunity to review and comment on the draft Plan.

**Table I-2: Wake County HMP – Other Interested Parties**

<b>Name</b>	<b>Agency/Group/Special Interest</b>
Frank Eagles	Town of Rolesville
Jeri Gray	NC State University/Water Resources Research Institute
Jessica Bellas	Progress Energy and Wake County Soil and Water Conservation District
Jim Wahlbring	Wake County Home Builders' Association
John Cooke	Private Business Attorney
John Odom	Raleigh City Council
Kenn Gardner	Wake County Board of Commissioners
Les Hall	Wake County Human Services Board
Peter Martin	Town of Rolesville
Sara Robertson	Farming/Large Landowners
Sherry Johnson	Environmental Advocate
Sig Hutchinson	Greenways/Environment Advocate
Steve Tedder	Town of Holly Springs
Tara Lightner	Realtors
Bill Miller	Wake County Planning Board/Swift Creek Area
Dean Naujoks	Neuse River Foundation
Henry Hammond	Landscape Architect/Environment
John Grace	Wake County Board of Adjustment/Environment
Marion Smith	Neuse River Foundation
Michelle Duval	Environment
Molly Diggins	Sierra Club
Loftee Smith	Wake County Planning Board/Engineers
Terry Yeargan	Wake County Planning Board/Construction Management
Terry Stephens	Creedmoor Partners/developers

Source: Wake County

**E. Description of the Planning Process**

Wake County first began the hazard mitigation planning process in the spring of 2002 with a countywide effort that involved all twelve of the municipalities within the County. The process was paused in late summer 2002 while awaiting the release of new criteria that was being developed by FEMA and NCEM. The planning process was re-started in the summer of 2003 shortly after the draft criteria were released. Wake County employed The Wooten Company to serve as consulting planner for the development of the hazard mitigation plan. The consulting planner served as the planning process facilitator by organizing meetings, drafting plan sections for team review, making plan revisions based on review comments, and compiling the full draft plan for final review. A member of the County planning staff acted as committee chair.

The planning process was organized to ensure that individual mitigation projects and initiatives undertaken by the County were carried out in a cooperative manner such that all local initiatives worked together and no single action or project detracted from the overall goal of creating a safer environment for the citizens of Wake County. The planning process also played an important part in generating community understanding of and support for hazard mitigation by creating a forum for discussion and publicizing the need for hazard mitigation planning.

## Public Input

### Public Introductory Meeting of the Planning Process

On September 3, 2003, the Wake County Planning Board's regular monthly meeting was used as a forum for discussing the hazard mitigation planning process. At the meeting, a brief presentation was made describing the purpose of the hazard mitigation plan, the planning process and the schedule for plan development. The first draft of Appendix A "Hazard Identification and Analysis" was also presented at this meeting.

### Public Meetings of the Wake County Planning Board

A second public meeting was held with the Planning Board on August 18, 2004 to receive public input on the full draft plan. This meeting was duly advertised in The Raleigh News and Observer newspaper. This public meeting was continued until the Planning Board's September 15, 2004 meeting in order to provide the Planning Board with ample time to review the plan and to allow additional time to receive public comment.

### Review by the Wake County Environmental Services Committee

The full draft plan was presented to the Wake County Environmental Services Committee on September 10, 2004 to receive comment on the full draft plan. Some members of this committee also served on the Hazard Mitigation Planning Team.

### Public Hearing Before the Wake County Board of Commissioners

A duly advertised public hearing will be held by the Wake County Board of Commissioners on October 4, 2004 to receive public comment on the full draft Hazard Mitigation Plan. The Board of Commissioners will take formal action on the draft plan at their October 18, 2004 meeting.

### HMP Team Meetings

The Hazard Mitigation Planning (HMP) Team was formulated in spring 2002 and then re-constituted in summer 2003. Meeting times and a brief description of meeting topics are outlined in Table I-3. More information about the meetings (agendas, etc.) is contained in Appendix F.

**Table I-3: Plan Meeting Schedule**

Meeting Date	Group	Topic
March 28, 2002	Project Manager/ Consulting Planner	Discussed scope of work/project schedule.
April 23, 2002	HMP Team	Established planning team, report procedures, project schedule. Discussed data needs.
May 3, 2002	HMP Team	Reviewed planning steps; discussed preliminary findings of the hazard identification and analysis.
June 3, 2002	HMP Team	Wake County introduction to planning process.
August 26, 2002	HMP Team/ NCEM Staff	County representatives met with NCEM staff to discuss suspending the planning process while new FEMA/NCEM planning criteria were developed.
August 5, 2003	Project Manager/ Consulting Planner	Discussed project scope and schedule; make up of HMP Team and potential other interested parties to be invited to participate in the planning process.

<b>Meeting Date</b>	<b>Group</b>	<b>Topic</b>
September 3, 2003	Planning Board	Hazard mitigation planning process was described at the Planning Board's regularly scheduled public meeting. (No newspaper advertisement was made.)
September 30, 2003	HMP Team	Discussed plan purpose and process; established project schedule; reviewed hazard identification and analysis, community vulnerability and community capability sections.
October 16, 2003	HMP Team	Discussed draft study conclusions, community goals and objectives, and process for developing mitigation actions.
November 20, 2003	HMP Team	Reviewed list of critical facilities and discussed proposed mitigation actions.
August 14, 2004	Planning Board	Duly advertised public meeting to receive public comment and review by the Planning Board members.
September 10, 2004	Environmental Services Committee	Informational presentation by staff and to receive comment from the Committee members.
September 15, 2004	Planning Board	Duly advertised public meeting to receive public comment and review by the Planning Board members.
October 4, 2004	Board of Commissioners	Duly advertised public hearing.
October 18, 2004	Board of Commissioners	Plan adoption.

The HMP Team generally followed the planning steps as outlined in "Keeping Natural Hazards from Becoming Disasters – A Mitigation Planning Guidebook for Local Governments", NC Division of Emergency Management:

### **Step 1. Hazard Identification and Analysis**

This step involved describing and analyzing the twelve natural hazards to which Wake County and the twelve participating towns could be susceptible. Appendix A, which represents the results of this planning step, includes historical data on past hazard events and establishes an individual hazard profile and risk index for each hazard based upon frequency, magnitude and impact. The summary risk assessment at the end of Appendix A served as the foundation for developing and prioritizing local mitigation efforts.

### **Step 2. Community Vulnerability Assessment**

This step involved research and mapping, using best available data, to determine and assess current conditions. Appendix B, which contains the results of this planning step, includes a description of community characteristics, an assessment of current conditions, a list of critical facilities, projections for future growth and summary conclusions including an assessment of both current (2000) and projected (2020) future conditions. Appendix B also contains two summary maps that depict 1) multi-hazards (floodplains and past hazard events that lend themselves to mapping, e.g., tornado touchdowns); and 2) critical facilities (those facilities without which the community could not continue to function for long).

### **Step 3. Community Capabilities Assessment**

The step included a comprehensive examination and evaluation of local capacity to implement mitigation strategies, a review of local government authority for hazard mitigation planning, a description of local government organization and staff, a review of technical and fiscal capabilities, and a summary statement of political will/commitment to hazard mitigation planning. The purpose of this step, represented in Appendix C, was to identify any gaps or weaknesses in local programs or regulations, to determine if any existing programs/regulations had the effect of hindering hazard mitigation, and to identify programs/regulations that could be revised or amended to strengthen local hazard mitigation efforts.

### **Step 4. Form Interim Conclusions**

At the conclusion of Steps 1 – 3, the HMP Team developed summary conclusions regarding vulnerability to natural hazards and local capability for dealing with natural hazards.

### **Step 5. Community Goals and Objectives**

Steps 1 through 3 also established the foundation for moving forward with developing a mitigation action program. The HMP Team worked together to formulate and agree upon general goals and objectives for hazard mitigation before moving forward with developing specific mitigation strategies.

### **Step 6. Mitigation Strategies**

Next the Team formulated departmental mitigation strategies including certain strategies in which the County could serve the lead role and in which each town could participate. (Each community developed separate mitigation strategies to undertake based on that community's unique position in terms of local capability.) This step also included assigning responsibility for implementation of each action.

### **Step 7. Procedures for Monitoring, Evaluating and Reporting Progress**

The HMP Team developed a procedure for an annual review and progress report on the plan. The review process provides for the HMP Team and the general public to have input on plan review.

### **Step 8. Procedures for Revisions and Updates**

The HMP Team developed a procedure for a comprehensive review and update of the Plan on a 5-year schedule with the County taking the lead in assembling and overseeing the review process. The procedure (Section IV. Plan Review and Update) provides for the inclusion of the public.

### **Step 9. Adoption.**

The Wake County Board of Commissioners will hold a public hearing to receive public comment on the plan on October 4, 2004 and will adopt the Plan on October 18, 2004.

## **F. Resolution of Adoption**

A draft resolution of adoption for Wake County is included on the following pages. The final approved resolution will be inserted when the Plan is adopted.

## **A RESOLUTION TO ADOPT THE WAKE COUNTY HAZARD MITIGATION PLAN**

WHEREAS, the adoption and implementation of a Hazard Mitigation Plan with specific mitigation strategies will minimize human casualties and damage to homes, businesses and public buildings and infrastructure resulting from natural hazard events;

WHEREAS, the Legislature of the State of North Carolina has in Part 6, Article 21 of Chapter 143; Parts 3, 5, and 8 of Article 19 of Chapter 160A; and Article 8 of Chapter 160A of the North Carolina General Statutes, delegated to local governmental units the responsibility to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry; and

WHEREAS, the Legislature of the State of North Carolina has in Section 1 Part 166A of the North Carolina General Statutes (adopted in Session Law 2001-214—Senate Bill 300 effective July 1, 2001), states in Item (a) (2) “For a state of disaster proclaimed pursuant to G.S. 166A-6(a) after August 1, 2002, the eligible entity shall have a hazard mitigation plan approved pursuant to the Stafford Act”; and

WEREAS, Section 322 of the Federal Disaster Mitigation Act of 2000 states that local government must develop an All-Hazards Mitigation Plan in order to receive future Hazard Mitigation Grant Program Funds, and

WHEREAS, it is the intent of the Board of Commissioners of Wake County to fulfill this obligation in order that the County will be eligible for state assistance in the event that a state of disaster is declared for a hazard event affecting the County;

WHEREAS, the Planning Board held a public meeting on August 18, 2004 and on September 15, 2004 to receive public comment on the draft Hazard Mitigation Plan and then recommended by a vote of 6 to 0 that the Board of Commissioners approve the plan as presented;

WHEREAS, the Board of Commissioners held a duly advertised public hearing on October 4, 2004 to consider the proposed amendment;

NOW, therefore, be it resolved, that the Board of Commissioners of Wake County hereby:

1. Adopts the Wake County Hazard Mitigation Plan; and
2. Vests the County Manager with the responsibility, authority, and the means to:
  - (a) Inform all concerned parties of this action.
  - (b) Cooperate with Federal, State and local agencies and private firms which undertake to study, survey, map, and identify floodplain or flood-related erosion areas, and cooperate with neighboring communities with respect to management of adjoining floodplain and/or flood-related erosion areas in order to prevent aggravation of existing hazards.

- (c) Adjust the boundaries of County and municipal planning jurisdictions whenever a municipal annexation or extraterritorial jurisdiction expansion results in a change whereby a municipality assumes or relinquishes the authority to adopt and enforce floodplain management regulations for a particular area in order that all Flood Hazard Boundary Maps (FHBMs) and Flood Insurance Rate Maps (FIRMs) accurately represent the planning jurisdiction boundaries. Provide notification of boundary revisions along with a map suitable for reproduction, clearly delineating municipal corporate limits and extraterritorial jurisdiction boundaries to all concerned parties.
3. Appoints the County Manager to assure that the Hazard Mitigation Plan is reviewed annually and in greater detail as least once every five years to assure that the Plan is in compliance with all State and Federal regulations and that any needed revisions or amendments to the Plan are developed and presented to the Wake County Board of Commissioners for consideration.
  4. Agrees to take such other official action as may be reasonably necessary to carry out the objectives of the Hazard Mitigation Plan.

Commissioner \_\_\_\_\_ made a motion that the attached ordinance be adopted. Commissioner \_\_\_\_\_ seconded the motion, and upon vote, the motion carried this \_\_\_\_ day of \_\_\_\_\_, 2004.

This instrument is approved as to form:

\_\_\_\_\_  
Wake County Attorney

\_\_\_\_\_  
Date

## **Footnotes**

- <sup>1-1</sup> Keeping Natural Hazards from Becoming Disasters - A Mitigation Planning guidebook for Local Governments, North Carolina Division of Emergency Management, May 2003, p. 1.
- <sup>1-2</sup> Local Hazard Mitigation Planning Manual, North Carolina Division of Emergency Management, November 1998, p.1.
- <sup>1-3</sup> Post-Disaster Hazard Mitigation Planning Guidance for State and Local Governments, Federal Emergency Management Agency, 1990, p. 4.
- <sup>1-4</sup> Local Hazard Mitigation Planning Manual, p. 4.
- <sup>1-5</sup> Our Common Future, United Nation's World Commission on Environment and Development, 1987, as quoted in Local Hazard Mitigation Planning Manual, p. 4.
- <sup>1-6</sup> Preventing Disasters through Hazard Mitigation, Ana K. Schwab, Popular Government, Spring 2000, p. 12.