County of Wayne
North Carolina
Multi-Jurisdiction
Hazard Mitigation Plan

Also Including Town of Eureka, Fremont, Pikeville, Mount Olive and Village of Walnut Creek

Wayne County
Multi-Jurisdiction
Hazard Mitigation Plan

In Accordance with Disaster Mitigation Act of 2000 (44CFR 201.6) and NCGS 166A

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Introduction

Natural weather events take place each day, everyday throughout the world. Some of these events such as thunderstorms, hurricanes, tornadoes and floods become natural hazards when they interact with people in a way that becomes detrimental to their way of life. As populations continue to rise, so does the chance of interaction with the natural hazard events. These interactions become more fatal and costly as each year passes.

Due to the frequency and intensity of natural disaster events, the federal government created the Federal Emergency Management Agency (FEMA) with the responsibility of providing emergency assistance to state and local governments and to mitigate, prepare, respond and recover from all possible hazards.

In September of 1999, Wayne County, North Carolina experienced a natural hazard resulting from Hurricane Floyd. Hurricane Floyd struck Wayne County and brought with it: strong wind, flooding, thunderstorms and tornadoes, the most devastating of these being flooding which destroyed practically everything within the flood plain. Local, State and Federal Government entities are now working together trying to minimize the effects of natural hazards.

This plan will:

- Identify and analyze major hazards that threaten the community,
- Give an assessment of local capabilities to implement various mitigation programs and policies, and
- Identify and prioritize feasible mitigation opportunities.

State and Federal regulations require that all communities receiving funds in response to a disaster adopt and implement a Hazard Mitigation Plan to help reduce the potential effects of hazards within a given community. This plan will serve that purpose for the County of Wayne, (County), Towns of Eureka, Fremont, Pikeville, Mount Olive, and Village of Walnut Creek (Municipalities). The plan has been created at the local level with input from the community citizens. Regulation and control of development, as well as the provision of infrastructure that support development occurs at the local level. Through public awareness this plan will serve to establish a connection between the community's interest and mitigation measures to be employed.

The communities in Wayne County must not rely solely on state or federal planning initiatives to create and implement hazard mitigation measures. They must create their own

unique Hazard Mitigation Plan addressing all issues and concerns that are held by the community relative to its vulnerability to hazard risks. Meetings with government officials, local planners, state and national planners, the public and others were held and input sought prior to the plan completion and submission for approval. The plan was reviewed by Planning Boards and elected officials for each local government.

Throughout the hazard mitigation planning process, community involvement has been utilized to inform the public about hazards and mitigation techniques for their community. The public was notified of the planning process through the Internet and newspapers for the county and each municipality. The information in this plan will enable citizens to make informed decisions on where to live, where to purchase property, or where to locate a business. Information on how to protect themselves and their property from the impact of natural hazards is also available. For the government sector, decision-makers will be better informed by the mitigation plan to carry out their official daily activities so that mitigation concepts will be used as a guide to the implementation of goals, objectives, policies and programs. This can be achieved through structural and nonstructural measures. This risk reduction can be implemented through the Hazard Mitigation Plan.

This Hazard Mitigation Plan is developed as a direct result of Hurricane Floyd. This plan identifies and analyzes hazards defined by the Federal Emergency Management Agency (FEMA) and assesses the counties and towns capability to fully address the threats of these natural hazards. This plan will provide a tool to help ensure that the public health, safety and welfare needs of Wayne County citizens are addressed. Development of this plan will use all possible resources including but not limited to Federal, State and Local resources.

Community Profile

As stated above the local jurisdictions participating in this plan are County of Wayne, Town of Eureka, Town of Pikeville, Town of Fremont, Town of Mount Olive and Village of Walnut Creek.

County of Wayne – Wayne County was founded in 1779 and named for the Revolutionary War hero from Pennsylvania, General Anthony Wayne. The County is located in the east central part of the state and coastal plain region. The county measures approximately 29 miles from north to south and 14 – 27 miles from east to west and encompasses 553.97 square miles.

The 2000 Census figures show the population to be 113, 329. The State Data Center estimates that the 2004 population is 115,108. Migration trends over the past seventy-five years and the establishment of Seymour Johnson Air Force Base in the 1940's have contributed to the steady growth.

Wayne County's surface is level to gently rolling uplands with broad bottoms along the rivers and streams. For this reason flash flooding infrequent. Elevations are predominately 120 to 145 feet above sea level. The largest waterway, the Neuse River, bisects the central and southeastern portion of the county and cuts a channel 20 to 40 feet deep as it flows in an eastward direction. Unusual river bluffs occur in the vicinity of Seven Springs. In addition to the Neuse River and its tributaries the Northeast Cape Fear River drains the county.

The climate in Wayne County is characterized by warm summers and moderate winters. The average temperature is about 62 degrees. Annual precipitation is about 50 inches of rainfall per year, with the major portion occurring in the late spring and summer.

Wayne County's local industries are involved in a range of operations from simple assembly to complex manufacturing processes resulting in products ranging from bread and poultry feed to automobile parts and electric transformers. Substantial technological improvements in recent years involving modernization of plant facilities and the addition of sophisticated manufacturing equipment have resulted in enhanced profitability and productivity for many of the local manufacturing firms.

The largest employers are agricultural operations, manufacturing, education and government. The single largest employer is Seymour Johnson Air Force Base. The annual

civilian and military payroll for Seymour Johnson AFB is over $193 million with over 5,000 employees. In fiscal year 2000 the economic impact of the air base was over $338 million.

Town of Eureka – The Town of Eureka is the smallest of the municipalities included in this plan being only about three tenths of a square mile in size. It is situated in northeastern Wayne County along NC 222 and has a population of approximately 250. Those persons in the work force commute mostly to jobs into Goldsboro or adjoining Counties.

Town of Fremont – The Town of Fremont was incorporated in 1870 and was named for John Fremont an engineer with the Wilmington Weldon Railroad. It is at the intersection of US 117 Highway and NC 222 in the northern part of the County. The town is bisected by the CSX railroad and encompasses approximately 1.3 square miles.

The 2000 Census counted a population of 1463 contained in about 1.3 square miles. Fremont is located a ridgeline between several small waterways. For this reason there are no areas in town that are designated as being in the 100-year floodplain. The town contains some small businesses and industry. However, most of the work force commutes to Goldsboro or Wilson.

Town of Mount Olive – The Town of Mount Olive is in the southern part of the County and includes a small area in Duplin County. It is located at the intersection of US 117 highway and NC 55 and is about 2.3 square miles in size. The CSX railroad runs north and south through the town. The 2004 population of the town is about 4600.

A tornado in 1984 did major damage to part of the town and the surrounding area. Most of the town drains into the headwaters of the North East Cape Fear River. The remainder of the town drains into a tributary of the Neuse River. For that reason there are no areas in Town within the 100-year floodplain. Major employers in the town include Mt. Olive Pickle Company and Mt. Olive College.

Town of Pikeville – The Town of Pikeville is centrally located in the northern part of the County along US 117 highway and is also bisected by the CSX railroad. The Town is about .53 square mile in size with a population of about 700. The Slough Swamp drains the southern part of town and has a designated 100-year floodplain. The area near Pikeville has seen a large amount of

residential growth in recent years, which has resulted in some commercial growth adjoining the Town limits.

Village of Walnut Creek – The Village of Walnut Creek surrounds two lakes formed by the damming of Walnut Creek. The spillway to the main lake was washed out due to the flooding associated with Hurricane Floyd. The creek is a tributary is the Neuse River. The Village is a relatively new community that also includes a golf course. The Village of Walnut Creek is home to approximately 900 people in the two square miles of the community. The Village does not contain any commercial or industrial development.

Village citizens commute to Goldsboro or other places for employment. The median family income is one of the highest in the state at $98,071.

Planning Process

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.[I-1] 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." [I-2]

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:

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.

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.

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.

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.[I-3] 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." [I-4]

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".[I-5] 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." [I-6]

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.

Authority

Once the draft plan is approved by NC Emergency Management, the Wayne County Multi Jurisdictional Hazard Mitigation Plan will be adopted by the Wayne County Board of Commissioners, under the authority and police powers granted to counties of the State of North Carolina by North Carolina General Statutes (N.C.G.S., Chapter 153A). The Town Councils of Eureka, Fremont, Pikeville, and Mount Olive and the Village of Walnut Creek will also adopt the Wayne County Multi Jurisdictional Hazard Mitigation Plan.

The Plan has been 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.

Participants in the Planning Process

The planning process was overseen by the Wayne County Hazard Mitigation Advisory Committee (Table I-1), which met regularly during the planning process. The Advisory Committee also identified other interested parties who were invited to participate in planning meetings and who were also sent copies of draft documents for review and comment.

HMP Advisory Committee / Interested Parties

Local Government/Agency	Position
Wayne County Planning	Planner
Wayne County GIS	GIS Director
Wayne County Inspections	Director
Wayne County Administration	County Manager
Wayne County Emergency Management	Director
Town of Eureka	Mayor/or designee
Town of Fremont	Mayor/or designee
Town of Mount Olive	Mayor/or designee
Town of Pikeville	Mayor/or designee
Village of Walnut Creek	Mayor/or designee

Description of the Planning Process

In the summer of 2001 Wayne County realized that a countywide comprehensive planning process that involved all of the smaller municipalities within the County would be the key to making mitigation a countywide effort. Using a comprehensive planning forum would make it possible for the County to assist the towns with creating a proactive rather than reactive approach to hazard mitigation and to ensuring that all lands subject to hazards were identified and managed appropriately to reduce future exposure.

In the fall of 2002, Wayne County and the Towns of Eureka, Fremont, Pikeville, and Mount Olive and the Village of Walnut Creek worked as an Advisory Committee to create the draft plan. The comprehensive planning process was organized to ensure that individual mitigation projects and initiatives undertaken by the County are carried out in a cooperative manner such

that all local initiatives work together and no single action or project detracts from the overall goal of creating a safer environment for all citizens of Wayne 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

1st Public Hearing

On February 19, 2002, Wayne County gave public notice of the start of the hazard mitigation planning process at the Wayne County Board of Commissioners public meeting. The meeting was advertised in the Goldsboro News Argus (local daily newspaper).

Neighboring communities, State and Federal Agencies, businesses, academia, nonprofits, and other interested parties were invited to participate in the planning process. These individuals were invited by advertising a public announcement in the News Argus.

At the meeting, a presentation was made describing the purpose of the hazard mitigation planning process and the schedule for plan development. The section of the Plan on hazard identification and analysis was also presented. No public comments were received.

In addition to the meeting, public announcement of the meeting provided an address and phone number for persons who were unable to attend the meeting but who wanted to receive more information about the planning process. During the planning process, drafts of the plan were also available for public review at the Wayne County Emergency Services Department,, the Wayne County Planning Department and each of the municipalities.

Other Public Comments

In May 2004 the draft plan was placed on the Wayne County website as a pop-up. The website is viewed by an average of 15 persons per day. The plan has also been available at the Town Hall for each of the municipalities. There has been no public comment. The Wayne County Board of Commissioners were advised that once this plan has been approved by the NC Emergency Management and by FEMA, it will be presented to the Board of Commissioners, the Towns of Eureka, Fremont, Pikeville, and Mount Olive and the Village of Walnut Creek for adoption.

HMP Advisory Committee Meetings

The Hazard Mitigation Planning (HMP) Advisory Committee, consisting of representatives from interested County departments, met three times between September 2001 and February 2002 (Table I-2).

Table I-2: Plan Meeting Schedule

Meeting Date	Topic
September 2001	Project Initiation
November, 2001	HMP Advisory Committee Meeting
December, 2001	HMP Advisory Committee Meeting
January 8, 2002	Wayne County Planning Board meeting
February 12, 2002	Wayne County Planning Board Meeting
February 19, 2002	**Public Hearing**

The HMP Advisory Committee 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 Wayne County 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 serves as the foundation for concentrating 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 each community could not continue to function for long).

Step 3. Community Capabilities Assessment

The step included a comprehensive examination and evaluation of 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 local 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 Advisory Committee developed summary conclusions regarding individual vulnerability to natural hazards and individual capabilities for dealing with hazards.

Step 5. Community Goals and Objectives

Steps 1 through 3 also established the foundation for moving forward with developing an action program for the community to undertake. The HMP Advisory Committee worked 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 Advisory Committee cooperated in formulating mitigation strategies/actions. This step also included assigning responsibility for implementation of each action.

Step 7. Procedures for Monitoring, Evaluating and Reporting Progress

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

Step 8. Procedures for Revisions and Updates

The HMP Advisory Committee developed a procedure for a comprehensive review and update of the Plan on a 5-year schedule. The procedure provides for the inclusion of the public.

Step 9. Adoption.

Wayne County and the individual municipalities held a public hearing on the Plan (when approved by NCEM) and then adopted by resolution.

F. Resolution of Adoption

A draft resolution of adoption for Wayne County and the Towns of Eureka, Fremont, Pikeville, and Mount Olive and the Village of Walnut Creek is included on the following pages. The final approved resolution will be inserted when the Plan is adopted (*after NCEM approval).*

Hazard Identification and Analysis

Introduction

The development of a hazard mitigation plan consists of five steps –identification and analysis of natural hazards that could impact the community, assessment of the community's vulnerability to natural hazards, assessment of the community's capability to respond to a natural disaster, assessment of the community's current policies and ordinances that affect hazard mitigation, and development of hazard mitigation strategies that can be implemented to reduce future vulnerability.

This section includes a description and history of each type of natural hazard event in Wayne County using the best available data. Members of the Wayne County Mitigation Advisory Committee agreed the natural hazards that would equally affect Wayne County, the Towns of Eureka, Fremont, Pikeville, and Mount Olive and the Village of Walnut Creek are drought, hurricanes, severe thunderstorms, hail storms, tornadoes and severe winter storms. The only natural hazards that would affect each municipality differently would be flooding and dam failure**.** Wildfires could affect the unincorporated area of Wayne County but would not affect the incorporated Towns. The three hazards that will not be addressed in this plan are nor'easters, earthquakes and volcanoes. Event histories are based on a search of two national databases - the National Climatic Data Center (NCDC - http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms) and the Spatial Hazard Events and Losses Database for the United States (SHELDUS* - http://go2.cla.sc.edu/hazard/db_registration). All historical data searches were conducted for the period 1950 to 2002. Other data from the County is included as available.

*Note: SHELDUS information concerning certain hazards causing fatalities and injuries are in decimal form. Casualties and damages are often listed without specific spatial reference, for instance severe thunderstorms affected Eastern NC. In order to assign the damage amount to a specific county, SHELDUS divides the total number of fatalities or injuries by the number of counties affected. For example, if a severe thunderstorm affected Johnston, Duplin, Lenoir, and Wayne counties and resulted in 1 fatality, each county would receive a 0.25 rating.

Wayne County, which is in the Coastal Plains of North Carolina, is typical of most counties in the eastern part of the state. It has relatively flat topography, which allows for major streams and the Neuse River to carve wide flood plains throughout the county. A major step in

creating this hazard mitigation plan is to identify the major hazards that exist in Wayne County. The planning process has determined the specific hazards that that present the greatest potential for disaster.

Many natural hazards have the potential to affect Wayne County. Each hazard has been assessed in terms of likelihood of occurrence, local vulnerability, and the hazards historical impact. The possibility exists for the hazards to occur in Wayne County at any given time depending upon the season. However, each hazard is unique to Wayne County in terms of probability, frequency and severity. Climatic and historical data were used to identify the past, present and potential for each of the hazards.

In addition, County and municipal planners and staff provided considerable data regarding current and projected land use. This data was then analyzed to assess potential problem areas, including critical facilities. Initial data from this analysis was used to determine those hazards that present the greatest risk to the County. Hazards were assigned a risk value by potential. This task was completed upon the recommendations of county and municipal agencies, State and Federal agencies and the public. Based upon the risk value, analysis was made for those hazards with the highest ratings first. Limited analysis was also performed on hazards with lower ratings making the plan oriented toward all hazard mitigation.

The hazards identified include those listed below. Other natural hazards that could occur in other parts of the country (i.e. volcanoes, tsunamis, etc.) were not analyzed in depth, because of (1) the location of the county, (2) there is no history of any such occurrence and the likelihood of such an occurrence was less than 1%, (3) there is no indication in any researched document that such events were likely to occur, therefore the it was felt appropriate that time and limited resources be used to identify and analyze those realistic hazards listed below.

Hazard Analysis - Evaluation Method

Each natural hazard is evaluated for three characteristics:

1. Likelihood of Occurrence, i.e., expected frequency;
2. Likely Range of Impact, i.e., predictable size and location of impact; and
3. Probable Level of Impact, i.e., estimated strength and damage potential.

Likelihood of Occurrence

The likelihood, or frequency, of occurrence of a particular hazard within a specific jurisdiction will be classified in one of four categories. These four categories are explained in the table below.

Explanation of Hazard Likelihood of Occurrence

Likelihood	Frequency of Occurrence
Highly Likely	Near 100% probability in the next year.
Likely	Between 10% and 100% probability in the next year or at least one chance within the next ten years.
Possible	Between 1% and 10% probability in the next year, or at least one chance in the next 100 years.
Unlikely	Less than 1% probability in the next year, or less than one chance in the next 100 years.

Source: "Keeping Natural Hazards from Becoming Disasters", NC Division of Emergency Management, November 2001, p. 11.

Likely Range of Impact

The likely range of impact, or predictable size and location, of a particular hazard within a specific jurisdiction will be classified in one of three categories. These three categories are described in the Table below.

Description of Likely Range of Impact

Size of Area	Description
Small	10 % or less of the total jurisdictional area
Medium	10 % to 40 % of the total jurisdictional area
Large	40 % to 100 % of the total jurisdictional area

Source: "Keeping Natural Hazards from Becoming Disasters", NC Division of Emergency Management, November 2001, p. 11.

Probable Level of Impact

The probable level of impact, or estimated strength and damage potential, of a particular hazard within a specific jurisdiction is classified in one of four categories as described in the table below.

Description of Hazard Probable Level of Impact

Level	Area Affected	Impact[1]
Catastrophic	More than 50%	• Multiple deaths. • Complete shutdown of facilities for 30 days or more. • More than 50% of property is severely damaged.
Critical	25 to 50%	• Multiple severe injuries. • Complete shutdown of critical facilities for at least 2 weeks. • More than 25% of property is severely damaged.
Limited	10 to 25%	• Some injuries. • Complete shutdown of critical facilities for more than 1 week. • More than 10% of property is severely damaged.
Negligible	Less than 10%	• Minor injuries. • Minimal quality of life impact. • Shutdown of critical facilities and services for 24 hours or less. • Less than 10% of property is severely damaged.

Source: "Keeping Natural Hazards from Becoming Disasters", NC Division of Emergency Management, November 2001, p. 12.

[1] The impact of a natural hazard is a combination of the severity of the occurrence, the magnitude of the event, and the density of human activity in the affected area.

Flooding

Flooding is a localized and regional hazard that is generally the result of excess precipitation that usually occurs in the river or stream basin. Flood plain areas can be inundated by spillovers from stream and river flows. Flood hazard areas vary by location and type of flooding. In some areas of the country flooding can be the result of snowmelt, ice jams and/or dam failures. Wayne County is most at risk from flooding caused by hurricanes, tropical storms and nor'easters. Floods can be generally considered in two categories, flash floods and general floods.

Flash Floods occur within minutes to hours due to either heavy amounts of rainfall, dam or levee failure, or sudden release of water held by an ice jam. The severity of a flooding event is determined by a number of local factors including but not limited to basin physiography,

precipitation patterns, recent soil moisture content, soil type, vegetative cover, and impervious features such as roads, sidewalks, and drainage ways. Flash flooding along minor streams in the county has not historically been a problem. However, as urban development continues runoff will increase along the streams. Parts of Mount Olive are subject to flooding problems due to elevation and inadequate drainage. The southern part of Pikeville would be subject to flash flooding along the run of The Slough if the stream becomes blocked at the railroad bridge. The lakes at Walnut Creek are designed to handle the runoff from any flash flood event. Eureka and Fremont do not have streams inside the town that could create flash flood problems.

General Flooding is a long-term event that can last several days. Three major types of general flooding are riverine, coastal and urban. Riverine and urban flooding have been the contributing factors relating to general flooding within Wayne County. General flooding in Wayne County and the municipalities is determined in days not hours. This provides the local governments and emergency personnel time to notify the population of the impending danger.

To better illustrate the flooding potential in Wayne County, the Planning Department has used a Geographic Information System to identify structures and population at risk to flooding. With this information along with floodplain data provided by FEMA, the County and municipalities can estimate the population at risk to flooding. The following table represents this analysis.

Table 1: Estimated Structure and Population Vulnerability to Flooding

Total Structures within Wayne County (Excluding Goldsboro and Seven Springs)	26,000
Structures within 100 Year Floodplain	**432**
Structures within 500 Year Floodplain	254
Total Structures within Floodplains	**686**
% Of Total Structures within floodplains	2.6%
Persons Per Household (2000 Census)	2.55
Estimated Persons Vulnerable To Flooding (Persons per Household * Total Structures within Floodplains)	**1,749**
Wayne County Population (Census 2000)	113,329

Goldsboro Population (Census 2000)	39,043
Wayne County Population (Excluding Goldsboro)	74,286
Estimated % of Population Vulnerable to Flooding	**2.3%**

Source: Wayne County Planning Department, US Census

Table 1: Flood Event Data for Wayne County

Location	Date	Time	Type	Damages
Wayne County	6/24/1995	1830	Flash Flood	0
Wayne County	9/5/1996	7:40 PM	Flash Flood	0
Wayne County	9/6/1999	8:15 PM	Flash Flood	0
Wayne County	9/15/1999	10:00 PM	Flash Flood	0
Wayne County	9/27/1999	6:00 PM	Flash Flood	0
Wayne County	9/28/1999	2:30 AM	Flash Flood	0
Wayne County	9/28/1999	4:30 PM	Flash Flood	0
Wayne County	9/28/1999	11:00 AM	Flash Flood	0
Wayne County	10/17/1999	5:00 PM	Flash Flood	0
Wayne County	8/4/2000	9:15 PM	Flash Flood	0
Wayne County	7/2/2003	8:45 PM	Flash Flood	0
Wayne County	2/20/1995	0	Flood	0
Wayne County	1/19/1998	12:00 PM	Flood	0
Wayne County	2/10/1998	7:00 AM	Flood	0
Mt. Olive	6/16/2001	7:30 PM	Flash Flood	0
Mt. Olive	1/24/1999	6:00 PM	Stream Flood	0
Totals				**$0**

Source: National Climatic Data Center, http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms and SHELDUS (Spatial Hazard Events and Losses Database for the United States, http://go2.cla.sc.edu/hazard/db_registration.

Hazard Analysis – Floods

Likelihood of Occurrence of Floods

Localized flooding can occur several times a year in Wayne County. In recent years there have also been a number of more widespread flooding events caused by hurricanes and tropical storms. The likelihood of localized flooding as well as area wide flooding can be categorized as “likely”.

Likely Range of Impact for Floods

Flooding is normally confined to specific, known flood hazard areas where development can be controlled or limited. The likely range of flood impact can be classified as “small”.

Probable Level of Impact for Floods

As damages have been incurred due to floods within Wayne County, localized flooding typically has a "limited" level of impact, whereas area wide flooding, due to instances of damage sustained during flooding in the past, can also have a "limited" level of impact in Wayne County.

Wayne County Hazard Index for Floods

The hazard index for floods in Wayne County is categorized as "moderate" based on a "likely" level of occurrence, "small" range of impact, and "limited" level of impact. This hazard index indicates that floods should be a minor focus of local hazard mitigation efforts.

Hurricanes

Hurricanes have battered the coast of North Carolina and the United States longer than man has inhabited earth. The National Hurricane Center (NHC) in Miami, Florida monitors the coasts of Africa where the hurricane origin starts. The NHC releases to the public prior to June 1st each year its prediction and count of hurricane and tropical storms that will occur in the given year.

Wayne County's recent development has been susceptible to damage from hurricanes due to building in flood prone areas. Loss of human life, property damage and economic loss can be associated with hurricane events, especially major events that make landfall on the south east coast and work their way inland.

The Saffiir-Simpson Scale measures hurricane intensity using a range from 1 (Minimal) to 5 (Catastrophic). The scale based upon minimum barometric pressure that categorizes hurricane intensity, maximum sustained winds and storm surge potential. This is then combined to estimate the potential flooding and damage to property when hurricane intensity is given. Storm surge will not be an issue in Wayne County and the municipalities due to the distance from the coastline. High winds can bring down trees and ultimately power lines. Hurricane Fran in 1996 and Hurricane Floyd in 1999 although being about the same size storm affected the County differently. Fran was the first major wind to affect the entire county in thirty years. The result was many toppled trees and downed power lines. Three years later, Floyd brought copious amounts of rain but did not level as many trees and power lines due to the thinning from the 1996 storm.

Table 2: Saffiir-Simpson Hurricane Scale

Saffiir-Simpson Category	Maximum Sustained Winds (mph)	Minimum Surface Pres	Height of Storm Surge (feet)
1	74-96	>980	3-5
2	97-111	979-965	6-8
3	112-131	964-945	9-12
4	132-155	944-920	13-18
5	156+	<920	19+

Source: North Carolina Division of Emergency Management, 1998: Local Hazard Mitigation Planning Manual.

The following table illustrates the history of hurricanes that have impacted Wayne County in recent years. According to the table the worst hurricane to impact Wayne County was Hurricane Floyd in terms of monetary value.

Table 3: Recent Hurricane History of Wayne County

Date	*Hurricane*	*Deaths*	*Injuries*	*Property Damage*	*Crop Damage*
7/12/96	Bertha	0	Unknown	567,000	-
9/5/96	Fran	1	Unknown	21.6million	-
8/27/98	Bonnie	0	Unknown	664,900	-
9/4/99	Dennis	0	Unknown	Unknown	-
9/14/99	Floyd	2	Unknown	39.3 million	-
9/18/03	Isabel	0	Unknown	286,200	-

Source: National Climatic Data Center, Wayne County Planning Department and Wayne County Emergency Services

Hazard Analysis – Hurricanes

Likelihood of Occurrence of Hurricanes

According to the Local Hazard Mitigation Planning Manual, "(by virtue of its position along the Atlantic Ocean adjacent to and protruding to the edge of the Gulf Stream, North Carolina is frequently impacted by hurricanes (and tropical storms). In fact, North Carolina has experienced the fourth greatest number of hurricane landfalls of any state in the twentieth century (after Florida, Texas and Louisiana)." Many of these storms track inland and pass over Wayne County, although they usually have weakened below hurricane force by the time they reach the area. There are other storms that do not even make landfall and instead just skirt the North Carolina coastline, but they can still cause high winds and torrential rains in the area, because of the tremendous size of these storms.

Hurricanes that have struck North Carolina in the last 50 years include Hazel in 1954; Connie, Diane, and Iona, all in 1955; Donna in 1960; Hugo in 1989; Emily in 1993; Opal in 1995; Bertha and Fran in 1996; Bonnie in 1998; and Dennis and Floyd in 1999. Because of the size of these storms (up to 400 miles wide), the Wayne County area felt some impact (including torrential rains and high winds) from these storms. In addition to the above named hurricanes there have been smaller tropical storms that may have also impacted Wayne County. The probability of the Wayne County area experiencing the affects of a hurricane, or tropical storm, can be classified as "likely".

Likely Range of Impact of Hurricanes

Hurricanes and tropical storms are not localized events. The diminishment of the destructive force of a hurricane or tropical storm from one side of Wayne County to the other would probably be negligible. The impact of the wind element of a hurricane or a tropical storm within the County would be fairly uniform among structures that were built using comparable construction methods and materials. The impact of the associated rainfall from a hurricane or tropical storm would primarily affect structures and infrastructure in proximity to regulatory floodplains and secondary tributaries and creeks. The accumulation of wind blown debris in public or private storm drainage inlets and drainage swales has the potential to cause minor flooding problems throughout the area. If a hurricane or tropical storm were to occur, the entire Wayne County area would be subject to the effects of the storm, therefore the range of impact can be classified as "large".

Probable Level of Impact of Hurricanes

The Local Hazard Mitigation Planning Manual indicates "hurricanes have the greatest potential to inflict damage as they cross the coastline from the ocean, which is called landfall. Because hurricanes derive their strength from warm ocean waters, they are generally subject to deterioration once they make landfall. The forward momentum of a hurricane can vary from just a few miles per hour to up to 40 mph. This forward motion, combined with a counterclockwise surface flow makes the right front quadrant of the hurricane the location of the most potentially damaging winds."

Property damage can result when the high winds of a hurricane or a tropical storm combine with saturated soils from extended heavy rains which may cause trees to be uprooted and fall onto nearby structures, or when wind blown debris damages structures. Additionally,

hurricanes and tropical storms generally include bands of severe thunderstorms, which may produce hail and spawn tornadoes. The probable level of impact of a hurricane or tropical storm in Wayne County can be classified as "limited". Although most hurricanes cause only limited damage within the area, Hurricane Fran in September of 1996 caused critical damages throughout the County and region.

Wayne County Hazard Index for Hurricanes

The hazard index for hurricane impacts in Wayne County is "moderate" based on the probability of occurrence being "likely", the "large" area that would be impacted, and the probable "limited" damage impact. This hazard index of "moderate" for hurricanes indicates that this particular hazard poses a relatively large, but infrequent threat. Since hurricanes and coastal storms are also significant contributors to flooding, there are opportunities for local hazard mitigation efforts to have a significant impact on exposure to future events.

Thunderstorms/Severe Weather

Thunderstorms are common in Eastern North Carolina during the spring and summer seasons. These storms can become severe producing strong winds, lightning, hail and tornadoes. Since these events are localized, the impact of thunderstorms in Wayne County is considered low. However, each thunderstorm should be taken with caution.

Wayne County has experienced 92 thunderstorm events since 1980 with 2 deaths and 2 injuries reported. Almost $9 million in property damage and $600,000 in crop damage can be attributed to these thunderstorm events. The table below shows the dates of thunderstorms since 1980. Data recorded since 1994 shows that the storms affect all parts of the County.

Table 4: Thunderstorm History of Wayne County, 1980-2004.

Location	Date*	Time	Magnitude (in kts.)
Wayne County	7/22/1998	11:00 AM	N/A
Wayne County	9/6/1957	1400	0 kts.
Wayne County	6/14/1958	1730	60 kts.
Wayne County	6/14/1958	1730	60 kts.
Wayne County	6/21/1961	1045	0 kts.
Wayne County	4/23/1965	1710	0 kts.
Wayne County	8/10/1965	1504	50 kts.
Wayne County	2/13/1966	1010	0 kts.
Wayne County	2/13/1966	1015	0 kts.
Wayne County	6/16/1966	1600	0 kts.

Location	Date*	Time	Magnitude (in kts.)
Wayne County	8/9/1968	1410	50 kts.
Wayne County	7/11/1969	1630	0 kts.
Wayne County	8/10/1969	1300	0 kts.
Wayne County	1/25/1975	1230	0 kts.
Wayne County	3/24/1975	1345	0 kts.
Wayne County	3/24/1975	1345	56 kts.
Wayne County	5/7/1976	1600	0 kts.
Wayne County	7/24/1976	1430	0 kts.
Wayne County	8/10/1977	1730	0 kts.
Wayne County	7/4/1979	1530	0 kts.
Wayne County	4/30/1981	1630	79 kts.
Wayne County	8/11/1982	1800	0 kts.
Wayne County	8/11/1982	1900	0 kts.
Wayne County	8/11/1982	1915	0 kts.
Wayne County	8/11/1982	2000	0 kts.
Wayne County	6/4/1983	1730	0 kts.
Wayne County	6/4/1983	2100	0 kts.
Wayne County	6/4/1983	2115	0 kts.
Wayne County	6/4/1983	2130	0 kts.
Wayne County	3/28/1984	1955	50 kts.
Wayne County	6/5/1985	1920	0 kts.
Wayne County	7/16/1985	1155	0 kts.
Wayne County	7/16/1985	1155	0 kts.
Wayne County	10/15/1985	1915	0 kts.
Wayne County	5/21/1986	1035	0 kts.
Wayne County	6/8/1986	1450	0 kts.
Wayne County	6/24/1986	1520	0 kts.
Wayne County	6/28/1986	1545	0 kts.
Wayne County	6/29/1986	1945	0 kts.
Wayne County	7/12/1986	1435	0 kts.
Wayne County	7/12/1986	1440	0 kts.
Wayne County	8/11/1986	1630	0 kts.
Wayne County	8/20/1986	1115	0 kts.
Wayne County	4/24/1987	1415	0 kts.
Wayne County	4/24/1987	1430	0 kts.
Wayne County	5/2/1987	1930	0 kts.
Wayne County	6/3/1987	1945	0 kts.
Wayne County	7/11/1987	1630	0 kts.
Wayne County	8/4/1987	1500	58 kts.
Wayne County	6/26/1988	1910	0 kts.
Wayne County	6/26/1988	1945	0 kts.
Wayne County	2/21/1989	1115	0 kts.
Wayne County	2/21/1989	1145	0 kts.
Wayne County	4/25/1989	1705	0 kts.
Wayne County	4/25/1989	1720	0 kts.
Wayne County	4/25/1989	1740	0 kts.
Wayne County	6/4/1989	1352	0 kts.
Wayne County	6/16/1989	1500	0 kts.
Wayne County	6/26/1989	2000	0 kts.
Wayne County	6/26/1989	2000	0 kts.
Wayne County	5/1/1990	1915	0 kts.

Location	Date*	Time	Magnitude (in kts.)
Wayne County	6/22/1990	141	0 kts.
Wayne County	8/14/1990	1725	0 kts.
Wayne County	8/29/1990	1925	0 kts.
Wayne County	3/2/1991	1445	0 kts.
Wayne County	8/9/1991	1800	0 kts.
Wayne County	5/18/1992	1820	0 kts.
Wayne County	6/24/1992	1930	0 kts.
Wayne County	7/18/1992	1800	0 kts.
Wayne County	7/18/1992	1815	0 kts.
Wayne County	7/24/1992	1535	0 kts.
Wayne County	8/5/1992	1635	0 kts.
Wayne County	7/18/1994	1540	N/A
Wayne County	5/13/2002	7:55 PM	50 kts.
Wayne County	6/1/2002	5:55 PM	50 kts.
Fremont	5/29/1996	7:50 PM	0 kts.
Fremont	5/3/1997	9:25 AM	50 kts.
Fremont	8/1/1999	8:05 PM	0 kts.
Fremont	8/18/2000	5:30 PM	50 kts.
Mt. Olive	5/19/1995	800	N/A
Pikeville	6/4/2004	3:30 PM	50 kts.
Seymour Johnson AFB	1/28/1994	955	N/A
Seymour Johnson AFB	7/28/1994	1317	N/A
Seymour Johnson AFB	5/28/2000	1:20 PM	60 kts.
Seymour Johnson AFB	6/22/2000	2:40 PM	56 kts.

Source: National Climatic Data Center, http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms and SHELDUS (Spatial Hazard Events and Losses Database for the United States, http://go2.cla.sc.edu/hazard/db_registration.

**** Storms occurring before 1993 were not recorded***

Table 5: High Wind/Lightning History of Wayne County

Location	Date	Time	Type	Property Damages
Wayne County	2/16/1998	10:00 PM	High Wind	0
Wayne County	3/7/2004	7:20 PM	High Wind	136K
Mt. Olive	5/23/1998	11:30 AM	Lightning	1K
Mt. Olive	6/17/2001	12:03 AM	Lightning	105K
Pikeville	6/22/2000	3:23 PM	Lightning	0
Total				**$242,000**

Source: National Climatic Data Center, http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms and SHELDUS (Spatial Hazard Events and Losses Database for the United States, http://go2.cla.sc.edu/hazard/db_registration.

The National Climatic Data Center has identified hailstorms separately from thunderstorms to identify the impact that Hail alone has on a given community. For Wayne County there were 51 Hailstorm events since 1980 with a property damage of 50.6 Million Dollars. .

Table 6: Hailstorm History of Wayne County

Location or County	Date	Time	Type	Magnitude
Wayne County	5/12/1968	1530	Hail	0.75 in.
Wayne County	5/11/1976	1500	Hail	1.75 in.
Wayne County	7/9/1976	1400	Hail	0.75 in.
Wayne County	7/13/1977	1430	Hail	1.75 in.
Wayne County	3/26/1978	1630	Hail	1.75 in.
Wayne County	4/27/1980	2011	Hail	0.75 in.
Wayne County	4/30/1981	1541	Hail	1.00 in.
Wayne County	4/27/1982	1900	Hail	1.75 in.
Wayne County	4/15/1984	1510	Hail	0.75 in.
Wayne County	4/16/1985	1459	Hail	0.75 in.
Wayne County	7/16/1985	1155	Hail	0.75 in.
Wayne County	7/16/1985	1155	Hail	0.75 in.
Wayne County	5/21/1986	1704	Hail	1.75 in.
Wayne County	5/21/1986	1740	Hail	1.75 in.
Wayne County	7/11/1987	1610	Hail	0.75 in.
Wayne County	7/11/1987	1645	Hail	0.75 in.
Wayne County	9/9/1987	1600	Hail	0.75 in.
Wayne County	9/9/1987	1615	Hail	0.75 in.
Wayne County	5/17/1988	1400	Hail	1.75 in.
Wayne County	6/9/1988	1413	Hail	1.75 in.
Wayne County	6/9/1988	1445	Hail	1.75 in.
Wayne County	6/9/1988	1516	Hail	2.75 in.
Wayne County	4/25/1989	2115	Hail	0.75 in.
Wayne County	6/19/1992	2100	Hail	0.75 in.
Wayne County	6/19/1992	2100	Hail	0.75 in.
Wayne County	5/1/1994	2015	Hail	0.75 in.
Wayne County	5/11/1995	1837	Hail	0.88 in.
Wayne County	3/31/2002	3:15 PM	Hail	1.00 in.
Fremont	5/29/1996	7:30 PM	Hail	1.75 in.
Fremont	7/2/1996	5:45 PM	Hail	0.75 in.
Fremont	5/4/1998	2:55 PM	Hail	0.75 in.
Fremont	5/4/1998	3:00 PM	Hail	0.75 in.
Fremont	3/16/2003	2:45 PM	Hail	0.75 in.
Fremont	3/16/2003	3:10 PM	Hail	1.00 in.
Mt. Olive	5/26/2001	5:15 PM	Hail	0.88 in.
Pikeville	4/1/1998	2:25 PM	Hail	1.00 in.
Pikeville	4/1/1998	2:37 PM	Hail	1.00 in.
Pikeville	5/4/1998	2:48 PM	Hail	0.75 in.
Seymore Johnson AFB	8/27/1994	1730	Hail	0.75 in.
Wayne County	5/12/1968	1530	Hail	0.75 in.
Wayne County	5/11/1976	1500	Hail	1.75 in.

Source: National Climatic Data Center, http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms and SHELDUS (Spatial Hazard Events and Losses Database for the United States, http://go2.cla.sc.edu/hazard/db_registration.

Hazard Analysis – Thunderstorms

Likelihood of Occurrence of Thunderstorms

Thunderstorms, including both lightning and hail storms, have occurred quite frequently throughout history in and around Wayne County. Therefore, the likelihood of occurrence has been given a rating of "likely".

Likely Range of Impact of Thunderstorms

While thunderstorms have occurred quite frequently in the past, the damages have not been widespread, and therefore have resulted in a rating of "small" for the range of impact.

Probable Level of Impact of Thunderstorms

While thunderstorms, lightning, and hail storms have occurred frequently and have caused instances of damage, the frequency of damage was low enough to give its probability the rating "limited".

Wayne County Hazard Index for Thunderstorms

The Hazard Index for thunderstorms, lightning, and hail storms in Wayne County can be categorized as "moderate-low" based on the "likely" probability of occurrence, the "small" area that would be impacted by a thunderstorm, lightning, or hail event, and the probable "limited" damages that could be expected from such events. The hazard index of "moderate-low" for thunderstorms, lightning, and hail storms in Wayne County indicates that these natural hazards pose a threat, but a low threat, and that hazard mitigation efforts would be more wisely directed if addressed in conjunction with flood mitigation, to which Wayne County is more vulnerable.

Tornadoes

Severe thunderstorms and hurricanes have the potential to produce tornadoes. Like thunderstorms the prediction of tornadoes is limited to a certain degree. Most tornadoes develop during a thunderstorm event. The exact location of the tornado varies widely depending upon atmospheric disturbance.

The intensity, path length and width of tornadoes are rated according to the Fujita-Pearson tornado scale. F0-F1 is considered weak while F2-F3 is considered strong. F4-F5 is considered the most violent. This scale shown below illustrates the ratings of tornadoes.

Table 6: Fujita-Pearson Tornado Scale

F-Scale	Damage	Winds (mph)	Path Length (Miles)	Mean Width (miles)
F0	Light	40-72	<1.0	<0.01
F1	Moderate	73-112	1.0-3.1	0.01-0.03
F2	Considerable	113-157	3.2-9.9	0.04-0.09
F3	Severe	158-206	10-31	0.1-0.3
F4	Devastating	207-260	32-99	0.32-0.99
F5	Incredible	261-318	100+	1.0+

Source: North Carolina Division of Emergency Management, 1998: Local Hazard Mitigation Planning Manual.

Between 1980 and 2004 there have been 12 tornado events in Wayne County with three deaths and 155 injuries. Over $52 million dollars in property damage can be attributed to these events. Of these, the most severe in persons affected and property damaged was in 1984, which brought 133 injuries and three deaths. This storm crossed the southern part of the County in particular the Mount Olive area. Over 50 million dollars in property damaged occurred through out Wayne County from this event. This kind of impact can devastate a community long term both financially and emotionally.

Other reported storms have affected the Eureka area and the northwest area of the County.

Table 7: Tornado History of Wayne County.

Location	Date	Time	Magnitude	Property Damages
Wayne County	3/16/1955	1430	F2	25K
Wayne County	3/18/1956	1530	F0	3K
Wayne County	6/21/1961	1113	F1	25K
Wayne County	3/15/1964	1500	F0	25K
Wayne County	5/23/1975	1200	F1	250K
Wayne County	3/4/1977	1435	F1	25K
Wayne County	3/4/1977	1445	F1	25K
Wayne County	6/26/1980	1315	F0	0K
Wayne County	7/3/1980	1639	F0	0K
Wayne County	3/28/1984	1930	F3	25.0M
Wayne County	3/28/1984	1940	F4	25.0M
Wayne County	8/20/1986	1056	F2	250K
Wayne County	11/4/1992	1900	F0	0K
Total				**$50,628M**

Hazard Analysis – Tornadoes

Likelihood of Occurrence of Tornadoes

While tornadoes have occurred numerous times around Wayne County, based on Tables A-25 and A-26, the likelihood of a tornado occurring in Wayne County is "unlikely".

Likely Range of Impact of Tornadoes

The range of impact for tornadoes is "small", as most tornadoes in this area do not exceed the F2 rating.

Probably Level of Impact of Tornadoes

The probability of impact, due to the number of tornadoes (1) that have hit Wayne County is "limited".

Wayne County Hazard Index for Tornadoes

Based on "unlikely" occurrence, "small" range of impact, and "limited" level of impact, the composite hazard rating for tornados for Wayne County is "low".
Note: The combined hazard index for severe storms and tornadoes is "moderate".

Nor'easters

Nor'easters are extra tropical storms deriving their strength from horizontal gradients in temperature. These temperature gradients occur during the winter and can result in rapid and intense destabilizing of the atmosphere above and shoreward of the Gulf Stream.

The temperature and structure of the air mass and position of the temperature gradient along the Gulf Stream derives the cyclone development. As the low pressure deepens, winds and waves can increase causing damage to the coastal areas as the storm makes its way up the coast.

Nor'easters effects on Wayne County would typically be the same as a hurricane but the impact of a nor'easter is not expected to be nearly as severe as a hurricane. The proximity of North Carolina's coast to the Gulf Stream makes it especially prone to Nor'easters. This hazard is often grouped with severe winter storms because they generally occur during the fall and winter months. Within this period these storms can bring heavy precipitation such as snow, ice and freezing rain.

The Dolan and Davis Intensity scale based on levels of coast degradation rates Nor'easters. Since Wayne County is not located directly on the coast, this rating is somewhat

not applicable. The National Climatic Data Center does not report any damage in Wayne County due to Nor'easters.

Table 8: Dolan-Davis Nor'easter Intensity Scale

Storm Class	Beach Erosion	Dune Erosion	Overwash	Property Damage
1 (Weak)	Minor changes	None	No	No
2 (Moderate)	Modest; mostly to lower beach	Minor	No	Modest
3 (Significant)	Erosion extends across beach	Can be significant	No	Loss of many structures at local level
4 (Severe)	Severe beach erosion and recession	Severe dune erosion or destruction	On low beaches	Loss of structures at community-scale
5 (Extreme)	Extreme beach erosion	Dunes destroyed over extensive areas	Massive in sheets and channels	Extensive at regional-scale; millions of $

Source: Local Hazard Mitigation Planning Manual, NC Division of Emergency Management, 1998, p. 73

Severe Winter Storms

Severe winter storms have the potential to produce heavy snow, freezing rain, ice pellets and extreme cold conditions. The Eastern North Carolina experience of winter storms is not as frequent as in the western and piedmont regions. However, when these storm events do take place, ice accumulates along power lines causing localized blackouts.

During the period of 1996 to 2004 Wayne County experienced eleven winter storms. There were no deaths, injuries or crop damage attributed to these events, however, $450,000 in property damage was reported in 1996. The storms have been recorded Countywide and affected all local governments.

Table 9 Severe Winter Storm History of Wayne County

Location	Date	Time	Type
Wayne County	1/6/1996	1:00 PM	Ice Storm
Wayne County	1/11/1996	10:00 PM	Ice Storm
Wayne County	2/2/1996	2:00 AM	Ice Storm
Wayne County	2/3/1996	10:00 PM	Extreme Cold
Wayne County	12/23/1998	2:00 PM	Ice Storm
Wayne County	1/18/2000	2:00 AM	Winter Storm
Wayne County	1/22/2000	6:00 PM	Winter Storm
Wayne County	1/24/2000	5:00 AM	Winter Storm
Wayne County	12/3/2000	12:00 PM	Winter Storm

Location	Date	Time	Type
Wayne County	1/3/2002	12:00 AM	Winter Storm
Wayne County	1/26/2004	4:30 AM	Winter Storm
Wayne County	2/26/2004	9:00 AM	Winter Storm
Wayne County	12/26/2004	1:00 AM	Winter Storm

Source: National Climatic Data Center, http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms and SHELDUS (Spatial Hazard Events and Losses Database for the United States, http://go2.cla.sc.edu/hazard/db_registration.

Hazard Analysis – Severe Winter Storms (including Nor'easters)

Likelihood of Occurrence of Severe Winter Storms

The numerous occurrences of severe winter storms in the Wayne County area gives the County a likelihood rating of "highly-likely.

Likely Range of Impact of Severe Winter Storms

When severe winter storms do occur, they affect the entire County giving the area a "large" range of impact.

Probable Level of Impact of Severe Winter Storms

Although severe winter storms cause a shutdown on normally daily activities until roads are passable, the probable level of impact remains "limited" since storm effects are normally temporary in nature.

Composite Hazard Index for Severe Winter Storms

The hazard index for severe winter storms in Wayne County is categorized as "high" based on a "highly-likely" occurrence, "large" range of impact, and "limited" level of impact. This hazard index of "high" indicates that the severe winter storms are a serious threat that should be addressed with local hazard mitigation initiatives where possible. Because of the regional impact of severe winter storms, however, many initiatives are more appropriately addressed and coordinated at the State level.

Wildfires

A wildfire is an uncontrolled burn of grasslands, woodlands or brush. Recent climate conditions, current meteorological conditions, surface fuel characteristics and fire behavior all help to determine the potential for this hazard event. When the summers are hot and dry, the dry vegetation increases the susceptibility for fire in the fall. The North Carolina State Forestry Service has assessed each County's wildfire potential for the period 1950 - 2004 based on the number of wildfires and number of acres burned. Wayne County ranks low for this potential Hazard, however, as development continues, areas that were once rural in nature, become

populated with new residents that may be unaware of the hazards associated with wildfires. Using highly flammable material for construction will increase the exposure of populated areas to this potential hazard.

Although the potential for wildfires in Wayne County is low some have occurred. The Forestry Service reports that Wayne County averages approximately 70 wildfires per year. The average size is approximately 5 acres with the largest in the past ten years being 300 acres. Areas in the southern part of the county in the vicinity of Dudley, Elroy and Indian Springs have the greatest potential for wildfires due to light soil and native vegetation that creates a flash fuel potential.

Wildfire Previous Occurrences Statistics (including Five Year Average)

	Lightning	Campfire	Smoking	Debris	Incendiary	Machine Use	Railroad	Children	Misc.	Total # Fires
2000	2	0	7	40	1	6	0	10	5	71
Avg # / 5 Yrs.	1.4	0.2	7.6	41.6	1.2	3.2	0.2	11.8	3.6	70.8

Hazard Analysis – Wildfires

Likelihood of Occurrence of Wildfires in Wayne County

Between 1990 and 2000, there were 700 wildfires in Wayne County – an average of 70 per year. The likelihood of occurrence of a wildfire can be classified as "likely". (Note: The NC Division of Forest Resources did not provide personal information for past wildfire events thus no locations are shown on the Map included in this plan. Potential wildfire locations could not be mapped because forest cover information was not available.)

Likely Range of Impact for Wildfires in Wayne County

When wildfires do occur they typically impact a relatively small area of land. Since 1990, wildfires have burned on average 50 acres per year. The range of impact can be classified as "small".

Probable Level of Impact for Wildfires in Wayne County

Wildfires have a very limited impact on the community so the level of impact of wildfires can be classified as "negligible" for Wayne County.

Wayne County Hazard Index for Wildfires

The hazard index for wildfires in Wayne County is categorized as "low" based on a "likely" occurrence, but "small" range of impact, and "negligible" level of impact. This hazard

index of “low” indicates that the threat of wildfires does not warrant significant additional hazard mitigation activities at the local level beyond those already in place within the State.

Land Slides

Landslides usually occur with other natural hazards such as earthquakes, wildfires, and flooding. Wayne County’s topography is relatively flat except along the watercourses such as the Neuse River. The potential damage of this hazard is low due to this factor. There is no reported damage or injuries due to landslides in Wayne County. Landslides will not be addressed in this plan.

Earthquakes

Movement or shaking of the earth's crust is a geologic event called earthquake. The Modified Mercalli Scale of Earthquake Intensity uses magnitude and Intensity to measure Earthquakes.

The Eastern Tennessee Seismic Zone is part of a crescent of moderate seismic activity risk extending from Charleston, South Carolina northwest into eastern Tennessee and curving northeast into central Virginia. The risk associated with earthquakes in North Carolina is minimal and decreases as you move eastward toward the coastal plains. While there have not been any significant earthquakes in North Carolina, the potential still exists. A search of records from Division of Emergency Management and National Climatic Data Center did not reveal any record of damages from earthquakes in Wayne County. Earthquakes will not be addressed in this plan.

Table 10: Modified Mercalli Scale of Earthquake Intensity

Scale	Intensity	Description of Effects	Maximum Acceleration (mm/sec)	Richter Scale
I	Instrumental	Detected only on seismographs	<10	
II	Feeble	Some people feel it	<25	<4.2
III	Slight	Felt by people resting; like a truck rumbling	<50	
IV	Moderate	Felt by people walking	<100	
V	Slightly	Sleepers awake; church bells ring	<250	<4.8

	Strong			
VI	Strong	Trees sway; suspended objects swing, objects fall off shelves	<500	<5.4
VII	Very Strong	Mild alarm; walls crack; plaster falls	<1000	<6.1
VIII	Destructive	Moving cars uncontrollable; masonry fractures, poorly constructed buildings damaged	<2500	
IX	Ruinous	Some houses collapse; ground cracks; pipes break open	<5000	<6.9
X	Disastrous	Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread	<7500	<7.3
XI	Very Disastrous	Most buildings and bridges collapse; roads, railways, pipes and cables destroyed; general triggering of other hazards	<9800	<8.1
XII	Catastrophic	Total destruction; trees fall; ground rises and falls in waves	>9800	>8.1

Source: Local Hazard Mitigation Planning Manual, North Carolina Division of Emergency Management, 1998, p. 75.

Dam/Levee Failures

Dam and levee failures can be a serious consequence of natural hazards. Dams are structures or appurtenances built to impound or divert water flow in streams or rivers. Levees are embankments built along rivers to contain flood waters.

Dams

There are approximately 80,000 dams listed in the National Inventory of Dams. This number includes impoundment structures greater than or equal to 25’ in height or impounding 50 acre-feet (an acre-foot equal’s water 1 foot deep across one acre of land) or more of water, or structures above 6 ft in height whose failure would potentially cause damage downstream. Nine thousand dams nationwide have been designated as high hazard dams.

The high hazard designation does not indicate the inherent stability or instability of a dam but instead measures the potential threat posed to downstream populations in the event of a dam failure.

Background Information on Dams

Dams provide a life-sustaining resource to people in all regions of the United States. Unlike most infrastructures, dam owners are solely responsible for the safety and the liability of the dam and for financing upkeep, upgrade and repair. While most infrastructure facilities (roads, bridges, sewer systems, etc.) are owned by public entities, the majority of dams in the United States are privately owned. Across the nation, about 58% of dams are privately owned, 16% are owned by local governments, 4% by states, and the rest by the federal government and public utilities.

Manmade dams are classified according to the type of construction material used, the methods used in construction, the slope or cross-section of the dam, the way the dam resists the forces of water pressure, the means used for controlling seepage and, occasionally, according to the purpose of the dam.

The materials used for construction of dams include earth, rock, tailings from mining or milling, concrete, masonry, steel, timber, miscellaneous materials (such as plastic or rubber) and any combination of these materials. Embankment dams, the most common type of dam, are usually constructed of natural soil or rock or waste materials obtained from mining or milling operations. An embankment dam is termed an “earth-fill” or “rock-fill” dam depending on whether it is comprised of compacted earth or mostly compacted rock. The ability of an embankment dam to resist water pressure is primarily a result of the mass, weight, type and strength of the materials from which the dam is made.

Overtopping of an embankment dam is very undesirable since embankment materials may be eroded away. Water normally passes through the main spillway or outlet works; it should pass over an auxiliary spillway only during periods of high reservoir levels and high water inflow. All embankment and most concrete dams have some seepage; however, it is important to control the seepage to prevent internal erosion and instability. Proper dam construction, maintenance, and monitoring of seepage provide this control.

Intentional release of water is confined to water releases through outlet works and spillways. A dam typically has a principal or mechanical spillway and a draw down facility. Additionally, some dams are equipped with auxiliary spillways to manage extreme floods. Spillways ensure that the reservoir does not overtop the dam. Outlet works may be provided so that water can be drawn continuously, or as needed, from the reservoir. Outlets also provide a

way to draw down the reservoir for repair or safety concerns. Water withdrawn may be discharged into the river below the dam, run through generators to provide hydroelectric power, or used for irrigation. Dam outlets usually consist of pipes, box culverts or tunnels with intake inverts near minimum reservoir level. Such outlets are provided with gates or valves to regulate the flow rate.

Dam Classifications

Dams are classified in one of three categories:

Dam Hazard Classification

Hazard Classification	Description of Potential Damage	Quantitative Guidelines
Low	Interruption of road service, low volume roads	Less than 25 vehicles/day
	Economic damage	**< $30,000**
Significant	Damage to highways, interruption of service	25 to less than 250 vehicles/day
	Economic damage	**$30,000 < $200,000**
High	Loss of human life*	Probable loss of 1 or more human lives
	Economic damage	**>$200,000**
	*Probable loss of human life due to breached roadway or bridge on or below the dam.	250 vehicles/day at 1000 feet visibility 100 vehicles/day at 500 feet visibility 25 vehicles/day at 200 feet visibility

Source: Dam Safety Program, NC Division of Land Resources.

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

National Dam Safety Program

The National Dam Safety Program Act, enacted in 1996, was established to improve dam safety by:

1. Providing assistance grants to state dam safety agencies to improve regulatory programs;
2. Funding research to enhance technical expertise as dams are built and rehabilitated;
3. Establishing training programs for dam safety inspectors; and
4. Creating a National Inventory of Dams.

The Act also requires FEMA to provide education to the public, to dam owners and to others about the need for strong dam safety programs, nationally and locally, and to coordinate partnerships among all players within the dam safety community to enhance dam safety.

Potential of Dam Failure

Early in the 20th century, it was recognized that some form of regulation was needed after a number of dams failed due to lack of proper engineering and maintenance. Federal agencies, such as the Corps of Engineers and the Department of Interior, Bureau of Reclamation built many dams during the early part of the twentieth century and established safety standards during this time. It was not until a string of significant dam failures in the 1970s that awareness was raised to a new level among the states and the federal government.

Driving every other issue and all activities within the dam safety community is the risk of dam failure. Although the majority of dams in the U.S. have responsible owners and are properly maintained, still many dams fail every year. In the past several years, there have been hundreds of documented failures across the nation (this includes 250 after the Georgia Flood of 1994). Dam and downstream repair costs resulting from failures in 23 states reporting in one recent year totaled $54.3 million.

Dam failures are most likely to happen for one of the following reasons:

- Structural failure of materials used in dam construction
- Cracking caused by movements like the natural settling of a dam
- Piping—when seepage through a dam is not properly filtered and soil particles continue to progress and form sink holes in the dam.

Property owners downstream often know nothing about the potential that an upstream dam has to cause devastation should it fail. Even if citizens understand and are aware of dams, they still can be overly confident in the infallibility of these manmade structures. Living in dam-break flood-prone areas is a risk. Many dam owners do not realize their responsibility and liability toward the downstream public and environment. Adequate understanding of proper dam maintenance and upgrade techniques is a typical problem among many owners across the United States.

History of Dam and Levee Failures in North Carolina

The North Carolina Dam Safety Program has made use of National Dam Safety Program funds to create and implement the North Carolina Emergency Action Plan. The Plan was activated in 1999 during and after Hurricane Floyd and was instrumental in reducing response time in closing roads and evacuating persons from high-risk areas. Following Hurricane Floyd, no injuries were reported despite the failure of 36 dams (14 high hazard, 5 intermediate, and 12 low or unclassified dams). In the days and months following Hurricane Floyd, North Carolina dam safety personnel worked to ensure the safety of over fifty dams damaged by the hurricane. Dam owners, safety inspectors and local emergency management personnel monitored these dams asking owners to lower water levels and/or complete emergency repairs.

Dams in Wayne County

There are 25 dams located in Wayne County, 12 of those dams are rated "high hazard" meaning that if a failure were to occur there is a probable loss of one or more human lives and property damage would probably exceed $200,000. There are no dams located in Wayne County classified as having a "significant hazard" rating, meaning those dams where failure or misoperation results in no probable loss of human life, but can cause economic loss, environment damage, disruption of lifeline facilities, or impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure. The remaining 13 dams are classified as having a "low" hazard rating, meaning that no human or property loss would be affected. Losses are principally limited to the owner's property.

High Hazard Dams in Wayne County

Dam Name	Dam Status	River	Drainage Area[1]
Aycock Millpond Dam	BREACHED	Neuse	75.0
Old Crescent Lake Dam	DRAINED	Neuse	7.0
Wayne County Wildlife Pond Dam	DRAINED	Neuse	37.0
H.F.Lee Ash Pond (CP&L)	EXEMPT-NCUC	Neuse	400.0
Bass Lake Dam	IMPOUNDING	Neuse	63.0
Lake Wackena Dam	IMPOUNDING	Neuse	172.0
Robin Lake Estates Dam A	IMPOUNDING	Neuse	8.2
Rudy Hill Dam	IMPOUNDING	Neuse	38.0
Sleepy Creek Lake Lower Dam	IMPOUNDING	Neuse	20.0
Sleepy Creek Upper Lake Dam	IMPOUNDING	Neuse	33.9
Spring Lake Dam	IMPOUNDING	Neuse	60.0
Williams Millpond Dam	IMPOUNDING	Cape Fear	25.0

Source: National Inventory of Dams

*(Note: CP&L is now owned by Progress Energy)
[1] Drainage area is measured in square miles.
[2] NCUC – North Carolina Utilities Commission.

Hazard Analysis – Dam Failure

Likelihood of Occurrence of Dam Failure

Four of the twelve high hazard dams in Wayne County failed due to rains associated with Hurricane Floyd. Failure of one or more of the other hazard dams in the county could occur due to high rain precipitation or other events could result in significant damage to downstream properties and the possible loss of human life. The likelihood of a significant high hazard dam failure can be classified as "possible".

Likely Range of Impact for Dam Failure

The potential for dam failure is confined to limited areas of the County, thus the range of impact can be classified as "small". For the Village of Walnut the failure of the dam on Lake Wackena would also have a small affect as the drainage area of the dam is outside the Village.

Probable Level of Impact for Dam Failure

With limited possibility of occurrence and small exposure, the probable level of impact of dam failure in Wayne County can be categorized as "negligible". The failure of either of the two dams in Walnut would be 'critical".

Wayne County Hazard Index for Dam Failure

The hazard index for dam failure in Wayne County is categorized as "low" based on a rating of "possible" occurrence, "small" range of impact, and "negligible" level of impact. This hazard index of "low" indicates that dam failure, especially given the regulation and inspection programs of the NC Dam Safety Program, poses a relatively low threat. Hazard mitigation efforts should continue to rely primarily on the State Dam Safety Program to discover and correct any potential failure problems.

Droughts

Droughts are not rare or random events but normal, recurrent features of climate. Droughts occur in virtually all-climatic zones, but drought characteristics vary significantly from one region to another.

Drought is a temporary aberration and differs from aridity, which is restricted to low rainfall regions, and is a permanent feature of climate. Drought originates from a deficiency of precipitation over an extended period of time, usually a season or more. This deficiency results in a water shortage for some activity, group, or environmental sector.

Drought should be considered relative to some long-term average condition of balance between precipitation and evapotranspiration (i.e., evaporation + transpiration) in a particular area, a condition often perceived as "normal". It is also related to the timing (i.e., principal season of occurrence, delays in the start of the rainy season, occurrence of rains in relation to principal crop growth stages) and the effectiveness (i.e., rainfall intensity, number of rainfall events) of rain events. Other climatic factors such as high temperature, high wind, and low relative humidity are often associated with drought and can significantly aggravate drought severity.

The more recent understanding that a deficit of precipitation has different impacts on groundwater, reservoir storage, soil moisture, snow-pack, and stream-flow led to the development of the Standardized Precipitation Index (SPI) in 1993. The SPI was designed to quantify the precipitation deficit for multiple time scales. These time scales reflect the impact of drought on the availability of the different water resources. Soil moisture conditions respond to precipitation irregularities on a relatively short scale. Groundwater, stream-flow, and reservoir storage reflect longer-term precipitation anomalies.

Sequence of Drought Impacts

When drought begins, the agricultural sector is usually the first to be affected because of heavy dependence on stored soil water. Soil water can be rapidly depleted during extended dry periods. If precipitation deficiencies continue, then people dependent on other sources of water will begin to feel the effects of the shortage. Those who rely on surface water (reservoirs and lakes) and subsurface water (ground water), for example, are usually the last to be affected. A

short-term drought that persists for 3 to 6 months may have little impact on these sectors, depending on the characteristics of the hydrologic system and water use requirements.

When precipitation returns to normal and meteorological drought conditions have abated, the sequence is repeated for the recovery of surface and subsurface water supplies. Soil water reserves are replenished first, followed by stream-flow, reservoirs and lakes, and ground water. Drought impacts may diminish rapidly in the agricultural sector because of its reliance on soil water, but linger for months or even years in other sectors dependent on stored surface or subsurface supplies. Ground water users, often the last to be affected by drought during its onset, may be the last to experience a return to normal water levels. The length of the recovery period is a function of the intensity of the drought, its duration, and the quantity of precipitation received as the episode terminates.

Temperature Extremes for Wayne County 1993-2003

Location or County	Date	Time	Type	Deaths	Injuries
Wayne County	10/1/1998	12:00 AM	Drought	0	0
Totals				0	0

Source: NOAA

Hazard Analysis – Droughts

Likelihood of Occurrence of Droughts

Since 1980, there have been several periods of significant drought affecting the southeastern portion of the United States. Although there are six years where l recorded instances of drought that occurred in Wayne County, these hazardous events can be considered "likely" in Wayne County. This rating indicates that there is between a 10% and 100% probability in the next year or at least one chance within the next ten years that a drought or heat wave will occur in this locality.

Likely Range of Impact for Droughts

When droughts and heat waves do occur, they impact several states or an entire region of the United States; therefore, the range of impact can be classified as "large". This specifies an estimated impacted region consisting of between 40 % to 100 % of the total jurisdictional area.

Probable Level of Impact for Droughts

Extended droughts can have a significant impact on local resources and local economies as evidenced by data on drought impacts since 1980. Heat waves have a much more limited impact, but considered together these two related natural hazards can have a huge impact on a community; therefore, the probable level of impact can be classified as “limited”.

Wayne County Hazard Index for Droughts

The hazard index for droughts and heat waves in Wayne County is categorized as “moderate” based on a “likely” occurrence, “large” range of impact, and “limited” level of impact. This hazard index of “moderate” indicates that droughts and heat waves pose a relatively large threat in Wayne County and that major hazard mitigation efforts are advised. However, mitigating the impact of a drought or heat wave is generally considered a State or regional issue and planned for at those levels. Local initiatives could include public education and limits on water usage.

North Carolina Natural Hazards Summary Assessment

The North Carolina Division of Emergency Management has developed a worksheet to identify each of the 100 county's vulnerability to the nine natural hazards. This worksheet ranks each natural hazard into three categories, low, medium and high. The Hazard Analysis identifies the nine natural hazards that have the potential to affect Wayne County.

Based on prior analyses conducted by the North Carolina Division of Emergency Management, Wayne County is at "High Risk" from Tornadoes and Flooding. The Moderate Risks include Hurricanes, Nor’easters and Thunderstorms. Hazards posing Low risk for the County include Wildfire, Severe Winter Storms, Earthquakes and Landslides. Wayne County's assessment is below. The flood threat for the municipalities is low to moderate depending upon the amount of their jurisdiction that is within the 100-year floodplain.

Other natural hazards that could occur in other parts of the country (i.e.: volcanoes, tsunamis, etc.) were not analyzed because of (1) the location of Wayne County and the municipalities, (2) there is no history of any such occurrence and the likelihood of such occurrence is small, (3) there was no indication in any researched document that such events were ever likely to occur.

Table 11: Hazard Assessment

Natural Hazard	Vulnerability					
	Eureka	Fremont	Mount Olive	Pikeville	Walnut Creek	Wayne County
Flood	Low	Low	Low	Moderate	Moderate	High
Hurricane	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Thunderstorms	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Tornado	High	High	High	High	High	High
Nor'easter	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Severe Winter Storm	Low	Low	Low	Low	Low	Low
Dams	Low	Low	Low	Low	Moderate	Low
Wildfires	Low	Low	Low	Low	Low	Low
Earthquake	Low	Low	Low	Low	Low	Low
Landslide	Low	Low	Low	Low	Low	Low

Source: North Carolina Local Hazard Mitigation Planning Manual, local emergency personnel and citizens.

NC Emergency Management Hazard Analysis for Wayne County

The North Carolina Local Hazard Mitigation Planning Manual, published by the NC Division of Emergency Management, was used as another reference source for assessing natural hazards. Table A-29 shows the State's summary assessment for Wayne County for the nine natural hazards identified in the Local Hazard Mitigation Planning Manual.

Natural Hazard Summary Assessment for Wayne County

Natural Hazard[a]	Vulnerability of WayneCounty[b]
Hurricane	Low
Flood	Moderate
Tornado	High
Nor'easter	Low
Thunderstorm[c]	Moderate
Severe Winter Storm	Moderate
Wildfire	Moderate
Earthquake	Low
Landslide	Low

Source: Local Hazard Mitigation Planning Manual, NCDEM, 1998, p. 84-5.

[a] The "Local Hazard Mitigation Planning Manual" does not rate the following hazards for Wayne County - coastal erosion, levee failures, coastal storms, tsunamis, and volcanoes.

[b] The North Carolina Division of Emergency Management Methodology: Each of the one hundred counties in North Carolina was categorized into one of three levels of natural hazard likelihood – "Low", "Moderate", or "High" for eight natural hazards. Some assignments were made, in part, using the Climate Division (formulated by the National Climatic Data Center - Guttman and Quayle, 1995) to which each county was assigned. The Climate Division number for Wayne County is 8. For additional information on how ratings were developed, see Local Hazard Mitigation Planning Manual, North Carolina Division of Emergency Management, November 1998.

[c]Thunderstorms were not rated in the Local Hazard Mitigation Planning Manual. For the purposes of this report, thunderstorms were rated moderate.

The manual also estimated the potential impact of various natural hazards for Wayne County as shown in Table below. This information from the Local Hazard Mitigation Planning Manual was considered as part of the analysis process.

Natural Hazards – Potential Impact for Wayne County

Natural Hazard	Range	Wayne County
Earthquake Vulnerability	Low =1 to High = 6	2
Landslide Vulnerability	Low =1 to High = 6	1
Frequency of All Hurricanes, 1900-96	Saffiir-Simpson Class 1-5	0
Frequency of Minor Hurricanes, 1900-96	Saffiir-Simpson Class 1-2	0
Frequency of Major Hurricanes, 1900-96	Saffiir-Simpson Class 3-5	0
Nor'easter Vulnerability	1 = some direct vulnerability	0
Frequency of Tornadoes, 1953-1995	Number of tornadoes	16
Extreme 1-day snowfall, 1987	In inches	17
Cold Air Damming Vulnerability	1 = some vulnerability	1
Wildfires, 1950-1993	Low = 1, Mod. =2, High = 3	2
Number of Acres Burned	Low = 1, Mod. =2, High = 3	1

Source: Local Hazard Mitigation Planning Manual, NCDEM, 1998, pp. 88-91.

Final Hazard Analysis – Wayne County Composite Hazard Index

Certain parts of the County, such as floodplains and steep slopes, are more prone to hazards. In addition, certain types of hazards are likely to produce only localized effects while others have wide spread effects. Some natural hazards have extraordinary impacts but occur infrequently. Other hazards occur annually or several times a decade, but cause little damage.

The total potential impact of each type of hazard can be projected using a combination of likely strength of the event, the size of the area(s) affected, and the density of human activity within the likely path of the hazard. The table below gives each natural hazard a "hazard index"

rating based on the combination of three factors – likelihood of occurrence, size of potential area affected, and the potential impact of the event. An explanation of the terms for likelihood of occurrence and level of potential impact can be found in the tables at the front of the section. (Note: Coastal erosion, tsunamis and volcanoes are not included in the table below as the County has determined that the community is not at risk for these natural hazards.)

COMPOSITE HAZARD INDEX FOR WAYNE COUNTY

Hazard Type	Likelihood of Occurrence	Potential Area Affected	Potential Impacts	Hazard Index (Combined ranking)
Dam Failures	(2) Possible	(1) Small	(1) Negligible	(4) Low
Droughts	(3) Likely	(3) Large	(2) Limited	(8) Moderate
Earthquakes	(1) Unlikely	(3) Large	(1) Negligible	(5) Low
Floods	(3) Likely	(1) Small	(2) Limited	(6) Moderate
Hurricanes and Coastal Storms	(3) Likely	(3) Large	(2) Limited	(8) Moderate
Landslides and Sinkholes	(1) Unlikely	(1) Small	(1) Negligible	(3) Low
Severe Storms and Tornadoes	(4) Highly Likely	(1) Small	(1) Negligible	(6) Moderate
Wildfires	(4) Highly Likely	(1) Small	(1) Negligible	(6) Moderate
Winter Storms and Freezes	(4) Highly Likely	(3) Large	(2) Limited	(9) High

COMPOSITE HAZARD INDEX FOR TOWN OF EUREKA

Hazard Type	Likelihood of Occurrence	Potential Area Affected	Potential Impacts	Hazard Index (Combined ranking)
Floods	(3) Likely	(1) Small	(2) Limited	(6) Moderate

COMPOSITE HAZARD INDEX FOR TOWN OF FREMONT

Hazard Type	Likelihood of Occurrence	Potential Area Affected	Potential Impacts	Hazard Index (Combined ranking)
Floods	(3) Likely	(1) Small	(2) Limited	(6) Moderate

COMPOSITE HAZARD INDEX FOR TOWN OF PIKEVILLE

Hazard Type	Likelihood of Occurrence	Potential Area Affected	Potential Impacts	Hazard Index (Combined ranking)
Floods	(3) Likely	(1) Small	(2) Limited	(6) Moderate

COMPOSITE HAZARD INDEX FOR TOWN OF MOUNT OLIVE

Hazard Type	Likelihood of Occurrence	Potential Area Affected	Potential Impacts	Hazard Index (Combined ranking)
Floods	(3) Likely	(1) Small	(2) Limited	(6) Moderate

COMPOSITE HAZARD INDEX FOR VILLAGE OF WALNUT CREEK

Hazard Type	Likelihood of Occurrence	Potential Area Affected	Potential Impacts	Hazard Index (Combined ranking)
Floods	(3) Likely	(1) Small	(2) Limited	(6) Moderate
Dam Failure	Likely	Small	Moderate	Moderate

Appendix Footnotes

[1-1] "Preventing Disasters through Hazard Mitigation", Ana K. Schwab, Popular Government, Spring 2000, p.4.

[1-2] State Climate Office of North Carolina, North Carolina State University.

[1-3] North Carolina Natural Hazards Mitigation (Section 409) Plan, North Carolina Department of Environment and Natural Resources, 1998, p. 14.

[1-4] Local Hazard Mitigation Planning Manual, NC Division of Emergency Management, 1998, p. 77.

Vulnerability Analysis

Natural phenomenon such as Hurricanes, Earthquakes and thunderstorms take place on a daily, weekly and yearly basis. These phenomenons become hazards when they interact with people and associated property in a way that affects the livelihood of Wayne County. People become vulnerable to these hazards when they experience harm and property damage. This Vulnerability may result in loss of life or injury to people and livestock. Infrastructure, schools, hospitals, airports, homes and businesses can all be vulnerable to any given hazard. The vulnerability analysis will help identify the extent to which Wayne County is susceptible to the impacts of Natural Hazards. Degrees of Vulnerability to hazards generate a set of conditions that exist in both present and future. Those degrees change as development may increase or decrease.

According to the Wayne County Tax Office, approximately $14,646,300 dollars of real property value was lost due to storm related damages in 1999. Another $145,350 dollars of personal property value was also lost during this time period. To estimate the potential amount of real property vulnerable to flooding one can use the County's Geographic Information System. Overlaying the floodplain data with the tax parcels can do this. However, when this is done every property is picked out even those that cross the flood boundary. This may not give an accurate count of those properties vulnerable but it will give an exaggerated estimate to get an idea. The following table represents the values of property in 2005 that are vulnerable to flooding.

Table 12: Real Property Value Vulnerable to Flooding

Total Real Property Value (2005)	3, 057,789,180
Property value within 100-year floodplains with structures.	39,295,700
Property value within 100 year floodplains without structures	149.077,540
All Property Within 100 year floodplains	188,373,240

Source: FEMA Q3 Flood data, Wayne County Tax Assessors Office

The areas of Wayne County included in the 100-year and 500-year floodplain are shown on a map included with this plan. Also a map is included showing the location of addressable structures in the County.

Critical Facilities Vulnerability

The location and type of critical facilities should be updated on a regular basis. These facilities can be disrupted due to a hazard event, which may drastically hinder daily operations. The ability to protect and locate these facilities away from hazards and people is critical to the welfare of the communities in Wayne County.

Table 13: Critical Facilities

Type of Critical Facility	Number of Facilities
Fire/Rescue	28/6
Schools/Shelters	28
Water Treatment Plants	3
Waste Water Treatment Plants	5
Intensive Livestock Operations	178
Rail Transportation	3
Major Thoroughfares	7
Major Bridges	8
Airports	3
Hospitals	2

Present Vulnerability

The degree of harm to people and damage to property an area would experience if a hazard would occur today defines present vulnerability. Population, infrastructure and types of development affect an areas current vulnerability. One of the easiest ways to see a community's vulnerability is through a map. Maps can show where the population concentrates and the proximity to certain hazards. It is important to know where and to what extent the community is susceptible to the impacts of hazards. The critical facilities map attached to this plan shows two

fire stations (Pikeville and Seven Springs) and one EMS station (Station 1) inside the 100-year flood plain.

Future Vulnerability

As populations continue to increase, the vulnerability of these people to any given hazard increases, especially if the people continue to locate in a hazard risk area.

In 1990 the population for Wayne County was 104,666. In 2000 the population grew 7.64 % to a total of 113,329. As prime farmlands are the first to be developed, hazard risk areas such as flood plains and dense forest areas will later become more attractive to the population. If development continues to occur in these areas susceptible to adverse impacts to natural hazards, then populations become more vulnerable to these hazards.

Community Capability

The Capability Assessment describes the legal authority vested in local governments to pursue measures to mitigate the impact of natural hazards. This assessment is an inventory of existing mitigation measures and organizations with hazard mitigation responsibility. This includes mitigation measures that may be designed for another purpose but directly or indirectly affects Wayne County's Mitigation efforts.

This assessment allows credit to be given for those mitigation measures that exist and work in Wayne County to reduce further vulnerability to natural hazards. However, the assessment will identify and analyze any existing local policies that may weaken existing mitigation efforts.

Legal Capability

Local governments in North Carolina are allowed to institute mitigation programs, policies and actions. These local government powers fall into four basic groups: regulation, acquisition, taxation and spending. The capability assessment will enumerate the local version of these powers. Hazard Mitigation measures can be carried out under these four types of powers.

A. Regulations

1. General Police Power

Local governments in North Carolina have been granted broad regulatory powers in their jurisdictions. North Carolina General Statutes (NCGS) bestow the general police power on local governments, allowing them to enact and enforce ordinances, which define, prohibit, regulate, or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances). Since hazard mitigation can be included under the police power (as protection of public health, safety and welfare), municipalities and counties may include requirements for hazard mitigation in local ordinances. Local governments may also use their ordinance-making power to abate “nuisances,” which could include, by local definition, any activity or condition making people or property more vulnerable to any hazard (NCGS 160A Art. 8 (Delegation and Exercise of the General Police Power to Cities and Towns); 153A, Art. 6 (Delegation and Exercise of the General Police Power

to Counties)). The Wayne County Sheriffs Office is responsible for law enforcement throughout the County including the Town of Eureka. Other municipalities included in this plan have their own law enforcement staff.

2. Building Codes and Building Inspection

Many structural mitigation measures involve constructing and retrofitting homes; businesses and other structures according to standards designed to make the buildings more resilient to the impacts of natural hazards. Many of these standards are imposed through the building code.

North Carolina has a state compulsory building code, which applies throughout the state (NCGS 143-138(c)). However, municipalities and counties may adopt codes for their respective areas if approved by the state as providing "adequate minimum standards" (NCGS 143-138(e)). Local regulations cannot be less restrictive than the state code. Exempted from the state code are public utility facilities other than buildings; liquefied petroleum gas and liquid fertilizer installations, farm buildings outside municipal jurisdictions. No state permit may be required for structures under $20,000. (Note that exemptions apply only to state, not local permits).

Local governments in North Carolina are also empowered to carry out building inspection. NCGS 160A, Art. 19. Part 5; and 153A Art. 18, Part 4 empower cities and counties to create an inspection department, and enumerates its duties and responsibilities, which include enforcing state and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc.; building maintenance; and other matters.

The Wayne County Building Inspections Department is responsible for building code enforcement throughout the County and in each of the municipalities listed in this plan.

3. Land Use

Regulatory powers granted by the state to local governments are the most basic manner in which a local government can control the use of land within its jurisdiction. Through various land use regulatory powers, a local government can control the amount, timing, density, quality, and location of new development. All these characteristics of growth can determine the level of vulnerability of the community in the event of a natural hazard. Land use regulatory powers

include the power to engage in planning, enact and enforce zoning ordinances, flood plain ordinances, and subdivision controls.

a. Planning

In order to exercise the regulatory powers conferred by the General Statutes, local governments in North Carolina are required to create or designate a planning agency (NCGS 160A-3 87). The planning agency may perform a number of duties, including: make studies of the area; determine objectives; prepare and adopt plans for achieving those objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties (NCGS 160A-361). The importance of the planning powers of local governments is emphasized in NCGS 160A-383, which requires that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted "in accordance with a plan", the existence of a separate planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community. The County Planning Department and Planning Board are responsible for planning functions throughout the County. Each municipality has an independent Planning Board. The County staff assists the municipalities in planning projects on an as need basis.

b. Zoning

Zoning is the traditional and nearly universal tool available to local governments to control the use of land. Broad enabling authority for municipalities in North Carolina to engage in zoning is granted in NCGS 160A-381; and for counties in NCGS 153A-340 (counties may also regulate inside municipal jurisdiction at the request of a municipality (NCGS 160A-360(d)). The statutory purpose for the grant of power is to promote health, safety, morals, or the general welfare of the community. Land "uses" controlled by zoning include the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use such as lot size, building height and set backs, density of population, and the like. The local government is authorized to divide its territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts (NCGS 160A-382). Districts may include general use districts; overlay

districts, and special use or conditional use districts. Zoning ordinances consist of maps and written text.

Wayne County is divided into various zoning districts primarily around schools and airports. The Planning Department is responsible for enforcement of the zoning ordinance within the County's jurisdiction. The Wayne County Zoning Map can be viewed at ***www.waynegov.com/documents***. Each municipality has a separate zoning ordinance that is enforced by a local official.

c. Flood plain Regulation

In the summer of 2000, the North Carolina General Assembly adopted an act entitled "An Act to Prevent Inappropriate Development in the One Hundred-Year Flood plain and to Reduce Flood Hazards". By this act, the North Carolina statutes regulating development within floodways were rewritten to include flood plain regulation (NCGS 143-214.51-214.61). The purpose of the new law is to:

1. Minimize the extent of floods by preventing obstructions that inhibit water flow and increase flood height and damage.
2. Prevent and minimize loss of life, injuries, property damage, and other losses in flood hazard areas.
3. Promote the public health, safety, and welfare of citizens of North Carolina in flood hazard areas.

The new statute authorizes local governments to adopt a flood hazard prevention ordinance to regulate uses in flood hazard areas and to grant permits for the use of flood hazard areas that are consistent with the requirements of the statute. The statute provides for certain uses within flood hazard areas without a permit consistent with local land use ordinances (NCGS 143-215.54).

The statute establishes minimum standards for local ordinances and provides for variances for prohibited uses as follows:

1. A flood hazard prevention ordinance adopted by a county or city pursuant to this Part shall, at a minimum:
    a. Meet the requirements for participation in the National Flood Insurance Program and of this section.

b. Prohibit new solid waste disposal facilities, hazardous waste management facilities, salvage yards, and chemical storage facilities in the 100-year flood plain except as noted in section (b) below.

c. Provide that a structure or tank for chemical or fuel storage incidental to a use that is allowed under this section or to the operation of a water treatment plant or wastewater treatment facility may be located in a 100-year flood plain only if the structure or tank is either elevated above base flood elevation or designed to be watertight with walls substantially impermeable to the passage of water and with structural components capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy.

2. A flood hazard prevention ordinance may include a procedure for granting variances for uses prohibited under G.S. 143-215.54(c). A county or city shall notify the Secretary (of Crime Control and Public Safety) of its intention to grant a variance at least 30 days prior to granting the variance. A county or city may grant a variance upon finding that all of the following apply:

a. The use serves a critical need in the community.

b. No feasible location exists for the location of the use outside the 100-year flood plain.

c. The lowest floor of any structure is elevated above the base flood elevation or is designed to be watertight with walls substantially impermeable to the passage of water and with structural components capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy.

d. The use complies with all other applicable laws and regulations.

The statute authorizes priority ratings for local government applications for revolving loans or grants based on adoption of a local comprehensive land use plan, a zoning ordinance, or other measure that significantly contributes to the implementation of the comprehensive land use plan and a flood hazard ordinance.

The Flood plain Act also instructed the Environmental Review Commission to study and reports its findings to the 2001 General Assembly on the need to:

1. Increase the minimum elevation requirements;

2. Increase the authority of the Secretary of Crime Control and Public Safety to enforce the new statute;
3. Increase protection against the potential recurrence of damage to public and private property that resulted from the hurricanes of 1999, and other measures to reduce the likelihood that public assistance will be needed in response to future hurricanes and other storm events.

Wayne County and each of the municipalities have a separate Flood Damage Prevention Ordinance. The County Planning Department is responsible for enforcement of the County flood ordinance. The ordinance can be viewed at www.waynegov.com/documents. Each municipality enforces its own flood ordinance.

d. Subdivision Regulation

Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Flood-related subdivision controls typically require that the subdivider install adequate drainage facilities, and design water and sewer systems to minimize flood damage and contamination. The Wayne County subdivision ordinance prohibits the subdivision of land subject to flooding unless flood hazards are overcome through filling or other measures and prohibit filling of floodway areas. They require that subdivision plans be approved prior to the sale of land. Subdivision regulations are a more limited tool than zoning and only indirectly affect the type of use made of land or minimum specifications for structures.

Broad subdivision control enabling authority for municipalities is granted in NCGS 160-371, and in 153-330 for counties outside of municipalities and municipal extraterritorial areas. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. (NCGS 160A-376). The definition of subdivision does not include the division of land into parcels greater than 10 acres where no street right-of-way dedication is involved (NCGS 160A-376(2)).

The community thus possesses great power (in theory, anyway) to prevent unsuitable development in hazard-prone areas. (NCGS 160A, Art. 8. (Delegation and Exercise of the General Police Powers to Cities and Towns); Art. 19 (Planning); Part 3 (Zoning); and 153A. Art. 6 (Delegation and Exercise of the General Police Power to Counties; Art. 18 (Planning and Regulation of Development); Part 2 (Subdivision Regulation); Part 3 (Zoning).

The County and municipalities have separate subdivision ordinances that are enforced by the individual local government. The Wayne County subdivision ordinance can be viewed at ***www.waynegov.com/documents***.

B. Acquisition

The power of acquisition can be a useful tool for pursuing mitigation goals. Local governments may find the most effective method for completely "hazard-proofing" a particular piece of property or area is to acquire the property (either in fee simple or a lesser interest, such as an easement), thus removing the property from the private market and eliminating or reducing the possibility of inappropriate development occurring. North Carolina legislation empowers cities, towns, and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease or eminent domain (NCGS 153A. Art. 8; 160A. Art. 11 or high hazard areas, for example, it can reduce environmental costs.).

Wayne County and Walnut Creek took advantage of this authority after Hurricane Floyd to acquire over three hundred structures in low-lying areas.

C. Taxation

The power to levy taxes and special assessments is an important tool delegated to local governments by North Carolina law. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development in the community. Many communities set preferential tax rates for areas, which are unsuitable for development (e.g., agricultural land, and wetlands), and can be used to discourage development in hazardous areas.

Local units of government also have the authority to levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving beach erosion control or flood and hurricane protection works within a designated area (NCGS 160A-238). This can serve to increase the cost of building in such areas, thereby discouraging development.

Because the usual methods of apportionment seem mechanical and arbitrary, and because the tax burden on a particular piece of property is often quite large, the major constraint in using special assessments is political. Special assessments seem to offer little in terms of control over land use in developing areas. They can, however, be used to finance the provision of necessary

services within municipal or county boundaries. In addition, they are useful in distributing to the new property owners the costs of the infrastructure required by new development**.**

The County of Wayne Tax Office is responsible for property tax collections. Each municipality set their rate but have contracted with the County for collection.

D. Spending

The fourth major power that has been delegated from the North Carolina General Assembly to local governments is the power to make expenditures in the public interest. Hazard mitigation principles should be made a routine part of all spending decisions made by the local government, including annual budgets and a Capital Improvement Plan (CIP).

A CIP is a schedule for the provision of municipal or county services over a specified period of time. Capital programming, by itself, can be used as a growth management technique, with a view to hazard mitigation. By tentatively committing itself to a timetable for the provision of capital to extend services, a community can control its growth to some extent especially where the surrounding area is such that the provision of on-site sewage disposal and water supply are unusually expensive.

In addition to formulating a timetable for the provision of services, a local community can regulate the extension of and access to services. A CIP that is coordinated with extension and access policies can provide a significant degree of control over the location and timing of growth. These tools can also influence the cost of growth. If the CIP is effective it can direct growth away from environmentally sensitive.

The County of Wayne has a locally adopted Capital Improvement Plan.

Institutional Capability

The institutional framework within which the county and municipalities operates helps assess the capability of Wayne County to develop and implement a Hazard Mitigation Program. The type of government and the decision-making positions that will likely play a role in putting the Hazard Mitigation Plan to work are listed below.

A. Elected Officials

This seven-member Board of Commissioners serves as the county's governing body elected in district elections. These commissioners are charged with adopting policies, ordinances and rules for all of the citizens and employees of Wayne County. In addition, each municipality has an elected board that is charged with establishing policies, ordinances and rules for the citizens of the towns.

B. County Manager

The county manger sees that the commissioners' decisions on policies, ordinances and laws are put into action. The position's primary duties and responsibilities also include serving as the county budget officer,' supervising county operations with assistance of department heads,' acting as liaison for the Board of Commissioners,' and addressing issues from Wayne County residents. Each municipality covered in this plan, with the exception of Eureka, has a chief administrator or manager. The municipal managers are responsible for day-to-day activities in the municipalities.

C. Emergency Services Director

The Emergency Services Director serves a variety of roles including but not limited to: Emergency Management Coordinator, Fire Marshall and Emergency Medical Services Coordinator. Some of the primary responsibilities include:

- Emergency 911 Communications.
- Respond to emergency situations such as hazardous material spills, disasters and fire related incidents on a 24-hour on call basis.
- Supervise emergency personnel; coordinate volunteer and professional emergency responder activities including emergency exercise drills for the county.
- Organize training and education programs for the public, emergency personnel including fire, rescue and law enforcement.
- Develop and administer budgets and policy for Emergency Management, Fire and EMS Service programs.

- Generate and submit reports, databases and associated data within guidelines and time frame of State, Federal Emergency Management, Fire Service and EMS regulations.
- Maintain liaison with state, federal and local officials.
- Maintain Emergency Operations Center (EOC) operational readiness.

Wayne County maintains a combined Emergency Medical Services and dispatching system for the entire County. All 911 calls are answered at the Communications Center located in the Jeffrey's Building in Goldsboro.

D. Public Information Officer

The Public Information Officer (PIO) is responsible in formulation and releasing information about the County's disaster or incident situation to the news media and other appropriate agencies. Some of the primary responsibilities of the PIO include but are not limited to:

- Establish a single incident information center.
- Prepare initial information summary as soon as possible after arrival.
- Release news-to-news media and post information in accordance with policy of the Incident Commander.
- Attend meetings at Command Post to update new release.
- Maintain activity log as necessary.

A representative of the County Managers office serves as the PIO in the event of a disaster.

E. Inspections Department

The Wayne County Inspections Department is responsible for issuing building permits and inspection of all new construction including residential and non-residential buildings, renovations, and re-inspections of vacant buildings. In addition, inspections services are provided for each municipality in this plan. Inspections are provided in accordance with the North Carolina State Building Code and Wayne County's Building Code Ordinance. The County maintains interlocal agreements with surrounding jurisdictions and the Department of Insurance to provide additional inspectors in the event of a disaster. The inspections department also assists in enforcement of the Flood Ordinance.

F. Planning Department

The Wayne County Planning department oversees land development planning, permitting and zoning in the County's jurisdiction. Included in this responsibility is administration of the County's Zoning, Subdivision, Manufactured Home Park, Junk Vehicle, Flood Damage Prevention, Storm Water and Watershed Ordinances. The purpose of these land development-planning ordinances is to ensure orderly growth and development patterns for the enhancement of the County's environmental and economic well being. The County of Wayne is the only jurisdiction in the area covered by this plan with a Planning Department. The other jurisdictions rely on the Town Administrator with assistance from the County on an as need basis.

Political Capability

Many officials listed in the institutional framework analysis are elected. With this is mind; decisions are sometimes swayed due to public outcries of hardships brought upon from natural disasters. Effective public awareness campaigns and information distributed about economic efficiency and social utility of effective mitigation measures in the long run can help achieve acceptance by the local elected officials. Wayne County along with each municipality is capable of implementing a Hazard Mitigation Plan that will benefit the citizens, elected officials and local, state and federal agencies as well.

Fiscal Capability

There are many diverse sources of funding available to communities to implement local hazard mitigation plans, goal and strategies. These funding sources usually have a particular focus, which will fund only part of a project; however, the community can combine theses funding efforts with those of others serving multiple projects. The grant and loan programs described later in this section are significant but not the sole sources of funding options. Listed below are some funding sources Wayne County can explore its own initiatives.

A. Local Funding

Local businesses and organizations will frequently support projects that benefit their customers or employees. Local governments and volunteer organizations can donate in kind services to match grants to aid in additional mitigation opportunities.

B. State and Federal Funds

These Federal and State Programs listed below have funds available to carry out some of Wayne County's Hazard Mitigation Plan Initiatives. These funding sources offer funds for hazard mitigation, redevelopment, and post disaster recovery.

1. Hazard Mitigation Grant Program (HMGP)

The HMGP provides 75% federal and 25% state/local cost share funding for mitigation measures through the post disaster planning process. The state or local share may be met with cash or in-kind services. The North Carolina Legislature has agreed to pay local share for the Hurricane Fran and Floyd Disasters. HMGP funds are available to state and local governments, Indian Tribes, and Private Non-Profit organizations following a Presidential Disaster Declaration. These funds can be used for retrofitting facilities, acquisition, relocation and development of comprehensive hazard mitigation programs and standards with implementation components. Wayne County has applied for this grant for as a result of the Hurricane Fran and Floyd disasters.

On September 23, 1997 Wayne County was awarded its first grant from the Federal Emergency Management Agency for the acquisition of 37 properties through the Hazard Mitigation Grant Program. This program is set up by FEMA to purchase homes substantially damaged within the flood plains. This program allowed property owners a chance to relocate themselves out of harms way. Through the years, Wayne County has purchased 311 properties and 288 acres through the HMGP process. The table below illustrates the status of the County's HMGP.

Table 14: HMGP Funding (Wayne County Planning Department)

Source of Funding	Award Date	Amount	Acquired Properties	Acreage Acquired
FEMA HMGP Fran Phase I	9/23/97	$2,482,964.00	37	57.00
FEMA HMGP Fran Phase II	11/4/99	$1,040,571.00	62	40.00
FEMA HMGP Floyd Phase I	5/1/00	$13,049,365.00	177	150.00
FEMA HMGP Floyd Phase II	10/9/00	$896,844.00	17	17.00
FEMA HMGP Floyd Phase III	10/18/00	$101,238.00	3	2.00
FEMA HMGP Floyd Phase IV	3/21/01	$212,842.00	2	1.00
FEMA HMGP Floyd Phase V	8/7/01	$330,108.00	8	10.00
FEMA HMGP Floyd Phase VI	7/16/01	$447,725.00	1	9.00
FEMA HMGP Floyd Phase VII	10/17/01	$460,171.00	4	2.00
Total		$19,021,828.00	311	288.00

2. Flood Mitigation Assistance Program (FMAP)

This grant provides funds for cost-effective measures that reduce or eliminate long-term risk of flood damage to the built environment and real property. The priority goal of this grant is to reduce repetitive losses to the National Flood Insurance Program (NFIP).

3. Public Assistance

This Post-Disaster program provides funds to help communities protect lives and property in the aftermath of a disaster and helps communities rebuild damaged facilities. This assistance has been broken down into four categories which include; Debris Removal, Emergency Work, Repair, restoration, relocation, or replacement of damaged facilities, and Community Disaster Loans.

These grants cover eligible costs associated with the repair, replacement, and restoration of facilities owned by State and Local Governments or Nonprofit Organizations.

4. Community Development Block Grants (CDBG)

Community Development type activity may be eligible under the CDBG Program upon presidential declaration of a Major Disaster or Emergency. Long-term needs, such as acquisition, rehabilitation, or reconstruction of damaged property and facilities are eligible for CDBG projects.

5. Clean Water Management Trust Fund

The General Assembly established the North Carolina Clean Water Management Trust Fund (CWMTF) in 1996 to provide grants to local governments, state agencies and conservation non-profit organizations. The programs goal is to help fund projects that specifically address areas water pollution problems including those that enhance or restore degraded waters and/or contribute to a network of riparian buffers and greenways for environmental, educational and secondary benefits. These funds can be combined with other programs to help achieve some of the hazard mitigation objectives.

Technical Capability

Wayne County's Technical Capability is diversified throughout local, state and federal agencies. First of all, a Geographic Information System (GIS) aids in identifying potential hazard areas including flood plains. This system identifies property boundaries and there placement within these hazard areas. Both the GIS Department and the Planning Department maintain the GIS system. The mapping system for Wayne County was placed on the web in the fall of 2004. This technology provides the public with an easy access to determine flood prone property and hazardous materials sites.

State agencies provide planning assistance for special projects such as Hazard Mitigation and the necessary materials to assist with these projects. The East Carolina Regional Planning Organization provides leadership in transportation projects and planning.

Mitigation Element and Existing Components

There are four elements in Emergency Management that are widely used at the local, state and federal level that deal with hazards and they're potential to cause disasters within a given community. These four elements, preparedness, response, recovery and mitigation are the components of a comprehensive emergency management system.

Of these, the Mitigation element is the most important. This element includes activities, which reduce damages from a hazardous event. These activities can occur before, during or after a hazard event and can affect all elements of emergency management. The other components are used during a disaster event while mitigation is used to lessen the loss of property or life before a disaster strikes.

During the past years Wayne County and the municipalities haves implemented a wide range of policies and ordinances that have key mitigation component activities which have the potential to reduce loss of life and property damage due to natural hazard events.

The following is a list of current ordinances along with the key mitigation components that exist in Wayne County and the individual municipalities.

Subdivision Ordinance

The purpose of the Subdivision Ordinance is to establish procedures and standards for the development and subdivisions of land within Wayne County's jurisdictions. The ordinance sets out site design standards and requires coordination among various entities including but not limited to; Department of Transportation, Utility Providers, Planning, Surveyors, Engineers, Environmental Health, Resource Conservation, etc. to ensure that the public health, safety and welfare of the general public is met. One of the key components within these ordinances includes:

1. No Subdivision shall be created on property entirely within the 100-year flood plain that requires the building of a new road. (Wayne County)
2. Property partially within the flood plain may be subdivided if each proposed lot contains an area outside the flood plain equal to the minimum lot size requirement, and any new road is built above the 100-year flood plain level. (Wayne County)

Mobile Home Park Ordinance

The purpose of the Mobile Home Park Ordinance is to regulate the placement of, and the establishment of, mobile home parks in order to promote the public health, safety, and general welfare of the citizens of Wayne County and each municipality. This ordinance sets out site design standards and requires coordination among various entities including but not limited to; Department of Transportation, Utility Providers, Planning, Surveyors, Engineers, Environmental Health, Resource Conservation, etc. Key mitigation components within the ordinance include:

1. All mobile homes must be anchored in such a manner to prevent shifting on their foundations in event of storms or high winds according to NC Building Code requirements.
2. Each mobile home lot shall be located on ground not susceptible to a 100-year base flood as defined by the Federal Emergency Management Agency and graded so as to prevent any water form ponding or accumulating on the premises.

Storm Water Ordinance

The legislature of the State of North Carolina has designated specific local governments (including Wayne County) for storm water management requirements as part of the Neuse River Nutrient Sensitive Waters storm water management strategy. This rule adopted by the North Carolina Division of Water Quality affects development within the Neuse River basin. The goal of the rules are to reduce and maintain phosphorus loading levels at pre-existing levels in 1995, to reduce nitrogen loading 30% below 1995 levels and to reduce the velocity and to control the volume of storm water runoff within the river basin.

Wayne County has adopted a storm water plan and ordinance to accomplish these goals. This ordinance gives Wayne County authority to control illegal discharges within the storm water collection systems including drainage ditches. This ordinance requires a development permit for any new development in which land disturbing activities are engaged for;

Single family or duplex residential development or a recreational activity greater than one acre or;

Multifamily residential or commercial, industrial or institutional facilities greater than one half acre.

This ordinance will allow Wayne County Planning Department to monitor development throughout the county to ensure that:

The protection of the public health, safety and welfare is met by controlling the discharge of pollutants into the storm water conveyance systems (storm water ditches).

The Towns in Wayne County are not required by State regulations to enforce a stormwater ordinance. However, Wayne County has determined that equal enforcement of the rule both outside and inside the municipalities is necessary. Therefore, the County ordinance is enforced in the towns for which the County performs building inspections.

Flood Damage Prevention Ordinance

Wayne County and each of the municipalities participates and are in good standing with the National Flood Insurance Program (NFIP). The Planning Director and Chief Building Inspector enforce the County's ordinance through the Development Permit issuance process. The Town Administrator or Clerk is the responsible person in each of the municipalities. The key components of each ordinance are as follows:

All subdivision proposals shall be consistent with the need to minimize flood damage,

Development within areas where the base flood information is not provided, then construction of the lowest floor must be at least 2 feet above adjacent grade,

In floodways, no encroachments, including fill, new construction, substantial improvements and other development shall be permitted,

New construction or substantial improvement of and building shall have the lowest floor, including basement, elevated no lower than one (1) foot above the level of the base flood elevation.

Water supply Watershed Protection Ordinance

This ordinance was adopted to protect the drinking water supply watersheds from inappropriate development. This ordinance was established to protect the quality or surface water supplies from non-point source pollution, and to minimize storm water runoff by regulation development densities. This ordinance applies to the areas designated as a Public Water Supply Watershed by the North Carolina Environmental Management Commission. There are two areas designated within the watershed, Critical area and Protected area.

1. Within the Critical area sludge application sites and landfills area prohibited. Single-family residential uses area allowed at a maximum of two dwelling units per acre. All

other residential and non-residential development shall be allowed twenty-four percent (24%) built-upon area.

2. Within the protected area, Single-family residential uses shall develop at a maximum of two dwelling units per acre. All other residential and non-residential development shall be allowed twenty-four percent (24%) built-upon area. A maximum of three dwelling units per acre or thirty-six percent (36%) built-upon area is allowed for projects without a curb and gutter street system.

In Wayne County the water supply watershed is upstream on both the Little River and Neuse River from the City of Goldsboro water treatment plant. The area covers approximately 120 square miles or about 25 % of the County. The water supply watershed area also includes a part of the extraterritorial jurisdiction for the Town of Pikeville.

Zoning Ordinance

Wayne County and each municipality currently enforce zoning regulations within their individual jurisdictions. The main purpose of the zoning ordinance is to regulate development and density by controlling;

- Height, number of stories, size of buildings and other structures
- Percentage of lot occupancy, size of yards, courts and other open spaces
- Density of population, location and use of buildings, structures and land for trade, industry, residence or other purposes

While the County zoning ordinance only applies to portions of the county, these portions are critical facilities utilized during a disaster event.

Riverine Flooding Basic Plan of the Emergency Operations Plan

This plan has been developed to provide for the notification, warning and possible evacuation of the residents and visitors in Wayne County within the areas of possible flooding. Procedures have been developed to respond to various levels of flood events. State and local contacts have been established for the notification of flood levels and those within harms way. The plan implementation is through the Wayne County Emergency Services Office.

Current Mitigation Measures - By Hazard

Wayne County and the individual municipalities are fortunate to have a number of mitigation efforts in place. Some exist as legal measures through local ordinances or resolutions, state law or federal regulation. A general outline of those efforts is listed by hazard. Many efforts overlap into multiple hazards to make Wayne County and the municipalities Hazard Resistant Communities.

Wildfires: General information regarding wildfires and the definition can be found in the Hazard Identification and Analysis Section.

A.	Public awareness of wildfire causes has helped reduce the number of occurrences.
B.	Direct contact with the District Forestry office that issues daily fire potential reports.
C.	Burning bans are imposed and rigidly enforced.
D.	Education has informed the public of the risk in outdoor burning of trash.
E.	Training and response by local fire departments and State Forestry have lowered acreage consumed by wildfires.
F.	Fire departments are equipped with specialized equipment to help fight forest fires.
G.	The N.C. Forestry Service has begun conducting a Hazard Analysis of property and development in areas of the county susceptible to wildfires.
H.	N.C. Forestry responds to all wildfires involving woodland and can therefore coordinate the response of Forestry resources directly.

Severe Winter Storms: General information regarding severe winter storms and the definition can be found in the Hazard Identification and Analysis Section.

A.	Emergency Services maintains a direct line of communication with the National Weather Service (NWS).
B.	Emergency Services has the capability to monitor weather systems, along with potential storm intensity.
C.	NWS issues watches and warnings to the public and government agencies.
D.	Public education continues to take place regarding watches and warnings.
E.	Weather alert radios have been placed in each school as well as many day care centers and

	government agencies.
F.	Local broadcast media warn the public about potential thunderstorms.
G.	Local officials can activate the Emergency Action System (EAS).
H.	Power and utility restoration plans and mitigation efforts are in place with various providers.
I.	Municipalities along with N.C. DOT can provide debris clearance.
J.	Snow and ice removal methods are in place by the municipalities and N.C DOT.
K.	Backup warning systems exist, including call down lists. As many notification calls as possible are made prior to the storm system entering the county.
L.	Fire Department sirens may be sounded as an additional warning.
M.	Broadcasts are made on all weather alert frequencies.
N.	Shelter agreements are in place with Red Cross, Salvation Army, and Wayne County Public Schools.

Nor'easters: General information regarding nor'easters and the definition can be found in the Hazard Identification and Analysis Section.

A.	Emergency Management participates in preparedness planning exercises and it assists in actual events.
B.	Awareness information is presented to the public as often as possible or practical.
C.	Nor'easters are tracked in the EOC as they develop. Government officials and the media are kept informed of response forces preparations.
D.	Response forces (fire, law enforcement, EMS) are experienced and well trained.
E.	Emergency plans are in place, regularly reviewed and exercised.

Earthquakes: General information regarding earthquakes and the definition can be found in the Hazard Identification and Analysis Section.

A.	Increased awareness of earthquake potential by local government officials.
B.	Increased awareness of earthquake potential by the public.
C.	Increased awareness of the availability of information from the USGS.
D.	Encouraged citizens to check for hazards in their home.

E.	Encourage homeowners to review insurance policies.
F.	Shelter agreements are in place with Red Cross, Salvation Army and Public Schools.
G.	Encourage the development of emergency preparedness, response and recovery plans by citizens, business owners and others.

Flooding: General information regarding flooding and the definition can be found in the Hazard Identification and Analysis Section.

A.	Wayne County and each municipality are participants in the National Flood Insurance Program, making citizens eligible for flood insurance.
B.	Flood insurance maps are available at the Wayne County Planning Office, each town hall, the Wayne County Public Library, and online at www.waynegov.com.
C.	SBCCI Standard for Flood Plain Management enforced on Inspections office.
D.	Potential road closure lists are available from NC DOT.
E.	Cooperation from local broadcast media to warn of potential flooding events.
F.	Watches and warnings issued by the National Weather Service.
G.	Flood warning brochures mailed to property owners in flood prone areas.
H.	Public education to groups on flood risks and mitigation measures.
I.	Weather alert radios in each school to provide early warning.
J.	Local regulations prohibiting development in 100-year floodplain.
K.	Shelter arrangements in place with Red Cross, Salvation Army and Social Services.
L.	Property owner list maintained to provide initial door-to-door contact.

Hurricanes: General information regarding hurricanes and the definition can be found in the Hazard Identification and Analysis Section.

A.	Wayne County Emergency Management participates in hurricane preparedness planning exercises and it assists in actual hurricane events.
B.	Hurricane awareness information is presented to the public as often as possible or practical.
.	Hurricanes are tracked in the EOC as they develop. Government officials and the media are kept informed of response forces preparations.
D.	Response forces (fire, law enforcement, EMS) are experienced and well trained.

E.	Emergency plans are in place, regularly reviewed and exercised.
F.	The National Weather Service issues hurricane watches and warnings.
G.	Watches and warnings are received on weather alert radios in all schools and many day care centers and government offices.
H.	Watch and warning procedures to further alert agencies are carried out by emergency communications.
I.	Shelter agreements are in place with Red Cross, Salvation Army, and Wayne County Public Schools.

Thunder Storms: General information regarding thunderstorms and the definition can be found in the Hazard Identification and Analysis Section.

A.	Emergency Services maintains a direct line of communication with the National Weather Service (NWS).
B.	Emergency Services has the capability to monitor weather systems, along with potential storm intensity.
C.	NWS issues watches and warnings to the public and government agencies.
D.	Public education continues to take place regarding watches and warnings.
E.	Weather alert radio s have been placed in each school as well as many day care centers and government agencies.
F.	Local broadcast media warn the public about potential thunderstorms.
G.	Local officials can activate the Emergency Action System (EAS).
H.	Power and utility restoration plans and mitigation efforts are in place with various providers.
I.	Debris clearance can be provided by municipalities along with N.C. D.O.T.

Tornadoes: General information regarding tornados and the definition can be found in the Hazard Identification and Analysis Section.

A.	Emergency Services maintains a direct line of communication with the National Weather Service (NWS).
B.	Emergency Services has the capability to monitor weather systems, along with potential storm intensity.

C.	NWS issues watches and warnings to the public and government agencies.
D.	Public education continues to take place regarding watches and warnings.
E.	Weather alert radios have been placed in each school as well as many day care centers and government agencies.
F.	Local broadcast media warn the public about potential thunderstorms.
G.	Local officials can activate the Emergency Action System (EAS).
H.	Power and utility restoration plans and mitigation efforts are in place with various providers.
I.	Debris clearance can be provided by municipalities along with N.C. D.O.T.
J.	Backup warning systems exist, including call down lists. As many notification calls as possible are made prior to the storm system entering the county.
K.	Fire Department sirens may be sounded as an additional warning.
L.	Broadcasts are made on all weather alert frequencies.
M.	Shelter agreements are in place with Red Cross, Salvation Army, and Wayne County Public Schools

Hazard Mitigation Goals

The county and municipalities have established goals for implementing the Wayne County Hazard Mitigation Plan. The goals provide the basis for the implementation strategies included in this plan. These goals are broad statements that illustrate the community's priorities for reducing risks to the potential hazards. The strategies are more tangible and specific than goals. These strategies can be crossed off the list once they have been met and other strategies can be added. The entire plan is presented as a living document and one that will be changed, reviewed, updated and reprocessed over the coming years.

The following have been adopted as goals for the Wayne County Hazard Mitigation Plan.

- To enhance the County of Wayne and municipal capability to lessen the impacts of natural hazards.
- To identify and protect critical infrastructure that is at risk due to one or more natural hazards and to undertake mitigation efforts as necessary.
- To establish an effective public education program on the risks created by natural hazards and the opportunity to lessen the effects of the risk.
- To protect existing community assets and property and mostly importantly the public.
- To plan for disaster resistant communities.

Mitigation Strategies

The following strategies have been developed to define specific methods to accomplish the given goals of this plan. Alongside each strategy listed below is the anticipated timeframe for completion and the agency responsible for implementation.

Implementation

The effectiveness of any plan is dependent upon the timeliness of its implementation. Factors that effect implementation are cost, public support, importance of the strategy and anticipated ultimate result. All of the strategies cannot be implemented at the same time. Some must be implemented before others. Staffing at the County of Wayne and municipal level must be considered in establishing priorities.

A process for prioritization of identified hazard mitigation strategies was performed. The hazard mitigation advisory committee used the following criteria for prioritization of hazard mitigation strategies:

1) cost-benefit review
2) results of Hazard Identification and Analysis
3) results of Vulnerability Assessment
4) results of Community Capability Assessment
5) effectiveness in meeting hazard mitigation goals and comprehensive plan goals

Cost-benefit review was given special emphasis, in light of its possible use in environmental reviews for HMGP, FMA and other federal hazard mitigation projects. A priority rating of high, medium or low was given to each mitigation strategy.

Mitigation Actions

Wayne County has worked to develop the mitigation actions shown in the following table Wayne County Mitigation Action Plan. Mitigation actions were developed with an eye toward reducing vulnerability to all natural hazards that can be addressed in a practicable way at the local level. The listed actions do, however, primarily focus on ways Wayne County can act to lessen and, ideally, eventually eliminate repetitive flood losses and prevent future flood losses from inappropriate new development.

Table II-1 - Explanation of Columns and Acronyms

Columns

Action

Description of action to be undertaken.

Hazard

Hazard which the action addresses.

New (N)

Continuation of Existing Policies or Ordinance (C)

Objective(s) Addressed

Reference to the numbered objective which the action supports.

Relative Priority

Low, moderate or high priority for funding and implementation.

Funding Sources

State and Federal sources of funds are noted, where applicable.

Responsible Party

Staff department responsible for undertaking the action. Note: The Wayne County Board of Commissioners has ultimate authority to approve any policy, program or regulation revisions.

Short Term

Financial resources and authority available

Long Term

Financial resources or authority currently not available

Target Completion Date

Date by which the action should be completed.

Wayne County along with Eureka, Freemont, Pikeville, Mount Olive and Walnut Creek Mitigation Action Plan								
Action #	**Wayne County Actions**	**Hazard**	**New/ Continuation**	**Relative Priority**	**Funding Sources**	**Jurisdiction/ Responsible Party**	**Short Term/ Long Term**	**Target Completion Date**
1	Raise the Finished Floor Elevation Requirement to two feet where base flood elevations (bfe) have been determined within the flood plain zones established by the National Flood Insurance Rate Maps.	Flooding	N	High	Local	Wayne County Eureka, Fremont, Pikeville, Mount Olive, Walnut Creek	S	1-2 years
2	Review current and future mitigation components with CRS coordinator to ensure that the lowest possible rating has been established for the citizens of Wayne County. a. Obtain CRS rating for each municipality in the County.	Flooding	C	High/Medium	Local	Wayne County Planning Department a. Eureka, Fremont, Pikeville, Mount Olive, Walnut Creek	S	Ongoing
3	Continue to require and maintain FEMA elevation certificates in hard copy and/or digital form for all permits for new or substantially improved buildings located within the 100-year flood plains.	Flooding	C	High	Local	Wayne County Eureka, Fremont, Pikeville, Mount Olive, Walnut Creek	S	Ongoing
4	Prohibit the development of public and private critical facilities within the 100 and 500-year flood plains and relocate where possible critical facilities that are located in the floodplain.	Flooding	N	High	Local		L	Ongoing
5	Adopt and enforce latest model building codes and national wind standards.	All	N	Medium	Local	Wayne County Building Inspections	S	Ongoing
6	Ensure manufactured homes are installed and secured properly.	Hurricanes, Tornadoes	C	Medium	Local	Wayne County Building Inspections	S	Ongoing

Action #	Wayne County Actions	Hazard	New/ Continuation	Relative Priority	Funding Sources	Jurisdiction/ Responsible Party	Short Term/ Long Term	Target Completion Date
7	Encourage wind resistant construction techniques comparable to those used in coastal regions.	Hurricanes, Tornadoes	N	Medium	Local	Wayne County Planning Department	L	Ongoing
8	Provide opportunities through forums and programs for contractors and residents to become more informed as to appropriate building materials, equipment and techniques to use to mitigate the potential impacts of natural hazards.	All	N	Low	Local	Wayne County Eureka, Fremont, Pikeville, Mount Olive, Walnut Creek	S	Ongoing
9	Review the Emergency Operations Manual on a bi-annual basis to ensure that is current with today's possible threats.	All	C	Medium	Local	Wayne County Emergency Services	S	Ongoing
10	Establish a program for evaluation and improvement of critical services and facilities to ensure coordination among the responsible contributors of those facilities.	All	N	Low	Local	Wayne County Emergency Services	L	Ongoing
11	Maintain and update information on the potential of the natural hazards that exist within Wayne County for citizens to easily access this through all available media and the County website.	All	C	Low	Local	Wayne County Planning Department	S	Ongoing
12	Implement and maintain a web-based Geographical Information System application on Wayne County's web site that will offer citizens the opportunity to evaluate their current or future residence location in relation to the potential natural hazards such flood plains.	All	C	Low	Local	Wayne County GIS Department	S	Ongoing
13	Post flood level signs on property acquired during the HMGP process to remind citizens of the past and potential flood dangers that exist within their community.	Flooding	N	Low	Local	Wayne County Planning Department	S	1-2 Years
14	Coordinate with various utility service providers to attach newsletter, notifications, procedure or information for the various natural hazards that	All	N	Medium	Local	Wayne County Eureka, Fremont,	S	Ongoing

Action #	Wayne County Actions	Hazard	New/ Continuation	Relative Priority	Funding Sources	Jurisdiction/ Responsible Party	Short Term/ Long Term	Target Completion Date
	exist within Wayne County.					Pikeville, Mount Olive, Walnut Creek		
15	Preserve wetlands within the flood plains to slow and reduce downstream flows associated with floodwaters.	Flooding	C	Medium	Local	Wayne County Eureka, Fremont, Pikeville, Mount Olive, Walnut Creek	S	Ongoing
16	Utilize wetlands for improved water quality within watersheds.	Flooding	C	Medium	Local	Wayne County Eureka, Fremont, Pikeville, Mount Olive, Walnut Creek	S	Ongoing

Monitoring, Evaluation and Update of the Hazard Mitigation Plan

After the local hazard mitigation plan has been developed and adopted, it is important to periodically evaluate and revise the plan to ensure that local mitigation efforts include the latest and most effective mitigation techniques. As each strategy has been completed, new or revised strategies need to be included to keep up with the changing environment. As with all plans and ordinances, this plan will need to comply with federal, state and local regulations during the amendment process. The proper advertisement and notifications will need to comply with these guidelines. The County and municipalities will review the Plan on an annual basis to ensure compliance with the adopted goals and to establish new goals.

The monitoring and evaluation process of the Wayne County Multi Jurisdictional Hazard Mitigation Plan will run concurrently.

Annual Review/Progress Report

The County Manager shall direct the County Planner to take responsibility for conducting the annual review. The annual review shall include the re-initiation of the hazard mitigation team planning process utilized during development of the Plan. The team will include representatives of all affected County departments, as well as the Towns of Eureka, Fremont, Pikeville, and Mount Olive and the Village of Walnut Creek. The annual review shall ensure:

1. That the Planning Board receives an annual report and/or presentation on the progress of Plan implementation. The report will include a status report on the implementation of mitigation actions.
2. That the County Board of Commissioners receives an annual report and/or presentation on the progress of Plan implementation along with a recommendation from the Planning Board regarding on-going implementation of the Plan.
3. The annual report will include an evaluation of the effectiveness and appropriateness of the mitigation actions included in the Plan.
4. The annual report will recommend, as appropriate, any necessary revisions or amendments to the Plan.

If the County Board of Commissioners determines that the recommendations warrant amendment of the Plan, the Board may initiate an amendment through the process described below.

Periodic Plan Review and Update

Periodic evaluation and revision of the Plan will help ensure that local mitigation efforts include the latest and most effective mitigation techniques. These periodic revisions may also be necessary to keep the Plan in compliance with Federal and State statutes and regulations. The Plan will need to be updated to reflect changes, such as new development in the area, implementation of mitigation efforts, revisions of the mitigation processes, and changes in Federal and State statutes and regulations.

In the context of a Federal disaster declaration, State and local governments are allowed to update or expand an existing plan to reflect circumstances arising out of the disaster. An updated plan in this circumstance might include a re-evaluation of the hazards and the jurisdiction's exposure to them, a re-assessment of existing mitigation capabilities, and new or additional mitigation recommendations.

The Plan shall be reviewed at a minimum every five (5) years to determine if there have been any significant changes that would affect the Plan. Increased development, increased exposure to certain hazards, the development of new mitigation capabilities or techniques, and changes to Federal or State legislation may affect the appropriateness of the Plan.

The plan will be reviewed, updated and forwarded to NCEM and FEMA for review and approval within five (5) years.

Review of the Plan

The procedure for reviewing and updating the Plan shall begin with a report prepared by the County Planner and submitted to the Planning Board for consideration and recommendation to the Board of Commissioners. The report shall include a summary of progress on implementation of hazard mitigation strategies and a recommendation, as appropriate, for any changes or amendments to the Plan.

The review shall include an evaluation of the effectiveness and appropriateness of the Plan. Specifically, the evaluation shall involve a review of the consistency of day-to-day land use decisions to determine if the hazard mitigation policies are being implemented. The review shall recommend if plan amendments are warranted and if any revisions to regulatory tools (zoning, subdivision regulation, etc.) are necessary to assist in implementing the policies of the Plan.

If the Board of Commissioners determines that such report raises issues that warrant modification of the Plan, or if the Planning Board recommends that issues have been raised which warrant modification of the Plan, the Board may initiate an amendment as delineated below, or may direct the County Manager to undertake a complete update of the Plan.

Procedure for Amending the Plan

An amendment to the Plan shall be initiated by the Board of Commissioners either at its own initiative or upon the recommendation of the Planning Board, the County Planner, or any other Wayne or agency who demonstrates that an amendment should be considered.

Upon initiation of a text or map amendment, the County Planner shall re-convene the hazard mitigation planning team and notify other interested parties as described in the Annual Review/Progress Report subsection above. The team will consider any proposed amendment(s) which shall then be forwarded to affected parties, including, but not limited to, County departments, municipalities within the County, and other interested agencies such as the North Carolina Division of Emergency Management, the United States Army Corps of Engineers, and the Federal Emergency Management Agency for a ninety (90) day review and comment period.

At the end of the comment period, the proposed amendment(s) shall be forwarded along with all review comments to the Planning Board for consideration. If no comments are received from the reviewing department or agency within the specified review period, such shall be noted in the report to the Planning Board.

Planning Board Review and Recommendation

The Wayne County Planning Board shall review the proposed amendment(s), the report and recommendation of the County Planner, and any comments received from other local governments and State and Federal agencies. The Planning Board shall submit a recommendation on the proposed amendment to the Board of Commissioners within sixty (60) days. Failure of the Planning Board to submit a recommendation within this time period shall constitute a favorable recommendation.

In deciding whether to recommend approval or denial of an amendment request, the Planning Board shall consider whether or not the proposed amendment is necessary based upon one or more of the following factors:

a) There are errors or omissions made in the identification of issues or needs during the preparation of the original Plan;
b) New issues or needs have been identified which were not adequately addressed in the original Plan;
c) There has been a change in projections or assumptions from those on which the original Plan was based.

Board of Commissioners Review and Approval

Upon receiving the recommendation of the Planning Board, the Board of Commissioners shall hold a public hearing. The Board shall review the Planning Board recommendation (including the factors delineated above), the report and recommendation from the County Planner, and any oral or written comments received at the public hearing. Following that review, the Board shall take one of the following actions:

a) Adopt the proposed amendment as presented or with modifications.
b) Deny the proposed amendment.
c) Refer the amendment request back to the Planning Board for further consideration.
d) Defer the amendment request for further consideration and/or hearing.

INCORPORATION INTO EXISTING PLANNING MECHANISMS

The County of Wayne along with the Municipalities involved in the creation of this hazard mitigation plan has created a process by which the requirements of this plan will be incorporated into other plans. During the planning process for any new and updated planning documents such as a comprehensive plan, transportation plans, capital improvement plans, or emergency operations plans the local staff will provide a copy of this plan to each respective advisory committee member. The local staff will make the public aware and help them understand the importance of having goals and strategies for any future plans consistent with the goals and strategies of this plan. This will help ensure that future actions do contribute to increased hazards in the jurisdiction.

In order to successfully implement the objectives of this plan public involvement must be ongoing. The public will be invited by the County and municipalities to participate in a progress review. Copies of the plan will be readily available in County and Municipal offices. The plan will also be available on the Wayne County website at www.waynegov.com and linked to websites for the municipalities. The web site will include local contacts and addresses.

CONTINUED PUBLIC INVOLVEMENT

The public staying involved in the planning process can help the County and municipalities easily accomplish five-year updates of the plan. The local staff will keep the public aware of objectives as they are completed. The public will be asked to keep local staff aware of changing priorities. The general public will be notified through a variety of media, including but not limited to, the local newspaper, the Wayne County website, and mailed or emailed notices, of the review process and the opportunity to comment on the Plan review.

Adoption Resolutions

Adoption Resolutions from the participating communities will be attached to the Final Plan. The resolution will designate the contact person and address for each community.

Acknowledgements

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The inside cover photograph of Hurricane Floyd was provided by Hal Pierce from the Laboratory for Atmospheres, NASA Goddard Space Flight Center.

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Al Gillikin of Eastern Carolina Council of Governments prepared initial drafts of all maps. Staff from Wayne County Planning upon receiving comments from citizens, local staff and DEM reviewers updated maps.

The initial draft of the hazard mitigation plan was prepared and written primarily by Samuel E. Johnson as part of his masters' degree work under the direction of Dr. Harold Stone. Mr. Johnson received his masters' degree in Environmental Planning, School of Industry and Technology, East Carolina University, Greenville, North Carolina in May 2002.

The revised draft plan is available on the Wayne County website at www.waynegov.com for public review. Contact information is provided to assist the public in making comments and offering suggestions on goal development and implementation. The final adopted plan will remain on the website and in the public libraries indefinitely.

The draft plan along with revisions were reviewed by management and staff for each municipality and the County, fire and police chiefs, County emergency management officials, County and Municipal Planning Boards. In addition local chamber of commerce officials, staff from Economic Development Commission and military staff from Seymour Johnson Air Force Base reviewed the plan.

The revisions were prepared by the Wayne County Planning Department.