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Resolution of Adoption

County of Lee

City of Sanford

Town of Broadway

Part 1
Introduction

1.1 Introduction

Lee County, NC in partnership with the City of Sanford and the Town of Broadway undertook development of this *Hazard Mitigation Plan* because of increasing awareness that natural and man-made hazards may affect many people in the area. In addition, the Plan is a requirement associated with participation in the National Flood Insurance Program (NFIP).

1.2 Authority

During XXXXX, 2002 The Lee County Board of Commissioners, Sanford City Council and Broadway Board of Commissioners adopted "A Resolution Establishing a Process to Develop a Hazard Mitigation Plan." The resolution recognizes that:

- Natural hazards pose a continual threat to public health and safety and could result in significant property damage;
- A Hazard Mitigation Plan is a requirement of participation in the National Flood Insurance Program; and
- The planning process encouraged by the State of North Carolina and the Federal Emergency Management Agency offers the opportunity to consider hazards and identify mitigation actions to reduce future risk.

The Department of Community Development is charged with coordinating with other appropriate departments and agencies to facilitate the plan in conformance with state and federal guidelines.

1.3 Planning Committee Membership

The following departments and offices of Lee County, the City of Sanford and Town of Broadway are members of the Mitigation Planning Committee:

Sanford	Lee County	Broadway
Community Development Department	Lee County Public Works	Broadway Public Works Dept.
City of Sanford Public Works	Lee County Emergency Management Department	Broadway Police Dept.
City of Sanford Engineering	Lee County Building Inspector	
City of Sanford Fire Departments	And the Lee County Fire Chiefs' Association	
City of Sanford Police	Lee County Sheriff's Dept	

The following agencies were notified, invited to participate, and asked to review and comment on the *Hazard Mitigation Plan*:

- North Carolina Division of Emergency Management
- Federal Emergency Management Agency – Region IV
- U.S. Army Corps of Engineers – Wilmington District
- Natural Resources Conservation Service – State Conservationist
- CP&L
- Central Electric Membership Corporation

1.4 Acknowledgments

Lee County appreciates the advice and encouragement of the North Carolina Division of Emergency Management, as well as, David Vann and George McRae, Public/Private Facility Representatives.

Part 2
Background & Summaries

2.1 Lee County, City of Sanford, and Town of Broadway

Lee County, strategically located in the geographic center of the state, was formed in 1907 from parts of Moore and Chatham Counties as the 98th North Carolina County. Lee is small in area, only 163,200 acres (259.3 square miles), but has a population of 49,040 people. This represents an 18.5% increase in population between 1990 and 2000. Per capita income is $18,387. Lee County is composed of eight townships: Deep River, West Sanford, East Sanford, Sanford, Pocket, Cape Fear, Jonesboro, and Greenwood. Sanford and Broadway are the only incorporated towns, found within the townships of Sanford and Cape Fear, respectively. Census Data for 2000 indicates a population of 23, 220 in the corporate limits of the City of Sanford and 1, 015 in the corporate limits of Broadway.

Lee County has the largest coal deposits in North Carolina and is noted for its valuable shale (clay) deposits. It is also one of the largest brick producing centers in the United States. Frontier Spinning, National Textiles, and Parkdale Mills produce yarn for the textile industry and combined make Lee County the second largest spinning center in the world. A diverse mixture of industrial manufacturing, retail sales, agriculture, and agribusiness result in a strong and stable economy. Major industries include cosmetics, pharmaceuticals, automotive components, furniture manufacturing, food processing, brick manufacturing, textiles, recycling industries, and electronic components manufacturing. Agricultural income for 1998 totaled $32.6 million. Tobacco is the major income producer with a gross annual income of $12 million, followed by poultry at approximately $10.6 million. Forestry ranks third with $3.6 million. Nursery and greenhouse crops at $2.8 million, vegetable and berries at $1.6 million, and livestock at $750,000 add to the diversity of agricultural production. Manufacturing accounts for 45% of the county's employment and is five of the top ten employers in the county.

Lee County has historically been a rail transportation hub. As railroads expanded in the late 1800s, the City of Sanford developed around one of these crossroads. Now CSX, Norfolk Southern, and Atlantic & Western lines provide rail needs for the county. Several major highways pass through the county. These highways include U.S. Highways 1, 15, 501, and 421 and State Highways 87, 78, and 42. A recently completed four-lane US 1 north to Raleigh and improvements to NC 87 south towards Fayetteville, US 421, US 15/501, and a new general aviation airport with a 6500' runway and full ILS, provide area residents and businesses with access to the world.

HOUSING

- Occupied housing units 18,466
- Owner-occupied housing units 13,235 71.7 %
- Renter-occupied housing units 5,231 28.3 %

SCHOOLS

Lee County operates a consolidated school system with 12 public schools serving approximately 9,000 students, kindergarten through twelfth grade. There are seven elementary schools, two middle schools, one high school, one alternative school, and one school for exceptional children.
Racial/Ethnic Mix:

- White 57%
- Hispanic 14%
- Black 28%
- Other 1%

There are also two private K-12 schools in Lee County.

Carolina Central Community College, located in Sanford, is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools, the North Carolina State Board of Education, and by the Southern Association of Colleges and Schools. Degrees, diplomas and certificates are awarded in a variety of instructional programs.

INDUSTRY

- Employed persons 16 years and over - 19,590
- Agriculture, forestry, and fisheries - 530
- Mining - 59
- Construction - 1,472
- Manufacturing, nondurable goods - 2,801
- Manufacturing, durable goods - 3,942
- Transportation - 418
- Communications and other public utilities - 591
- Wholesale trade - 867
- Retail trade - 3,027
- Finance, insurance, and real estate - 614
- Business and repair services - 631
- Personal services - 529
- Entertainment and recreation services - 188
- Health services - 1,155
- Educational services - 1,276
- Other professional and related services - 872
- Public administration - 618

OCCUPATIONS

- Employed persons 16 years and over - 19,590
- Executive, administrative, and managerial occupations - 2,118
- Professional specialty occupations - 2,026
- Technicians and related support occupations - 606
- Sales occupations - 1,896
- Administrative support occupations, including clerical - 2,366
- Private household occupations - 113
- Protective service occupations - 209
- Service occupations, except protective and household - 1,701
- Farming, forestry, and fishing occupations - 520
- Precision production, craft, and repair occupations - 3,345
- Machine operators, assemblers, and inspectors - 2,782
- Transportation and material moving occupations - 757
- Handlers, equipment cleaners, helpers, and laborers - 1,151

LEE COUNTY'S TOP TEN EMPLOYERS

- The unemployment rate for the 12-month period 10/1999-10/2000 was 3.9%.

MARKET:

- Construction Permits Issued:
- Current Year (2001) Single Family: 103 as of 10/26/2001
- Current Year (2001) Multi-Family: 9 as of 10/26/2001
- Previous Year (2000) Single-Family: 60
- Previous Year (2000) Multi-Family: 22

POPULATION:

- City of Sanford 23, 220 (2000 Census)
- Town of Broadway 1, 015 (2000 Census)
- Lee County 49, 040 (2000 Census)
- North Carolina 8, 049, 313 (2000 Census)

POPULATION CHARACTERISTICS:

- 70.0% White (2000 Census)
- 20.5% Black (2000 Census)
- 11.7% Hispanic Origin (2000 Census)*****
- 189.12 Person per square mile population density in Lee County (2000 Census)
- 954.38 Person per square mile population density in City of Sanford (2000 Census)
- 75,601 Population projected for the year 2020

*****Hispanic is a Country of origin and not a racial group

GEOGRAPHY:

- Sanford 24.33 square miles
- Planning Jurisdiction 11.08 square miles
- Broadway 1.85 square miles
- Lee County 258.3 square miles

2.2 Key Terms & References

For the most part, the terms used in the Plan have the meanings that are commonly associated with them. Three key terms are:

- Hazard is defined as the natural or technological phenomena, event or physical condition that has the potential to cause property damage, infrastructure damage, other physical losses, and injuries and fatalities.
- Mitigation is defined as actions taken to reduce or eliminate the long-term risk to life and property from hazards. Mitigation actions are intended to reduce the need for emergency response – as opposed to improving the ability to respond.
- Risk is defined as the potential losses associated with a hazard. Ideally, risk is defined in terms of expected probability and frequency of the hazard occurring, the people and property that are exposed, and the consequences.

References cited in the Plan are listed in Appendix A.

2.3 Introduction to Mitigation Planning

One step in the long-term process of improving resistance to natural hazards is the development of a hazard mitigation plan. This Plan was prepared in accordance with the guidelines provided by the Federal Emergency Management Agency, the North Carolina Division of Emergency Management, and those outlined in guidance documents for National Flood Insurance Program's (NFIP) Community Rating System. Its development is a condition of participation in the National Flood Insurance Program by the North Carolina Division of Emergency Management.

The Lee County *Hazard Mitigation Plan*:

- Outlines the County's hazards and disaster history;
- Summarizes the County's current authorities, capabilities, and development and response processes;
- Establishes a mitigation goal statement;
- Provides a broad overview of the people and property that may be at-risk;
- Reviews damage from recent disasters;
- Documents alternative actions that were considered; and
- Sets forth an action agenda for priority mitigation actions.

The Lee County *Hazard Mitigation Plan* serves several purposes. It sets the stage for long-term disaster resistance through identification of actions that will, over time, reduce the exposure of people and property to natural hazards. In addition, the Plan will qualify the county for additional points under the NFIP's Community Rating System and establish eligibility for certain mitigation grant funds that may become available in the future.

Sections of the Plan provide overviews of the natural hazards that may threaten the county, the people and property that are at-risk to those hazards, the planning process, how hazards are recognized in the county's normal processes and functions, and the priority mitigation action items.
This Plan acknowledges that many buildings were built before the adoption of current codes and regulations that require new development to recognize reasonably anticipated high winds, snow loads, and flood hazards.

2.4 The Sanford-Lee County 2020 Land Use Plan

History and Overview

The development of the Sanford-Lee County 2020 Land Use Plan was initiated in 1998 to provide more meaningful direction to the respective governing bodies in Lee County. Issues related to land use management/regulation, infrastructure development (water, sewer, transportation), capital budgeting, and neighborhood planning. The goals and strategies that were developed in the plan form the expectations of Lee County during the first two decades of the new millennium.

Public Involvement

Extensive public involvement was enjoyed during the process of developing the 2020 Land Use Plan. Numerous public hearings and neighborhood meetings were scheduled and conducted to maximize public input. During the month of xxxxxxxxxxx both the Lee County Board of Commissioners, the Sanford City Council, and the Town of Broadway adopted the plan by resolution.

Vision and Goals

As part of the planning process for the 2020 Land Use Plan overall goals were defined in three terms:

- Balanced growth
- Compact land use pattern
- Livable community design standards

One of several principles, or statements of purpose, relates to natural hazards, notably flooding: *Floodplain considerations will play a larger role in development and infrastructure decisions.* This principle plays out in numerous strategies that directly or indirectly address flooding. Within the 2020 Land Use Plan one of the most important strategies is related to the greenway area. It is a specific strategy of the plan to secure areas that are subject to flooding for greenways that restrict development and provide for the public benefit.

2.5 Summary of Natural & Man-Made Hazards

Numerous federal agencies maintain a variety of records regarding losses associated with certain natural hazards. The Federal Emergency Management Agency is a source to characterize certain expenditures of federal funds associated with events that warrant declaration as a major disaster. The U.S. Army Corps of Engineers and the Natural Resources Conservation Service may collect loss data in areas of functional projects or on-going studies. Unfortunately, no single source is considered to be definitive.

The National Climatic Data Center of the National Oceanographic & Atmospheric Administration has begun to maintain certain data in summary format (NOAA, online). Although it does not include

Hurricanes Dennis and Floyd, storm-related damage and casualty data are shown in Table 2-1 (available only at the county level through the North Carolina Division of Emergency Management's webpage). www.ncem.org/Mitigation_New/ctySummary.htm/

Table 2-1
Storm-Related Damage & Casualties

	ALL Events		Property Damage*	Crop Damage*	Total Damage*
	Deaths	**Injuries**			
Lee County	7	4	0.5	0.0	0.5
Chatham	7	3	1.2	0.0	1.2
Harnett	7	67	13.6	51.1	64.7
Wake	13	197	14.7	51.1	65.8
Moore	7	7	13.6	0.0	13.6

Notes: Period of Record: Storms (1/1993-7/1999, except 6-7/1993); Tornadoes (1/1950-12/1992); Wind & Hail (1/1959-12/1992)

*In millions, 1999 US dollars (adjusted using the Consumer Price Index)

Part 3
Mitigation Goal Statements

3.1 North Carolina's Mitigation Mission Statements

The State of North Carolina has prepared a statewide hazard mitigation plan in response to federal requirements. An integral part of the planning process, regardless of the level of government, is the adoption of a goal statement. The State has established an over-arching mitigation goal, as well as mission statements for functional units within the North Carolina Division of Emergency Management.

State Mitigation Goal and Mission Statements

State Mitigation Goal:

Decrease the level of vulnerability to the impacts of natural hazards throughout the State of North Carolina.

Hazard Mitigation Section Mission:

To assist North Carolinians, communities, local governments, and businesses to become less vulnerable to the impacts of natural hazards through the effective administration of disaster recovery programs, hazard risk assessments, sound land use planning and floodplain management.

Branch Mission:

To reduce the current and future vulnerability of North Carolina communities to natural hazards through statewide, regional, and local mitigation planning activities that target government, business, and industry.

3.2 Lee County's Mitigation Goal Statement

Lee County, Sanford and Broadway adopted a broad vision statement, which encompasses both its goal and how it will be achieved. As required by the planning process, the Mitigation Planning Committee developed a goal statement specifically focused on hazards. In the context of what is known about hazards and exposure the Committee reviewed the vision statement and several goal statements from other communities. After discussion, modification, and the opportunity to comment, the Committee adopted a mitigation goal statement.

The mitigation goal statement is consistent with its vision statement and with the North Carolina Division of Emergency Management's mitigation goals and mission statements.

Vision for Lee County, Sanford & Broadway

The shared vision of the Lee County Hazard Mitigation Plan is to be recognized for the cooperative support of all efforts to minimize and/or eliminate the future effects of potential disasters. This vision will be accomplished through a common belief among all governmental entities in proactive and innovative leadership, effective stewardship of public resources and delivery of quality services.

The Mitigation Goal Statement

The mitigation goal is to protect public health, safety and welfare by **identifying** natural and man-made hazards, by **increasing public awareness** of those hazards, and by **fostering** both individual and public responsibility in mitigating risks due to those hazards.

Part 4
Hazards in Lee County

4.1 Defining Hazards in Lee County

As part of its efforts to support and encourage local hazard mitigation planning and initiatives, the NC Division of Emergency Management has prepared a qualitative assessment of the relative risk of eight natural hazards in each county. This simple approach is based, in large measure, on past occurrences, a qualitative assessment of the likelihood of future occurrences, and a qualitative assessment of the possible impact of each type of hazard. Available only at the county level through the NCDEM webpage (www.ncem.org/Mitigation_New/local_hazards.htm), Table 4-1 indicates the relative risks for Lee County.

It is important to understand that the three levels of "impact" generally refer to overall relative impact. For example, while a severe winter storm would certainly affect nearly everyone in the area, it would be unlikely to cause widespread property damage. Thus, its overall impact on the County is deemed to be low. Although not identified as a hazard in this plan, an accident at Shearon-Harris Nuclear plant by either accident or an act of terrorism could be catastrophic.

Table 4-1
Relative Risks.

TYPE OF HAZARD & ASSOCIATED	LIKELIHOOD OF OCCURRENCE (HIGHLY LIKELY, LIKELY, POSSIBLE, UNLIKELY)	INTENSITY RATING (INTENSITY SCALES OR RELATIVE TERMS)	IMPACT CATASTRPOPHIC, LTD., NEGLIGIBLE	RANK OF HAZARD
Thunderstorms	Highly Likely	Moderate	Negligible	1
Flooding	Highly Likely	Moderate	Negligible	2
Ice Storms	Likely	Moderate	Negligible	3
Hurricanes	Likely	Moderate	Negligible	4
Tornado	Possible	Severe	Limited	8
Drought	Likely	Mild	Negligible	5
Severe Heat	Likely	Mild	Limited	6
Earthquake	Unlikely	Mild	Negligible	9
Wildfire	Likely	Moderate	Limited	7

Although severe thunderstorms are the most significant hazard to threaten Lee County, two other natural hazards warrant attention and inclusion in this Plan: severe winter storms and flooding. The following narratives that describe these hazards are summarized from the *Natural Hazards Mitigation Plan (409 Plan)* prepared by the NC Division of Emergency Management (1999).

Flood Hazards

Flooding is a localized hazard that is generally the result of excessive precipitation. Floods are often categorized as follows:

- Flash Floods
- Riverine Floods
- Urban Flooding
- Dam failure flooding

Flash floods not only occur suddenly, they often involve more forceful flows that can destroy buildings and bridges, uproot trees, and scour out new channels. Most flash flooding is caused by slow-moving thunderstorms, repeated thunderstorms in a local area, or by heavy rains from hurricanes and tropical storms. Although flash flooding occurs often along mountain streams, it is also common in urban areas where much of the ground is covered by impervious surfaces and drainageways are designed for smaller flows. Flood Insurance Rate Maps typically show the 1%-annual-chance (100-year) floodplain for waterways with at least 1 square mile of drainage area.

Riverine floods are a function of precipitation levels and water runoff volumes and occur when water rises out of the banks of the waterway. Flooding along waterways that drain larger watershed often can be predicted in advance, usually taking more than 24 hours for the flood crest (maximum depth of flooding) to pass. In North Carolina, most riverine flooding is caused by large rainfall systems associated with hurricanes and tropical storms. These systems can take as long as a day to pass, giving ample opportunity for large amounts of rain to fall over large areas. The Flood Insurance Rate Maps show the 1%-annual-chance floodplains of riverine systems.

Urban flooding occurs where development has altered hydrology through changes in the ground surface and modification of natural drainageways. Urbanization increases the magnitude and frequency of floods by increasing impermeable surfaces, increasing the speed of drainage collection, reducing the carrying capacity of the land and, occasionally, overwhelming sewer systems. Most urban flooding is not shown on the Flood Insurance Rate Maps.

Dam failure flooding occurs when a dam fails and releases impounded water. The sudden release of large volumes of water most often occurs when rainfall is already causing high water levels or, if a dam is in poor condition, under "sunny day" conditions. Areas predicted to flood if a dam fails might have been approximated on a map if an Emergency Action Plan is prepared; typically only dams classified as "high hazard" have EAPs.

Severe Winter Storm Hazards

Severe winter storms can produce an array of hazardous weather conditions, including heavy snow, blizzards, freezing rain and ice pellets, and extreme cold. The most severe storms are extratropical cyclones fueled by strong temperature gradients and an active upper-level jet stream. North Carolina's worst winter storms, nor'easters, generally form in the Gulf of Mexico or off the southeast Atlantic Coast, and most do not produce blizzard conditions (defined by winds in excess of 35 mph, falling and blowing snow, and a maximum temperature of 20^{o} Fahrenheit).

High Wind Hazards
Several meteorological conditions can result in winds that are severe enough to cause property damage. High winds have been associated with extreme hurricanes that reach inland, with tornadoes, and with locally strong thunderstorms. Thunderstorms are the by-products of atmospheric instability, which promotes the vigorous rising of air parcels. A typical thunderstorm may cover an area three miles wide. The National Weather Service considers a thunderstorm "severe" if it produces tornadoes, hail 0.75 inches or more in diameter, or winds of 58 mph or more. Structural wind damage may imply the occurrence of a severe thunderstorm.

Tornadoes pose the greatest threats to life and safety. The National Weather Service defines a tornado as a violently rotating column of air in contact with the ground and extending from the base of a thunderstorm. Of all tornadoes reported in North Carolina between 1953 and 1990, 71% were considered to be "weak," 28% as "strong, and about 1% as "violent." Although tornadoes have been reported throughout the year, 60% occur from March through June.

In the Lee County area, most wind damage is limited to downed trees, blocked roads, and interrupted power lines. For many years, the North Carolina State Building Code has required that designs account for 80 mph winds.

Hazardous Materials
Lee County Emergency Management maintains documentation on HAZMAT incidents (transportation and fixed facility) and maintains the reports submitted by handlers and manufacturers in compliance with federal requirements (Tier Two reports required under SARA, Title Three). In recent years there has been an increase in the number of incidents involving spills and releases of hazardous materials (primarily petroleum products). The increase in transportation incidents is linked with increased traffic on the highways and rail lines in and around the County.

> *The purpose of the North Carolina Natural Hazards Mitigation Plan is to provide the citizens of North Carolina with a means of protecting their lives, property, and environment.*
>
> NC Natural Hazards Mitigation Plan (1999)

4.2 Overview of Lee County's Disaster History

This summary of hazard events that have occurred is not intended to be exhaustive. Indeed, Table 4-2 includes only those events since 1984 that were determined to be significant enough to warrant declaration of a major disaster by the President of the United States. Detailed information on other events caused by natural hazards has not been compiled.

Table 4-2
Federal Disasters Declared
in Lee County
(1984-2000).

Date	County Declared	Nature of Event
09.05.96	Lee	Hurricane Fran
09.15.99	Lee	Hurricane Floyd
01.25.00	Lee	Winter Storm

4.3 Losses Due to Disasters

There is no definitive record of all losses – public and private – due to disasters. For the United States as a whole, estimates of the total public and private costs of natural hazards range from $2 to over $4 billion per year. Most of those costs can only be estimated.

The Federal Emergency Management Agency's total costs for flooding and hurricanes in the State of North Carolina exceeded $580 million for the period of 1989 through 1998, which included Hurricanes Hugo, Emily, Bertha, Fran and Bonnie. These costs, which do not include many costs incurred by other federal agencies, include:

- Public assistance for debris removal, emergency works, roads and bridges, flood control facilities, public buildings and equipment, public utilities, and parks and recreational facilities exceeded $298 million.
- Assistance paid out for individual and family grants, emergency food and shelter, and other assistance to individuals totaled nearly $71 million.
- Funds set aside to support hazard mitigation grants exceeded $31 million.
- FEMA reimbursed other federal agencies for nearly $151 million.
- FEMA's own administrative costs, including personnel and contractors, totaled just over $28 million.
- FEMA organizes damage and disaster-related costs into categories of work. In the majority of major disasters declared, the federal government reimburses 75% of the costs of cleanup and recovery, with the remaining 25% covered by the State and affected local jurisdictions.

Hurricane Fran (September 1996)

Hurricane Fran passed over in September 1996, leaving behind damage that affected many private property owners as well as causing some damage to public property. Losses associated with damage to public utilities and other costs that were determined to be eligible for reimbursement from FEMA were:

• Lee County	$ 84,101
• Central Electric Membership Corp.	$1,102,281
• Sanford	$ 721,766
• Lee County Schools	$ 19,538
• Broadway	$ 17,234
• Sanford/Lee Regional Airport	$ 250
• Total	$1,945,170

Hurricane Floyd (September 1999)

Following directly on the heels of Hurricane Dennis in September 1999, Hurricane Floyd was an extraordinary event. For the purposes of disaster response, FEMA combined the two events. Due to its magnitude and severity, FEMA provided 90% of eligible costs and the State provided the remaining 10%. The following impacts characterize the scale of the disaster:

• Lee County	$ 5,041
• Central Electric Membership Corp.	$ 97,396
• Total	$102,437

Severe Winter Storm (2000)
The severe winter storm in January 2000 had a greater impact on Lee County than Hurricane Floyd the previous year. The following demonstrate the level of damages:

- Lee County $ 11,969
- Central Electric Membership Corp. $159,255
- Sanford $177,309
- Total $348,533

High Wind Incident History
Interviews with citizens indicate that tornadoes have affected parts of Lee County. The National Weather Service does not have any official record of tornado touch-down in Lee County. Strong winds associated with severe thunderstorms have caused extensive damage to various parts of Lee County in recent years. Typical damage consists of:

- Large trees being torn down, or broken off
- Damage to homes, barns or outbuildings (including roof damage, siding being blown off, and in some cases, total destruction), utility lines broken, crops destroyed, and vehicle damage caused by blowing debris.

Severe Winter Storm History
Winter storms have impacted Lee County on average about twice every ten years, with the most significant event being the "Winter Storm 2000," which occurred in late January of 2000. The storm dumped 18-22 inches of snow on Lee County, shutting down virtually everything in the county for almost a week. Lee County was one of over 30 counties in central North Carolina to receive a Presidential Disaster Declaration for the event. The following FEMA reimbursements were received:

- Lee County $ 11,969
- Sanford $177,309
- Central Electric Membership Corp. $159,255

Hazardous Materials Incident History
Incidents involving hazardous materials may occur at fixed facilities such as industrial plants and waste handlers, or during transport along highways and rail lines, and usually are not associated with or triggered by a natural hazard event. With highways and rail lines crossing the County, the likelihood of transportation incidents is high. For the year 2001, Lee County Emergency Management reported responding to 16 spills.

Part 5
Risk: Exposure to Hazards

5.1 Overview of Risks

Damage and losses (including physical damage, indirect or economic losses, and injuries/deaths) that are associated with hazards result when an event affects areas where people and improved property are located. After hazards are identified (especially if they can be characterized by a map) some measure of how exposed people and property are – or how "at-risk" they are – can be estimated.

When the full range of possible natural and man-made hazards is reviewed, it becomes apparent that some events occur frequently and some are extremely rare. Some hazards impact large numbers of people to a limited degree, while others can cause very localized but very significant damage. A uniform system for ranking hazards has not been developed. The State of North Carolina has developed a qualitative assessment of relative risks, as described in Section 4.1.

5.2 Public Awareness of Hazards & Risk

Members of the Mitigation Planning Committee agreed that, except for those directly affected by a disaster, the average citizen does not perceive that any hazards pose significant threats to safety or property. Most consider localized storms as causing nuisance problems with flooded yards and street ponding, and power is interrupted due to downed lines.

With regard to wind hazards, the consensus of the Committee is that most citizens perceive that high winds are most likely to be associated with hurricanes. Some people are aware that tornadoes do strike Central North Carolina, because the surrounding counties have experienced damage in recent years.

By and large, most people are unaware of the risks associated with the transport of hazardous materials on highways and by rail.

The County has taken some steps to improve public awareness of hazards:

- Developed agreements with local broadcast media;
- Transmits awareness notices on cable access channel;
- Fostered local news reporting.

5.3 Flood Risks – Overview

As of mid-2002, the January 1982 Flood Insurance Rate Maps (FIRM) prepared by FEMA offer the best overview of flood risks. The FIRMs are used to regulate new development and substantial improvement or repair of substantial damage of older buildings. Map 5.1.a shows the Lee County area with mapped special flood hazard areas. Following is Map 5.2.a, which shows repetitive loss properties within Lee County.

Insert Map 5-1.a
11x17 landscape map
with
Mapped Flood Hazard Areas

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Insert Map 5-2.a

11x17 landscape map

with

Repetitive Loss Properties

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Insert Map 5-3

11x17 landscape map
With
City/County-Owned Property

5.4 Flood Risks – Buildings

Repetitive flooding is reported on and around low-lying areas on First Street in Sanford, the chicken house abutting San Lee Park, and on Doctors Drive, across from the hospital.

5.5 Flood Risks – Public Buildings & Infrastructure

Lee County, Sanford and Broadway own two buildings throughout the County that are subject to flooding. Map 5.3.a shows local government-owned property (not buildings) relative to the mapped flood hazard areas. Map 5.4.a shows the locations of fire stations and public schools, indicating that none appear to be at-risk of flooding (based on older FIRMs). The most notable public buildings with some threat from flooding include the Lee County Rescue Squad on McIver Street; in an area behind the Lee County Enrichment Center on Third Street, and the raw water pump station. The waste treatment plant has been diked for the 100 Year Flood.

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Insert Map 5-4

11x17 landscape map
With
Fire Stations and Public Schools.

5.6 Flood Risks – Roads

Flood-prone roads will be re-assessed upon issuance of the revised Flood Insurance Rate Map (anticipated in 2003).

Based on the Flood Insurance Study (1984) for Lee County, Sanford and Broadway, in which are available flood profiles showing water surface elevations for those areas with detailed studies, a total of 143 road crossings span waterways within the area. It should be noted that this inventory is based on an aging data source, and is not a definitive list of all of the estimated flood-prone crossings.

Appendix (F) includes a listing of flood-prone roads and crossings. Map 5.5.a shows the locations for those road crossings where the depth of water for the predicted 100-year flood condition ranges from 1-foot to 4 feet deep.

Nationwide, flooded roads pose the greatest threat to people: on average, more than 200 people die in floods, most of them are lost when they try to cross flooded roads. Many cars will float in less than 24" of water and fast moving water can quickly wash cars off the road. While most roads in the Lee County area are unlikely to have deep or fast moving water during flood conditions up to the level of the 100-year flood, this threat still exists.

Another national statistic is associated with flooded roads: replacing roads and bridges that are washed out by floods costs millions of dollars each year. If the damage is caused by a Presidentially Declared Disaster, FEMA may pay up to 75% of the costs. If roads are locally-owned, local jurisdictions are expected to pay at least 25%. Local jurisdictions pay 100% of the repair or replacement costs if the damaging event is not declared a major disaster.

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Insert Map 5-6.a

11x17 landscape map
With
Flood-Prone Roads and Crossings.

5.7 Flood Risks – Hazardous Materials

When floodwaters impact locations where hazardous materials are stored or used, the stage is set for potential effects that go far beyond the physical on-site damage associated with flooding. Certain materials are reactive in water and others may pose health and safety risks if distributed downstream by rising waters.

The Lee County Emergency Management Department maintains information on certain reported hazardous materials. If the information is verified to determine whether the actual physical locations of the materials can be determined, it can be used with the flood hazard maps to screen for potential interactive risks. Depending on the nature of the materials and the facilities, it may be appropriate for owners to examine potential damage under a reasonably anticipated flood.

5.8 Flood Risks – Stormwater Management

Experience shows that many drainage problems in Lee County are not dramatic or life threatening. Many areas experience accumulations of rainfall that are slow to drain away, causing disruption of normal vehicular and pedestrian travel, soil erosion, water quality problems, and some minor damage and disruption for residents and businesses.

As of mid-2002, storm water management provisions are applied only through the subdivision process, and thus not to single large lot developments. This may change as Lee County, Sanford and Broadway move toward completion of the Unified Development Ordinance.

The Unified Development Ordinance recognizes that improving water quality and maintaining the capacity of local drainage ways is important.

5.9 Flood Risks – Dams

FEMA and the U.S. Army Corps of Engineers maintain the National Inventory of Dams (1998), a database of high and significant hazard dams. For the most part, data on non-federal dams is provided by state agencies responsible for regulation and inspection of dams. The North Carolina Department of Environment Health and Natural Resources has reported on dams located on waterways that drain through Lee County.

Dams are categorized into three hazard potential classes:

- High hazard potential
- Significant hazard potential
- Low hazard potential

High hazard potential dams are those where failure or operational failure will probably cause loss of life and/or significant infrastructure losses.

Significant hazard potential dams are those where failure or operational problems are unlikely to cause lose of human life, but can cause economic loss, environmental damage, disruption of lifelines or other concerns.

Low hazard potential dams are those where failure would cause no probably loss of human life and low economic and/or environmental losses, and such losses typically are limited to the owner's property.

Map 5.9.a shows the location of high and significant hazard dams that appear to be in the watershed. Mapped locations are based on latitude and longitude data contained in National Inventory; actual locations may need to be verified. Table 5-2 summarizes certain information related to the hazards these dams may pose to downstream communities.

Insert Map 5-6
High and Significant Hazard Dams

Table 5-1
High and Significant Hazard Dams

State ID	Dam Name	River or Stream	Hazard	Owner Name
Lee-017	Ashmore Lake Dam		H	Ashmore Lake H/Owners Assn
Lee-029	Cedar Lake Dam	Deep River-Tr	H	Cedar Lake Prop Owners Assn
Lee-036	Hall Pond Dam	Gasters Creek-Tr	H	Jack and Juanita Hall
Lee-011	Holiday Lake (lower)	Patterson Creek	H	Westlake Valley, Inc.
Lee-012	Holiday Lake Dam (upper)	Patterson Creek	H	Westlake Valley Assoc
Lee-014	New Johnson Pond Dam		H	Johnson Lake Prop Owners
Lee-016	Sanford Raw Water Reservoir	Bush Creek-OS	H	City of Sanford
Lee-003	San-Lee Park Dam (lower)	Little Lick Creek	H	Lee County Parks and Recreation
Lee-022	San-Lee Park Dam (upper)	Little Lick Creek	H	Lee County Parks and Recreation

The dam at San-Lee Park has an emergency action plan that provides an automatic telephone alert once the water level reaches a certain point. Emergency Action Plans typically include some form of identification of vulnerable property (dam failure inundation map or list), coordination protocols for notification of emergency personnel, and delineation of evacuation routes.

5.10 Severe Winter Storm Risks

Severe winter storms have adversely affected the region around Lee County in three significant ways:

- Major transportation routes are impaired, requiring significant State resources to maintain traffic.
- Local streets and secondary roads become impassable, requiring extensive use of municipal and NCDOT employees and heavy equipment to clear roads.
- Tree damage may result, causing damage to power lines, affecting residential, commercial and industrial users.

For non-residential construction, the building code requires design to meet a specific snow load. Although it is unknown how many buildings do not meet this load requirement, little structural damage due to snow has been observed.

5.11 High Wind Risks

Most significant wind events that have affected the Lee County area have been associated with major hurricanes. In recent years, winds from Hurricanes Fran and Floyd had considerable impact throughout the area, largely associated with tree damage and downed power lines. Although not all outages were directly related to wind, during Hurricane Fran over 90 percent of the customers served by CP&L and

CEMC utilities were without power. Most areas were without power for several hours to a few days, with some out of service for more than 7 days.

Wind risks are dealt with through administration of the building code. The current code, adopted in 2002, requires design to 100 mile per hour winds. This same wind speed has been in effect for many years.

Other structures must meet the design wind speed requirement in the building code, including towers. Above-ground utilities such as water tanks, telephone poles, and electrical poles and lines must meet certain design criteria.

Part 6
Local Processes

6.1 Local Government Capability

Within the limits of Dillon's Rule and the State and U.S. Constitutions, local governments in North Carolina have wide latitude within which to institute mitigation programs, policies, and actions. All local government powers fall into one of four basic groups: *regulation, acquisition, taxation,* and *spending*. Hazard mitigation measures can be carried out under each of the four types of powers. Included in Appendix C is a summary of local government powers, excerpted from the *North Carolina Natural Hazards Mitigation Plan,* (1999), which, in turn, cites the *Local Hazard Mitigation Planning Manual* (draft, November 1998).

6.2 The Mitigation Planning Process

To develop this *Hazard Mitigation Plan,* Lee County followed a well-established planning process to fulfill the multiple requirements. Three meetings of the Mitigation Planning Committee were held, and summaries are found in Appendix D:

- February 19, 2002. Overview of the mitigation planning process, prevalent natural hazards, cost associated with events, agency roles and responsibilities, examples of mitigation actions.
- March 5, 2002. Review how hazards are handled by each agency, specific examples of losses, possible mitigation actions based on local risk.
- May 16, 2001. Confirm priorities for recommended mitigation actions; review comments on draft Plan; forward Plan to governing bodies.

The overall mitigation planning process, summarized below, was facilitated by the Sanford/Lee County Community Development Director:

- **Getting Organized:** The Community Development Department was charged with coordinating a committee composed of Lee County, Sanford and Broadway departments that are responsible for land use, building permits, engineering, public utilities, public works, law enforcement and fire, and water resources.
- **Coordination:** Prior to the first Committee meeting, the following agencies were notified of the planning activity and invited to participate: NC Emergency Management**,** FEMA Region IV, U.S. Army Corps of Engineers (Wilmington District), CP&L, CEMS and the Natural Resource Conservation Service.
- **Identify Hazards:** Interviews were conducted to understand how members of the Committee perceive, the impacts past events have had (Appendix B) and how hazards are incorporated into routine responsibilities (Appendix E). Maps can be used to show hazard-prone areas when the hazards can be defined with sufficient detail that spatial or geographic differences in impact can be shown. Flood hazards are the most easily identified, due to the availability of Flood Insurance Rate Maps for Lee County. Within an area the size of Lee County, there are insufficient geographic differences to suggest that high winds or tornadoes might affect some areas more severely or more frequently than in others. Similarly, the threats of severe winter snow loads and ice are expected to uniformly affect Lee County. If studies are available, dam failure impact areas can be mapped. Hazardous materials are generally confined to fixed

facilities or within defined transportation corridors, and maps can be prepared to show anticipated impact areas, although many physical parameters influence the extent of impacts.

- **Review How Hazards are Addressed:** During interviews with the Mitigation Planning Committee representatives, the roles of each agency were described with respect to whether and how hazards are included in routine functions. The results are summarized in Section 6.4 and Appendix E. Particular attention was paid to how flood hazards are factored into the planning and permitting processes. In recent years, high winds associated with thunderstorms have caused extensive damage to trees, utility lines, and various structures (including mobile homes, commercial buildings and other residential structures). Three severe winter storms in the last 10-years have resulted in power outages due to tree and limb falls which interrupt power lines.
- **Assess Risks:** For the purpose of this plan, detailed risk assessments were not prepared. As of early 2002, the digital floodplain data is prepared by FEMA based on the 1982 FIRMs. Lee County expects to receive a revised floodplain study and maps in 2003. Therefore, this Plan includes an estimate of buildings in the floodplain that is based on the Q3. These figures will be updated with the revised digital floodplain. Risk of property damage associated with wind and snow load may be broadly characterized by date of construction with respect to the adoption and administration of the building code. Severe events may result in widespread power outages that would affect residential, business and industrial areas.
- **Create Goal Statement**: The mitigation goal statement was derived from municipal and county vision statements and was discussed during the third meeting of the Planning Committee.
- **Review Mitigation Actions:** A list of 15 tentative mitigation actions was prepared based on meetings and interview, and knowledge of successful actions implemented in other communities. The list was distributed to the Planning Committee and discussed in some detail during the second meeting.
- **Draft Action Plan:** Information collected and notes from meeting discussions were compiled into a format designed to fulfill various planning requirements. The draft was circulated to Mitigation Planning Committee members; comments were collected and incorporated and a final draft was circulated.
- **Public Meeting:** The final draft *Hazard Mitigation Plan*, including proposed mitigation actions, was made available for public review by placement in the Lee County Public Library and the Lee County Government Center, Sanford Municipal Center, and Broadway Town Hall. The final draft Plan was presented at the public session of the respective planning boards, held on xxxx xx, 2002, comments were received until xxxx xx, 2003.
- **Plan Adoption:** A copy of the resolution of adoption will be bound into the Plan.

6.3 Public Involvement in Mitigation Planning

Lee County, the City of Sanford, and Town of Broadway are committed to informing its citizens and providing opportunities for participation and input.

The *Hazard Mitigation Plan* was introduced to the public at the xxxx xx, 2002 meeting of _???_____ and copies of the final draft plan were made available to the public.

6.4 How Hazards Are Addressed

In recent years it has become widely understood that the best way to reduce future damage is to "build it right the first time." Property protection is part of the reason why building codes establish minimum standards, protecting occupants and public safety is the primary reason.

Lee County and all its jurisdictions administer the mandatory North Carolina State Building Code. Currently based on the 1994 edition of the Standard Building Code (with 2002 amendments) and the 1992 edition of the Council of American Building Officials One- and Two-Family Dwelling Code, the NC State Building Code establishes design and construction provisions, including provisions related to anticipated wind and snow loads.

The Community Development Department is responsible for coordinating with other departments to:

- Review building permit applications for consistency with the NC State Building Code, the Flood Plain Ordinance, and other regulations that govern development;
- Perform inspections during construction of new work (including additions and renovations, as well as residential construction); and
- Perform inspections prior to issuance of Certificates of Occupancy.

Members of the Mitigation Planning Committee were interviewed to gain an understanding of awareness of hazards and how they are addressed. A bulleted summary of the issues discussed during those interviews and at the initial Committee meetings is included in Appendix D. The following list highlights some key aspects of how Lee County deals with hazards today:

Flood & Stormwater

- The National Weather Service issues flood warnings based on data from upstream USGS gauges.
- The Lee County, Broadway and City of Sanford Public Works Departments review proposed developments within the City and its ETJ and Lee County. Water and sewer lines and lift stations installed by developers must meet prescribed standards.
- New manholes are required to be elevated one foot above the base flood elevation.
- Floodplain Regulations require mobile homes to be anchored at 1 ft. above base flood elevation (bfe).
- The Unified Development Ordinance under review addresses 30 ft. vegetative buffers along perennial waters.
- When flooding is likely, the Public Works staff of both Sanford and Lee County tour flood-prone areas.
- A database of homes, streets and areas subject to flooding is used to direct personnel in the field to notify occupants. Approximately 225 homes are flood-prone. **The maps/database are not based on different flood level predictions (stage-inundation maps).**
- The Lee County, Broadway and the Sanford Public Works Departments, and NCDOT block flooded roads to protect the traveling public.
- The NC Department of Environment and Natural Resources (DENR) enforces sediment and erosion control measures on developments that disturb more than 1 acre, and through this review identify proposals to grade, cut or fill in the floodplain.
- The Sanford and Lee County storm water management standards require management of runoff from the 10- and 25-year storms; detention basins are not required to detain runoff from the 100-year storm, but must be able to pass that discharge.
- Landowners are responsible for maintenance of stormwater management measures; operations & maintenance agreements are required.

- Snags and debris blockages are removed from drainage when identified; sediment deposits are removed where long-term maintenance is provided.

Severe Winter & High Winds

- The NC State Building Code requires design and construction for a 20-lb snow.
- The NC State Building Code requires design and construction for the 100 mph wind.
- Of the 9 sewer-lift stations, only a few have generators, causing problems during power outages.

Wildland Fire

- There are numerous wooded lands in Lee County. The Lee County Emergency Management Department is developing a wildland-interface plan**.**

Hazardous Materials

Lee County has adopted "Operations-Plus Response Level" designation for fire department personnel who respond to hazardous materials incidents.

6.5 Continued Compliance with the NFIP

To participate in the National Flood Insurance Program, a local jurisdiction adopts an ordinance to regulate development with mapped special flood hazard areas. The ordinance and processes for administration, including enforcement, must be consistent with the minimum federal requirements for the NFIP (44 CFR 60.3).

The current effective Flood Insurance Rate Map, dated September 6, 1989 was adopted by Sanford and Lee County and is used as the minimum flood hazard area within which development must conform to the floodplain management regulations. The Town of Broadway is non-participating

As part of the Unified Development Ordinance preparation a thorough review and comparison with the NFIP regulations is being conducted to determine consistency of the subdivision regulations, and the standard permit application form.

6.6 The Community Rating System

Lee County will be submitting an application for recognition and participation in the NFIP Community Rating System (CRS). The CRS offers discounts on the cost of federal flood insurance to those citizens who reside within communities that are doing more than the minimum requirements for floodplain management.

Nationwide, the average NFIP premium for $100,000 in coverage on an A-Zone property is on the order of $500; thus in communities with a 5% discount, policy holders see, on average, annual savings of $25. The average B, C and X-Zone policy is $150, thus a policyholder saves $7.50 per year. As of May 2001:

- There were (27) policies on property in A-Zone flood hazard areas; assuming the average cost of a policy, residents in these areas save on the order of a total of $16,375 each year due to the actions of in the area.
- There were (33) policies on B, C, or X-Zone areas and residents in these areas save on the order of a total of $7,275 each year due to actions.

Table 6-1 is a summary of CRS activities and points initial application and subsequent recertifications.

Table 6-1
Community Rating System
Activities and Points (1999)

	ACTIVITIES	POINTS
310	Maintain Elevation Certificates on all new and substantial improved buildings	56
320	Provide FIRM information and flood insurance to inquirers; inform lenders, insurance agents, and real estate offices of information availability	140
340	Final subdivision plats required to show flood hazard area	5
350	Maintain flood protection materials in public library	20
420	Preserve floodplain in open space;	44
450	Enforce stormwater management provisions	35
540	Implement drainage system maintenance	300
630	State Dam Safety program	60
	TOTAL	660

As part of the mitigation planning process a detailed review of current and proposed actions related to the goals of the CRS was conducted and is on file with the Sanford/Lee County Community Development Department. Including ongoing functions and requirements, several potential activities were identified for consideration to gain additional CRS points. Based on the current Community Rating System, designation as a Class IX community yields a 5-percent savings on premiums. Performing all the required activities and compliance would bring Class I designation, and a 45-percent savings in premiums.

The Department of Community Development will evaluate the detailed review and determine appropriate action. Some of the suggestions for consideration include:

- Maintain in computer format the surveyed elevation information that is required for construction in flood hazard areas.
- Modify current annual mailing to floodplain residents to address more topics.
- Offer to provide flood protection advice to individual property owners who seek it.
- Seek recognition of the State's financial contribution to the revised flood hazard maps due in 2003.
- Update calculation of the area county/city owned lands within the flood hazard areas.
- Document requirement for the Deep River buffer.
- Use new digital flood hazard maps to flag flood-prone parcels to enhance administration of permit requirements and post-damage evaluation of substantial damage.
- Coordinate flood warnings and responses with operators of critical facilities identified as subject to flooding.

A fundamental premise of North Carolina's mitigation strategy is that both the human resources and well as the capital outlays, which are invested in mitigation, will significantly reduce the demand for future disaster expenditures by reducing the amount of money needed for emergency recovery, repair, and reconstruction following a disaster.

North Carolina Natural Hazards Mitigation Plan (1999)

6.7 Natural Resources

The importance of natural areas and open space is recognized in the 2020 Land Use Plan. Many recreational uses are directly related to natural corridors along waterways, including access for swimming and fishing on the Deep River and its tributaries. The County owns and operates over 15 park and recreation areas totaling nearly 300 acres. Map 5-3 shows county/city-owned lands that are within the mapped floodplain.

Resources	Classification	Acres
Armory	Neighborhood	1
Buchanan Park	Neighborhood	5
Kiwanis Children's Park place	Neighborhood	5
Temple Park	Neighborhood	5

Resources	Classification	Acres
Weatherspoon Street	Neighborhood	1
W.B. Wicker Gym	Neighborhood	3
Dalrymple Park	Community	6
Horton Park	Community	9
Kiwanis Family Park	Community	46
O.T. Sloan Park	Community	44
San-Lee Park	Regional	162
Deep River-Northview	Special Use	8
Jonesboro School	Special Use	1
Lions Fairgrounds	Special Use	2
Optimist Park	Special Use	2
Golf Course	Community	124.63
Depot Park	Community	1.25
Hospital	Regional	17.53

Part 7
Mitigation Actions

7.1 Process to Identify Priority Actions

Throughout the planning process the Mitigation Planning Committee discussed hazards, the number and nature of people and property that are exposed, and the development review/regulatory process.

The priorities indicated by each Committee member in the context of his or her agency's responsibilities were composited, yielding:

- 9 high priority actions; and
- 6 medium priority actions

7.2 Mitigation Actions

Table 7-1 summarizes each mitigation action and assignments. Additional detail on possible implementation steps is found in Appendix F. The timeframes are consistent with the Short-, Mid- and Long-Terms set in the Comprehensive Plan. An updated version of this table will be included in annual CRS progress reports. Future revisions of the Lee County *Hazard Mitigation Plan* should report on completed actions.

Table 7-1
Mitigation Actions.

Mitigation Actions	Assignment	Date Completed
High Priority: Short-Term Timeframe (2002 – 2005)		
Action 1. Incorporate digital floodplain and topographic data into automated permit database/system and Geographic Information System data layer inventory.	Community Development/GIS	9/01/02
Action 2. Evaluate whether public buildings and facilities are exposed to flood hazards.	GIS	8/01/02
Action 3. Improve pre-disaster flood warning and public safety.	San Lee Park	Complete
Action 4. Develop and implement multi-year public awareness campaign.	Emergency Mgmt.	9/01/02
Action 5. Identify hazardous materials handlers/waste sites in the mapped floodplain.	GIS	8/01/02
Action 6. Evaluate flood damage potential of electric utility, water and sewer distribution systems.	Public Works Utilities	10/01/02
Action 7. Increase City's classification in the NFIP Community Rating System.	Emergency Mgmt/Community Dev.	9/01/02
Action 8. Develop comprehensive open space/reuse plan to support floodplain acquisition initiatives and recreational opportunities.	Community Development	12/31/02
Action 9. Evaluate clear cutting and building in the flood plain.	Forest Service UDO	12/31/02
Medium Priority: Mid-Term Timeframe (2006-2010)		
Action 10. Make flood hazard information available to other public agencies.	Joint Responsibility	1/01/03
Action 11. Evaluate flood damage potential of transportation infrastructure.	GIS/Engineering	4/01/03

Table 7-1
Mitigation Actions.

Mitigation Actions	Assignment	Date Completed
Action 12. Identify high hazard dams on waterways that drain through county.	DOT/Public Works	1/01/03
Action 13. Obtain and maintain North Carolina Certified Floodplain Manager status.	Community Development	4/01/03
Action 14. Standardize procedures for handling certain post-damage permit processing procedures.	Community Dev./Inspections	4/01/03
Action 15. Support enhancement of emergency management functions in the Lee County.	Emergency Management	4/01/03

7.3 Links to Mitigation Goal Statement

Table 7-2 shows that the actions determined to be high priorities for Lee County directly support the Lee County Mitigation Goal Statement.

Lee County Mitigation Goal Statement

*The mitigation goal of Lee County is to protect public health, safety and welfare by **identifying** natural and man-made hazards, by **increasing public awareness** of those hazards, and by **fostering** both individual and public responsibility in mitigating risks due to those hazards.*

Table 7-2
Linking Mitigation Goals & Actions.

Element of Goal	Actions Relating to Goal
Identifying natural and man-made hazards	All actions
Increasing public awareness of those hazards	Actions 4, 10
Fostering both individual and public responsibility in mitigating risks due to those hazards	All Actions

7.4 Links to Land Use Plan Strategies

The 2020 Land Use Plan sets forth over 25 strategies to accomplish several broad goals. Those strategies that directly or indirectly support the hazard mitigation goal and actions identified through the mitigation planning process are summarized in Table 7-3.

Table 7-3
Linking Strategies & Actions

Strategy	Actions	Time Frame
Parks, Recreation and Open Space	Provide adequate and accessible park and recreation facilities	Ongoing, Long-term
Transportation	Develop a transportation system that provides safe, effective and efficient traffic flow	Long-term
Public Facilities	Provide an adequate sewage system to meet the needs of the Community. Provide a safe and adequate water supply.	Ongoing, Long-term Ongoing, Long-term
Environmentally Sensitive Areas	Preserve stream valleys for open space and passive recreation. Identify, protect and enhance ecologically valuable land and surface water for present and future. Create buffering along all creeks, rivers and flood plains.	Long-term Ongoing, Long-term Ongoing

Part 8
Implementation

8.1 Monitoring & Progress Reports

Implementation and progress on the mitigation action items will be monitored annually as part of the Community Rating System (CRS) process once it is adopted and implemented. Lee County, Sanford and Broadway are required to submit an annual re-certification of its CRS activities, including a status report on the action items in this Plan. This presents an ideal opportunity to trigger an annual review.

Monitoring is important for future eligibility under both CRS and mitigation funding programs that may be available from the Federal Emergency Management Agency. FEMA has the authority to evaluate progress on a plan prior to deeming the plan as fulfilling certain program requirements. This Plan may require updates or modifications in order to qualify for future programs or funding.

Annual progress reports will be inserted in Appendix F.

8.2 Revisions

Revisions to the Lee County *Hazard Mitigation Plan* will be considered on a 5-year cycle. The Plan was adopted in 2002, thus the next review cycle will begin sometime in 2007.

Although the comprehensive review and revision is scheduled, some amendments to the Plan may be prompted by a number of circumstances, including identification of specific new mitigation projects, completion of several proposed mitigation actions, or if required to qualify for specific funding.

Appendix A
References

North Carolina Department of Crime Control and Public Safety, Division of Emergency Management. 1999. *Natural Hazards Mitigation Plan (409 Plan).* Raleigh, NC.

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Federal Emergency Management Agency and U.S. Army Corps of Engineers. 1996. *Water Control Infrastructure, National Inventory of Dams on CD-ROM, Updated Data.* Washington, DC. Online at http://crunch.tec.army.mil/nid/wepages/nidwelcome.cfm.

NOAA, National Climatic Data Center (Reports from National Weather Service in Categories). Online at www.ncem.org/Mitigaton_New/ctySummary.htm (accessed May 25, 2001).

North Carolina State Building Code (1996).

Appendix B
Local Government Powers

Representatives of each department that participated in the planning process were interviewed to gain an understanding of past damage caused by natural hazards. The following notes derive from those interviews.

Taxation Powers
The power to levy taxes and special assessments is an important delegated power. Certain types of taxes can be levied and applied hazard mitigation measures as a component of a jurisdiction's fiscal capability. The power of taxation extends beyond merely the collection of revenue, and can have a profound impact on the pattern of development. Preferential tax rates can be established for areas that are deemed unsuitable for development (e.g., agricultural land, wetlands). Local 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 160A238).

Spending Powers
The fourth major power that has been delegated to local governments is the power to make expenditures in the public interest. Hazard mitigation principles can be made a routine part of all spending decisions, including annual budgets and capital improvement plans. A capital program is a timetable by which the timing and level of municipal services that are intended to be provided over a specified time period. By tentatively committing itself to a timetable for funding to extend services, a local government can control growth to some extent. A capital program may also contain a timetable for the extension of and access to municipal services, which may be a tool to guide development patterns.

Appendix C
Summary of Committee Meetings

Hazard Mitigation Planning Committee Membership

Representatives from the following departments comprise the Committee. They will participate in Committee meetings, gather and provide information to review interim materials and drafts of the Plan, and evaluate potential mitigation actions in the context of their department's capabilities and responsibilities.

Mandatory Members

Key Elected Officials	Lee County – County Commissioner (Jerry Lemmond) Sanford – City Councilman (TBA) Broadway – Town Commissioner (TBA)
City and County Managers	City Manager Leonard O. Barefoot County Manager William Cowan Broadway Town Manager Bob Stevens
Public Works Directors	County – Kenny Cole or designee Sanford – Larry Thomas or designee
Community Planners	Trevis Averett or designee
City and County Engineers	Vic Czar - City Kenny Cole - County
Floodplain Administrators	Trevis Averett or designee
Building/Permit Officials	Travis Phillips, Robert Privott
Emergency Managers	Warren Lee
Law Enforcement and Fire	Sheriff's Department – Sheriff Bryant or designee Sanford Police Department – Chief Yarborough or designee Broadway Police Department – Chief Bates or designee County Fire – Scott Holt or designee City Fire – Wayne Barber or designee
GIS Staff	Don Kovasckitz

Others to Consider

NCEM Area Coordinator	Woody Mashburn - consult as needed
Regional Agencies	No request at this time
Parks and Recreation	John Payne – consult as need
Soil and Water Conservation	Darryl Harrington or Tommy Brooks – consult as needed
Utilities	CP&L - consult as needed Central Electric - consult as needed PSNC – consult as needed
Public or Private	David Vann, George McRae (LEPC members Facility Reps)

Hazard Mitigation Advisory Committee Meeting #1

The first meeting of the Hazard Mitigation Advisory Committee was held on February 19, 2002. The focus of the meeting was threefold:

(1) Briefed committee members on the requirements placed on local governments by the Disaster Mitigation Act of 2000 and NC Senate Bill 300,
(2) Presented an overview of the nine-step hazard mitigation planning process, and
(3) Identified the natural hazards that pose the greatest threat to Lee County.

Hazard Mitigation Advisory Committee Meeting #2

The second meeting of the Hazard Mitigation Advisory Committee was held on March 5, 2002. The following items were addressed:

(1) An assessment by committee members of Lee County's vulnerability to natural hazards, and
(2) Designation of geographic planning areas (step two of nine) for the plan.

Hazard Mitigation Advisory Committee Meeting #3

The third meeting of the Hazard Mitigation Advisory Committee was held on May 16, 2002. The following items were addressed:

(1) Confirmed priorities for recommended mitigation actions,
(2) Previewed comments on Draft Plan, and
(3) Forwarded plan to Governing Bodies.

Appendix D
Mitigation Actions

Mitigation Actions	Notes on Implementation
HIGH	
Action 1. Incorporate digital floodplain and topographic data into automated permit database/system and Geographic Information System data layer inventory.	
Action 2. Evaluate whether public buildings and facilities are exposed to flood hazards.	
Action 3. Improve pre-disaster planning for flood warning and public safety.	
Action 4. Develop and implement multi-year public awareness campaign.	
Action 5. Identify hazardous materials handlers/waste sites in the mapped floodplain.	
Action 6: Evaluate flood damage potential of electric utility, water and sewer distribution systems.	
Action 7. Increase classification in the NFIP Community Rating System.	
MEDIUM	
Action 9. Make flood hazard information available to others.	
Action 10. Evaluate flood damage potential of transportation infrastructure.	
Action 11. Identify high hazard dams on waterways	

Appendix E
Annual Progress Reports

An annual report on progress is to be submitted to maintain the Lee County's eligibility under the NFIP's Community Rating System. The reports will be noted below, and inserted in this appendix.

Revisions to the Lee County *Hazard Mitigation Plan* will be considered on the 5-year cycle for the Comprehensive Plan. Both plans are adopted in 2002, thus the next review cycle will begin sometime in 2007.

Date of Progress Report	**Summary of Progress Accomplished**

Appendix F
Flood-prone Roads and Crossings

Flood-prone Roads and Crossings

Flood Prone Roads

LOLEFT	LORIGHT	HILEFT	HIRIGHT	PRE	ROADNAME	TYPE	SRNUM	LENGTH
101	100	199	198		ALCOTT	ST		218.339
1	2	2629	2630		AMMONS FARM	RD	1424	722.85
415	416	659	658		AMOS BRIDGES	RD	1420	636.77
601	600	3199	3198		ARGYLE	DR		436.264
101	100	199	198		AUSTIN	ST		35.747
6777	6778	7699	7698		AVENTS FERRY	RD	NC42	2958.838
1	2	1167	1168		BAILEY THOMAS	RD	1186	323.545
1	2	137	138		BARRETTS LANDING	LN		142.978
1	2	493	494		BARRINGER	RD	1501	1344.035
125	126	459	460		BEAVER LAKE	RD		169.53
1301	1300	1399	1398		BOGAN	ST	1454	75.168
1	2	9999	9998		BOONE	DR		20.697
1	2	399	398		BRIDLEWOOD	LN		508.072
3001	3000	3505	3504		BUCKHORN	RD	1538	313.669
121	120	199	198	E	BUFFALO	ST		44.202
2601	2600	2799	2798		BUFFALO CHURCH	RD	1153	541.701
1	2	1317	1318		CAPE FEAR	LN		6951.897
1001	1000	1599	1598		CARBONTON	RD	1009	483.743
4551	4550	4873	4872		CARBONTON	RD	1009	163.639
5241	5240	5691	5690		CARBONTON	RD	1009	262.681
6161	6160	6725	6724		CARBONTON	RD	1009	214.682

LOLEFT	LORIGHT	HILEFT	HIRIGHT	PRE	ROADNAME	TYPE	SRNUM	LENGTH
6995	6994	7201	7200		CARBONTON	RD	1009	1119.002
1131	1130	1299	1298		CARTHAGE	ST	1237	799.553
1501	1500	1699	1698		CARTHAGE	ST	1237	346.418
601	600	749	748		CASHMERE	CT		422.057
2407	2408	3345	3346		CEDAR LANE	RD	1182	174.753
103	102	199	198		CHARLOTTE	AV		362.086
101	100	399	398		CHATHAM	ST		1513.545
631	630	699	698		CHELSEA	DR		49.893
131	130	199	198	E	CHISHOLM	ST		540.822
817	818	2059	2060		CLETUS HALL	RD	1504	852.745
269	270	887	888		CLIFTON	LN	1397	69.117
3137	3136	4095	4094		COLON	RD	1415	193.634
1301	1300	1499	1498		COMFORT	LN		245.251
1	2	221	222		COOPERS CORNER	LN		621.556
23	24	711	712		COPELAND	RD	1545	211.785
2309	2310	3893	3894		COTTEN	RD	1403	607.088
1001	1000	1621	1620		COUNTY LINE	RD	1172	311.067
1	2	379	380		COVERED BRIDGE	LN		364.898
521	520	599	598		COX MADDOX	RD	1527	290.92
4547	4548	6147	6148		COX MILL	RD	1529	186.458
739	740	935	936		CREEKWOOD	RD		77.551
1067	1068	2269	2270		CUMNOCK	RD	1400	797.7
201	200	399	398	S	CURRIE	DR		84.509
1	2	451	452		DEEP RIVER	RD	1466	252.563
7635	7636	7823	7824		DEEP RIVER	RD	1466	701.896
1	2	1163	1164		EDWARDS	RD	1001	158.391

LOLEFT	LORIGHT	HILEFT	HIRIGHT	PRE	ROADNAME	TYPE	SRNUM	LENGTH
3143	3144	4031	4032		EDWARDS	RD	1001	264.521
1	2	581	582		F L DOWDY	LN		211.901
1	2	501	502		FARMINGTON	LN		2639.769
1575	1576	2943	2944		FARRELL	RD	1423	394.686
101	100	199	198		FIELDS	DR		256.086
201	200	299	298	N	FIRST	ST		81.457
501	500	599	598	N	FIRST	ST		272.757
1	2	449	450		FORESTWOOD PARK	RD		267.818
1001	1000	1199	1198	S	FOURTH	ST		905.295
201	200	299	298	E	GARDEN	ST		48.76
1501	1500	1999	1998	W	GARDEN	ST	1117	300.012
101	102	2381	2380		GILLIAM	RD	1320	184.223
501	500	799	798		GLOUCESTER	DR		343.884
3201	3200	3499	3498		GREEN VALLEY	DR	1478	209.838
835	836	1225	1226		GREENWOOD	RD	1144	231.409
101	100	199	198		GUNTER	ST		105.587
1	2	253	254		HANCOCK	RD	1184	255.218
4501	4500	4699	4698		HAWKINS	AV	15-501	464.22
1731	1730	2349	2350		HENLEY	RD	1305	231.576
3401	3400	3499	3499		HIAWATHA	TRL		180.845
101	100	205	204		HICKORY	AV		502.875
101	100	199	198		HIGH RIDGE	DR		281.37
1143	1144	1243	1244		HOLLYWOOD	RD		78.236
1301	1300	1499	1498	N	HORNER	BLVD	US 421	1747.728
1801	1800	1999	1998	S	HORNER	BLVD	US 421	274.454
43	44	1605	1606		HORSEMANS RIDGE	LN		260.032
3401	3400	3899	3898		INDUSTRIAL	DR	1239	692.273
201	200	299	298		JENKINS	ST		223.406

LOLEFT	LORIGHT	HILEFT	HIRIGHT	PRE	ROADNAME	TYPE	SRNUM	LENGTH
1	2	1003	1004		JOE MATTHEWS	RD	1159	189.588
337	338	1199	1200		JOHN GODFREY	RD	1167	302.656
1	2	785	786		JOHNSON CEMETERY	RD	1167	245.202
1901	1900	1999	1998		K M WICKER MEMORIAL	DR		774.382
3001	3000	3399	3398		KELLER-ANDREWS	RD	1154	275.099
301	300	499	498		LAFAYETTE	DR		151.062
1	2	227	228		LAMM	LN		18.125
1	2	777	778		LAWS	RD		199.088
4001	4000	4299	4298		LEE	AV	1133	361.812
4951	4950	5505	5504		LEMON SPRINGS	RD	1001	224.582
6623	6622	7139	7138		LEMON SPRINGS	RD	1160	112.91
189	190	833	834		LICK CREEK	RD	1508	163.67
1	2	99	98		LOCHMERE	DR		666.747
3301	3300	3599	3598		LONGVIEW	DR		1199.871
1723	1724	2047	2048		LOWER MONCURE	RD	1002	196.019
3433	3434	4451	4452		LOWER MONCURE	RD	1002	683.711
5105	5106	5795	5796		LOWER MONCURE	RD	1002	671.547
1	2	493	494		LOWER RIVER	RD	1500	837.999
849	850	2849	2850		LOWER RIVER	RD	1500	3696.53
3273	3274	5415	5416		LOWER RIVER	RD	1500	8683.177
201	200	299	298	E	MAKEPEACE	ST		52.897
101	100	113	112		MAPLE	AV		363.283
301	300	399	398		MARKET	ST		28.469
201	200	299	298	E	MCINTOSH	ST		240.995
101	100	145	144		MCIVER	ST		480.982
101	100	599	598		MCNEILL	RD	1405	785.498

LOLEFT	LORIGHT	HILEFT	HIRIGHT	PRE	ROADNAME	TYPE	SRNUM	LENGTH
2187	2188	2449	2448		MINTER SCHOOL	RD	1149	125.835
1061	1062	1899	1898		NICHOLSON	RD	1166	269.317
101	100	199	198		NORTH	AV		16.25
1	2	993	994		NORTHERN RANCHES	RD		128.54
1	2	309	310		NOTTINGHAM	LN		1619.818
4201	4200	4399	4398		OAK PARK	RD		688.718
1401	1400	1599	1598		OLD CARBONTON	RD	1329	200.102
343	344	1425	1426		PEPPERMILL	RD	1530	132.9
1897	1898	3491	3490	N	PLANK	RD	1007	3659.365
3377	3378	6951	6952		POPLAR SPRINGS CHURCH	RD	1537	167.528
1	2	643	644		RAVENS NEST	LN		359.974
401	400	499	498		RHYNEWOOD	DR		166.745
1	2	751	752		RIVER BEND	LN		909.844
201	200	399	398	E	ROSE	ST		433.464
1601	1602	3089	3090		SAN-LEE	DR	1509	172.633
301	300	399	398	S	SECOND	ST		60.1
1	2	1381	1382		SHERIFF WATSON	RD	1162	264.584
3573	3574	4403	4404		SHERIFF WATSON	RD	1162	414.643
1003	1002	1299	1298		SPRING	LN	1100	916.322
201	200	299	298	E	SPRUCE	ST		459.9
3185	3186	4131	4132	4133	ST ANDREWS CHURCH	RD	1146	621.146
1811	1812	2459	2460		STEEL BRIDGE	RD	1318	621.21
4491	4492	5597	5598		STEEL BRIDGE	RD	1318	363.032
1601	1600	1699	1698		STONEGATE NORTH			465.094
801	800	899	898		STUART	DR		417.846
3543	3542	4375	4374		SWANNS STATION	RD	1144	214.345
201	200	299	298		SYCAMORE	ST		188.665

LOLEFT	LORIGHT	HILEFT	HIRIGHT	PRE	ROADNAME	TYPE	SRNUM	LENGTH
201	200	299	298		TALLEY	AV		126.528
601	600	899	898	S	THIRD	ST	1515	542.878
1101	1100	1299	1298	S	THIRD	ST	1515	420.237
0	0	0	0		TRACEWAY NORTH			199.544
301	300	1599	1598		TRACEWAY NORTH			450.305
3	4	99	98		TRACEWAY SOUTH			147.353
401	400	499	498		VALLEY	RD	1348	305.427
1601	1600	1699	1698		WAYNE	ST		382.581
1601	1600	1699	1698		WEBB	ST		304.504
201	200	613	612		WESTOVER	DR	1333	627.489
951	950	2399	2398		WICKER	ST		1641.074
901	900	1199	1198		WILKINS	DR		1592.336
301	300	499	498		WILSON	ST		1065.12
501	500	1099	1098		WINTERLOCKEN	DR		312.872
1	2	297	298		WOMBLE CREEK	RD		1544.019

Appendix G
Repetitive Loss Properties

Repetitive Loss Properties

OLDADDR	OLDADDRSUF	NEWADDR	NEWADDRSUF	ROADPRE	ROADNAME	ROADTYPE	SRNUM	COMMENT
424					AMOS BRIDGES	RD	1420	BU CITY LIFT STATION
634					ANGUS	CT		
1110		1060			BAILEY THOMAS	RD	1186	
		461			BARRINGER	RD	1501	BU DEEP RIVER GOLF COURSE
9910		490			BARRINGER	RD	1501	
1901					BEACHWOOD	DR		
2621					BRISTOL	WAY		
2625					BRISTOL	WAY		
					BUCKHORN	RD	1538	CABIN AT LETTS LANDING
					BUCKHORN	RD	1538	CABIN AT LETTS LANDING
					BUCKHORN	RD	1538	CABIN AT LETTS LANDING
					BUCKHORN	RD	1538	CABIN AT LETTS LANDING
					BUCKHORN	RD	1538	CABIN AT LETTS LANDING
6016		7068			CARBONTON	RD	1009	
1601					CARTHAGE	ST	1237	
607					CASHMERE	CT		
608					CASHMERE	CT		
609					CASHMERE	CT		
131					CHARLOTTE	AV		BU JONES PRINTING CO
133					CHARLOTTE	AV		
141					CHARLOTTE	AV	1002	BU CHAMBER OF COMMERCE
143					CHARLOTTE	AV	1002	BU CHAMBER OF COMMERCE

OLDADDR	OLDADDRSUF	NEWADDR	NEWADDRSUF	ROADPRE	ROADNAME	ROADTYPE	SRNUM	COMMENT
145					CHARLOTTE	AV	1002	BU CHAMBER OF COMMERCE
152					CHARLOTTE	AV	1002	BU KING
133	A	151			CHARLOTTE	AV	1002	CH NEW BIRTH BORN AGAIN
115					CHATHAM	ST		BU CASCADE FIBERS
121					CHATHAM	ST		BU
125					CHATHAM	ST		BU
131					CHATHAM	ST		BU CAPT ROD SULLIVANS
211					CHATHAM	ST		BU
213					CHATHAM	ST		BU
219					CHATHAM	ST		BU
221					CHATHAM	ST		BU
229					CHATHAM	ST		BU
301					CHATHAM	ST		BU
303					CHATHAM	ST		BU
305					CHATHAM	ST		BU
307					CHATHAM	ST		BU
317					CHATHAM	ST		BU ATLANTIC & WESTERN CO
409					CHATHAM	ST		BU NOLAND
211	A				CHATHAM	ST		BU
638					CHELSEA	DR		
641					CHELSEA	DR		
142				E	CHISHOLM	ST		
152				E	CHISHOLM	ST		
155				E	CHISHOLM	ST		BU WSW FABRIC WAREHOUSE
1385					COMFORT	LN		BU SHONEYS
		500			CREEKWOOD	RD		

OLDADDR	OLDADDRSUF	NEWADDR	NEWADDRSUF	ROADPRE	ROADNAME	ROADTYPE	SRNUM	COMMENT
864					EAGLES NEST	DR		
865					EAGLES NEST	DR		
636					FAIRWAY	DR		
642					FAIRWAY	DR		
646					FAIRWAY	DR		
		100			FARMINGTON	LN		
		365			FARMINGTON	LN		
		481			FARMINGTON	LN		
1309					FERNRIDGE	DR	1262	
1313					FERNRIDGE	DR	1262	
1015				S	FIFTH	ST		BU SANFORD MUFFLER SHOP
117				N	FIRST	ST		BU SEARS METAL FINISHING
119				N	FIRST	ST		BU INSULATIONS INSTALLERS
133				N	FIRST	ST		
251				N	FIRST	ST		BU AQUEOUS CLEANING
1003				S	FOURTH	ST		
1007				S	FOURTH	ST		
1011				S	FOURTH	ST		
1013				S	FOURTH	ST		
1017				S	FOURTH	ST		
1021				S	FOURTH	ST		
1106				S	FOURTH	ST		
		885			GOLDEN HILLS	LN		
4700		968			GREENWOOD	RD	1144	
4703		971			GREENWOOD	RD	1144	
4539					HAWKINS	AV	15-501	

OLDADDR	OLDADDRSUF	NEWADDR	NEWADDRSUF	ROADPRE	ROADNAME	ROADTYPE	SRNUM	COMMENT
7219		2283			HENLEY	RD	1305	
200					HICKORY	AV		BU F.A.T. PRODUCTIONS
320					HICKORY	AV		BU READY MIX\CONCRETE
105	A				HICKORY	AV		BU AIR CLEANING EQUIPMENT
		1221			HOLLYWOOD	RD		
9000		1244			HOLLYWOOD	RD		
1908				S	HORNER	BLVD	US 421	
1910				S	HORNER	BLVD	US 421	BU TACO BELL
1919				S	HORNER	BLVD	US 421	BU TONYS SEAFOOD
1923				S	HORNER	BLVD	US 421	BU PIZZA HUT
1907					K M WICKER MEMORIAL	DR		BU SANFORD RACKETT CLUB
1911					K M WICKER MEMORIAL	DR		BU CENTRAL CAROLINA EARS NOSE THRO
1915					K M WICKER MEMORIAL	DR		BU CENTRAL CAROLINA EARS NOSE THRO
1922					K M WICKER MEMORIAL	DR		BU UNC DIALYSIS UNIT
521					KIRK	CT		
522					KIRK	CT		
373					KITTERY	PNT		
2420					LAKELAND	DR	1716	
1127		227			LAMM	LN		
4016					LEE	AV	1133	BU GASTERS CREEK LIFT STATION
2033					LONG POINT	TRL		
3301					LONGVIEW	DR		
3305					LONGVIEW	DR		
3307					LONGVIEW	DR		
3312					LONGVIEW	DR		
3402					LONGVIEW	DR		

OLDADDR	OLDADDRSUF	NEWADDR	NEWADDRSUF	ROADPRE	ROADNAME	ROADTYPE	SRNUM	COMMENT
3403					LONGVIEW	DR		
3407					LONGVIEW	DR		
3411					LONGVIEW	DR		
3412					LONGVIEW	DR		
3414					LONGVIEW	DR		
3415					LONGVIEW	DR		
3503					LONGVIEW	DR		
3507					LONGVIEW	DR		
3508					LONGVIEW	DR		
3511					LONGVIEW	DR		
3609		5153			LOWER MONCURE	RD	1002	
8126		3556			LOWER RIVER	RD	1500	
		3560			LOWER RIVER	RD	1500	
8127		3603			LOWER RIVER	RD	1500	
		3889			LOWER RIVER	RD	1500	
8213		3893			LOWER RIVER	RD	1500	
8304		4004			LOWER RIVER	RD	1500	
8301		4019			LOWER RIVER	RD	1500	
		4503			LOWER RIVER	RD	1500	
8421		4783			LOWER RIVER	RD	1500	
8515		5187			LOWER RIVER	RD	1500	
8520		5204			LOWER RIVER	RD	1500	
8521		5219			LOWER RIVER	RD	1500	
8535		5271			LOWER RIVER	RD	1500	
2830					MALLARD COVE	RD		APT MALLARD COVE PHASE II
2832					MALLARD COVE	RD		APT MALLARD COVE PHASE II

OLDADDR	OLDADDRSUF	NEWADDR	NEWADDRSUF	ROADPRE	ROADNAME	ROADTYPE	SRNUM	COMMENT
2836					MALLARD COVE	RD		APT MALLARD COVE PHASE II
111					MAPLE	AV		BU
112					MAPLE	AV		BU
					MCIVER	ST		BU
					MCIVER	ST		BU LEE CO RESCUE
124					MCIVER	ST		BU
131					MCIVER	ST		
132					MCIVER	ST		BU YARBOROUGHS
146					MCIVER	ST		BU BOWEN CAR
147					MCIVER	ST		BU LEE CO PARKS & REC
					MCNEILL	RD	1405	MHP GRAIG
225					MCNEILL	RD	1405	
6400		989			NORTHERN RANCHES	RD		
		185			NOTTINGHAM	LN		
		248			NOTTINGHAM	LN		
		252			NOTTINGHAM	LN		
		256			NOTTINGHAM	LN		
		83			NOTTINGHAM	LN		
1350					OHIO	LN		
1351					OHIO	LN		
1352					OHIO	LN		
1390					PENNSYLVANIA	AV		
1393					PENNSYLVANIA	AV		
1810		1538			RIDDLE	RD	1416	
1816		1562			RIDDLE	RD	1416	
301				E	ROSE	ST	1119	

OLDADDR	OLDADDRSUF	NEWADDR	NEWADDRSUF	ROADPRE	ROADNAME	ROADTYPE	SRNUM	COMMENT
303				E	ROSE	ST	1119	
305				E	ROSE	ST	1119	
311				E	ROSE	ST	1119	BU POWELL & POWELL SUPPLY CO
1013					SPRING	LN	1100	
1094					SPRING	LN	1100	BU INTERSTATE JOHNSON LANE
1135					SPRING	LN	1100	BU B B & T
213				E	SPRUCE	ST		
217				E	SPRUCE	ST		
3805		7625			STEEL BRIDGE	RD	1318	
1619					STONEGATE NORTH			
1621					STONEGATE NORTH			
1622					STONEGATE NORTH			
1625					STONEGATE NORTH			
1627					STONEGATE NORTH			
1628					STONEGATE NORTH			
1631					STONEGATE NORTH			
1632					STONEGATE NORTH			
1634					STONEGATE NORTH			
1636					STONEGATE NORTH			
1601					STONEGATE SOUTH			
1606					STONEGATE SOUTH			
1610					STONEGATE SOUTH			
1611					STONEGATE SOUTH			
212					SYCAMORE	ST		BU ARROWTECH INC
200					TALLEY	AVE		
201					TALLEY	AVE		

OLDADDR	OLDADDRSUF	NEWADDR	NEWADDRSUF	ROADPRE	ROADNAME	ROADTYPE	SRNUM	COMMENT
202					TALLEY	AVE		
203					TALLEY	AVE		
205					TALLEY	AVE		
207					TALLEY	AVE		
				S	THIRD	ST	1515	
1109				S	THIRD	ST	1515	
707				S	THIRD	ST	1515	
809				S	THIRD	ST	1515	
501	A				TIMBER	PL		APT TIMBERWOOD
601	A				TIMBER	PL		APT TIMBERWOOD
501	B				TIMBER	PL		APT TIMBERWOOD
601	B				TIMBER	PL		APT TIMBERWOOD
501	C				TIMBER	PL		APT TIMBERWOOD
601	C				TIMBER	PL		APT TIMBERWOOD
501	D				TIMBER	PL		APT TIMBERWOOD
501	E				TIMBER	PL		APT TIMBERWOOD
501	F				TIMBER	PL		APT TIMBERWOOD
501	L				TIMBER	PL		APT TIMBERWOOD
754					TURNBURY	CT		
757					TURNBURY	CT		
426					VALLEY	RD	1348	
306	D				VILLAGE	DR		APT HIGH RIDGE VILLAGE
306	F				VILLAGE	DR		APT HIGH RIDGE VILLAGE
306	H				VILLAGE	DR		APT HIGH RIDGE VILLAGE
1354					VIRGINIA	CIR		
1601					WAYNE	ST	1452	

OLDADDR	OLDADDRSUF	NEWADDR	NEWADDRSUF	ROADPRE	ROADNAME	ROADTYPE	SRNUM	COMMENT
1602					WAYNE	ST	1452	
1605					WAYNE	ST	1452	BU LEE CONTRACTOR SUPPLY
1606					WAYNE	ST	1452	
1610					WAYNE	ST	1452	
1601					WEBB	ST	1458	
1602					WEBB	ST	1458	
1605					WEBB	ST	1458	
1606					WEBB	ST	1458	
1609					WEBB	ST	1458	
1613					WEBB	ST	1458	
310					WESTOVER	DR	1333	
312					WESTOVER	DR	1333	
2740					WILKINS	DR	1328	BU HILCO TRANSPORT
301					WILSON	ST		
307					WILSON	ST		
407					WILSON	ST		
411					WILSON	ST		
415					WILSON	ST		
9716		119			WOMBLE CREEK	RD	1500	
9711		151			WOMBLE CREEK	RD	1500	
9703		293			WOMBLE CREEK	RD	1500	

Appendix H
Geographic Planning Area Vulnerability Assessment

Type of Development	Number of Existing Private Buildings	Current Value	Current Number of People	Projected Number of Private Buildings	Projected Value	Projected Number of People*
Single-Family Residential	25,442	$1,424,923,400	40,066	27,808	$ 1,644,142,385	43,792
Multi-Family Residential	111	$ 60,784,100	8,974	121	$ 70,135,500	9,809
Commercial	1,052	$ 286,586,100		1,150	$ 330,676,269	
Industrial	115	$ 192,305,400		126	$ 221,890,846	
Other	2,241	$ 337,648,200		2,449	$ 389,594,077	
Sewage Treatment Plant	1	$ 2,880,200		1	$ 3,323,308	
Water Treatment Plant	1	$ 2,958,100		1	$ 3,413,192	
Hospital	1	$ 10,919,000		1	$ 12,598,846	
Schools	20	$ 75,535,300		22	$ 87,156,115	
Infrastructure	**not available**					
Police Station	**see government buildings**					
Fire Station	13	$ 3,121,400		14	$ 3,601,615	
Government Offices	108	$ 46,477,100		118	$ 53,627,423	
Public Housing	11	$ 6,238,000		12	$ 7,197,692	
TOTAL	**29,116**	**$2,450,376,300**	**49,040**	**31,824**	**$ 2,827,357,269**	**53,601**