

# **WHITE COUNTY, GEORGIA**

**2004**

# **HAZARD MITIGATION PLAN**

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## **WHITE COUNTY, GEORGIA**

### **Brief County Overview**

#### **Government**

White County is governed by three County Commissioners with the aid of an administrator hired by the Board of Commissioners.

#### **Geography and Location**

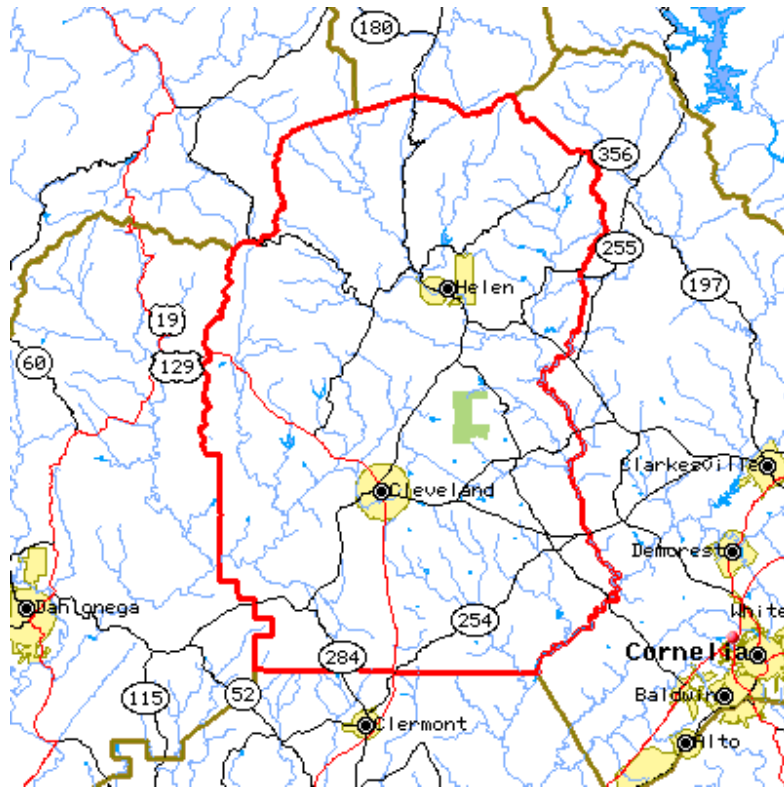
White County, the 123<sup>rd</sup> county formed in Georgia, was created in 1857 from a part of Habersham county following its acquisition from the Cherokee Indians by a treaty calling for the removal of all Indians from North Georgia. The county is 241 square miles in area which is 0.4% of Georgia's total area. White County is in the 9th U. S. Congressional District, the 50<sup>th</sup> and 51st State Senatorial District and 7th and 8th State House Districts. The county seat is Cleveland. The City of Cleveland's land area encompasses a 1 mile diameter circle from the center of town with a few properties extending to the north and south due to annexations. The elevation of Cleveland is 1,570 feet above sea level.

White Co. is relatively close to large regional cities. Other major highways serving White County include: State Routes 75, 115, 129, 255 and 17. Roads in the area are generally in good condition, however, some are difficult and slow to travel due to steep elevations.



**Proximity to Regional Locations**

Atlanta, GA	75 miles	south-southwest	via 129/I-985/I-85
Greenville, SC	100 miles	east-northeast	via 115/15/365/I-85
Dahlonega, GA	18 miles	west-southwest	via 52, 115
Athens, GA	60 miles	south-southeast	via 115/105/441
Gainesville, GA	25 miles	south	via 129
Clarkesville, GA	15 miles	east	via 115



### Climate

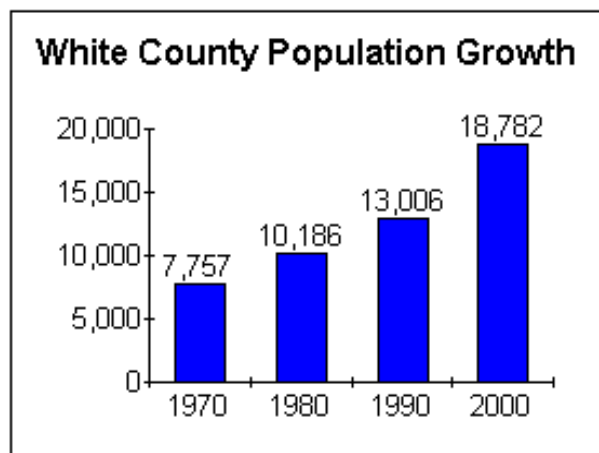
The average annual temperature for White County is 56.3°F. The average winter temperature is 45.1°F and the average summer temperature is 69.8°F. There are 3,649 average Heating Degree Days and 976 average Cooling Degree Days. White County experiences about 69 inches of rainfall per year with an annual average of about 2.4 inches of snowfall. White County's climate can be classified as moderate with four distinct seasons.

### Population and Growth

The population of White County grew by almost 53% from 13,006 in 1990 to an estimated 21,904 today. During that same period, Cleveland grew to over 1900 residents while Helen grew to around 430 residents. The median household income in White Co. is \$36,084, up from \$29,021 in 1989. White County has become a major tourism draw for North Georgia. Much of this can be attributed to the resort quality of Helen as well the scenic attractions provided by the North Georgia mountains and Chattahoochee River. A survey of the population will reveal that a large number of growth within the county is

because of tourists that decided to become full-time residents. Helen's Oktoberfest is recognized as one of the nation's largest. Cleveland's Babyland General Hospital, where Cabbage Patch Kids are "born," is also a large draw for tourism. White County's place within the history of the Cherokee nation places it among some of the top historical sites in the state. Cleveland's Easter Eggstravaganza celebration, the Lighted Christmas Parade, and the Gooseneck Pumpkin Festival are other events that make White County a great place to be.

The close proximity of White County to the "hub of the south" has made our community a favorite weekend getaway for residents of Atlanta and the highly developed metro areas. While the county grew up around agriculture, it has become less so. Only 3% of respondents in the 2000 Census were involved in the agricultural industry. Meanwhile, construction, manufacturing, retail trade and services have grown into the core of White County's economy. While counties to the south have experienced significant growth problems within the past decade, White County has maintained static growth. However, it has been recognized that if growth problems that are expected in the future are not discussed now, White County's citizens will pay the price. Efforts have begun in assuring that the citizens become more informed and participate to a higher degree in the planning and decision making process of their government. Recent meetings concerning comprehensive land use planning are filled with residents both interested and concerned about the direction of the county. We want to encourage industrial and commercial expansion while maintaining the character of our small town and the integrity of our natural beauty.



### Economics

- Largest employment sector – Services (30%)

- Percent of households within economic group – less than \$10,000 (10.1%)  
\$10,000-\$25,000 (20.4%) \$25,000-\$50,000 (38.6%) \$50,000 or more (31.9%)
- Median household income - \$36,084
- Per capita personal income - \$17,193
- Persons below poverty level – 10.5%
- Carpooled – 13.5%
- Drove alone – 79.8%
- Mean travel time in minutes - 29.6 minutes

### **Education**

- Average expenditure per student - \$5,274
- Percentage of residents with high school diploma – 76%
- Percentage with bachelor degree – 15.4%
- Percentage with graduate or professional degree – 5.6%

### **Households**

- Persons per household – 2.51
- Persons under 18 years – 23.2%
- Housing units – 10,186
- Percentage of units owner occupied – 79.2%
- Civilian labor force unemployment rate – 1.8%

### **Population**

- Percentage of population age 65 and over – 14.6%
- Median age – 32.5 years
- Percentage of population change 1990-2000 – 53.3%
- Persons per square mile – 82.6
- Percent born outside of Georgia – 31.5%

## **CHAPTER 1 – INTRODUCTION**

### **1.1 - PURPOSE**

The White County Pre-Disaster Mitigation Plan is the result of a concerted effort on the part of White County and the Cities of Cleveland and Helen. This plan is the representation of White County's commitment to reducing risks from both natural and technological hazards, and also serves as a guide for decision makers as they commit resources to reducing the effects of potential hazards. The plan is intended to serve as a blueprint for White County and the Cities of Cleveland and Helen in coordinating and implementing hazard mitigation policies, programs and projects. In addition, this Hazard Mitigation Plan provides a list of mitigation goals, objectives and related actions that may assist White County in reducing risk and preventing loss from future natural and technological hazard events.

White County and the Cities of Cleveland and Helen agree that mitigation makes sense. It has been proven time and again that the impacts of hazards can be lessened, and sometimes avoided altogether, if appropriate action is taken before hazardous events occur. Through the identification of vulnerable areas and the implementation of measures aimed at minimizing exposure, the negative impacts of both natural and technological hazards can be greatly reduced. Action starts through the preparation and implementation of a comprehensive mitigation strategy

Through a Resolution and Memorandum of Understanding by the White County Board of Commissioners the White County Pre-Disaster Mitigation Planning Committee was formed to provide leadership, support and guidance during preparation of the Plan . The White County Pre-Disaster Mitigation Plan is the result of a collaborative effort between White County citizens, public agencies, non-profit organizations, the private sector, and regional and state organizations. The Planning Committee was comprised of the following representatives:

- American Red Cross, Paul Veen, White County Disaster Team
- Chris Pittman, White County Public Works
- Richard Accurso, White County Mapping
- Ruthann Rackawack, White County Finance Director
- Harry Barton, White County Planning
- Phil Dalenburg, White County Sheriff's Office
- Bill Black, City of Cleveland, Administrative Officer

- William Wright, White County Emergency Management
- Sherill Dockery, USDA Services
- Joyce Bentley, NOK Industries
- Sam Henderson, Chief, White County Fire Department
- Bruce Bankes, Planning, City of Helen

Non-HMPC member participants in the White County process were as follows:

Paul Putnam and Brian Morrill, representing GEMA provided assistance with this plan.

## 1.2 - PLANNING METHODOLOGY

Information in the White County Pre-Disaster Mitigation Plan is based on research from a variety of sources, to include the National Climatic Data Center, National Weather Service, Georgia Department of Natural Resources, Georgia Forestry Commission, Georgia Tornado Database, White County Hazard Mitigation Plan, White County Emergency Operations Plan, various newspaper articles, as well as personal interviews. Any and all applicable local plans from White County and the Cities of Cleveland and Helen have been reviewed and incorporated into the pre-disaster mitigation planning process to the greatest degree possible.

*Pre-Disaster Mitigation Planning Committee* – The committee was directly responsible for developing the mission and vision statements for the planning initiative, as well as the goals, objectives and action items identified in the plan

*Input from Subcommittees* - Subcommittees were created that met independently of the full planning committee. These subcommittees, or working groups, were able to focus on individual aspects of the planning process, resulting in more organized and productive meetings. The full committee and each of the subcommittees met to compose various parts of the plan. The following subcommittees participated in the planning process:

- **Critical Facilities Subcommittee** – responsible for compiling a detailed inventory of all critical facilities, and the characteristics of those facilities, located within the county. This subcommittee utilized a locally developed data collection form to record all required data. The sub-committee consisted of the following members; Richard Accurso, Harry Barton, Bill Black, Bruce Bankes and Phil Dalenburg.
- **Hazard History/Risk Assessment Subcommittee** – responsible for identifying all of the natural and human-caused technological hazards that might affect the county and its member cities. This subcommittee researched various historical records, reviewed existing plans and reports, gathered relevant information from a variety of Internet Websites, as well as having conducted interviews with local experts within the community. Responsible for performing a detailed risk

assessment for the county. Reviewed and analyzed hazard event profiles and related critical facilities to determine expected losses from specific hazard events. Potential losses include people, buildings, infrastructure, and other important community assets. Sub-committee members consisted of the following; Chris Pittman, Sherill Dockery, Joyce Bentley, Sam Henderson and Paul Veen.

### **1.3 - PLAN ORGANIZATION**

The White County Pre-Disaster Mitigation Plan is organized in a fashion to assist local government officials, county residents, public and private sector organizations, and any other interested parties in participating in, and planning for natural and technological hazards. The Pre-Disaster Mitigation Plan contains a Hazard, Risk and Vulnerability (HRV) assessment, a section on natural hazards that typically occur within the county, any technological hazards as well as a section identifying specific mitigation goals, objectives and related courses of action. Finally, a framework for plan implementation and maintenance is presented.

The plan describes those hazards that are considered to have the highest probability of occurrence in relation to their historical background, vulnerability, potential loss, and frequency of occurrence. The plan also identifies and prioritizes hazard mitigation opportunities in each vulnerable area based on input from Planning Committee members and the citizens of White County.

A Public Hearing was held during the Kick Off Meeting on November 26, 2002 in an effort to solicit public input and participation . No members of the general public attended the Public Hearing.

The HMP sets the stage for long-term disaster resistance through identification of actions that will, over time, reduce the exposure of people and property to identifiable hazards. This plan provides an overview of the main hazards that threaten White County and what safeguards the County has in place or may choose to implement in the future to mitigate these hazards. Of these safeguards, three of the highest priorities are:

- *Continued efforts to identify and implement mitigation options in high-risk areas.*
- *Adding certain mitigation requirements to the planning and development process.*
- *Development of an emergency communications plan that will improve interaction with the public.*

## **1.4 - HAZARD, RISK AND VULNERABILITY ASSESSMENT**

A Hazard Risk and Vulnerability assessment was accomplished by compiling and reviewing historical data on the location of specific hazards, the value of existing property in hazard locations, and analyzing the risk to life, property and the environment that could potentially result from future hazard events. The White County Pre-Disaster Mitigation Planning Committee accomplished the HRV by conducting the following steps:

*Inventorying Critical Facilities:* Critical facilities are important in that these entities provide essential products and services to the public that are necessary to preserve the welfare and quality of life in the county. In addition, these facilities fulfill important public safety, emergency response, and/or disaster recovery functions. White County critical facilities have been identified, mapped, and is illustrated in this plan.

*Hazard Identification:* Maps and historical data sources were studied and reviewed in order to identify the geographic extent, intensity, and probability of occurrence for various hazard events. The Planning Committee identified the major hazards that typically affect White County and its two municipalities. A comprehensive hazard history for White County is provided in this plan.

*Profiling Hazard Events:* Analyzed the causes and characteristics of each hazard, how it has affected White County in the past, and what part of White County's population and infrastructure has historically been vulnerable to each specific hazard. A profile of each hazard discussed in this plan is provided.

*Vulnerability Assessment:* This step was accomplished by comparing each previously identified hazard with the inventory of affected critical facilities and population exposed to each hazard.

*Estimating Losses:* Using the best available data, this step involved estimating damage and financial losses likely to be sustained in a geographic area by the use of mathematical models. Structure loss combined with content loss and function loss is examined at intervals of 25 percent, 50 percent, 75 percent and 100 percent . Describing vulnerability in terms of dollar losses provides the county with a common framework in which to measure the effects of hazards on critical facilities.

## **1.5 - MITIGATION GOALS & OBJECTIVES**

The White County Pre-Disaster Mitigation Planning Committee used the results of the Hazard, Risk and Vulnerability assessment to identify and prioritize appropriate mitigation goals, objectives and related actions. Each mitigation goal identifies an

organization or agency responsible for initiating the required action steps. Coordinating organizations are also identified. Coordinating organizations are public agencies with regulatory responsibility to address hazards, or organizations that are willing and able to organize resources, locate and secure appropriate funding, or oversee activity implementation, monitoring, and evaluation. Each mitigation goal includes required actions for implementation, as well as potential resources. Each action also identifies an estimated timeline for implementation. The White County Pre-Disaster Mitigation Plan presents a strategy that includes a comprehensive range of specific mitigation actions and projects considered necessary to reduce the detrimental effects of each identified hazard. These actions range from informational campaigns aimed at education and awareness to construction projects designed to protect specific buildings and infrastructure. The strategy is multi-jurisdictional in that it includes the City of Cleveland and Helen.

## **1.6 – MULTI-JURISDICTIONAL CONSIDERATIONS**

White County, the Cities of Cleveland and Helen all were active participants in the planning process and have identified mitigation goals, objectives. The City of Cleveland was represented in the planning process by the Administrative Officer. The City of Helen was represented in the planning process by the City Building/Planning Officer. The governing bodies for the Cities of Cleveland and Helen will be responsible for formally adopting the White County Pre-Disaster Mitigation Plan.

## **1.7 - PLAN IMPLEMENTATION & MAINTENANCE**

Upon final approval by GEMA and FEMA Region IV, the White County Board of Commissioners will be responsible for formally adopting the White County Pre-Disaster Mitigation Plan. The White County Pre-Disaster Mitigation Planning Committee, working with appropriate local officials, will be responsible for initiating implementation of plan action items and undertaking a formal review process.

The Plan Maintenance Section of this document details the formal process that will ensure that the White County Pre-Disaster Mitigation Plan remains an active and relevant document. The plan maintenance process includes monitoring and evaluating the plan annually, and producing a plan revision every five years. Additionally, White County will develop steps to ensure public participation throughout the plan maintenance process. Finally, this section describes how White County will incorporate the mitigation strategies identified in this plan into other relevant planning documents such as the White County Comprehensive Plan, Short-Term Work Program (STWP) and Emergency Operations Plan (EOP).

## 1.7 – PLAN ADOPTION

The White County Board of Commissioners will consider this plan for adoption upon confirmation of its approval by both GEMA and FEMA Region IV. And after a final public hearing has been held.

## CHAPTER 2 – NATURAL HAZARD, RISK AND VULNERABILITY (HRV) SUMMARY

The White County Pre-Disaster Mitigation Planning Committee initially identified all natural hazards that could potentially affect White County. This list was then narrowed to only the hazards that are most likely to impact the county. As a result of the pre-disaster mitigation planning process, the planning committee determined that six natural hazards pose a direct, measurable threat to White County. Of these, the entire county is exposed to five of the six hazards; Wildfires, thunderstorms to include winds, lightning and hail, winter storms, drought and toronados are all potential threats to the entire community. Flooding on the other hand, is isolated to select areas of the county that are within the flood plain and/or hazard area. Each of these potential hazards is addressed individually with relevant supporting data.

### 2.1-WILDFIRES



**A. Hazard Identification** – The White County HMPC utilized data from the U.S Forest Service and the Georgia Forestry Commission in researching wildfires and their impact on the County.

A wildfire is defined as an uncontrolled fire occurring in vegetation more than 6 feet in height. For a wildfire to occur, there must be available oxygen, a supply of fuel, and enough heat to kindle the fuel. Often, these fires are begun by combustion and heat from surface and ground fires and can quickly develop into a major conflagration. A large wildfire may crown, which means it may spread rapidly through the topmost branches of the trees before involving undergrowth or the forest floor. As a result, violent blowups are common in forest fires, and on rare occasion they may assume the characteristics of a firestorm. A firestorm is a violent convection caused by a continuous area of intense fire and characterized by destructively violent surface indrafts. Sometimes it is accompanied by tornado-like whirls that develop as hot air from the burning fuel rises. Such a fire is beyond human intervention and subsides only upon the consumption of everything combustible in the locality. No records were found of such an event ever occurring within White Co., but this potential danger should be considered when planning mitigation efforts.

The threat of wildfire varies with weather conditions: drought, heat, and wind participate in drying out the timber or other fuel, making it easier to ignite. Once a fire is burning, drought, heat, and wind all increase its intensity. Topography also affects wildfire, which spreads quickly uphill and slowly downhill. Dried grass, leaves, and light branches are considered flash fuels; they ignite readily, and fire spreads quickly in them, often generating enough heat to ignite heavier fuels such as tree stumps, heavy limbs, and the matted duff of the forest floor. Such fuels, ordinarily slow to kindle, are difficult to extinguish. Green fuels (growing vegetation) are not considered flammable, but an intense fire can dry out leaves and needles quickly enough to allow ready ignition. Green fuels sometimes carry a special danger: evergreens, such as pine, cedar, fir, and spruce, contain flammable oils that burst into flames when heated sufficiently by the searing drafts of a wildfire.

Tools for fighting wildfires range from the standard equipment of fire departments to portable pumps, tank trucks, and earth-moving equipment. Firefighting forces specially trained to deal with wildfire are maintained by local, state and federal entities including the U.S. Forest Service and Georgia Forestry. These trained firefighters may attack a fire directly by spraying water, beating out flames, and removing vegetation at the edge of the fire to contain it behind a fire line. When the very edge is too hot to approach, a fire line is built at a safe distance, sometimes using strip burning or backfire to eliminate fuel in the path of the uncontrolled fire or to change the fire's direction or slow its progress. Backfiring is used only as a last resort.

The control of wildfires has developed into an independent and complex science costing approximately \$100 million annually in the United States. Because of the extremely rapid spreading and customary inaccessibility of fires once started, the chief aim of this work is prevention. However, despite the use of modern techniques (e.g., radio communications, rapid helicopter transport, and new types of chemical firefighting apparatus) more than 10 million acres of forest are still burned annually. Of these fires, about two thirds are started accidentally by people, almost one quarter are of incendiary origin, and more than 10% are due to lightning.

**B. Hazard Profile** – Wildfires are a serious threat to White County. For the past fifty-years, documentation of 994 wildfire events was found. Based on the entire fifty-year period, it is likely that a wildfire event will occur approximately twenty times per year in White County. There is a 2,160.87% chance of a wildfire event occurring in White County each year.

**C. Assets Exposed to Hazard** – In evaluating assets that are susceptible to wildfire, the committee determined that all public and private property is susceptible to wildfire, including all critical facilities.

**D. Estimate of Potential Losses** – In most of the documented cases of wildfire within White Co., relatively little information on damages, in terms of dollars, was available. The potential commercial value of the land lost to wildfire cannot be accurately calculated, other than replacement costs of structures and infrastructure. With regard to the land itself, aside from the loss of timber and recreation, the damage is inestimable in terms of land rendered useless by ensuing soil erosion, elimination of wildlife cover and forage, and the loss of water reserves collected by a healthy forest. However, the HMPC did use a straight-line method in estimating losses.

**E. Land Use & Development Trends** - White County currently has no land use or development trends related to wildfire.

**F. Multi-Jurisdictional Concerns** – Virtually all of White County can potentially be affected by wildfire. There are few exceptions because of the common interface between urban developments and the forest. Any steps taken to mitigate the effects of wildfire should be undertaken on a countywide basis and include the Cities of Cleveland and Helen.

**G. Hazard Summary** – Wildfires pose a serious threat to White County in terms of property damage, as well as injuries and loss of life. Wildfires are the most frequently occurring natural hazard within the county each year. Based on the frequency of this hazard, as well as its ability to inflict devastation most anywhere in the county, the mitigation measures identified in this plan should be aggressively pursued. Specific mitigation actions related to wildfires are identified in Chapter 4, Section 1



## 2.2 – THUNDERSTORM WINDS

**A. Hazard Identification** – The White County Pre-Disaster Mitigation Planning Committee utilized data from the National Climatic Data Center, the National Weather Service and the White County Emergency Operations Plan in researching thunderstorm winds and their impact on White County. Thunderstorm winds are generally short in duration involving straight-line winds and/or gusts in excess of 50 mph. Thunderstorm winds tend to affect areas of the county with significant tree stands, as well as areas with exposed property and infrastructure, and above ground utilities. Thunderstorm winds can cause power outages, transportation and economic disruptions, significant property damage and pose a high risk for injuries and loss of life.

**B. Hazard Profile** – The second most prevalent natural hazard event occurring in White County is thunderstorm winds. There are no significant differences between the county and its two municipalities (Cleveland and Helen) in terms of the risks and vulnerabilities associated with thunderstorm winds. During the spring and summer months, the county typically experiences countless thunderstorms, some packing significant winds. Over the course of the past fifty-two years, 46 thunderstorm wind events have been recorded within the county. A review of historical weather data indicates there is an 88.46% chance of thunderstorm winds impacting White County each year. Thunderstorm winds occur more frequently than any other natural hazard event within White County.

**C. Assets Exposed to Hazard** – In evaluating assets that are susceptible to thunderstorm winds, the committee determined that all critical facilities, as well as all public, private and commercial property, is susceptible to thunderstorm winds. Newly constructed

facilities and infrastructure will be evaluated accordingly and included in all future plan updates.

**D. Estimate of Potential Losses** – The Vulnerability and Loss Subcommittee again used a straight-line method for estimating losses. Newly constructed facilities and infrastructure will be evaluated and included in all future plan updates.

**E. Land Use & Development Trends** - White County currently has no land use or development trends related to thunderstorm winds.

**F. Multi-Jurisdictional Concerns** – Much like with tornados, all of White County can potentially be affected by thunderstorm winds. As a result, any mitigation steps taken related to thunderstorm winds should be undertaken on a countywide basis and include the Cities of Cleveland and Helen. There are no significant differences between the county and the two municipalities (Cleveland and Helen) in terms of risks and vulnerabilities associated with thunderstorm winds. When future maps and data become available, and are determined relevant to the thunderstorm winds hazard, they will be evaluated and incorporated as applicable, into future plan updates.

**G. Hazard Summary** – Overall, thunderstorm winds pose one of the greatest threats to White County in terms of property damage, as well as injuries and loss of life. Thunderstorm winds are the most frequently occurring natural hazard in the county and have the greatest chance of affecting the county each year. Based on the frequency of this hazard, as well as its ability to negatively impact anywhere in the county, the pre-disaster mitigation measures identified in this plan should be aggressively pursued. Specific mitigation actions related to thunderstorms are identified in Chapter 4, Section 2.



## **2.3– WINTER STORMS**

**A. Hazard Identification** – The White County Pre-Disaster Mitigation Planning Committee researched historical data from the National Climatic Data Center, The National Weather Service, as well as information from past newspaper articles relating to

winter storms in White County. Winter storms bring the threat of freezing rain and ice storms to White County. A heavy accumulation of ice, especially when accompanied by high winds, devastates trees and power lines. Sidewalks, streets, and highways become extremely hazardous to pedestrians and motorists.

**B. Hazard Profile** – There are no significant differences between the county and its two municipalities (Cleveland and Helen) in terms of the risks and vulnerabilities associated with winter storms. Data shows there has been 11 winter or ice storm events in White County in the past 50 years. Although winter storms occur infrequently, they have the potential to wreak havoc to the community when they do strike. Statistically, White County can expect a winter storm every 4.73 years. This equates to a 21.15% chance of a winter storm occurring in any give year. A blizzard, which struck the north Georgia area in March of 1993, was particularly devastating to White County and its two municipalities. Numerous power lines were downed; several roads, bridges and buildings were damaged as a result of the heavy snow and ice accumulation.

On January 22, 2000, wintry precipitation plagued the northern third of Georgia. With temperatures in the upper 20's to lower 30's precipitation began falling by mid-morning on the 22<sup>nd</sup>. By late afternoon the precipitation began falling as freezing rain, sleet and snow. Ice accumulated on tree limbs, power lines and roads. The power lines snapped causing power outages through White County. As many as 500,000 customers lost power across North Georgia. The Governor declared a state of emergency for 39 counties. A Federal Disaster Declaration covered 34 Georgia counties. Georgia Emergency Management Agency estimated 48 million dollars in damage. The devastation from the storm was compared to Hurricane Opal and the Blizzard of 1993.

**C. Assets Exposed to Hazard** - In evaluating assets that may potentially be impacted by the affects of winter storms, the committee determined that all critical facilities, as well as all public, private and commercial property, are susceptible. Newly constructed facilities and infrastructure will be evaluated and included in all future plan updates.

**D. Estimate of Potential Losses** - The Vulnerability and Loss Subcommittee again used a straight-line method for estimating losses. Newly constructed facilities and infrastructure will be evaluated and included in all future plan updates

**E. Land Use & Development Trends** - White County currently has no land use or development trends related to winter storms.

**F. Multi-Jurisdictional Concerns** – All of White County can potentially be negatively impacted by winter storms. As a result, any mitigation steps taken related to winter storms should be undertaken on a countywide basis and include the Cities of Cleveland and Helen. There are no significant differences between the county and the two municipalities (Cleveland and Helen) in terms of risks and vulnerabilities associated with winter storms. When future maps and data become available, and are determined relevant to the winter storm hazard, they will be evaluated and incorporated as applicable, into future plan updates.

**G. Hazard Summary** – Winter storms, unlike other natural hazards, typically afford communities some advance warning. The National Weather Service issues winter storm warnings and advisories as these storms make their way south. Unfortunately, even with advance warning, some of the most destructive winter storms have occurred in the southern United States, where buildings, infrastructure and crops are not typically designed to sustain severe winter conditions. Also, motorists not accustomed to driving in snow and icy conditions pose an additional danger on roads and highways. The White County Pre-Disaster Mitigation Planning Committee recognized the dangers posed by winter storms and identified specific mitigation actions in Chapter 4, Section 3.



## **2.4 - DROUGHT**

**A. Hazard Identification** – The White County Pre-Disaster Mitigation Planning Committee reviewed historical data from the National Climatic Data Center, the Georgia Department of Natural Resources and the Georgia Forestry Commission in researching drought conditions in White County. By definition, a drought is a prolonged period of moisture deficiency. Drought conditions affect the cultivation of crops as well as a water availability and water quality. Drought is also a key factor in wildfire development. Drought conditions make natural fuels (grass, brush, trees, dead vegetation) more fire-prone. A large portion of White County is made up of forest and woodlands.

**B. Hazard Profile** – There are no significant differences between the county and its two municipalities (Cleveland and Helen) in terms of the risks and vulnerabilities associated with drought. White County most recently experienced drought conditions during the years from 1997 through 2002. Agricultural crop damage during this period was in excess of \$325 million. Fortunately, White County has been spared from any significant wildfire activity as a result of drought conditions. Water levels, however, did drop to dangerously low levels in 2001-2002. To date, agricultural losses have been the primary losses

associated with drought as no critical facilities have sustained any damage or functional downtime due to dry weather conditions. Because of the extremely unpredictable nature of drought (to include duration), reliably calculating a recurrence interval is difficult. The Hazard Frequency Table reflects that White County could experience a drought every 4.73 years.

**C. Assets Exposed to Hazard** – Drought conditions typically pose little or no threat to structures, however, fires can occur as a result of dry weather. The White County Pre-Disaster Mitigation Planning Committee concluded that drought, in itself, presents no credible threat to critical facilities. New and relevant data, as well as newly constructed facilities and infrastructure will be evaluated and included in all future plan updates if found applicable.

**D. Estimate of Potential Losses** – No damage to facilities is anticipated as a result of drought conditions. New and relevant data, as well as newly constructed facilities and infrastructure will be evaluated and included in all future plan updates if found applicable. Crop damage cannot be accurately quantified due to several unknown variables: duration of the drought, temperatures during the drought, severity of the drought, different crops require different amounts of rainfall, different growing seasons.

**E. Land Use & Development Trends** - White County currently has no land use or development trends related to drought conditions. Land use codes do require that firebreaks be utilized in areas susceptible to wildfires.

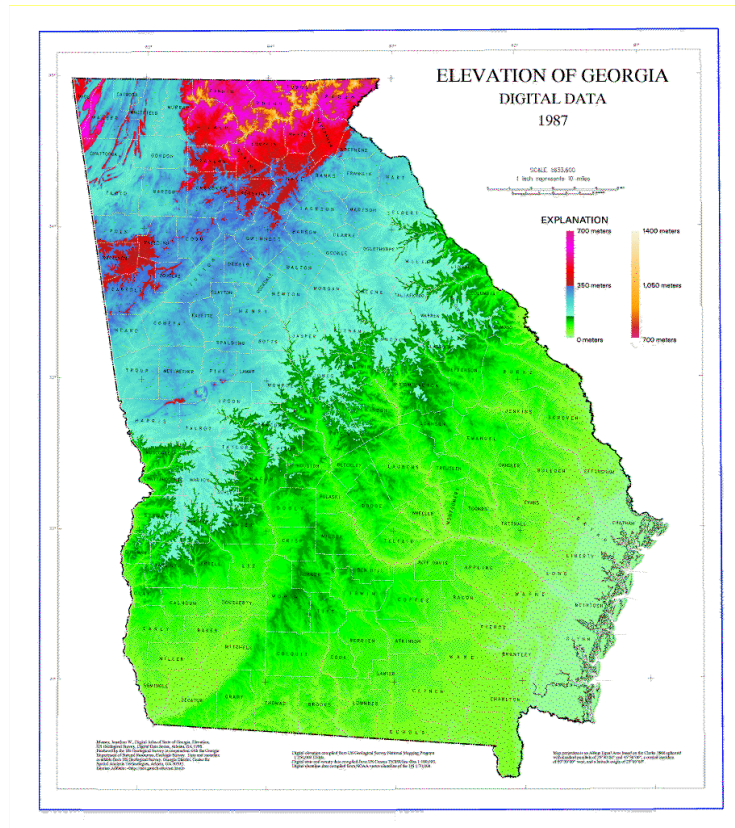
**F. Multi-Jurisdictional Concerns** – Agricultural losses associated with drought are more likely to occur in the rural, less concentrated areas of the county. Although the City of Cleveland and Helen are not likely to experience drought related losses, they should be included in any mitigation considerations. When future maps and data become available, and are determined relevant to the drought hazard, they will be evaluated and incorporated as applicable, into future plan updates.

**G. Hazard Summary** – Droughts do not have the immediate effects of other natural hazards, but sustained drought can cause severe economic stress to not only the agricultural interests in White County, but to the entire State. The potential negative affects of sustained drought are numerous. In addition to an increased threat of wildfires, drought can affect municipal and industrial water supplies, stream-water quality, water recreation facilities, hydropower generation, as well as agricultural and forest resources. The White County Pre-Disaster Mitigation Planning Committee discussed the limitations associated with mitigation actions for drought, but did identify mitigation actions related to the potential threat of drought inflicted wildfires in Chapter 4, Section 4.



## 2.5 – FLOODING

**A. Hazard Identification** –The Susceptibility of a river or stream to flooding is dependent upon several different variables. Among these are topography, ground saturation, rainfall intensity and duration, soil types, drainage, drainage patterns of streams, and vegetative cover. A large amount of rainfall over a short time span can result in flash flood conditions. A small amount of rain can also result in floods in locations where the soil is saturated from a previous wet period or if the rain is concentrated in an area of impermeable surfaces such as large parking lots, paved roadways, etc. Topography and ground cover are contributing factors for floods in that water runoff is greater in areas with steep slopes and little or no vegetation. The White County Pre-Disaster Mitigation Planning Committee examined historical data from the National Climatic Data Center, past newspaper articles, USDA Natural Resource Conservation data and FEMA Flood Plain Maps during its research on the effects of flooding in White County.



**B. Hazard Profile** - Within White County, flooding has caused significant damage on several occasions. The largest flood recorded on the Chattahoochee River in White County occurred on May 28, 1973. Discharge measurements were made at Chattahoochee River gauge near Leaf Community from 1939-1978. The log-Pearson Type III analysis indicates the 1973 flood is about equal to a 50-year event. The next largest flood occurred on August 23, 1967, which was approximately equal to a 20-year event. There have been no additional floods on record in White County since the recorded flood of August 23, 1967.

**C. Assets Exposed to Hazard** – Throughout the planning process, assets (particularly critical facilities) were examined using both risk-based and non-risk-based analysis to determine the most vulnerable locations within White County.

**D. Estimate of Potential Losses** – Flood loss estimation is an approximate effort, at best. Direct loss to infrastructure, critical facilities and businesses in terms of repair and replacement is relatively easy to define. However, estimating indirect costs can present

significant challenges. The planning committee, using guidance provided in FEMA How-To-Guide 386-2, *Understanding Your Risks, Identifying Hazards and Estimating Losses*, developed a planning methodology whereby function loss for each critical facility is determined by adding functional downtime to displacement time/costs. In determining which individual facilities could sustain the largest potential losses, the planning committee added the structure loss, the content loss, and function loss for each facility.

**E. Land Use & Development Trends** – White County and the City of Helen participate in the National Flood Insurance Program (NFIP). Within the City of Helen and White County are areas that are identified as being within flood hazard districts. No building permit may be issued until a floodplain development permit has been obtained from either the City of Helen or White County. All construction must adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code, as adopted and amended by the Georgia Department of Community Affairs. The minimum standards established by these codes provide reasonable protection to persons and property within structures that comply with the regulations for most natural hazards.

**F. Multi-Jurisdictional Concerns** – All jurisdictions within White County can potentially be affected by flooding, whether it's from minor flash flooding or the devastation resulting from dam failure. Some differences exist between the county and the two municipalities (Cleveland and Helen) in terms of risks and vulnerabilities associated with flooding with the exception of specifically designated floodplains. Any mitigation steps taken related to flooding should be relative to the flood prone areas of the county as detailed on the most current edition of the FEMA Floodplain maps. When future maps and data become available, and are determined relevant to the flooding hazard, they will be evaluated and incorporated as applicable, into future plan updates.

**G. Hazard Summary** – Severe flooding, although relatively rare in occurrence, has the potential to inflict significant damage in White County. Mitigation of flood damage requires the community to know where flood prone areas are, what roads and bridges may be affected, and which facilities fall below anticipated flood levels. Just as important, knowledge regarding the location of safe areas is critical to any mitigation efforts. The White County Pre-Disaster Mitigation Planning Committee recognized the destructive nature of flooding and identified it as a hazard requiring mitigation measures. The planning committee identified specific mitigation goals, objectives and action items related to flooding in Chapter 4, Section 5.



## 2.6 – TORNADOS

**A. Hazard Identification** – The White County Pre-Disaster Mitigation Planning Committee reviewed historical data from both the Georgia Tornado Database and the National Climatic Data Center in researching the past affects of tornados in White County. A tornado is a violently rotating column of air extending from a thunderstorm to the ground. The most violent tornados are capable of tremendous destruction with wind speeds of 250 mph or more. Damage paths can be in excess of 1 mile wide and 50 miles long. Tornados are among the most unpredictable and destructive of weather phenomena. Tornado season in Georgia runs ordinarily from March through August; however, tornados can strike at any time of the year if the essential conditions are present.

**B. Hazard Profile** - All of White County is vulnerable to the threat of a tornado, being as no one can predict exactly when or where a tornado might touch down. There are no significant differences between the county and its two municipalities (Cleveland and Helen) in terms of the risks and vulnerabilities associated with tornadoes. Helen has a large tourist population from April to November which pose a significant risk in the event of a tornado. White County has experienced four tornadoes within the last ten years, and within the past fifty-two years the county has experienced a total of five recorded tornados. In addition, countless tornado watches have been recorded during this period. Trend analysis indicates that a tornado will touch down in White County every 10.4 years. This equates to a 9.62% chance of a tornado touching down in White County in any given year. Tornadoes tend to strike in somewhat random fashion, making the task of reliably calculating a recurrence interval extremely difficult. The damage potential associated with a tornado is extremely high.

On March 20,1998, a Category F3 tornado (Severe Tornado, 158-206 mph) touched down in White County resulting in seventy-five injured, two deaths and over five million dollars in property damage.

**C. Assets Exposed to Hazard** - It can be assumed that all structures and facilities within White County could be damaged by a tornado, being as tornados are among the most unpredictable of weather phenomena and are indiscriminate as to when or where they strike. Newly constructed facilities and infrastructure will be evaluated and included in all future plan updates.

**D. Estimate of Potential Losses** – An obstacle to accurate loss estimation is the fact that losses may vary widely even within one category of natural hazard, depending on place and location. For instance, a tornado may hop from one location to another in a primarily rural area of the county, creating virtually no economic damage, whereas a similar hazard event in an urban area might create millions of dollars in damages. Compounding this obstacle to accurate loss estimation is that tornados range considerably in their intensity and duration.

Utilizing a straight-lined method for estimating losses, it can be assumed that structures or facilities with the greatest replacement value will be those that sustain the most monetary damage. Operating on the assumption that a facility would sustain at least 75% damage in the event of a tornado, some of the more vulnerable facilities from a monetary standpoint are: White County Courthouse, Allen Mauney Public Building, which houses the 911 Center, EOC, Public Health, DFACS, Mental Health, and the Fire Department administrative offices. Also included is Truett- McConnell College, White County High School, White County Middle School, Helen City Hall, Cleveland City Hall, and White County Detention Center are listed in the Critical Facilities Database.

The White County Pre-Disaster Mitigation Planning Committee, using a loss estimation methodology provided by GEMA Hazard Mitigation Planners, was able to determine potential monetary losses for all critical facilities in White County. Structure loss combined with content loss and functional downtime is evaluated at intervals of 25 percent, 50 percent, 75 percent and 100 percent. reflects loss estimates for each of the critical facilities within White County. Newly constructed facilities and infrastructure will be evaluated and included in all future plan updates. The Critical Facilities Database, located in Appendix A, contains these loss estimates.

**E. Land Use & Development Trends** - White County is located in wind zone III, which is associated with 200-mph wind speeds. The county currently has no land use or development trends related specifically to tornados. Existing building codes do not require structures to meet or exceed design wind speeds of 200 mph, however, construction must adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code as amended and adopted by the Georgia Department of Community Affairs. The minimum standards established by these codes provide reasonable protection to persons and property within structures that comply with the regulations for most natural hazards.

**F. Multi-Jurisdictional Concerns** - All of White County has the same design wind speed of 200 mph as determined by the American Society of Civil Engineers (ASCE). There are no significant differences between the county and the two municipalities (Cleveland and Helen) in terms of risks and vulnerabilities associated with tornados. As stated previously, the entire county can potentially be affected by a tornado. As a result, any mitigation steps taken related to tornados should be undertaken on a countywide basis and include the Cities of Cleveland and Helen. When future maps and data become available, and are determined relevant to the tornado hazard, they will be evaluated and incorporated as applicable into future plan updates.

**G. Hazard Summary** - Overall, White County has high exposure to potential damage from tornados. Should a tornado hit certain portions of the county that are highly concentrated with homes, or any of the critical facilities identified, depending upon the strength and duration of the event, significant damage could occur. Due to the destructive nature of tornados it is imperative that the pre-disaster mitigation measures identified in this plan receive full consideration. Specific mitigation actions related to tornados are identified in this plan in Chapter 4, Section 6.



## **CHAPTER 3 – TECHNOLOGICAL HAZARD, RISK AND VULNERABILITY (HRV) SUMMARY**

In an effort to expand the scope of this plan, the White County Pre-Disaster Mitigation Planning Committee set out to integrate technological or “human-caused” hazards into the planning process. The term, “technological hazard” refers to incidents resulting from human activities such as the manufacture, transportation, storage, and use of hazardous materials. This plan assumes that hazards resulting from technological sources are accidental, and that their consequences are unintended.

### **3.1 – HAZARDOUS MATERIAL SPILLS**

**A. Hazard Identification** – The White County Pre-Disaster Mitigation Planning Committee reviewed historical data from the Environmental Protection Division of the Georgia Department of Natural Resources in their research involving hazardous material spills in White County. A major source of hazardous spills is along roadways, highways and railways. Hazardous materials are substances that are harmful to the health and safety of people and property. Facilities that produce, process or store hazardous materials are at risk, as are facilities that treat or dispose of hazardous waste.

**B. Hazard Profile** – There are no significant differences between the county and its two municipalities (Cleveland and Helen) in terms of the risks and vulnerabilities associated with hazardous material spills. Hazardous material spills occur rather frequently within White County. The majority of the recorded spills in White County have been transportation related. This is directly attributable to automobile accidents. During the past 25 years there have been a total of 25 recorded spills in White County, all of which were transportation related. White County has a 100.00% chance of a transportation related hazardous material spill occurring in any given year.

**C. Assets Exposed to Hazard** – The most vulnerable asset exposed to hazardous material spills is often the environment, with waterways being the most impacted. Research indicates that the waterway that would be most impacted by hazardous material spills is the Chattahoochee River. There are no facilities or industries in White County that produce extraordinarily large amounts of hazardous materials. Historical data indicates most fixed location spills have been minor in nature, consisting of diesel, mineral oil, or gasoline spills. The White County Pre-Disaster Mitigation Planning

Committee determined that the danger to critical facilities, as a result of a hazardous material spill, is minimal. It should be noted however, when spills do occur, whether inside or outside facilities, or whether along roadways, shutdowns, lost time, and expended man-hours are all factors mitigation planners must take into account. New and relevant data, as well as newly constructed facilities and infrastructure will be evaluated and included in all future plan updates if found applicable.

**D. Estimate of Potential Losses** - It is difficult to determine the damage to the environment associated with hazardous material spills. White County has no recorded instances of critical facilities or other property being damaged as a result of hazardous material spills. New and relevant data, as well as newly constructed facilities and infrastructure will be evaluated and included in all future plan updates if found applicable.

**E. Land Use & Development Trends** - White County currently has no land use or development trends related to hazardous material spills.

**F. Multi-Jurisdictional Concerns** – All of White County, to include the City of Cleveland and Helen are vulnerable to both fixed location and transportation related hazardous material spills. The steep terrain of Highway 75 North and US Highway 129 are most vulnerable for transportation accidents involving hazardous materials incidents. Fixed location spills are possible in all areas of the county. When future maps and data become available, and are determined relevant to hazardous material spills, they will be evaluated and incorporated as applicable, into future plan updates.

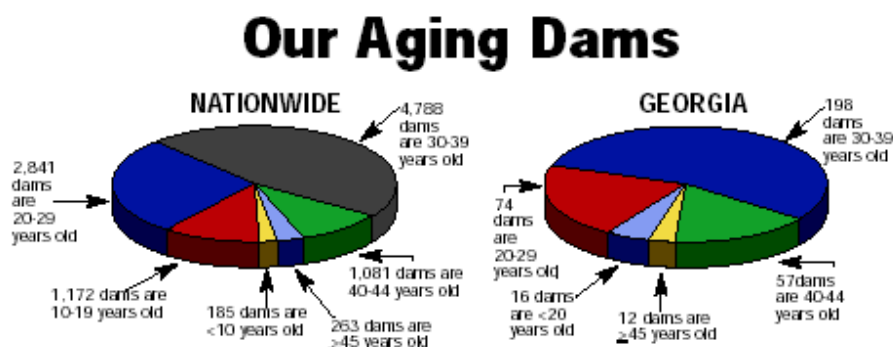
**G. Hazard Summary** – Hazardous material spills are a relatively common occurrence in White County, the volume of spills experienced in the past dictates that mitigation measures be considered. The types of hazardous materials passing through White County are many and varied. The presence of an unknown quantity of hazardous materials traveling through the county on a daily basis, poses an interesting challenge in the development of adequate mitigation measures. Specific mitigation actions related to hazardous materials is in Chapter 5, Section 1.

## 3.2 Dam Failure



**A. Hazard Identification** – Georgia law defines a dam as any artificial barrier which impounds or diverts water, is 25 feet or more in height from the natural bed of the stream, or has an impounding capacity at maximum water storage evaluation of 100 acre-feet (equivalent to 100 acres one foot deep) or more. Dams are usually constructed to provide a ready supply of water for drinking, irrigation, recreation and other purposes. They can be made of rock, earth, masonry, or concrete or of combinations of these materials.

Dam failure is a term used to describe the major breach of a dam and subsequent loss of contained water. Dam failure can result in loss of life and damage to structures, roads, utilities and crops. Economic losses can also result from a lowered tax base, lack of utility profits, disruption of commerce and governmental services, and extraordinary public expenditures for food relief and protection. National statistics show that overtopping due to inadequate spillway design, debris blockage of spillways, or settlement of the dam crest account for one third of all U.S. dam failures. Foundation defects, including settlement and slope instability, account for another third of all failures. Piping and seepage, and other problems cause the remaining third of national dam failures. This includes internal erosion caused by seepage, seepage and erosion along hydraulic structures, leakage through animal burrows, and cracks in the dam.



**B. Hazard Profile** – The White Co. HMPC reviewed historical data from the Environmental Protection Division (EPD) within the Georgia Department of Natural Resources (DNR) as well as County records in their research involving dam failure

within White Co. Fortunately, White Co. has never experienced a major dam failure. It is possible that some small private dams have been breached at some point in the past, but no records have been found to indicate any type of emergency response related to such a failure, or even that such a failure has taken place. However, the potential for such a disaster does exist, and the appropriate steps must be taken to minimize such risks. The Safe Dams Program helps do just that.

The Georgia Safe Dams Act of 1978 established Georgia's Safe Dams Program following the November 6, 1977 failure of the Kelly Barnes Dam in Toccoa, GA, in which 39 people lost their lives when the breached dam, which held back a 45-acre lake, sent a 30-foot-high wall of water sweeping through Toccoa Falls College. The Environmental Protection Division (EPD) within the Georgia Department of Natural Resources (DNR) is responsible for administering the Program. The purpose of the Program is to *provide for the inspection and permitting of certain dams in order to protect the health, safety, and welfare of all citizens of the state by reducing the risk of failure of such dams.* The Program has two main functions: (1) to inventory and classify dams and (2) to regulate and permit high hazard dams.

Structures below the State minimum height and impoundment requirements (25 feet or more in height or an impounding capacity of 100 acre-feet or more) are exempt from regulation by the Program. The Program checks the flood plain of the dam to determine its hazard classification. The Program uses specialized software to build a computer model to simulate a dam breach and establish the height of the flood wave in the downstream plain. If the results of the dam breach analysis, also called a flood routing, indicate that a breach of the dam would result in a probable loss of human life, the dam is classified as Category I (high-hazard). Category II (low-hazard) dams are structures where dam failure would not be expected to result in loss of human life. As of July 2002, the Program's statewide inventory of dams consisted of 390 Category I dams, 3,268 Category II dams and 1,182 exempt dams. The Program noted that an additional 382 Category II dams needed to be studied for possible reclassification to Category I dams. The Safe Dams Program also approves plans and specifications for construction and repair of all Category I dams. In addition, Category I dams are continuously monitored for safety by Georgia EPD.

To date, the Safe Dam Program has identified 13 Category I dams within White Co. These dams are as follows: Unicoi State Park Lake Dam, Wendy Lake Dam, Louis Lake Dam, Sautee Creek Watershed Dams # 10, #11, and # 13, Nora Lake Dam, Mountain Creek Lake Dam, Tesnatee Creek Watershed Dam # 11, Pfau Lake Dam, Clear Lake Dam, Upper Jenny's Creek Dam, and Blue Creek Lake Dam. All other dams within the County are Category II dams or exempt dams. The Program requires all Category II dams to be inventoried at least every five years. The Program also offers assistance to local governments in understanding, implementing and maintaining compliance with the National Flood Insurance Program (NFIP).

**C. Assets Exposed to Hazard** – Areas most vulnerable to the physical damages associated with dam failure within White County are the low-lying and downstream areas associated with the aforementioned Category I Dams. Although physical damages

associated with dam failure would be limited to certain areas, the damage to the local economy and problems associated with delivery of water and other utilities could be felt County-wide.

**D. Estimate of Potential Losses** - Loss estimation due to dam failure is an approximate effort, at best. Direct loss to infrastructure, critical facilities and businesses in terms of repair and replacement can be roughly estimated. However, estimating indirect costs is less accurate.

**E. Land Use & Development Trends** – Both White County and the City of Helen participate in the National Flood Insurance Program (NFIP). White County executed Resolution No. 2002-44 on September 27, 2002, amending the original resolution which was adopted on October 20, 1987, according to NFIP guidelines. The City of Helen adopted the NFIP guidelines November 1, 2002 through ordinance number 02-1101. The purpose of the ordinance and resolution is to minimize the loss of human life and health as well as to minimize public and private property losses due to flood conditions. The ordinance and resolution requires that potential flood damage be evaluated at the time of initial construction of structures, facilities and utilities, and that certain uses be restricted or prohibited based on this evaluation. The ordinance and resolution also requires that potential homebuyers be notified that property is located in a flood area. In addition, all construction must adhere to the Georgia State Minimum Standard Codes (Uniform Codes Act) and the International Building Code (2000 edition).

**F. Multi-Jurisdictional Concerns** – All of White County, including the Cities of Cleveland and Helen, are vulnerable to the negative impact of dam failure.

**G. Hazard Summary** – A dam failure has never been recorded in White County. However, with at least 13 Category I dams located in the County, risks associated with dam failure cannot be ignored. The White Co. HMPC has identified some specific mitigation actions for dam failure in Chapter 5, Section 2.

## CHAPTER 4 – NATURAL HAZARD MITIGATION GOALS & OBJECTIVES

### 4.1 Wildfire

**A. Mitigation Goals** – Wildfire is the most frequently occurring natural hazard within White County, and has been for the past fifty-year period. Wildfires have the potential to cause injury, loss of life, and serious damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock. These events represent a potentially devastating threat to White County.

Most damage caused by wildfire within White Co. is limited to timber destruction and the resulting environmental problems, including erosion. However, the loss of structures and injury and death of citizens is always a very real possibility. These fires are totally unpredictable and cannot be forecasted in advance. However, advanced planning can help prevent a portion of wildfires. More importantly advanced planning can go a long way in preventing much of the devastation wildfire causes. The White Co. Hazard Mitigation Planning Committee (HMPC) has identified several courses of action that both local officials and citizens can use to mitigate the damaging effects of wildfire. There is one main mitigation goals for wildfire within White County. It is to minimize the loss of life and property, to include the County's forests.

**B. Range of Mitigation Options** – The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. With regard to wildfire, these vulnerable populations include senior citizens and children. The HMPC has focused on non-structural mitigation measures in addressing wildfire. Specific strategies could result in alterations to current policies if approved.

**C. Mitigation Recommendations** – The HMPC recommends consideration of the following strategies:

- 1) Defensible Space and Slopes: White Co. has been and should continue to work in conjunction with GA Forestry and the U.S. Forest Service to find solutions to problems concerning urban interface issues. Some of the avenues that may be used to eliminate some of the urban interface problems include land use plans and regulations requirements, building regulations, and educational awareness. Land use plans and regulations can be used to cluster development into defensible areas and keep development away from fire hazards such as steep slopes, where fires are difficult to contain. Damage potential can also be reduced in areas most susceptible to wildfire by ensuring that structures are surrounded by defensible

space or buffer zones. These manageable areas, generally 30 to 100 feet, are designed to remain clear of combustible materials. Building regulations could also require structures to be set outside of the “convection cone” of intense heat that is projected up the slope of a hill as a wildfire “climbs”. Another consideration is that slopes facing south or west are more vulnerable to increased dryness and heat from sun exposure. Education is another essential tool. Educational materials could be provided at the time an applicant applies for a building permit. Forestry personnel have also expressed a willingness to hold public workshops to help educate the public. The costs associated with these measures would include increased planning and inspection costs for local government. The initial planning costs alone are estimated at approximately \$25,000. Specific recommendations for such measures should come from the County and City Planning Commissions with final approval coming from the White County Commissioner and Cleveland and Helen City Council. If approved, planning efforts and adoption of any changes is estimated to take approximately 24 months.

2) Power Line Maintenance: Local power companies can help prevent or alleviate wildfires by proper maintenance and separation of power lines, as well as efficient response to fallen power lines. The increased costs associated with these measures are difficult to estimate, but would be the responsibility of the local power companies. Specific recommendations for such measures should originate from County and City Public Works and Road Departments, with final approval coming from the White County Board of Commissioners and Cleveland and Helen City Council. If approved, coordination efforts with local power companies is estimated to take approximately 12 months.

**D. Multi-Jurisdictional Considerations** – Wildfire can affect all areas of White County. As a result, any mitigation steps taken related to wildfire should be undertaken on a county-wide basis and include the Cities of Cleveland and Helen.

**E. Public Information and Awareness** – As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of wildfire in order to reduce the likelihood of injury, death, and property loss. These steps may include information provided to building application applicants, local newspaper articles detailing specific fire safety techniques, and other distribution of informational materials. Forestry personnel have also expressed a willingness to assist with any fire safety public workshops the County might wish to sponsor. Information disseminated may include strategies for property maintenance to remove potential fuels, bi-annual chimney maintenance, smoke detectors/fire extinguishers, evacuation procedures, and maintenance of water supplies in accordance with National Fire Protection Association (NFPA) standards. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

## 4.2 Severe Thunderstorms

**A. Mitigation Goals** – The mitigation goals associated with severe thunderstorms are largely the same as those associated with tornadoes. Tornadoes are usually more destructive and less frequent than thunderstorms, but both represent similar threats. Severe thunderstorms have the potential to cause injury, loss of life, and serious damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock. They represent one of the greatest threats to White County. Other than wildfire, severe thunderstorms are the most frequently occurring natural hazard in the County. Although the severity of thunderstorms is often unpredictable, advanced planning can help limit the damages they cause. The White Co. Hazard Mitigation Planning Committee (HMPC) has identified several courses of action that both local officials and citizens can use to mitigate the deadly effects of severe thunderstorms. There are two main mitigation goals for severe thunderstorms within White County. The first is to minimize the loss of life and property. The second is to prevent disruption of services to the public to the greatest extent possible.

**B. Range of Mitigation Options** – The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. These vulnerable populations include senior citizens, children, dense groups of citizens, and citizens who live in manufactured homes or unsafe homes. Mitigation strategies include both structural and non-structural mitigation measures. The structural mitigation recommendations presented emphasize both new construction as well as modifications to older structures. Specific strategies could result in alterations to current policies if approved.

**C. Mitigation Recommendations** – The HMPC recommends consideration of the following strategies, which are basically the same recommendations that were made with respect to tornadoes in Section 4.6.C:

- 1) Warning Sirens: Install outdoor emergency warning sirens throughout White Co. with the goal of obtaining near 100 percent coverage. Local activation of the sirens upon issuance of a severe thunderstorm watch or warning by the National Weather Service could alert some individuals, who might have otherwise been caught unaware, to seek shelter. Also, emergency warning alarms could be installed inside structures housing large numbers of people, such as schools, factories, large stores/shopping malls, recreational facilities, etc. This effort

would most likely be coordinated by White Co. EMA. Both private and governmental grants should be pursued in order to fund this effort. Final approval of this project or any potential use of local government funds would come from the White County Commissioner and Cleveland and Helen City Council. The estimated cost of this project, based on 24 outdoor ten-cell emergency warning sirens and 24 indoor emergency warning alarms, would be approximately \$800,000. An initial study would have to be done to determine the exact number of outdoor emergency warning sirens and indoor emergency warning alarms needed. An increase in the number of sirens/alarms needed would increase the cost estimate. If approved and adequate funding obtained, project design and construction is estimated at 12 months.

2) Weather Radios: Provide weather radios to elderly and low-income citizens. This would begin with a county-wide tornado/severe thunderstorm public safety and awareness campaign, to include encouraging all citizens to have a weather radio for monitoring purposes. White Co. EMA would most likely coordinate this effort. Funding for this project would be sought from various public and private grant sources, including GEMA and FEMA. Final approval of this project or any potential use of local government funds would come from the White County Commissioner and Cleveland and Helen City Council. It is not possible at this point to determine an exact project cost. However, based on an estimated population of 24,000, a below poverty rate of 14.4%, and an age 62 and above population of 12%, a rough calculation of elderly and low-income residents who may need a weather radio comes to just over 6300 people. Based on an approximate cost of \$50 per radio, the full implementation of this project is estimated at \$315,000. If approved and adequate funding obtained (incrementally), project duration is estimated at five years.

3) Elderly Population: Ensure elderly populations have access to adequate storm shelter. If adequate storm shelter is not available at a nursing home, assisted living facility, or other similar facility, work to create safe room(s) within existing structures or construct separate storm shelter(s) if necessary. Funding for such an effort would be uncertain and probably would have to be obtained incrementally. Attempts should be made to obtain appropriate funding from the respective nursing homes/assisted living facilities, the American Red Cross and various other private and governmental grants. White Co. EMA would most likely coordinate this effort. Final approval of this project or any potential use of local government funds would come from the White County Commissioner and Cleveland and Helen City Council. It is not possible at this point to determine an estimated project cost because there has been no determination made as to how many safe rooms and shelters would need to be constructed. If approved and adequate funding obtained incrementally, project duration is estimated at eight years.

4) Manufactured Homes: Identify all owners of inadequately installed manufactured homes within the County and offer a financial incentive to retrofit

them with an appropriate level of anchoring and support. Set specific guidelines for the improvements, and have the new work inspected once complete. This may be only one of a few methods to accomplish this goal since the homeowners are under no obligation to make improvements. Since to date there has been no study done to determine approximately how many inadequately installed manufactured homes exist within White Co., it is not possible at this time to determine an estimated project cost. These costs would likely be divided between homeowner, local government, and possibly public or private grants. However, the level and method of financial incentive would have to be determined by the appropriate local government officials. Specific recommendations for such measures should be solicited from the County and City Planning Commissions with final approval coming from the White County Board of Commissioners and Cleveland and Helen City Council. If approved, substantial project completion is estimated at ten years.

5) Construction Standards and Techniques: To strengthen future public and private structures against severe wind damage, the County and City can require or encourage wind engineering measures and construction techniques. These measures may include structural bracing, straps and clips, anchor bolts, laminated or impact-resistant glass, reinforced pedestrian and garage doors, window shutters, waterproof adhesive sealing strips, or interlocking roof shingles. Also, architectural design can make roofs less susceptible to uplift. A safe room(s) requirement can also be considered for all new construction of commercial, industrial, public, or private structures or sites that will be frequented by large numbers of people. The costs associated with these measures are difficult to determine, but would include increased planning and inspection costs for local government, and increased construction costs for developers. The initial planning costs alone are estimated at approximately \$25,000. Specific recommendations for such measures should come from the County and City Planning Commissions with final approval coming from the White County Board of Commissioners and Cleveland and Helen City Council. If approved, planning efforts and adoption of proposed changes is estimated to take approximately 24 months.

**D. Multi-Jurisdictional Considerations** – Installation of an emergency warning siren network should take into consideration all areas of the County, including the City of Cleveland and Helen. An effort should be made by both the County and City to cooperate to the fullest extent possible in obtaining and operating an emergency warning siren network in order to reduce costs.

**E. Public Information and Awareness** – As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of severe thunderstorms in order to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles detailing specific hazard mitigation techniques, distribution of informational materials, and county-wide workshops. The

public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

### 4.3 Winter Storms

**A. Mitigation Goals** – Winter storms have the potential to cause injury, loss of life, and serious damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock. These storms represent one of the greatest natural hazard threats to White Co. Most damage within White Co. during winter storms is caused by the formation of ice on roads and bridges, tree limbs, and power lines. These storms are usually predictable and can often be forecasted in advance. However, some storms do come by surprise. Either way, advanced planning can help prevent much of the damage winter storms cause. The White Co. Hazard Mitigation Planning Committee (HMPC) has identified several courses of action that both local officials and citizens can use to mitigate the damaging effects of winter storms. There are two main mitigation goals for winter storms within White County. The first is to minimize the loss of life and property. The second is to prevent disruption of services to the public to the greatest extent possible.

**B. Range of Mitigation Options** – The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. With regard to winter storms, these vulnerable populations include senior citizens and children. The HMPC has focused on non-structural mitigation measures in addressing winter storms. Mitigation strategies include both structural and non-structural mitigation measures. The structural mitigation recommendations presented emphasize both new construction as well as modifications to older structures. Specific strategies could result in alterations to current policies if approved.

**C. Mitigation Recommendations** – The HMPC recommends consideration of the following strategies:

- 1) Road Maintenance: Unlike other portions of the United States, White Co. does not possess certain equipment and supplies that are necessary to combat treacherous winter storm conditions. Fortunately a better prepared Georgia Department of Transportation (GDOT) is responsible for the maintenance of many of the major highways within the County including US Route 129, and State Routes 75 N, 75 S, 75 ALT, 255 N, 255 S, 115 E, 115 W, 284, 384, 17, 356, 254 and 348. However, many secondary roads are left to the County to maintain.

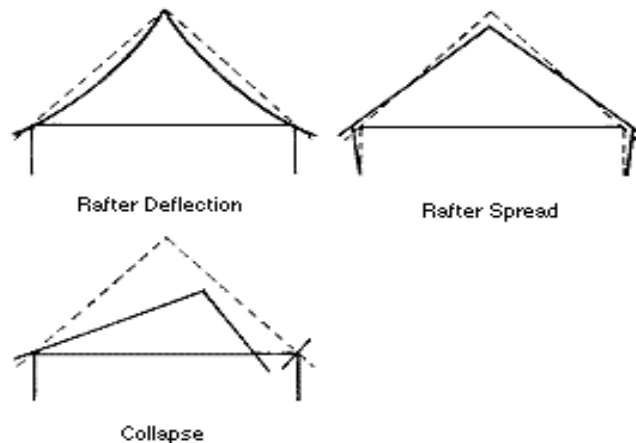
These efforts could be improved by adding to existing City and County road maintenance capabilities. Inventories of existing equipment and supplies would first be conducted for the City and County, as well as a report of items needed to improve road and debris clearing capabilities. The cost of these upgrades is impossible to determine until the steps above are taken. Specific recommendations for such measures should originate from the County and City Public Works and Road Departments, with final approval coming from the White County Board of Commissioners and Cleveland and Helen City Council. If approved, any changes to existing regulations could be implemented within 12 months. Funding for such an effort would be sought from FEMA, GEMA, and possibly other sources.

2) Generators: Power loss is a common result of winter storms within the County. Generators should be considered for many critical facilities, including emergency response facilities and designated shelters. This can result in a continuation of services that would otherwise not be possible. An accurate accounting of existing generators should first be conducted, followed by recommendations for adding generators to other critical facilities. Specific recommendations for such measures should originate from the County and City Public Works Departments, and White Co. EMA, with final approval coming from the White County Board of Commissioners and Cleveland and Helen City Council. If approved, the purchase and installation of any given generator could be accomplished within 6 months. Funding for such an effort would be sought from FEMA, GEMA, and possibly other sources.

3) Power Lines: Burying or otherwise protecting power lines can prevent electricity disruption by protecting lines from ice, wind or snow damage. Construction standards might be altered to require the use of underground power lines rather than overhead lines on private property. Utility companies would save money due to a reduction in the number of repairs to overhead power lines. With regard to existing overhead power lines, it is not economically feasible to consider replacing them. However, protection of these existing lines can be enhanced by ensuring right-of-ways are kept clear of trees. Homeowners should also be encouraged to clear trees that are within range of power lines on their property. Specific recommendations for such measures should come from the County and City Planning and Public Works Departments with input from the local power companies and final approval coming from the White County Board of Commissioners and Cleveland and Helen City Council. If approved, proposed changes to construction standards would take approximately 24 months. Funding for such an effort would be sought from FEMA, GEMA, and possibly other sources.

4) Snow and Ice Loads: Roof structural failure due to snow and ice buildup can cause serious property damage and even injury or death. Such a failure often begins with rafter deflection or rafter spread. Deflection results when horizontal snow and ice loads cause wood fibers to bend. Eventually, deflection causes

rafters to rupture in the center third of the span or at other weak points on the top or bottom edge of the rafter. Rafter spread results from the failure of mechanical ties, such as nails, to hold ceiling joists, top plates, and studs together or, occasionally, failure in the ceiling joist itself. Rafter deflection and spread represent initial stages of structural failure. These problems should be corrected or stabilized with the assistance of a knowledgeable contractor, engineer, or architect.



Local governments may consider new or revised construction standards to deal with the issues of snow load design, roof slopes, and building maintenance. This should include consideration of increasing the snow load design requirement from 20lb/sf, the state requirement, to 30lb/sf due to White Co.'s higher elevation and more frequent winter storms than the average Georgia county. Besides changes in structural design, home and public building maintenance should also be encouraged in order to prevent roof and wall damage from "ice dams," resulting from ice and sleet storms. Specific recommendations for such measures should come from the County and City Planning Departments with final approval coming from the White County Board of Commissioners and Cleveland and Helen City Council. If approved, a community outreach program could be developed and implemented in approximately 24 months. Funding for such an effort would be sought from FEMA, GEMA, and possibly other sources.

**D. Multi-Jurisdictional Considerations** – Winter storms affect all of White County. As a result, any mitigation steps taken related to winter storms should be undertaken on a county-wide basis and include the City of Cleveland and Helen.

**E. Public Information and Awareness** – As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of winter storms in order to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles detailing specific hazard mitigation techniques, distribution of informational materials, and county-wide workshops. They may also include adding strategies for driving in frozen precipitation to driver education classes.

The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

## 4.4 Drought

**A. Mitigation Goals** – Drought is a significant natural hazard to White County, particularly to the agricultural industry and water supplies. Drought in and of itself poses no threat to structures. However, wildfire is a threat to structures and is often a direct result of drought. Therefore, drought has the potential to cause injury, loss of life, and serious damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock.

Most damage within White Co. during drought is due to crop damage and insufficient water supplies. Drought is largely unpredictable with regard to beginning, ending, duration and severity. Advanced planning cannot eliminate these negative consequences, but it can help mitigate them. The White Co. Hazard Mitigation Planning Committee (HMPC) has identified several courses of action that both local officials and citizens can use to mitigate the damaging effects of drought. There are two main mitigation goals for drought within White County. The first is to minimize the loss of life and property. The second is to prevent disruption of services to the public to the greatest extent possible.

**B. Range of Mitigation Options** – The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. With regard to drought, these vulnerable populations include senior citizens and children. The HMPC has focused on non-structural mitigation measures in addressing drought. Specific strategies could result in alterations to current policies if approved.

**C. Mitigation Recommendations** – The HMPC recommends consideration of the following strategies:

1) All Mitigation Recommendations listed in Section 4.1 Wildfire: Since drought is often a precursor to wildfire, all wildfire mitigation strategies must be considered as well.

2) Water Use Ordinances: Communities can adopt ordinances to prioritize and limit outside water use. This is done to extend the water supply for citizens and to provide water in emergency situations, such as fire fighting. Special accommodations, including possibly a permitting system, could be made for farmers pulling water out of bodies of water for crop irrigation. The costs

associated with these measures would include increased planning and inspection costs for local government. The initial planning costs alone are estimated at approximately \$25,000. Specific recommendations for such measures should come from the County and City Planning Commissions with final approval coming from the White County Board of Commissioners and Cleveland and Helen City Council. If approved, planning efforts and adoption of any changes is estimated to take approximately 24 months.

**D. Multi-Jurisdictional Considerations** – Drought can affect all areas of White County. As a result, any mitigation steps taken related to drought should be undertaken on a county-wide basis and include the Cities of Cleveland and Helen.

**E. Public Information and Awareness** – As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of drought in order to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles detailing specific hazard mitigation techniques, distribution of informational materials, and county-wide workshops. Information disseminated may include strategies for water conservation, installing low-flow water saving fixtures, obtaining crop insurance, and other wildfire-related strategies (see Section 4.5 E). The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

## **4.5 Flooding**

**A. Mitigation Goals** – Flooding has the potential to cause injury, loss of life, and serious damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock. These events represent one of the greatest natural hazard threats to White Co. Advanced planning can help prevent much of the damage that flooding can cause. The White Co. Hazard Mitigation Planning Committee (HMPC) has identified several courses of action that both local officials and citizens can use to mitigate the damaging effects of flooding. There are two main mitigation goals for flooding within White County. The first is to minimize the loss of life and property. The second is to prevent disruption of services to the public to the greatest extent possible.

**B. Range of Mitigation Options** – The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. With regard to flooding, these vulnerable populations include senior citizens and children. The HMPC has focused on both structural and non-structural mitigation measures in addressing flooding.

**C. Mitigation Recommendations** – The HMPC recommends consideration of the following strategies:

1) Floodplain Management: Determining and enforcing acceptable land uses through planning and regulation may not prevent inevitable flooding in flood-prone areas, but planning and regulation can alleviate the risk of damage by limiting exposure in such hazard areas. Ordinances and resolutions related to flooding should be reviewed periodically and expanded to include new flood zones as necessary. Development within the flood plain should be either partially or totally restricted. One way of accomplishing this may be to allow for a “transfer of development rights”. In return for keeping floodplain areas in open space, a community may agree to allow a developer to increase densities on another parcel that is not at risk. This allows a developer to recoup potential losses from non-use of a floodplain site with gains from development of a non-floodplain site. Another method of reducing development within the flood plain is the use of “conservation easements”. Conservation easements may be used to protect environmentally significant portions of parcels from development, including land located in a flood plain. These easements do not restrict all use of the land. Rather, they direct development to areas of the parcels that are not environmentally significant or flood-prone. Ensuring homes are elevated above the base flood elevation should be a priority. Manufactured homes should also be properly anchored, or more preferably, kept out of the floodplain altogether. These, and other, factors related to floodplain management should be considered during comprehensive planning. Specific recommendations for such measures should originate from the County and City Planning Departments, with final approval coming from the White County Board of Commissioners and Cleveland and Helen City Council. If approved, any changes to existing regulations could be implemented within 12 months. The costs associated with these administrative actions would consist primarily of County and City labor costs.

2) Building Design Standards: Building design standards can be adopted to reduce structure damage during flood events. Such standards may include: 1) that residential structures be elevated to a certain height above the floodplain; and 2) that nonresidential structures be elevated above the floodplain and flood-proofed. Other standards may be considered as well, including a requirement that any development of five stories or more would require the developer to purchase a serviceable late model ladder truck to ensure proper protection of the proposed structure. Specific recommendations for such measures should originate from the County and City Planning Departments, with final approval coming from the White County Board of Commissioners and Cleveland and Helen City Council. If approved, implementation of any building design standards would take approximately 12 months. The costs associated with planning efforts would consist primarily of County and City labor costs.

3) National Historic Register: Ensure all structures related to White Co.'s listings on the National Historic Register are protected from flooding. Steps may need to be taken to protect those historic structures that are flood-prone. Specific recommendations for such measures should originate from the White County Historic Preservation Commission and County and City Planning Departments, with final approval coming from the White County Commissioner and Cleveland and Helen City Council. A time frame and cost estimate for such improvements cannot be determined until an initial assessment of historic structures' vulnerabilities is made. The assessment itself would take approximately six months from start to finish.

4) Community Rating System: Administered by FEMA, the Community Rating System (CRS) is a companion program to the NFIP. It rewards a community for taking actions over and above minimum NFIP requirements with the goal of further reducing flood damages in the community. The more actions a community takes, the lower the premiums for flood insurance within that community. Specific recommendations for such measures should originate from the County and City Planning Departments, with final approval coming from the White County Board of Commissioners and Cleveland and Helen City Council. If approved, the CRS program could be implemented within six months with the costs consisting primarily of County and City labor costs.

5) Updated Floodplain Mapping: By remapping flood-prone areas within the County, communities can obtain more accurate information with regard to flooding than would be available with existing FEMA maps. Since most other flood mitigation measures are based solely upon flood plain data, this could greatly enhance the accuracy of other mitigation efforts. Many different methods with varying degrees of accuracy are available for such mapping purposes including LIDAR and digital modeling. Specific recommendations for such measures should originate from the County and City Planning Departments, with final approval coming from the White County Commissioner and Cleveland and Helen City Council. The costs of some mapping methods can reach \$100,000 or more, and it is not possible to determine a time frame for the remapping process without first determining the method to be used. The GIS Department of Georgia Mountains Regional Development Center can provide guidance on both mapping costs and methods. Funding for a GIS Coordinator/Mapper for White County should be considered, this individual would greatly enhance the planning process for all departments within White County Government and Cleveland and Helen.

6) Roads: Roads are not only essential to everyday life but also to emergency operations during flooding or other hazards. Therefore keeping roads open is a top priority. There are various construction and placement factors to consider when building new roads. To maintain dry access, roads should be elevated above the base flood elevation. At the same time, if a road creates a barrier it can cause water to pond. Where ponding is problematic, drainage and flow may be addressed by making changes to culvert size and placement. In situations where

floodwaters tend to wash roads out, construction, reconstruction, or repair can include attention to drainage and stabilization or armoring of vulnerable shoulders and embankments. Improvements could also be made to roadside ditches where necessary by dredging and enlarging driveway culverts. These, and other, road improvements should be given consideration. Specific recommendations for such measures should originate from County and City Public Works and Road Departments, with final approval coming from the White County Board of Commissioners and Cleveland and Helen City Council. A time frame and cost estimate for such improvements cannot be determined until an initial assessment of roads is made.

**D. Multi-Jurisdictional Considerations** – Flooding mitigation measures should be looked at from a county-wide perspective including the Cities of Cleveland and Helen.

**E. Public Information and Awareness** – As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of flooding in order to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles detailing specific hazard mitigation techniques, distribution of informational materials, and county-wide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

## **4.6 Tornadoes**

**A. Mitigation Goals** – A tornado has the potential to cause injury, loss of life, and incalculable damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock. Tornadoes are, by far, the most deadly, costly natural hazard White County experiences. Although tornadoes are very unpredictable events, advanced planning can help limit the damages they cause. The White Co. Hazard Mitigation Planning Committee (HMPC) has identified several courses of action that both local officials and citizens can use to mitigate the deadly effects of tornadoes. There are two main mitigation goals for tornadoes within White County. The first is to minimize the loss of life and property. The second is to prevent disruption of services to the public to the greatest extent possible.

**B. Range of Mitigation Options** – The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. These vulnerable populations include senior citizens, children, dense groups of citizens, and citizens who live in manufactured

homes or unsafe homes. Mitigation strategies include both structural and non-structural mitigation measures. The structural mitigation recommendations presented emphasize both new construction as well as modifications to older structures. Specific strategies could result in alterations to current policies if approved.

**C. Mitigation Recommendations** – The HMPC recommends consideration of the following strategies:

1) Warning Sirens: Install outdoor emergency warning sirens throughout White Co. with the goal of obtaining near 100 percent coverage. Although tornadoes provide little or no advance warning, local activation of the sirens upon issuance of a tornado watch or warning by the National Weather Service could alert some individuals, who might have otherwise been caught unaware, to seek shelter. Also, emergency warning alarms could be installed inside structures housing large numbers of people, such as schools, factories, large stores/shopping malls, recreational facilities, etc. The City of Helen is a large tourist attraction in the summer and fall hosting large groups of people, currently there is no warning system in place, other than local radio stations to alert the tourist of severe weather. Both private and governmental grants should be pursued in order to fund this effort. Coordination for this project could be provided by White County Emergency Management. Final approval of this project or any potential use of local government funds would come from the White County Board of Commissioners and Cleveland and Helen City Council. The estimated cost of this project, based on 24 outdoor ten-cell emergency warning sirens and 24 indoor emergency warning alarms, would be approximately \$800,000. An initial study would have to be done to determine the exact number of outdoor emergency warning sirens and indoor emergency warning alarms needed. An increase in the number of sirens/alarms needed would obviously increase the cost estimate. If approved and adequate funding obtained, project design and construction is estimated at 12-18 months.

2) Weather Radios: Provide weather radios to elderly and low-income citizens. This would begin with a county-wide tornado/severe thunderstorm public safety and awareness campaign, to include encouraging all citizens to have a weather radio for monitoring purposes. White Co. EMA would most likely coordinate this effort. Funding for this project would be sought from various public and private grant sources, including GEMA and FEMA. Final approval of this project or any potential use of local government funds would come from the White County Commissioner and Cleveland and Helen City Council. It is not possible at this point to determine an exact project cost. However, based on an estimated population of 24,000, a below poverty rate of 14.4%, and an age 62 and above population of 12%, a rough calculation of elderly and low-income residents who may need a weather radio comes to just over 6300 people. Based on an approximate cost of \$50 per radio, the full implementation of this project is

estimated at \$315,000. If approved and adequate funding obtained (incrementally), project duration is estimated at five years.

3) Elderly Population: Ensure elderly populations have access to adequate storm shelter. If adequate storm shelter is not available at a nursing home, assisted living facility, or other similar facility, work to create safe room(s) within existing structures or construct separate storm shelter(s) if necessary. Funding for such an effort would be uncertain and probably would have to be obtained incrementally. Attempts should be made to obtain appropriate funding from the respective nursing homes/assisted living facilities, the American Red Cross and various other private and governmental grants. White Co. EMA would most likely coordinate this effort. Final approval of this project or any potential use of local government funds would come from the White County Commissioner and Cleveland and Helen City Council. It is not possible at this point to determine an estimated project cost because there has been no determination made as to how many safe rooms and shelters would need to be constructed. If approved and adequate funding obtained incrementally, project duration is estimated at eight years.

4) Manufactured Homes: Identify all owners of inadequately installed manufactured homes within the County and offer a financial incentive to retrofit them with an appropriate level of anchoring and support. Set specific guidelines for the improvements, and have the new work inspected once complete. This may be only one of a few methods to accomplish this goal since the homeowners are under no obligation to make improvements. Since to date there has been no study done to determine approximately how many inadequately installed manufactured homes exist within White Co., it is not possible at this time to determine an estimated project cost. These costs would likely be divided between homeowner and local government. However, the level and method of financial incentive would have to be determined by the appropriate local government officials. Public and private grants should also be pursued. Specific recommendations for such measures should be solicited from the County and City Planning Commissions with final approval coming from the White County Commissioner and Cleveland and Helen City Council. If approved, substantial project completion is estimated at ten years.

5) Construction Standards and Techniques: To strengthen future public and private structures against severe wind damage, the County and City can require or encourage wind engineering measures and construction techniques. These measures may include structural bracing, straps and clips, anchor bolts, reinforced pedestrian and garage doors, window shutters, waterproof adhesive sealing strips, or interlocking roof shingles. Also, architectural design can make roofs less susceptible to uplift. A safe room(s) requirement or recommendation can also be considered for all new construction of commercial, industrial, public, or private structures or sites that will be frequented by large numbers of people. The costs associated with these measures are difficult to determine, but would include

increased planning and inspection costs for local government, and increased construction costs for developers. The initial planning costs alone are estimated at approximately \$25,000. Specific recommendations for such measures should come from the County and City Planning Commissions with final approval coming from the White County Board of Commissioners and Cleveland and Helen City Council. If approved, planning efforts and adoption of proposed changes is estimated to take approximately 24 months.

**D. Multi-Jurisdictional Considerations** –Installation of an emergency warning siren network should take into consideration all areas of the County, including the City of Cleveland and Helen. An effort should be made by both the County and City officials to cooperate to the fullest extent possible in funding and operating an emergency warning siren network in order to reduce costs.

**E. Public Information and Awareness** – As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of tornadoes in order to reduce the likelihood of injury, death, and property loss. These steps may include local newspaper articles detailing specific hazard mitigation techniques, distribution of informational materials, and county-wide workshops. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

## **Chapter 5** **Technological Hazard Mitigation Goals and Objectives**

### **5.1 Hazardous Materials**

**A. Mitigation Goals** – Hazardous materials (hazmat) releases have the potential to cause injury, loss of life, and widespread damage and contamination to public and private property, utilities, crops, and livestock. Hazmat releases are the most frequently occurring technological hazard within White County. Although such events cannot be predicted, advanced planning and safety measures can help limit their frequency and severity. The White Co. Hazard Mitigation Planning Committee (HMPC) has identified several courses of action that both local officials and citizens can use to mitigate the dangerous effects of hazmat releases. The single mitigation goal for this threat within White County is to minimize the loss of life and property.

Historical data indicates that, for the most part, hazmat releases within the County have been relatively minor in nature. The most common hazmat releases include diesel, gasoline, oil, propane, and sewage. Hazmat releases are classified as either fixed releases, which occur when hazmat is released on the site of a facility or industry that works with hazmat, or transportation-related releases, which occur when hazmat is released during transport from one place to another. Today, it appears transportation-related hazmat releases pose a larger threat to White Co. than fixed hazmat releases. This is due to the existence of nine heavily traveled U.S. and State Routes within the County that see the transport of hazardous materials on a daily basis.

**B. Range of Mitigation Options** – The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. These vulnerable populations include senior citizens, children, dense groups of citizens, and citizens who live in manufactured homes or unsafe homes. Mitigation strategies include both structural and non-structural mitigation measures. The structural mitigation recommendations presented emphasize both new construction as well as modifications to older structures. Specific strategies could result in alterations to current policies if approved.

**C. Mitigation Recommendations** – The HMPC recommends consideration of the following strategies:

1) Safety Procedures, Policies, and Plans: Many safety procedures, policies and plans are essential to protecting White County from the threat of hazardous materials. The Emergency Planning and Community Right-to-Know Act (EPCRA), also known as SARA Title III, provides an infrastructure at the state and local levels to plan for chemical emergencies. Regulations require training in and compliance with all safety procedures and systems related to the manufacture, storage, transport, use, and disposal of hazardous materials. Facilities that store, use, or release certain chemicals may also be subject to reporting requirements. Reported information is publicly available so that interested parties may become informed about potentially dangerous chemicals in their community. Employers must also communicate the hazards of workplace chemicals and ensure that workers receive education and training. The U.S. Environmental Protection Agency (EPA) also places requirements on sites that manufacture, store, or handle hazardous materials. EPA regulations require development of Chemical Accident Prevention and Risk Management Plans. The EPA also regulates disposal of hazardous waste, as required by the Federal Resource Conservation and Recovery Act (RCRA) with the goal of: 1) protecting us from the hazards of waste disposal; 2) conserving energy and natural resources by recycling and recovery; 3) reducing or eliminating waste; and 4) cleaning up waste that may have spilled, leaked, or been disposed of improperly. Another important safety program is the U.S. Department of Transportation's (USDOT) labeling and placarding system for identifying the types of hazardous materials that are transported along the nation's highways, railways, and waterways. This system enables local emergency officials to identify the nature and potential health threat of chemicals being transported. If an accident were to occur, local emergency officials would be able to determine the proper emergency response procedures for the situation. Local law enforcement and other emergency officials should be well versed in compliance with and enforcement of USDOT and state regulations regarding hazardous material and hazardous waste transportation. These are only some of the safety procedures, policies, and plans in place. An effort to ensure compliance with all applicable safety rules and regulations, including reporting requirements, relating to hazardous materials should be made by the White County Fire Department and the Emergency Management Agency and Cities of Cleveland and Helen Fire Departments. The costs associated with these measures may include increased planning and inspection costs for local government. Additional planning and inspections alone are estimated at approximately \$25,000

per year. Specific recommendations for any related planning or inspections should come from White County EMA with final approval coming from the White County Board of Commissioners and Cleveland and Helen City Council. If approved, planning efforts and adoption of any changes is estimated to take approximately 24 months.

2) Local Emergency Planning Committee: To address the possibility of hazardous material incidents, communities are required under Federal law (SARA Title III), to maintain an active and viable Local Emergency Planning Committee (LEPC) to develop a Local Emergency Operations Plan (LEOP) for preparing for and responding to chemical emergencies, such as spills, leaks, explosions, or other hazardous materials releases. The LEPC is required to review, test, and update the plan each year. The community's LEOP must include the following: identification of local facilities and transportation routes where hazardous materials are present; procedures for immediate response in case of an accident, including a community-wide evacuation plan; a plan for notifying the public that an incident has occurred; names of response coordinators at local facilities; and a plan for conducting simulation exercises that test the plan. They also specify that the Plan should address potential ruptures from sewer lines in the Cities of Cleveland and Helen. The LEPC and LEOP should continue to be utilized and should be supported fully by the County and City. The costs associated with this recommendation should be shared by multi-jurisdictions.

3) Emergency Response Teams: A well-trained and properly equipped emergency response team is necessary to successfully respond to hazardous material release incidents. Presently, hazardous materials releases are contained and identified by either mutual aid requests or commercial hazmat cleanup companies. It is currently too cost-prohibitive to create and maintain an independent emergency response team with hazmat response capabilities for the County. However, if funding were available from state and federal agencies to offset these tremendous costs, it may then become possible to create such a team. Due to geographical isolation, this would be a tremendous asset not only to White Co., but to all of the mountainous communities of North Georgia. In the absence of such funding, the County should continue to train and equip current and future first responders for dealing with hazmat releases as resources permit. The costs associated with creating, training, and equipping an emergency response team capable of responding to hazmat release incidents would be enormous. The initial creation of such a team alone would cost upwards of \$300,000. The source of funding for such a project would come from both public and private grants and other local, state or federal funding. Specific recommendations for such measures should come from White Co. EMA and the White County Fire Department, with final approval coming from the White County Board of Commissioners and the

Cleveland and Helen City Council. If approved, planning efforts and adoption of any changes is estimated to take approximately 24 months.

4) Industrial Site Buffering: Hazardous materials exposure can be prevented or reduced by separation and buffering between industrial areas and other land uses. Industrial areas should be located away from schools, nursing homes, hospitals, and other facilities with large or vulnerable populations. Radioactive soils and high-radon areas can pose risks that should not be ignored. Mitigation actions may include avoiding development, removing soils, and capping openings in basements. The costs associated with these measures would include increased planning and inspection costs for local government. The initial planning costs alone are estimated at approximately \$25,000. Specific recommendations for such measures should come from the White Co. EMA, and County and City Planning Departments with final approval coming from the White County Board of Commissioners and the Cleveland and Helen City Council. If approved, planning efforts and adoption of any changes is estimated to take approximately 24 months.

**D. Multi-Jurisdictional Considerations** – Hazardous materials release can affect all areas of White County. As a result, any mitigation steps taken related to hazmat release should be undertaken on a county-wide basis and include the Cities of Cleveland and Helen .

**E. Public Information and Awareness** – As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of hazardous materials in order to reduce the likelihood of injury, death, and property loss. The public will also continue to be involved with the LEPC and with the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

## 5.2 Dam Failure

**A. Mitigation Goals** – Dam failure has the potential to cause injury, loss of life, and incalculable damage to public and private property, utilities, infrastructure, historical sites, crops, and livestock. Advanced planning and safety measures can help avoid these catastrophic events. The White Co. Hazard Mitigation Planning Committee (HMPC) has identified several courses of action that both local officials and citizens can use to mitigate the deadly effects of dam failure. There are two main mitigation goals for dam failure within White County. The first is to minimize the loss of life and property. The second is to prevent disruption of services to the public to the greatest extent possible.

**B. Range of Mitigation Options** – The HMPC has recommended certain measures that can be implemented to protect the County as a whole, and more targeted steps to protect specific vulnerable populations within the County. These vulnerable populations include all residents that live within the potential flood zone below a dam or similar structure. Mitigation strategies include both structural and non-structural mitigation measures. The structural mitigation recommendations presented emphasize both new construction as well as modifications to older structures. Specific strategies could result in alterations to current policies if approved.

**C. Mitigation Recommendations** – The HMPC recommends consideration of the following strategies:

- 1) Sound Design and Planning: National statistics show that overtopping due to inadequate spillway design, debris blockage of spillways, or settlement of the dam crest account for one third of all U.S. dam failures. Foundation defects, including settlement and slope instability, account for another third of all failures. Thus the initial design and placement of a dam is the most important phase of dam construction. Any potential problems must be taken into consideration prior to actual construction. Planning for dam breaks may also be considered, and may include constructing emergency access roads, automating pump and flood gate operation, or other emergency measures. Consideration should also be given to restriction of development in a dam's hydraulic shadow, where flooding would occur if there were a severe dam failure. This program should comply with the guidelines of the Georgia Safe Dams Act of 1978. Specific recommendations for any design review procedures should originate from County and City Public Works and Planning Departments, with final approval coming from the White County Board of Commissioners and the Cleveland and Helen City Council. If

approved and adequate funding obtained, the creation of such a review process would take approximately 12 months.

2) Comprehensive Inspection: Piping and seepage, and other problems cause the remaining third of national dam failures. This includes internal erosion caused by seepage, seepage and erosion along hydraulic structures, leakage through animal burrows, and cracks in the dam. A comprehensive inspection, maintenance, and enforcement program may be established to search for these problems before they can cause irreversible damage to the structures and great danger to the community abroad. This process would include guidelines for timely repairs. The increased costs associated with these measures are difficult to estimate, but would include specialized equipment and human resource costs. Costs for inspection equipment and any necessary repairs may be obtained through private and public grants. Human resource costs for inspections would likely be the responsibility of the County and City. This program should comply with the guidelines of the Georgia Safe Dams Act of 1978. Specific recommendations for such measures should originate from County and City Public Works Departments, with final approval coming from the White County Board of Commissioners and the Cleveland and Helen City Council. If approved and adequate funding obtained, the creation of such a program would take approximately 12 months.

**D. Multi-Jurisdictional Considerations** – Dam failure has the potential to affect all areas of White County due to both physical damage and loss of water supplies. As a result, any mitigation steps taken related to dam failure should be undertaken on a county-wide basis and include the Cities of Cleveland and Helen.

**E. Public Information and Awareness** – As with all potential hazards identified within this plan, the HMPC recommends steps be taken to increase public awareness of dam failure in order to reduce the likelihood of injury, death, and property loss. The public will also continue to be involved in the hazard mitigation planning process, including the implementation and periodic maintenance of this Hazard Mitigation Plan.

## **Chapter 6** **Executing the Plan**

### **6.1 – Action Plan Implementation**

The hazard mitigation planning process was overseen by the White County Emergency Management Agency. Facilitation of the planning process was conducted by White County Emergency Management Director and GEMA. The White County Board of Commissioners has authorized the this Plan for submission to both GEMA and FEMA for their respective reviews and approvals. The White County Board of Commissioners will officially consider the Plan for adoption after final approval by GEMA and FEMA. The White Co. EMA Director shall assume responsibility for the upkeep and maintenance of the plan. It shall be the responsibility of the EMA Director to ensure that this plan is utilized as a guide for initiating the identified mitigation measures within the community. The EMA Director, or his designee, shall be authorized to convene a committee to review and update this plan.

## **Chapter 6** **Executing the Plan**

### **6.1 – Action Plan Implementation**

The hazard mitigation planning process was overseen by the White County Emergency Management Agency. Facilitation of the planning process was conducted by the Georgia Mountains Regional Development Center. The White County Board of Commissioners has authorized the submission of this plan to both GEMA and FEMA for their respective approvals, and will consider the Plan for official adoption after approval by GEMA and FEMA. The White Co. EMA Director shall assume responsibility for the upkeep and maintenance of the plan. It shall be the responsibility of the EMA Director to ensure that this plan is utilized as a guide for initiating the identified mitigation measures within the community. The EMA Director, or his designee, shall be authorized to convene a committee to review and update this plan annually, throughout the useful life of the plan, until the Plan is five years old.

Through this plan update process, the EMA Director shall identify projects that have been successfully undertaken in initiating mitigation measures within the community. These projects shall be noted within the planning document to indicate their completion. Additionally, the committee called together by the EMA Director shall help to identify any new mitigation projects that can be undertaken in the community.

Members of the HMPC initially prioritized the potential mitigation measures identified in this Plan. A list of mitigation goals, objectives and related action items was compiled from the inputs of the HMPC, as well as from others within the community. The subcommittee prioritized the potential mitigation measures based on what they considered most beneficial to the community. Several criteria were established to assist HMPC members in the prioritization of these suggested mitigation actions. Criteria included perceived cost benefit or cost effectiveness, availability of potential funding sources, overall feasibility, measurable milestones, multiple objectives, and both public and political support for the proposed actions. Through this prioritization process, several projects emerged as being a greater priority than others. Some of the projects involved expending considerable amounts of funds to initiate the required actions. Other projects allowed the community to pursue completion of the project using potential grant funding. Still others required no significant financial commitment by the community. All proposed mitigation actions were evaluated to determine the degree to which the County would benefit in relation to the project costs. Upon reaching full committee consensus, the prioritized list of mitigation measures was determined

## **6.2 – Evaluation**

As previously stated, the White Co. EMA Director, or his designee, will be charged with ensuring that this plan is monitored and updated at least annually, or more often if deemed necessary. The method of evaluation will consist of utilizing a checklist to determine what mitigation actions were undertaken, the completion date of these actions, the cost associated with each completed action, and whether actions were deemed to be successful. The White Co. HMPC will convene in order to accomplish the annual plan evaluation. Additionally, the EMA Director, or his designee, is encouraged to maintain a schedule of regular meetings, either quarterly or semiannually to preserve continuity throughout the continuing process. These meetings will provide an opportunity to discuss the progress of the action items and maintain the partnerships that are essential for the sustainability of the HMP. The EMA Director will ensure the results of the evaluation(s) are reported to the White Co. Board of Commissioners, as well as to any agencies or organizations having an interest in the hazard mitigation activities identified in the plan.

## **6.3 – Multi-Jurisdictional Strategy and Considerations**

As set forth by Georgia House Bill 489, the Emergency Management Agency is the overall implementing agency for projects such as hazard mitigation. The White County Emergency Management Agency will work in the best interests of the County as well as the Cities of Cleveland and Helen. The Cities of Cleveland and Helen and the unincorporated areas of the County were each included in the planning process. Participation from each jurisdiction was solicited and received by White Co. EMA. As a result, a truly multi-jurisdictional plan was created for White County and the Cities of Cleveland and Helen with ideas and viewpoints of all participants included.

## **6.4 – Plan Update and Maintenance**

According to the requirements set forth in the Disaster Mitigation Act of 2000, White County is required to update and revise the HMP every five years. At the direction of the EMA Director, the White Co. HMPC will convene in order to accomplish this revision. The revision process should include a firm schedule and timeline, and identify any agencies or organizations participating in the plan revision. The committee will review the mitigation goals, objectives and action items to determine their relevance to changing situations in the County, as well as changes in State or Federal policy, and to ensure they are addressing current and expected conditions. The committee will also review the risk assessment portion of the plan to determine if this information should be updated or modified, given any new available data. White County is dedicated to involving the public directly in review and updates of the HMP. During the plan revision process, the committee will conduct, at a minimum, one public hearing near the completion of the

revision process. This public hearing will provide the public a forum for which they can express their concerns, opinions, or ideas about the plan. Additionally, if persons from the community express interest in participation in the planning process, they will be provided the opportunity to suggest possible mitigation measures for the community. Documentation will be maintained to indicate all efforts at continued public involvement. All relevant information will be forwarded to GEMA and FEMA as a product of the proposed plan revision.

The EMA Director will ensure the revised plan is presented to the White County Board of Commissioners for formal adoption. In addition, all holders of the HMP will be notified of affected changes. No later than the conclusion of the five-year period following initial approval of the plan, the EMA Director shall submit a revised Hazard Mitigation Plan to the Georgia Emergency Management Agency and the Federal Emergency Management Agency for their review and coordination.

## **Chapter 7** **Conclusion**

### **7.1 – Summary**

White County has gained a great deal of information and knowledge relating to the County's disaster history and future potential for disaster as a result of the hazard mitigation planning process. This includes an extensive hazard history of recorded hazard events from the past fifty years, a detailed critical facilities database with valuable information on some of the County's and Cities most important structures, as well as some valuable ideas from the community abroad concerning measures that should be considered for future hazard mitigation. White County and the Cities of Cleveland and Helen worked in concert to encourage citizen participation. Elected officials, local government employees, public safety officials, Red Cross representatives, U.S. Forest Service and GA Forestry representatives, businessmen, businesswomen, the media, and other volunteers and interested parties were asked to provide important varying viewpoints to create a workable Plan. GEMA provided valuable assistance as well. These efforts have all had the aim of better protecting our Community from the threats of nature and technology. While it would be naïve to believe this Plan provides complete protection to White County and its residents, it is the hope of all parties involved in this planning process that the recommended mitigation measures contained within the Plan will provide some level of increased preparedness as well as spur further discussion and planning related to the important subject of Hazard Mitigation.

In the Spring of 2004, White County began the process of reviewing and updating The Comprehensive Plan of 1991-2010. The Hazard Mitigation Plan will be considered for inclusion into the newly updated Comprehensive Plan.

## 7.2 – References

Numerous sources were utilized to ensure the most complete planning document could be assembled. In an effort to ensure that all data sources consulted are cited, references are listed in the following format: 1) Publications, 2) Web Sites, 3) Other Sources.

### **Publications/Documents:**

FEMA Pre-Disaster Mitigation *How-to Guides #1, 2, 3, 7*  
GEMA Supplements to FEMA Pre-Disaster Mitigation How-to Guides  
White County Local Emergency Operation Plan  
White County Hazard Mitigation Plan  
*Georgia Tornado Database 1808 – 2002* (Westbrook)  
Robert T. Stafford Disaster Relief and Emergency Assistance Act  
US Conservation Service Flood Management Study of White County, April 1993  
White County Comprehensive Plan, 1991-2010

### **Web Sites:**

FEMA ([www.fema.gov](http://www.fema.gov))  
GEMA ([www.gema.state.ga.us](http://www.gema.state.ga.us))  
White County ([www.Whitecounty.net](http://www.Whitecounty.net))  
National Climatic Data Center ([www.ncdc.noaa.gov](http://www.ncdc.noaa.gov))  
National Register of Historic Places (<http://roadsidegeorgia.com/nrhp/White>)

### **Other Sources:**

American Red Cross  
American Society of Civil Engineers (ASCE)  
White County Board of Commissioners  
White County Chamber of Commerce  
Cities of Cleveland and Helen  
Georgia Department of Natural Resources  
Georgia Forestry Commission  
National Weather Service  
U.S. Geological Survey (USGS)

## **Appendices**

Appendix A – Critical Facilities Database

Appendix B – Hazard History Database

Appendix C – Hazard Frequency Chart

Appendix D – Other Planning Documents

Appendix E - Glossary

# MEMORANDUM OF UNDERSTANDING

## 1. PURPOSE

As part of the Community Mitigation Planning Program, a Memorandum of Understanding (MOU) must be executed between the City of Helen and the White County Hazard Mitigation Committee. The plan created as a result of this MOU will be presented to the White County Board of Commissioners, City of Cleveland and City of Helen City Councils for adoption.

When adopted, plans provide guidance to the city commission and other city departments. Adopted plans serve as a guide and do not include a specific financial commitment by the city. All adopted plans should address land use, community facilities and transportation networks. Priority projects are considered for recommendation to the city commission for approval and funding.

The intent of this MOU is to ensure that the mitigation plan is developed in an open manner involving neighborhood stakeholders, and that it is consistent with county/city policies and is an accurate reflection of the community's values. Its purpose is to form a working relationship between the citizens of White County, Cleveland and Helen cities and the White County Hazard Mitigation Planning Team.

## 2. RESPONSIBILITIES

### **A General List of Responsibilities follows:**

#### *Planning Team Responsibilities*

1. Ensure that the planning team includes representatives from the neighborhood stakeholders groups, including all residents, neighborhood associations, community groups, property owners, institutions, businesses, schools, churches, etc. The White County Hazard Mitigation Planning consist of the following persons; William Wright, EMA Director; Chris Pittman, Public Works Director; Sam Henderson, Fire Chief; Harry Barton, Planning Director; Richard Accurso, 911 Mapping Coordinator; Sherrill Dockery, Soil Conservation; Gary White, Georgia Forestry; Paul Veen, WRWH Radio and Red Cross; Bill Black, City OF Cleveland; Bruce Bankus, City Of Helen; Phil

Dalenburg, White County Sheriff Department and Joyce Bentley, NOK Mfg. Co.

2. Develop the work program.
3. Organize and attend regular meetings.
4. Assist with organizing the public meetings to develop the plan
5. Identify the community resources available to support the planning effort.
6. Assist with recruiting participants for planning meetings, including development of a mailing list, distribution of flyers, and placement of meeting announcements in local media outlets.
7. Gain the support of neighborhood stakeholders for the recommendations found within the plan.
8. Submit the proposed plan to the local government for interdepartmental review.
9. Submit the plan to the County Commissioners and City Councils for consideration.
10. After adoption, develop a Coordinating Committee to monitor and work toward plan implementation.
11. After adoption, publicize the plan to neighborhood interest and ensure community members are aware of the plan and its contents.

#### **EMERGENCY MANAGEMENT RESPONSIBILITIES**

1. Assign a planning staff member to provide assistance to committee members in data gathering and planning.
2. Coordinate and facilitate community meetings with the assistance of the planning team.
3. Provide any necessary materials, handouts, copies, etc, necessary for public planning meetings.
4. Work with the planning team to collect and analyze data and develop goals and implementation strategies.
5. Provide assistance with the creation of the plan, including review, editing and formatting.
6. Coordinate with other county and city departments, public agencies and other stakeholders during the plan development.
7. Coordinate county and city interdepartmental review.
8. Prepare for plan consideration by the County Commissioners and City Councils.

This Memorandum of Understanding is entered into this:

\_\_\_\_\_ Day of \_\_\_\_\_ 2003.

By: \_\_\_\_\_  
Chris Nonnemaker, Commission Chairman

\_\_\_\_\_  
William Wright, EMA Director

ATTEST:

\_\_\_\_\_  
Jean Welborn, County Clerk

## **MISSION STATEMENT**

### **WHITE COUNTY HAZARD MITIGATION COMMITTEE**

**THE MISSION OF THE WHITE COUNTY HAZARD MITIGATION COMMITTEE IS TO WORK WITH OTHER LOCAL, STATE AND FEDERAL AGENCIES AND COMMUNITY GROUPS TO IDENTIFY HAZARDS AND VULNERABILITIES TO DISASTERS AND WAYS TO MITIGATE THE HAZARDS IN ORDER TO SAVE LIVES, PROTECT PROPERTY AND REDUCE THE EFFECTS OF HAZARDS. THE EFFECTS OF LOCAL GOVERNMENT COMBINED WITH STATE AND FEDERAL INITIATIVES WILL HELP TO ACHIEVE THIS GOAL**

## **Appendix E: Glossary**

**Disaster:** the occurrence of widespread or severe damage, injury, loss of life or property, or such severe economic or social disruption that supplemental disaster relief assistance is necessary for the affected political jurisdiction(s) to recover and alleviate the damage, loss, hardship, or suffering caused thereby.

**EOC:** Emergency Operations Center

**Federal Emergency Management Agency (FEMA):** Federal agency under the Department of Homeland Security responsible for coordinating the federal government's efforts to plan for, respond to, recover from and mitigate against the effects of natural and technological hazards.

**Flash Flood Warning:** Flash flooding is actually occurring or imminent in the warning area. It can be issued as a result of torrential rains, a dam failure, or ice jam.

**Flash Flood Watch:** Flash flooding is possible in or close to the watch area. Flash Flood Watches are generally issued for flooding that is expected to occur within 6 hours after heavy rains have ended.

**Flood Insurance Rate Map (FIRM):** prepared by the Federal Emergency Management Agency to show Special Flood Hazard Areas; this map is the basis for regulating development according to the Regulations for Flood Plain Management (Chapter 64) and Standards for Construction of Streets and Drainage in Subdivisions (Chapter 82).

**Flood Warning:** Flooding conditions are actually occurring or are imminent in the warning area.

**Flood Watch:** High flow or overflow of water from a river is possible in the given time period. It can also apply to heavy runoff or drainage of water into low-lying areas. These watches are generally issued for flooding that is expected to occur at least 6 hours after heavy rains have ended.

**Georgia Emergency Management Agency (GEMA):** Georgia state agency responsible for coordinating state efforts to plan for, respond to, recover from, and mitigate against the effects of natural and technological hazards.

**Grant:** means an award of financial assistance.

**Grantee:** a government entity to which a grant is awarded and which is accountable for use of the funds provided. The grantee is the entire legal entity even if only a particular component of the entity is designated in the grant award document.

**Hazard:** 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.

**Hurricane Warning:** Hurricane conditions are expected in the warning area in 24 hours or less.

**Hurricane Watch:** Hurricane conditions (sustained winds greater than 73 mph) are possible in the watch area within 36 hours.

**Measure:** any mitigation measure, project or action proposed to reduce risk of future damage, hardship, loss or suffering from disasters.

**Mitigation:** 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.

**National Flood Insurance Program (NFIP):** located within FEMA, and charged with preparing FIRMs, developing regulations to guide development, and providing insurance for flood damage.

**Risk:** 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.

**Severe Thunderstorm Warning:** A severe thunderstorm has actually been observed by spotters or indicated on radar, and is occurring or imminent in the warning area.

**Severe Thunderstorm Watch:** Conditions are conducive to the development of severe thunderstorms in and close to the watch area.

**Special Flood Hazard Area (SFHA) or Floodplain** is the area adjoining a river, stream, shoreline or other body of water that is subject to partial or complete inundation. The SFHA is the area predicted to flood during the 1% annual chance flood, commonly called the “100-year” flood.

**State Hazard Mitigation Program:** an ongoing program involving a coordinated effort of state agencies to reduce the threat to people and property from natural hazards. During and following periods of Presidentially declared major disasters, this program or approach is the compilation of activities required under Sections 404 and 409, Federal Regulations.

**Subgrant:** means an award of financial assistance under a grant to an eligible subgrantee.

**Subgrantee:** the government or other legal entity to which a subgrant is awarded and which is accountable to the grantee for the use of the funds provided. Subgrantees may be a state agency, local government or eligible private non-profit organizations as defined in Section 206.433, 44 CFR.

**Tornado Warning:** A tornado has actually been sighted by spotters or indicated on radar and is occurring or imminent in the warning area.

**Tornado Watch:** Conditions are conducive to the development of tornadoes in and close to the watch area.

**Tropical Storm Watch:** Tropical storm conditions with sustained winds from 39 to 73 mph are possible in the watch area within the next 36 hours.

**Tropical Storm Warning:** Tropical storm conditions are expected in the warning area within the next 24 hours.

Other definitions applicable to the administration of the Hazard Mitigation Program are found in Section 206.401, 44 CFR, Part 206 and the Georgia Administrative Plan for Public Assistance.